Two essays on corporate finance : essay 1 (CEO turnover and earnings quality), essay 2 (cross-country IPOs : what explains differences in underpricing?)

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Two Essays on Corporate Finance

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Essay One: CEO Turnover and Earnings Quality

ABSTRACT

This paper investigates the relation between CEO turnover and earnings quality. We find that CEO turnover is more likely when earnings quality is poor. After we decompose earnings quality into innate earnings quality and discretionary earnings quality, we find that CEO turnover is significantly associated with the latter but not the former. The findings are economically significant. Specifically, an increase in the inverse measure of earnings quality from the 10th percentile to the 90th percentile increases the predicted probability of CEO turnover by 26 percent. The results concentrate on forced turnovers and are not explained by earnings restatements, failure to meet analysts' forecasts, or risks. Further investigations suggest that the relation between earnings quality and CEO turnover is stronger for firms with less entrenched CEOs and better corporate governance. Among CEOs who are forced out, we find that career prospects are dimmer for those whose prior tenure is associated with poor discretionary earnings quality. Collectively, the results suggest that CEOs are disciplined for their discretionary choices that lead to lower earnings quality and that corporate governance plays a role in this disciplinary process.

Keywords: CEO turnover; earnings quality; corporate governance.

1. INTRODUCTION

Decades of accounting research have provided ample evidence that managers manipulate earnings to increase their compensation, avoid violating debt covenants, reduce political costs¹ and beat earnings benchmarks (Watts and Zimmerman 1986; Healy 1985; McNichols and Wilson 1988; DeFond and Jiambalvo 1994; Dichev and Skinner 2002; Jones 1991; Burgstahler and Dichev 1997; Graham et al. 2005). Opportunistic earnings manipulations disrupt the natural mapping between accounting accruals and cash flows and thus are likely to reduce the quality of earnings. Negative consequences of poor earnings quality include higher cost of capital (Francis et al. 2004)² and reduced investment efficiency (Biddle and Hilary 2006).³

The first research question is: does earnings quality matter to CEOs' career concerns? The answer to this question is far from straightforward. On one hand, poor earnings quality is costly to shareholders, and one expects the board to discipline CEOs for behaviors that lead to poor quality earnings. On the other hand, it is not clear that zero earnings manipulation is optimal for shareholders.⁴ If earnings manipulation is to some extent expected, then the related drop in earnings quality should be tolerated or even rewarded. In addition, replacing CEOs is costly, and it is not obvious that the benefit always outweighs the cost (Agrawal et al. 1999).

Using a sample between 1993 and 2006, we show that earnings quality matters. Specifically, we find that CEO turnover is more likely when earnings quality is poor. The

¹ For example, Jones (1991) finds that managers decrease earnings by earnings management during import relief investigation period to increase the possibility of import relief, and/or increase the import relief amount granted.

² Botosan (1997), Bhattacharya et al. (2003) and Easley et al. (2002) document higher cost of capital for firms with poorer information quality, using different measures of information quality.

³ Both higher cost of capital and lower investment efficiency are associated with lower firm values based on a discounted cash flow model. For example, lower investment efficiency will induce smaller future cash flows generated from bad projects, while higher cost of capital will lead to a higher discount factor caused by greater information asymmetry between the firm and investors.

⁴ Theoretically, it is not clear that manipulating earnings to avoid violating debt covenants, to reduce political costs or to beat earnings benchmarks is necessarily detrimental to current shareholders. Anecdotally, the popular press has suggested that Jack Welch, the former General Electric (GE) CEO, routinely manipulated earnings (Francis et al. 2008). Despite this accusation, during his tenure, GE's market value increased from \$14 billion to \$500 billion.

definition of earnings quality follows Dechow and Dichev (2002).⁵ To obtain a measure of earnings quality attributable to managerial choices, following Francis et al. (2005), we decompose earnings quality into innate earnings quality and discretionary earnings quality. Innate earnings quality is determined by a firm's economic fundamentals, while discretionary earnings quality is determined by managerial choices. We find that CEO turnover is related to discretionary earnings quality, but not innate earnings quality. This evidence suggests that shareholders do not hold CEOs responsible for the component of earnings quality that is beyond their control, but they do hold CEOs responsible for their discretionary choices that lead to poor earnings quality.

We conduct four robustness checks related to this finding. First, we examine whether the results are robust towards alternative measures of earnings quality based upon discretionary accruals. Kothari et al. (2005) provide evidence that performance-matched discretionary accruals generate more reliable inferences and alleviate the concern that discretionary accruals are correlated with firm performance. Thus, the alternative measures of earnings quality are based upon performance-matched discretionary accruals. We find that the results are robust towards the alternative earnings quality measures.

Second, prior literature provides evidence that CEO turnover is more likely after firms miss analysts' consensus forecasts or announce restatement of earnings (Desai et al. 2006; Mergenthaler et al. 2009). Given that firms with low earnings quality may be more likely to restate their earnings or to miss analysts' forecasts, the finding is subject to the concern that it is the earnings restatement or the missing of analysts' forecasts —instead of earnings quality— that

⁵ We fail to find a significant association between CEO turnover and earnings quality measures based upon real earnings management, as defined in Roychowdhury (2006). We caution, however, that only under the assumption that our real earnings management measures are appropriate and accurate can we interpret this result as implying that managerial efforts to manipulate earnings through real activities are not associated with a higher likelihood of CEO turnover.

drives the results. To alleviate this concern, we control for the incidence of both earnings restatement and missing analysts' consensus forecasts in the regression. The conclusions remain the same, which is inconsistent with the view that the results are driven by earnings restatement or missing analysts' consensus forecasts.

Third, Bushman et al. (2010) find that the likelihood of CEO turnover is positively associated with idiosyncratic risk and negatively associated with systematic risk. The results thus can potentially be explained by earnings quality being a proxy for risks. We check the robustness of the results by including both idiosyncratic risk and systematic risk measures in the regressions. We find that the results are not sensitive to additional controls of risks.

Lastly, if the board takes disciplinary actions against the CEO for her discretionary choices that lead to poor earnings quality, we would expect the turnover to be forced rather than a normal exit, implying that the relation between CEO turnover and earnings quality should be stronger for forced turnovers. We distinguish between forced turnover and normal exit and find that a statistically significant relation between CEO turnover and discretionary earnings quality exists in the forced turnover subsample but not in the normal exit subsample. This evidence suggests that CEO turnover associated with poor discretionary earnings quality is likely a result of the board's disciplinary actions.

We next examine what affects the relation between CEO turnover and discretionary earnings quality. We predict and find that this relation is stronger for firms with less entrenched CEOs and better corporate governance. We measure CEO entrenchment via CEO/Chairman duality and CEO ownership of the firm's stock, while corporate governance is measured via the independence of the board, institutional ownership and the number of anti-takeover provisions. We find that the significant association between CEO turnover and earnings quality exists only

among firms with less entrenched CEOs and strong corporate governance. These results highlight the importance of corporate governance in reining in the behaviors of CEOs.

Finally, we investigate prospects of future employment for the displaced CEO. We find that, among CEOs who are forced out, the likelihood of the CEO being rehired by a public company and the likelihood of the CEO being rehired in a top management position are lower for those associated with poor discretionary earnings quality. This evidence shows that the labor market penalizes CEOs whose discretionary choices lead to lower earnings quality.

This paper makes the following contributions to the literature. First, we add to the literature on earnings quality. Francis et al. (2005) investigate the relation between earnings quality and cost of capital. They use the earnings quality measure in Dechow and Dichev (2002) and decompose earnings quality into innate earnings quality and discretionary earnings quality. Innate earnings quality is determined by economic fundamentals, while discretionary earnings quality is determined by managerial choices. They find that both innate and discretionary earnings quality are positively associated with cost of debt and equity capital. Biddle and Hilary (2006) hypothesize and find that poor earnings quality reduces investment efficiency by increasing information asymmetry between managers and outside suppliers of capital. Given that managers have incentives to manipulate earnings for their own benefit, which results in poorer discretionary earnings quality, higher cost of capital and lower investment efficiency for the firm, it is an interesting question whether the board disciplines managers for their self-serving behaviors that lead to poorer earnings quality. To date, this question remains unexplored, and we attempt to fill this void. We show that CEOs associated with poor discretionary earnings quality are more likely to be dismissed. The findings are consistent with the notion that earnings quality is of concern to the board.

Second, this paper contributes to the literature related to CEO turnover. Given that earnings quality is intertwined with earnings management, the paper is most closely related to the prior literature that offers mixed evidence on the relation between revelations of earnings management and subsequent executive turnover. On one hand, Beneish (1999) finds no significant difference in the CEO turnover rate between sample firms targeted by the SEC for enforcement actions and control firms. Agrawal et al. (1999) find no significant relation between accounting fraud and subsequent CEO turnover. Evidence in these two papers suggests that managers' career prospects are not significantly affected by revelations of earnings manipulations. On the other hand, Desai et al. (2006) find that compared to control firms, senior manager turnover is significantly more likely for restating firms following the announcement of earnings restatements and that the labor market subsequently penalizes the displaced managers, which is consistent with the notion that managers are disciplined for violating GAAP.⁶ Mixed evidence on this issue lends motivation to this study, and we contribute to this line of literature by providing new evidence consistent with the view that managers are likely to be disciplined for behaviors leading to poorer earnings quality.

Third, this paper contributes to the literature on corporate governance and managerial accounting choices. Klein (2002) finds a negative relation between board independence and abnormal accruals, suggesting that an independent board is more effective in monitoring the financial reporting practice of the management. Anderson et al. (2004) provide evidence that cost of debt is lower for firms with independent boards, suggesting that creditors perceive financial reporting of those firms as more reliable. Bowen et al. (2008) find that firms with poor governance quality are related to greater accounting discretion, measured by discretionary

⁶ Using a sample of firms that restate their earnings, Hennes et al. (2008) find that the CEO turnover rate is higher for firms involved in intentional misstatements. However, they do not present direct evidence that earnings restatement increases the CEO turnover rate.

accruals, earnings smoothing, and earnings decrease avoidance. However, the mechanism by which corporate governance affects managerial accounting choices is not clear. Particularly, the observed association between accounting opportunism and weak governance mechanism can be explained in two ways. On one hand, managers might get involved in accounting discretionary behaviors as an outcome of agency problems caused by the poor governance structures. On the other hand, researchers might have an incomplete model to determine the level of accounting discretion (Bowen et al. 2008). For example, some missing variables related to economic fundamentals can be associated with both accounting discretions and governance structures, i.e., the endogenous problems. This paper finds that firms with good corporate governance are more likely to dismiss CEOs whose discretionary choices lead to poor earnings quality. It is likely that such an ex-post settling up deters CEOs' earnings manipulation behaviors ex-ante, and the findings point to one channel through which corporate governance influences managerial accounting choices. Therefore, the paper contributes to the literature by finding some supportive evidence for the agency problem explanation on the relation between accounting choices and corporate governance.

The remainder of the paper is organized as follows. Section II discusses relevant literature. Section III covers sample formation and variable measurement. Section IV investigates the relation between CEO turnover and earnings quality. Section V discusses what affects the relation. Section VI examines the subsequent employment prospects of displaced CEOs, and Section VII concludes.

2. RELEVANT LITERATURE

This paper is related to three streams of literature: those on earnings quality, CEO turnover and corporate governance. We discuss the three streams separately in the following three subsections.

Relevant Literature on Earnings Quality

Recent accounting literature provides useful insights on how to define earnings quality and how earnings quality affects firms' cost of capital. Dechow and Dichev (2002) measure current earnings quality according to the mapping of current accounting accruals into past, current and future cash flows. Specifically, earnings quality is computed as the variance of residuals from a regression of current accounting accruals on last-period, current and next-period cash flows. High variance indicates poor earnings quality, as it reflects low explanatory power of cash flows for the time-series of accruals. The earnings quality measure in Dechow and Dichev (2002) has gained popularity in the accounting literature.

Using an earnings quality measure based on Dechow and Dichev (2002), Francis et al. (2004, 2005) examine the relation between earnings quality and cost of capital. Francis et al. (2004) select seven attributes related to earnings and find that earnings quality has the largest cost-of-equity effect of the selected attributes. Their findings are robust after controlling for innate determinants of earnings attributes and alternative proxies for cost of equity.

Francis et al. (2005) decompose earnings quality into two components: innate earnings quality and discretionary earnings quality. Innate earnings quality is determined by economic fundamentals, while discretionary earnings quality is determined by managerial choices. This decomposition is achieved through a regression of earnings quality on innate factors. Innate factors include firm size, the length of the operating cycle, the standard deviation of cash flow from operations, the standard deviation of sales, and the incidence of negative earnings over the

past 10 years. The predicted value from the regression represents innate earnings quality, while the residual from the regression represents discretionary earnings quality. They find that both components are positively associated with cost of debt and cost of equity.

Biddle and Hilary (2006) examine the association between investment efficiency and accounting quality. They hypothesize and find that higher quality accounting enhances investment efficiency by reducing information asymmetry between managers and outside suppliers of capital. They also find that this effect is stronger in economies where financing is provided through arm's-length transactions than in countries where creditors supply more capital.

Given that poor discretionary earnings quality increases cost of capital and reduces investment efficiency, one wonders whether the board and the labor market impose penalties on managers whose earnings manipulations reduce earnings quality. This question has yet to be answered, and we seek to fill this void.

Relevant Literature on CEO Turnover

To the extent that discretionary earnings quality is determined by managerial choices, this paper is related to prior literature that links CEO turnover with managerial earnings manipulations.

Beneish (1999) examines incentives and penalties related to overstating earnings. His sample consists of 64 firms that are subject to accounting enforcement actions by the SEC for overstating earnings in the period 1987-1993. Of the 64 firms, 29 firms file for bankruptcy within four years of the issuance of an Accounting and Auditing Enforcement Release (AAER), leaving a subsample of 35 firms for analysis on CEO turnover rate. Using this subsample, Beneish finds no significant difference between treatment firms and control firms in the

subsequent CEO turnover rate. His evidence suggests that the CEOs' continued employment is not affected by the discovery of earnings manipulations.

Agrawal et al. (1999) analyze the impact of public revelation of fraud on managerial turnover. Specifically, they identify corporate frauds from the Fraud and Crime listings in the General News section of the Wall Street Journal Index from 1981 through 1992. Their initial sample includes 103 firms, and subsequent restrictions on data reduce the sample to between 50 and 74 firms. Using this sample, they find no association between revelation of fraud and subsequent CEO turnover.

Desai et al. (2006) re-examine the career consequences experienced by managers who violate GAAP. Their sample consists of 169 observations related to earnings restatements in 1997-1998. They argue that significant changes in internal and external monitoring mechanisms during the 1990s and the small sample size in prior studies justify a re-examination of this issue. They find that, compared to control firms matched on age, size and industry, restating firms have a significantly higher top executive turnover rate. In addition, displaced managers from restating firms have poorer job prospects than displaced managers from control firms. Their evidence is thus consistent with the notion that the board and the labor market penalize managers for violating GAAP.

Hennes et al. (2008) classify restatements into two categories: errors (unintentional misstatements) and irregularities (intentional misstatements). They find that the CEO turnover rate is higher for irregularities. Their evidence is consistent with the notion that the CEO is more likely to be dismissed if the restatement is due to intentional earnings manipulations.

This paper differs from prior literature in the following ways. First, prior literature focuses on career consequences related to violating GAAP, while this paper examines the career

consequences related to lowering earnings quality, which does not necessarily involve GAAP violations. Second, prior literature studies firms whose GAAP violations are publicly known, which may prompt board actions, while this study examines a broader cross-section of managers whose earnings manipulations may be unknown to the public. The two differences and the conflicting evidence from prior literature lend motivation to this study, which introduce important implications to managers and regulators. For example, both managers and regulators should be aware that earnings manipulation is the concern of boards and investors, even if GAAP is not violated, or such discretionary behavior is not publicly revealed.

Relevant Literature on Corporate Governance

Prior accounting literature has examined the effect of corporate governance on managerial accounting choices, and the general consensus is that better corporate governance leads to more reliable financial reporting.

Klein (2002) examines the relation between earnings management and the characteristics of the board and the audit committee. She finds that abnormal accruals are negatively related to the independence of the board and the audit committee. When there is a reduction in the independence of the board and the audit committee, she observes an increase in abnormal accruals. Her evidence suggests that an independent board is more effective in monitoring the financial reporting practice of the management.

Anderson et al. (2004) use a sample of S&P 500 firms and examine the relation between cost of debt financing and the characteristics of the board. They find that the cost of debt is negatively related to board independence and board size. They also find that firms with fully independent board committees enjoy significantly lower cost of debt. Their evidence therefore

suggests that creditors perceive financial reporting of firms with better corporate governance as more reliable.

Bowen et al. (2008) compute an index of accounting discretion (composed of absolute abnormal accruals, earnings smoothing through accruals, and reporting small positive surprises), and they regress this index on proxies of corporate governance. Their results suggest that accounting discretion is higher for firms with poor governance quality.

While prior literature provides evidence that better corporate governance is associated with more reliable financial reporting by the management, the channel through which corporate governance affects managerial accounting choices is not clear. Specifically, the association between governance mechanisms and accounting choices can be explained in two ways. On one hand, accounting discretions can be an outcome of agency problems caused by the poor governance structures. On the other hand, a model to determine the level of accounting discretion might be incomplete (Bowen et al. 2008). In particular, variables of economic fundamentals, which are associated with both accounting discretions and governance structures, can be missing in the model. We contribute to this line of literature by providing evidence for the agency problem explanation on the relation between accounting choices and corporate governance, i.e., good corporate governance deters managerial earnings manipulations by subjecting the CEO to a higher likelihood of dismissal if her accounting choices lead to poor earnings quality.

3. SAMPLE FORMATION AND VARIABLE MEASUREMENT

In this section, we discuss sample formation and variable definitions in the following two subsections.

Sample Formation

We obtain CEO characteristics data (age, tenure, CEO/Chairman duality and ownership of the firm's stock) from *Compustat Executive Compensation Annual Database*. We require the CEO executive ID of the same company in the following year to be non-missing in order to determine whether there is a CEO turnover. We obtain financial accounting data from *Compustat Industrial Annual Database* and return data from *CRSP Monthly Stock Database*. Earnings restatement data are collected from the reports by *U.S. Government Accounting Office (GAO) Financial Restatement Database*, which covers the period from January 1, 1997 to June 30, 2006. Following Mergenthaler et al. (2009), we obtain the mean value of analysts' quarterly EPS forecasts, the proxy for analysts' consensus forecasts, from *First Call Historical Database* and match it with the actual EPS provided by the same database to determine whether the firm misses analysts' consensus forecasts. Following Bushman et al. (2010), we calculate the idiosyncratic risk and systematic risk based upon the daily stock return data from *CRSP Daily Stock Database*.

In terms of corporate governance data, we obtain board independence data from *RiskMetrics Directors Database*, institutional ownership data from *CDA/Spectrum Institutional (13f) Holdings Database*, and the anti-takeover provision index (Gompers et al. 2003) from *RiskMetrics Governance Database*.

For a firm to be included in the sample, we require the following variables to be non-missing: CEO turnover dummy, innate earnings quality, discretionary earnings quality, firm characteristics (firm size, Tobin's q, leverage, return on assets, buy-and-hold abnormal returns) and CEO characteristics (age, tenure, CEO/Chairman duality, ownership). We further limit the

length of CEO tenure to greater than or equal to five,⁷ and exclude those firms in highly regulated industries (SIC Code from 6000 to 6999, and from 4900 to 4999).

The final sample comprises 5,912 firm-year observations between 1993 and 2006. The sample size for certain analyses can be further reduced because we require additional variables to be non-missing. Panel A of Table 1 reports the sample selection process.

Variable Measurement

CEO Turnover

We measure CEO turnover by using a dummy variable, which equals 1 when the executive ID of the CEO at year t is different from that at year $t-1$, and 0 otherwise. We further classify CEO turnover as forced or normal, according to the criteria in Desai et al. (2006). Specifically, we conduct a search of news stories on Factiva.com to identify the reasons for the CEO turnover. CEO turnovers due to death or poor health are classified as normal exits (Parrino 1997). A turnover is classified as forced if the CEO is below age 65,⁸ or if, according to news reports, the CEO is fired or forced out of the position. Otherwise the turnover is classified as a normal exit.⁹

Earnings Quality

Choice of earnings quality measure

⁷ Our estimate of earnings quality measures the quality of earnings for the five-year period, from year $t-5$ to year $t-1$. We require that the CEO tenure be greater than or equal to five to ensure that the CEO is responsible for the earnings quality of that five-year period.

⁸ Coughlan and Schmidt (1985) find that the potential provisions for mandatory retirement at the age of 65 significantly affect CEO turnover. Murphy (1999) and Brickley (2003) also suggest that CEO age is important in explaining CEO turnover.

⁹ Firms may refrain from disclosing the true nature of the CEO turnover due to litigation concerns or due to the results of negotiations with the departing CEO. Thus, there may be measurement error in our classification. The results reported in Sections IV and VI, however, suggest that our classification is reasonable.

We do not intend to innovate on the measurement of earnings quality. Instead, we are interested in using existing earnings quality measures in the literature to investigate the research question. Specifically, we seek to use a measure of earnings quality due to managerial discretionary choices.

Earnings quality based upon discretionary accruals

Prior literature provides two broad types of such measures. The first type is based upon discretionary accruals from the Jones (1991) model and its various extensions, including the modified Jones model (Dechow et al. 1995). To obtain discretionary accruals, the Jones (1991) model assumes that normal accruals are related to sales growth and PPE, while the Dechow et al. (1995) model assumes that normal accruals are related to growth in credit sales and PPE. Earnings quality is computed using either the absolute value or the standard deviation of the discretionary accruals. Needless to say, if discretionary accruals do not capture managerial discretions, earnings quality based upon discretionary accruals would not be a good measure either.

Prior literature has cast some doubt on discretionary accruals computed from the Jones (1991) model and its extensions. Dechow et al. (1995) find that discretionary accruals from these models are positively correlated with firm performance. In addition, Dechow et al. (2009) show that total accruals are more powerful in detecting earnings management in SEC enforcement releases than discretionary accruals.

To alleviate the concern that discretionary accruals are correlated with firm performance, Kothari et al. (2005) suggest using control firms matched by industry and ROA. Specifically, they first identify a control firm from the same industry with the closest level of ROA as the

sample firm and then subtract the control firm's discretionary accruals from that of the sample firm. Kothari et al. (2005) find that this "performance-matched" discretionary accrual generates more reliable inferences. This new measure, however, potentially results in low power tests because reported ROAs can be a result of earnings manipulations. For example, assume reported ROA is 15% for both firm A and firm B. Firm A manipulates earnings and boosts its ROA from the true value of 10% to 15%. Firm B does not manipulate earnings. Matching Firm B to Firm A implicitly assumes that non-discretionary accruals are the same across the two firms, although in fact we know this assumption is not valid.

To summarize, discretionary accruals based upon the Jones (1991) model and its various extensions are correlated with firm performance, and the "performance-matched" discretionary accruals potentially result in low power tests. The criticisms of discretionary accruals are why we do not use earnings quality based upon discretionary accruals for the main results. In the robustness check section, we report that the inferences are similar if we use earnings quality measures based upon discretionary accruals.

Earnings quality based upon the Dechow and Dichev (2002) model

The second type of earnings quality measure is based upon the Dechow and Dichev (2002) model and its various extensions. Dechow and Dichev (2002) model accruals as a function of past, current and future cash flows, and earnings quality is proxied by the standard deviation of the residuals from the model.

We find the earnings quality measure based upon Dechow and Dichev (2002) more appealing for the following three reasons. First, the explanatory variable is less noisy in the Dechow and Dichev (2002) model than in the Jones (1991) model. The explanatory variables in

the Jones (1991) model can be affected by earnings manipulations. For example, if earnings manipulations are through income shifting, then sales are affected by earnings manipulations. In contrast, the explanatory variables in the Dechow and Dichev (2002) model are cash flows. If we assume that earnings manipulations are through accounting accruals, then cash flows are unaffected by earnings manipulations and thus are less noisy. Second, empirically, Dechow et al. (2009) report that the explanatory power of the Dechow and Dichev (2002) model is generally higher than that of the modified Jones model, a sign of better model specification. Third, Dechow and Dichev (2002) show that firms with poor earnings quality (as defined in their paper) have the following characteristics: less persistent earnings, longer operating cycles, larger accruals and a higher likelihood of reporting losses. To the extent that those firm characteristics are indicative of poor earnings quality, this finding validates the Dechow and Dichev (2002) measure of earnings quality.

Computation details

Following Francis et al. (2004, 2005), we estimate earnings quality by first running the following regression for each industry-year combination, with industries defined according to Fama and French (1997):

$$TCA_{j,t} = \beta_{0,t} + \beta_{1,t} CFO_{j,t-1} + \beta_{2,t} CFO_{j,t} + \beta_{3,t} CFO_{j,t+1} + \beta_{4,t} \Delta Rev_{j,t} + \beta_{5,t} PPE_{j,t} + v_{j,t} \quad (1)$$

where $TCA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t}$ = total current accruals in year t , $CFO_{j,t} = NIBE_{j,t} - TA_{j,t}$ = firm j 's cash flow from operations in year t , $NIBE_{j,t}$ = firm j 's net income before extraordinary items (Compustat #18) in year t , $TA_{j,t} = (\Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t} - DEPN_{j,t})$ = firm j 's total accruals in year t , $\Delta CA_{j,t}$ = firm j 's change in current assets (Compustat

#4) between year $t-1$ and year t , $\Delta CL_{j,t}$ = firm j 's change in current liabilities (Compustat #5) between year $t-1$ and year t , $\Delta Cash_{j,t}$ = firm j 's change in cash (Compustat #1) between year $t-1$ and year t , $\Delta STDEBT_{j,t}$ = firm j 's change in debt in current liabilities (Compustat #34) between year $t-1$ and year t , $DEPN_{j,t}$ = firm j 's depreciation and amortization expense (Compustat #14) in year t , $\Delta Rev_{j,t}$ = firm j 's change in revenues (Compustat #12) between year $t-1$ and year t , and $PPE_{j,t}$ = firm j 's gross value of PPE (Compustat #7) in year t . All the variables are deflated by average total assets (Compustat #6) in year t . We require at least 20 firms for each industry-year combination.

Earnings quality for firm j in year t ($EQ_{j,t}$) is the standard deviation of the residual $v_{j,t}$, computed from year $t-5$ to year $t-1$.¹⁰ Since a higher standard deviation of residuals indicates poorer earnings quality, $EQ_{j,t}$ is an inverse measure of earnings quality.

We further decompose earnings quality into two components, discretionary earnings quality and innate earnings quality, by running the following regression annually:

$$EQ_{j,t} = \beta_0 + \beta_1 FirmSize_{j,t} + \beta_2 \sigma(CFO)_{j,t} + \beta_3 \sigma(Sales)_{j,t} + \beta_4 OperCycle_{j,t} + \beta_5 NegEarn_{j,t} + \mu_{j,t}, \quad (2)$$

where $FirmSize_{j,t}$ is the logarithm value of firm j 's total assets in year t (Compustat #6); $\sigma(CFO)_{j,t}$ is the standard deviation of firm j 's CFO deflated by average total assets, calculated over the past 10 years; $\sigma(Sales)_{j,t}$ is the standard deviation of firm j 's sales deflated by average total assets over the past 10 years; $OperCycle_{j,t}$ is the log of firm j 's operating cycle in year t , with operating cycle computed as sum of days accounts receivable and days inventory; and $NegEarn_{j,t}$ is the

¹⁰ We obtain similar results when we compute earnings quality using prior three instead of five years of data.

number of years firm j reported negative income before extraordinary items divided by the total number of years, where earnings data are available.¹¹

The predicted value from (2) yields an estimate of the innate portion of firm j 's earnings quality in year t (Innate EQ), which is associated with the economic fundamentals of the firm.

$$\begin{aligned} \text{Innate } EQ_{j,t} = & \hat{\lambda}_0 + \hat{\lambda}_1 \text{Size}_{j,t} + \hat{\lambda}_2 \sigma(CFO)_{j,t} + \hat{\lambda}_3 \sigma(Sales)_{j,t} + \hat{\lambda}_4 \text{OperCycle}_{j,t} \\ & + \hat{\lambda}_5 \text{NegEarn}_{j,t} \end{aligned} \quad (3)$$

The residual from (2), $\hat{\mu}_{j,t}$, is the estimate of the discretionary component of firm j 's earnings quality (discretionary EQ), which measures the component of earnings quality subject to managerial discretions.

4. CEO TURNOVER AND EARNINGS QUALITY

Summary Statistics and Correlation Coefficients

Panel B of Table 1 reports the summary statistics of the variables for the firm-year observations in the sample from 1993 to 2006. The mean value of the CEO turnover dummy indicates that the average turnover rate in the sample is around 10 percent,¹² which is similar to values reported in prior studies on CEO turnover (Engel et al. 2003; Farrell and Whidbee 2003). The mean and median values of earnings quality are 0.042 and 0.035, respectively; these are close to the values reported in Francis et al. (2005) (mean 0.044, median 0.031). The mean values for innate earnings quality and discretionary earnings quality are 0.044 and -0.002,

¹¹ For the computations of $\sigma(CFO)_{j,t}$, $\sigma(Sales)_{j,t}$, and $\text{NegEarn}_{j,t}$, we require at least 5 years of data.

¹² The CEO turnover rate is 15.6% in Kaplan and Minton (2008). The difference in CEO turnover rate between their study and ours is due to turnovers related to mergers and acquisitions and delistings, which are excluded from our sample but included in theirs.

respectively. Again, they are close to those reported in Francis et al. (2005) (0.044 and -0.003). Untabulated results show that all of the innate factors take on the expected signs when we regress earnings quality on innate factors.

The earnings restatement variable is a dummy, equal to 1 if there is an earnings restatement in the prior two years, and 0 otherwise. Its mean value indicates that in 5.2 percent of the firm-year observations, firms restated their earnings in the prior two years. The variable “Missing forecast frequency” counts the number of times the firm fails to meet analysts’ *quarterly* consensus earnings forecasts in year t-1, and thus its value ranges from 0 to 4. The mean value of this variable is 0.906, indicating that on average a sample firm fails to meet analysts’ consensus forecasts in one of the four quarters in year t-1. Idiosyncratic risk and systematic risk are expressed in percentage terms and calculated as the standard deviations of the residuals and predicted values from the regression of daily stock returns on daily industry median returns in year t-1. The mean (median) value of idiosyncratic risk is 2.399 (2.120), while the mean (median) value of systematic risk is 1.055 (0.882). Firm size is proxied by total assets, and its mean value is about \$3,681 million. Tobin’s q is the ratio of market value of total assets over the book value of total assets, computed as $((\text{Compustat \#6} - \text{Compustat \#60} + \text{Compustat \#25} * \text{Compustat \#199}) / \text{Compustat \#6})$. Its mean value is close to 2, indicating that the market value of assets is about 2 times their book value. Leverage is the ratio of book value of debts over market value of total assets, computed as $(\text{Compustat \#34} + \text{Compustat \#9}) / (\text{Compustat \#6} - \text{Compustat \#60} + \text{Compustat \#25} * \text{Compustat \#199})$. Its mean value is 0.148, indicating that the book value of debts is about 15 percent of the market value of total assets. We use return on assets (ROA) and buy-and-hold abnormal return (BHAR) to measure firms’ operating and return performance, respectively. Return on assets is the ratio of income before extraordinary items

over total assets (Compustat #18 / Compustat #6). Buy-and-hold abnormal return (*BHAR*) is estimated as the buy-and-hold return for the 12 months before the turnover year minus the CRSP value-weighted return inclusive of dividends for the same return window. The mean ROA is about 5 percent, while the mean BHAR is 5.9 percent. In the computation of the earnings quality measure, we require the prior five years' data. Thus, firms in the sample are likely to be survivors and have higher-than-average stock performance. The mean value of CEO age is 57.3 years, and the mean value of CEO tenure is 12.3 years. CEO duality is equal to 1 when the CEO also holds the title of "Chairman" of the board, and 0 otherwise. The mean value of CEO duality is equal to 0.756, indicating that 75.6 percent of the sample observations belong to firms where the CEO is also the chairman of the board. CEO ownership is the percentage of shares owned by the CEO relative to the company's total shares outstanding. The mean value of CEO ownership suggests that, on average, a CEO in the sample owns about 3.5 percent of the company's outstanding stocks.

Table 2 reports the correlation coefficients of the variables. We find that the CEO turnover dummy is positively related to earnings quality (correlation coefficient = 0.02) and discretionary earnings quality (correlation coefficient = 0.04), which are consistent with our expectations that the likelihood of CEO turnover increases with the extent of earnings manipulation by management. Moreover, the correlation coefficients between CEO turnover dummy and firm performance are negative (coefficient on ROA is -0.03, coefficient on BHAR is -0.04), which shows that managers are penalized for poor accounting and stock performance.

Main Results

To analyze whether CEO turnover is related to earnings quality, we run a logistic regression with CEO turnover as the dependent variable and earnings quality as one of the independent variables. The model is specified as below.

$$\begin{aligned}
Pr(CEO\ turnover = 1)_t = & F(\beta_0 + \beta_1 Earnings\ quality_{t-1} + \beta_2 Firm\ size_{t-1} \\
& + \beta_3 Tobin's\ q_{t-1} + \beta_4 Leverage_{t-1} + \beta_5 ROA_{t-1} + \beta_6 BHAR_{t-1} \\
& + \beta_7 CEO\ age_{t-1} + \beta_8 CEO\ tenure_{t-1} + \beta_9 CEO\ duality_{t-1} \\
& + \beta_{10} CEO\ ownership_{t-1} + \varepsilon_t)
\end{aligned} \tag{4}$$

All variables are defined in the Appendix.

We control for firm size in the regression because Farrell and Whidbee (2003) and Huson et al. (2001) find that turnover is positively related to firm size. Obviously, CEO turnover is related to firm performance (Warner et al. 1988). Engel et al. (2003) find that both accounting-based and market-based performance measures are important in explaining CEO turnover. We thus include both an accounting performance measure (ROA) and a stock performance measure (BHAR).¹³ Gilson (1989) and Gilson and Vetsuypens (1993) find that financially distressed firms with a high level of financial leverage have a high likelihood of top management turnover. Following the spirit of their papers, we control for leverage in the regression. We control for CEO age and CEO tenure because older CEOs and CEOs with longer tenure are more likely to voluntarily leave the firm. CEO turnover is less likely when the CEO is entrenched.¹⁴ Following Desai et al. (2006), we control for managerial entrenchment using two proxies. The first proxy is

¹³ We obtain similar results when we use industry-adjusted stock returns and accounting performance measures. Industry-adjusted measures are computed as the raw value minus the median value for the industry in the same year, where industry classification is defined as in Fama and French (1997). Moreover, when we replace ROA with ROE, the results remain similar.

¹⁴ The results are similar after we control for the CEO gender, and the interaction terms between earnings quality and CEO gender are not significant, which indicates that the association between CEO turnover and earnings quality does not vary across male and female CEOs.

CEO duality, and the other is CEO ownership. The CEO is likely to be more entrenched when she is also the chairman of the board, or when she holds more shares of the company.

We are interested in the coefficient on earnings quality measures. If the board disciplines managers who are responsible for poor earnings quality, we expect the coefficient on earnings quality to be positive and significant; i.e., poorer earnings quality leads to a higher rate of CEO turnover. Note that we are using an inverse measure of earnings quality.

In Table 3, Model 1 presents results related to overall earnings quality. Consistent with prior literature (Farrell and Whidbee 2003; Huson et al. 2001), we find that CEO turnover is positively related to firm size. We find strong evidence that CEO turnover is related to both accounting-based and market-based performance measures. Both ROA and BHAR are significant at the 1 percent level. The negative sign indicates that the CEO turnover likelihood is lower for firms with strong operating performance and return performance. This finding is consistent with Engel et al. (2003). The coefficient of CEO age is positive and significant at the 1 percent level in all four models, which shows that the older the CEO, the higher the likelihood of CEO turnover. Consistent with the view that CEO turnover is less likely when the CEO is entrenched, we find that higher CEO ownership is related to lower likelihood of CEO turnover. We are interested in the coefficient on earnings quality. We find that it is positive and significant at the 5 percent level, which suggests that the poorer the earnings quality, the higher the likelihood of CEO turnover.

Model 2 is the same as Model 1, except that we replace earnings quality with discretionary earnings quality. The results are very similar. We find that the coefficient on discretionary earnings quality is positive and significant, suggesting that the poorer the

discretionary earnings quality, the higher the likelihood of CEO turnover. This evidence is consistent with the notion that CEOs are more likely to experience turnover if their discretionary choices lead to lower earnings quality.

In Model 3, we include only innate earnings quality. Innate earnings quality represents earnings quality that is due to the firm's fundamentals. Given that it is beyond managerial control, the CEO should not be held accountable for it. We thus expect the coefficient on innate earnings quality to be insignificant. The results are consistent with this notion: the coefficient is insignificant at the 10 percent level.

Model 4 includes both discretionary earnings quality and innate earnings quality. Results are consistent with prior findings. We find that discretionary earnings quality is significantly positively correlated with CEO turnover, while the association between innate earnings quality and CEO turnover is insignificant at the 10 percent level.¹⁵

The coefficient estimates in Model 1 suggest that the association between earnings quality and CEO turnover likelihood is economically significant. If we go from the 10th percentile to the 90th percentile of the earnings quality variable while holding other variables at their mean values, the predicted probability of CEO turnover increases from 6.74 percent to 8.67 percent, amounting to a 25.6 percent change. Similarly, using the coefficient estimates from Model 4, we find that the predicted probability increases from 6.76 percent to 8.47 percent, a 25.3 percent increase, when the discretionary earnings quality measure goes from the 10th percentile to the 90th percentile.¹⁶

¹⁵ An alternative model specification is to include innate factors and total earnings quality in the regression. The coefficient on total earnings quality can then be interpreted as a measure of the association between CEO turnover and discretionary earnings quality. We obtain similar inferences using the alternative model specification.

¹⁶ We conduct empirical investigations in sub-periods, and our findings suggest that the association between discretionary earnings quality and CEO turnover is more significant for the years after 2002. Year 2002 is chosen as

To summarize, the results indicate that CEO turnover is more likely when managers' discretionary choices lead to poor earnings quality.¹⁷ The association is not only statistically significant but also economically significant. This finding is consistent with the notion that poor earnings quality motivates the board to take disciplinary actions against the CEO.

Robustness Checks

Alternative Measures of Earnings Quality

We conduct empirical tests to examine whether the results are robust towards the alternative measure of earnings quality. We use earnings quality based upon performance-matched discretionary accruals because Kothari et al. (2005) provide evidence that performance-matched discretionary accruals generate more reliable inferences and alleviate the concern that discretionary accruals are correlated with firm performance.

Following Kothari et al. (2005), we first run the following regression:

$$TA_{j,t} = \beta_{0,t} + \beta_{1,t} (1/ASSETS_{j,t-1}) + \beta_{2,t} \Delta SALES_{j,t} + \beta_{3,t} PPE_{j,t} + \beta_{4,t} ROA_{j,t} + v_{j,t} \quad (5)$$

where $TA_{j,t}$ is the total accruals scaled by lagged total assets; $ASSETS_{j,t-1}$ is the lagged total assets; $\Delta SALES_{j,t}$ is the change in sales scaled by lagged total assets; $PPE_{j,t}$ is the net property, plant, and equipment scaled by lagged total assets; and $ROA_{j,t}$ is the return on assets in the current year.¹⁸ We run the cross-sectional regression for each industry-year combination where

a cutoff because the Enron scandal was revealed in October 2001, which greatly increased the board and investors' awareness of the dire consequences of poor earnings quality. Our results are consistent with the notion that the association is affected by the board's and investors' focus on earnings quality.

¹⁷ Compustat overwrites the original data with the restated amount when a firm restates. Consequently, earnings quality measures may be based upon the restated amount instead of the original amount. To alleviate this concern, we conduct a sensitivity test by removing all firm-years for firms with a restatement. Our inferences remain the same.

¹⁸ We obtain similar results when we drop ROA from the model.

industries are defined using the two-digit SIC code. The discretionary accruals are the residual from the regression. Then, we match each firm-year observation with another firm from the same two-digit SIC code industry and with the closest ROA in the current year. Finally, we estimate the performance-matched discretionary accruals as the difference between the discretionary accruals of the sample firm and that of the control firm.

We have two alternative measures of earnings quality based on the performance-matched discretionary accruals. One is the standard deviation, and the other is the average absolute value of the performance-matched discretionary accruals over the last five years. The underlying assumption is that reported earnings are of low quality if they contain managerial manipulations that are volatile (and thus less predictable) and of higher magnitude. Higher value of the measures is associated with poorer earnings quality.

We run logistic regressions to estimate the effect of the alternate earnings quality measures on the CEO turnover likelihood and the results are reported in Table 4. We find that the coefficients on both alternative measures of earnings quality are positive and significant, suggesting that poorer earnings quality is associated with a higher likelihood of CEO turnover. In sum, the results are not sensitive to the choice of earnings quality proxy, and the main inferences hold when we use alternative earnings quality measures.

Earnings Restatement and Missing Analysts' Consensus Forecasts

Prior literature (Desai et al. 2006; Mergenthaler et al. 2009) provides evidence that CEO turnover is more likely after earnings restatements and after missing analysts' consensus forecasts. If firms with low earnings quality are more likely to restate earnings and/or miss analysts' forecasts, the findings so far can potentially be attributed to earnings restatement and/or

missing analysts' forecasts. To address this concern, we also control for the two variables "Earnings restatement" and "Missing forecast frequency" in the regressions.¹⁹ The results are reported in Table 5 (from Model 1 to Model 4).

Models 1 and 2 report the results when we include the earnings restatement dummy. Due to the limited availability of restatement data, the estimation period is limited (from 1997 to 2005), and the sample size is reduced. We find that the coefficients on earnings quality and discretionary earnings quality remain significant at the 5 percent level. Models 3 and 4 report the results when we consider the frequency of missing analysts' consensus forecasts. We find that the results are not affected by inclusion of this variable. The results are qualitatively the same as those reported in Table 3. Specifically, we find that CEO turnover is significantly associated with both overall and discretionary earnings quality but not innate earnings quality.²⁰

The finding that the restatement dummy is not significant deserves more investigation. We find that this result is due to the sample requirement that the CEO tenure should be no fewer than 5 years so that the CEO is responsible for the entire period for which earnings quality is estimated. We find a positive and significant association between the restatement dummy and the CEO turnover likelihood before but not after this data restriction is put in place.

We further investigate why the association between the earnings restatement dummy and CEO turnover is weakened in our sample, and we have the following three findings. First, we find that the proportion of irregularities (i.e., intentional mistakes) among restatements is much lower for observations included in the sample. The proportion of irregularities increases from 15.75% for observations in the sample to 27.34% for observations excluded from the sample, an

¹⁹ We also tried to use another measure of missing consensus forecasts: a dummy variable equal to 1 if the firm fails to meet quarterly consensus forecasts in any of the four quarters in year $t-1$, and 0 otherwise. Our results are qualitatively the same.

²⁰ Results are qualitatively similar, when we control for both the earnings restatement dummy and the frequency of missing analysts' forecasts in the regressions.

increase of about 74%. A further test reveals that the difference in the proportion is significant at the 1% level. This finding predicts a lower sensitivity of CEO turnover towards restatements, because Hennes et al. (2008) find that CEO turnover is more sensitive to irregularities than to unintentional errors. Second, we find that irregularities included in our sample involve firms with longer CEO tenure, better accounting performance and higher likelihood of CEO/Chairman duality. Leone and Liu (2008) find evidence consistent with the notion that the association between CEO turnover and restatement is weaker for firms with entrenched CEOs. To the extent that irregularity data included in our sample are characterized by more entrenched CEOs (longer CEO tenure and higher likelihood of CEO/Chairman duality), the CEO turnover likelihood is likely to be affected less by the occurrence of restatements. Finally, we hand-collect data on the amount of earnings that need to be restated and define restatement magnitude as that amount divided by either total assets or the absolute value of earnings in the prior year. We find that the restatement magnitude is much lower for those irregularities included in our sample than for those excluded from our sample. Specifically, on average, the amount of earnings that need to be restated is 2.4 times the magnitude of earnings in the prior year for observations excluded from our sample, while it is only 14.1% of the magnitude of earnings for those included in our sample. The former is about 17 times the latter. The difference between the two is both statistically and economically significant. The relative immateriality of earnings restatements conceivably leads to a lower likelihood of CEO turnover in our sample.

In conclusion, we obtain similar inferences after we additionally control for the incidence of earnings restatement and the frequency of missing analysts' forecasts, which alleviates the concern that the results are due to earnings restatement or missing analysts' forecasts.

Idiosyncratic risk and systematic risk

Bushman et al. (2010) find that the likelihood of CEO turnover increases with firm idiosyncratic risk and decreases with systematic risk. Since the earnings quality measures may be correlated with risks, the findings possibly are driven by earnings quality being a proxy for risks. We conduct robustness checks to mitigate this concern.

Following Bushman et al. (2010), we estimate idiosyncratic risk and systematic risk from the following firm-specific regressions, using daily stock returns in year $t-1$:

$$r_{i,t-1} = \beta_0 + \beta_1 r_{industry,t-1} + \varepsilon_{i,t-1} \quad (6)$$

where $r_{i,t-1}$ is firm daily return and $r_{industry,t-1}$ is industry median daily return (defined by the first two-digit SIC code). The standard deviation of the residuals from this regression is the proxy of idiosyncratic risk and the standard deviation of the predicted values is the proxy of systematic risk.

We include these two risk variables in the regressions. The results are reported in Model 5 and Model 6 of Table 5. The coefficient on idiosyncratic risk is positive while the coefficient on systematic risk is negative, indicating that, consistent with Bushman et al. (2010), the likelihood of turnover increases with idiosyncratic risk and decreases with systematic risk. More importantly, the main findings remain after controlling for risks: In Model 5, we find that the coefficient on earnings quality is positive and significant; In Model 6, the coefficient on discretionary earnings quality is positive and significant and the coefficient on innate earnings quality is insignificant.

In sum, we find that the effects of earnings quality on the likelihood of CEO turnover are not sensitive to additional controls of risk variables.

Forced Turnover versus Normal Exit

If the board takes disciplinary actions against the CEO for her discretionary choices leading to poor earnings quality, we would expect the turnover to be forced rather than a normal exit, implying that the relation between CEO turnover and earnings quality should be stronger for forced turnovers. To test this prediction, we run logistic regressions of CEO turnover on earnings quality separately for forced turnover and normal exit.

The results, which are reported in Table 6, confirm the prediction. From Model 1 to Model 4, we find that forced CEO turnover is significantly and positively correlated to proxies of earnings quality and discretionary earnings quality. For example, in Model 4, the coefficient on discretionary earnings quality is 5.17 and significant at the 5 percent level, which shows that CEOs are more likely to be forced to leave if firms exhibit poor discretionary earnings quality. In contrast, as shown in Model 5 to Model 8, normal CEO exit is not significantly related to either overall earnings quality or discretionary earnings quality.

The results also support the validity of our definitions of forced CEO turnover and normal CEO turnover. Presumably, forced CEO turnover is mainly due to firm performance, while normal CEO turnover is mainly due to age, health or other non-performance related reasons. Thus, if forced and normal CEO turnover are correctly distinguished, we expect the association between performance and turnover to be stronger for forced CEO turnover than for normal CEO turnover. The regression results provide supporting evidence. When the forced CEO turnover dummy is the dependent variable, we find that the coefficients on both accounting performance (ROA) and the return performance (BHAR) are negative and significant at the 1 percent level, while they are not significant at the 10 percent level when the normal CEO

turnover dummy is the dependent variable. This evidence supports the validity of our classification of forced versus normal CEO turnover.

Overall, consistent with our prediction, the findings in Table 6 suggest that the effect of earnings quality on CEO turnover is significant for forced CEO turnover but not for normal CEO exit.

Including Corporate Governance Variables

If certain corporate governance mechanisms can influence both the earnings quality and CEO turnover decisions, then the results might be driven by some of the governance factors that are missing in the analysis. To address this concern, we include corporate governance variables in the analysis, and re-run logistic regressions of CEO turnover on earnings quality.

The results are reported in Table 7, which are similar as the prior findings. In Model 1 and Model 2, we include the indicator variable of independent board, and find that the coefficients on earnings quality are positive and significant. Similarly, in Model 3 and Model 4 (Model 5 and Model 6), we include the governance variable of aggregate institutional ownership (GIM index), and confirm the findings that poorer earnings quality is related to a higher CEO turnover rate. Lastly, all the corporate governance variables are included in Model 7 and Model 8, in which results are qualitatively the same.

In sum, consistent with the prediction, the results in Table 7 indicate that the findings are not driven by some of the underlying factors, e.g., corporate governance mechanisms, which are not included in the main analysis.

5. WHAT AFFECTS THE ASSOCIATION BETWEEN CEO TURNOVER AND EARNINGS QUALITY?

The findings suggest that CEOs whose discretionary choices lead to poor earnings quality are more likely to be dismissed by the board. We next examine what affects the relation between CEO turnover and earnings quality. Given prior findings, we predict that the relation is affected by CEO entrenchment and corporate governance. We first discuss the motivation of the prediction and the empirical results related to CEO entrenchment.

CEO Entrenchment

Prior literature suggests that the CEO is more likely to be entrenched if she also holds the title of Chairman of the board or if she holds a higher proportion of the firm's outstanding stocks. Entrenched CEOs are less likely to be internally disciplined by the board. For example, Goyal and Park (2002) find that duality of CEO and chairman positions makes it more difficult for the board to replace the CEO. Parrino (1997) finds that CEOs with low ownership are more likely to be dismissed. Thus, we predict that the sensitivity of CEO turnover to prior discretionary earnings quality is lower for entrenched CEOs.

To test this prediction, we run the logistic regressions of CEO turnover in subsamples formed based on CEO entrenchment. Following Desai et al. (2006), we use CEO duality and CEO ownership to measure CEO entrenchment. The CEO is deemed more entrenched if she holds the title of "Chairman" or if she owns a higher proportion of the firm's outstanding shares.

Table 8 reports the results. Specifically, "CEO duality" ("Non-CEO duality") refers to the subsample where the CEO holds (does not hold) the title of "Chairman," and "High CEO ownership" ("Low CEO ownership") refers to the subsample in which CEO ownership is higher (lower) than the sample median.

Models 1 and 2 report the results for firms whose CEOs hold the title of "Chairman." The coefficients on earnings quality and discretionary EQ are insignificant in Models 1 and 2,

suggesting no significant relation between earnings quality and CEO turnover. Models 3 and 4 report the results for firms whose CEO does not hold the title of “Chairman.” The coefficients on earnings quality and discretionary earnings quality are positive and significant at the 5 percent level, suggesting that poor earnings quality increases the likelihood of CEO turnover. Collectively, these results show that CEOs who do not hold the title of “Chairman” are more likely to be sacked by the board if their discretionary choices lead to poor earnings quality.

Models 5 and 6 report results for firms with high CEO ownership. We find that the coefficients on both earnings quality and discretionary earnings quality are insignificant at the 10 percent level. In contrast, the coefficients on earnings quality and discretionary earnings quality are significant at the 5 percent level for the subsample with low CEO ownership, as reported in Model 7 and Model 8. These results suggest that CEOs who hold a higher proportion of the firm’s stock are less likely to be disciplined for their discretionary choices that lead to poor earnings quality.

In sum, the results reported in Table 8 suggest that the relation between CEO turnover and earnings quality is stronger for firms with less entrenched CEOs, which is consistent with our prediction.

Corporate Governance

This subsection discusses corporate governance’s impact on the association between CEO turnover and earnings quality. Prior literature suggests that corporate governance plays a role in monitoring and disciplining CEOs. Managers in better-governed firms are more likely to experience disciplinary turnovers. Weisbach (1988) finds that outsider-dominated boards induce a higher sensitivity of CEO turnover to performance. Guercio et al. (2008) find that institutional

investor activists' "just vote no" campaign induces a high forced CEO turnover rate. Faleye (2007) finds that classified boards significantly insulate management from disciplinary actions due to managerial entrenchment and reduction in board accountability. Given the evidence shown in prior literature, we expect that the managers who are responsible for poorer earnings quality are more likely to be replaced in firms with better corporate governance.

To test the prediction, we use a logistic regression and regress CEO turnover on earnings quality in subsamples formed based on corporate governance measures.²¹ We conjecture that the association between CEO turnover and discretionary earnings quality is stronger in firms with better corporate governance; i.e., firms with independent boards, higher aggregate institutional holdings and fewer anti-takeover provisions.

Table 9 presents related results. "Dependent board" refers to a board where no more than two thirds of the directors are independent, while "Independent board" refers to a board where more than two thirds of the directors are independent. "Low aggregate IO" ("High aggregate IO") refers to the subsample where the aggregate institutional ownership is lower (higher) than the sample median, while "Low GIM index" ("High GIM index") refers to the subsample where the number of anti-takeover provisions is lower (higher) than the sample median.

We find evidence in support of the prediction. Specifically, the coefficients on earnings quality and discretionary EQ are positive and significant at the 1 percent level in the subsample of firms with independent boards, while the coefficients for the subsample of firms with dependent boards are insignificant. This evidence suggests that the relation between earnings quality and CEO turnover exists for firms with an independent board, but not for firms with a dependent board.

²¹ We obtain similar results when the dependent variable is the forced turnover dummy.

We find that the coefficient on discretionary EQ is positive and significant at the 5 percent level for firms with high aggregate institutional ownership, while it is insignificant for firms with a low percentage of shares owned by institutions. The results imply that institutional investors play a role in disciplining CEOs for discretionary choices leading to poor earnings quality.

Finally, we find some weak evidence that the relation between CEO turnover and earnings quality is stronger in firms with a low GIM index (i.e., fewer anti-takeover provisions). The coefficient on discretionary EQ is positive and marginally significant at 10 percent level for firms with fewer anti-takeover provisions, but insignificant for firms with more anti-takeover provisions.

In sum, the results in Table 9 are consistent with the prediction that the sensitivity of CEO turnover to discretionary earnings quality is stronger in firms with stronger corporate governance structures. This finding highlights the importance of corporate governance in reining in CEOs' self-serving discretionary accounting choices.

6. CAREER PROSPECTS OF DISPLACED CEOs

The evidence so far suggests that the CEO is more likely to be forced out by the board if her discretionary choices lead to lower earnings quality. However, in order for this disciplinary action to be effective, the outside labor market must agree with the action taken by the board. If the labor market disagrees with the board's action, then it's possible that, after the CEO is forced out, the labor market will offer her a more powerful job at another company, which would

amount to a career advancement for the CEO. The disciplinary action taken by the board would thus become ineffective.

To examine whether the labor market penalizes CEOs for their discretionary choices that lead to poor earnings quality, we track the subsequent employment of displaced CEOs. Following Fee and Hadlock (2004), we use the Execucomp data to determine subsequent employment of displaced CEOs. We use two dummy variables to measure the subsequent employment: “New Employment” and “New Top Employment.” “New Employment” is equal to 1 if the CEO is employed by a public firm in the year after CEO turnover, and zero otherwise; “New Top Employment” is equal to 1 if the displaced CEO is employed at a public firm as President, CEO, or Chairman in the year after CEO turnover, and zero otherwise. We then use a logistic regression and regress the two dummies on prior earnings quality. If CEOs associated with poor discretionary earnings quality are penalized by the labor market, we expect the coefficient on the earnings quality proxy to be negative. We run the regression separately for forced CEO turnover and normal exits, because disciplinary actions against the CEO result in forced CEO turnover, and the labor market is likely to take into account whether the turnover is forced or a normal exit. We predict that the relation between subsequent employment and discretionary earnings quality is stronger for the forced CEO turnover subsample.

Table 10 presents the results. All the independent variables are measured in the year prior to the CEO turnover. For the forced CEO turnover subsample, we find that the coefficient on leverage is significantly negative in all regressions, indicating that CEOs who are associated with high leverage are less likely to be hired by another public company. CEO tenure is positively associated with subsequent employment dummies, implying that more experienced CEOs have better employment prospects. The coefficient on discretionary EQ is negative and significant in

all regressions. This finding indicates that CEOs associated with poor discretionary earnings quality are less likely to be employed by a public firm and are also less likely to be offered a top management position if they are forced out.

For the normal exit subsample, we find that the coefficient on discretionary EQ is insignificant in all model specifications. This suggests that for normal CEO exits, future employment is unaffected by discretionary earnings quality. The results are thus consistent with the prediction that the association between future employment and discretionary EQ is stronger for forced CEO turnovers.

Overall, the results indicate that among CEOs who are forced out, those associated with poor discretionary earnings quality are less likely to be rehired or offered a top management position by a public company. This finding suggests that the labor market penalizes CEOs whose discretionary choices lead to poor earnings quality. This ex-post settling-up potentially influences managerial behaviors ex ante.

7. CONCLUSION

In this paper, we investigate the relation between CEO turnover and earnings quality. We find that CEOs responsible for poor earnings quality are penalized by both the board and the labor market. Specifically, we find that CEOs are more likely to be replaced if their discretionary choices lead to poor earnings quality. In addition, after the turnover, such CEOs are less likely to be hired by public firms.

APPENDIX

Variable Definitions

CEO Turnover (dummy)	Indicator variable that equals 1 when the executive ID of the CEO at year t is different from that at year t-1, 0 otherwise.
Forced CEO Turnover (dummy)	Indicator variable that equals 1 when CEO turnover occurs at year t and the CEO turnover is forced, 0 otherwise. The CEO turnover is deemed forced if the CEO is below the age of 65, or if news stories in <i>Factiva.com</i> indicate that the CEO was fired or forced to leave the position.
Normal CEO Turnover (dummy)	Indicator variable that equals 1 when CEO turnover occurs at year t and the CEO turnover is normal, 0 otherwise. The CEO turnover is deemed normal if it does not meet the criteria for forced CEO turnover.
Earnings Quality (EQ)	Standard deviation of the residuals from a regression that regresses total current accruals on PPE, change in revenues, last-period, current and next-period cash flows. Our definition follows Francis et al. (2005).
Discretionary EQ	Residual from the regression of earnings quality on five innate factors: firm size, the standard deviation of cash flows, the standard deviation of sales, the operating cycle and the frequency of reporting negative earnings during the last 10 years. Our definition follows Francis et al. (2005).
Innate EQ	Predicted value from the regression of earnings quality on innate factors. Our definition follows Francis et al. (2005).
Earnings Restatement (dummy)	Indicator variable that equals 1 when the firm reports an earnings restatement in either year t-2 or year t-1, 0 otherwise.
Missing Forecast Frequency	The number of times the firm misses consensus analyst quarterly forecasts in year t-1. The consensus forecast is the mean value of existing forecasts. Both the forecast and the actual EPS are from First Call Historical Database.
Idiosyncratic Risk	The standard deviation of residuals from a regression of daily stock returns on daily industry median returns in year t-1, expressed in percentage terms. Daily industry median return is the median value of the daily stock returns in the same industry defined by the first two-digit SIC code.
Systematic Risk	The standard deviation of predicted values from a regression of daily stock returns on daily industry median returns in year t-1, expressed in percentage terms. Daily industry median return is the median value of the daily stock returns in the same industry defined by the first two-digit SIC code.

(continued on next page)

APPENDIX (Continued)

Firm Size	Book value of the firm's total assets (Compustat item 6) in \$ millions at year t-1, which is transformed to logarithm value in the regression analysis.
Tobin's Q	Ratio of market value of assets over book value of assets ((Compustat # 6 – Compustat #60 + Compustat # 25 * Compustat # 199) / Compustat # 6) in year t-1.
Leverage	Ratio of book value of debts over market value of total assets ((Compustat # 34 + Compustat # 9) / (Compustat # 6 – Compustat # 60 + Compustat # 25 * Compustat # 199)) in year t-1.
Return on Assets (ROA)	Ratio of income before extraordinary items over book value of assets (Compustat # 18 / Compustat # 6) in year t-1.
Buy-and-Hold Abnormal Return (BHAR)	The buy-and-hold return for year t-1 minus the CRSP value-weighted return inclusive of dividends for the same return window.
CEO Age	Age of the CEO as of year t-1, which is transformed to logarithm value in the regression analysis.
CEO Tenure	Number of years the CEO has been in her position as of year t-1, which is transformed to logarithm value in the regression analysis.
CEO Duality (dummy)	Indicator variable that equals 1 when the CEO holds a “Chairman” title in the firm at year t-1, 0 otherwise.
CEO Ownership	Percentage of the firm's equity held by the CEO as of year t-1.
New Employment (dummy)	Indicator variable that equals 1 when the displaced CEO is employed by a public firm in the year following her turnover, 0 otherwise.
New Top Employment (dummy)	Indicator variable that equals 1 when the displaced CEO is employed by a public firm as President, CEO, or Chairman in the year following her turnover, 0 otherwise.

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TABLE 1**Panel A: Sample Construction**

Number of firm-year observations on Compustat Executive Compensation Database, while CEO information of the same firm is required to be non-missing in year t and t-1. Sample period is between 1993 and 2007.	21,395
Less firm-year observation with no relevant control variables based on CRSP Monthly Stock Database. Sample period is between 1993 and 2007.	- 6,402
Less firm-year observation with no relevant control variables based on Compustat Industrial Annual Database (including the variables of earnings quality), or with the length of CEO Tenure to be smaller than five years. Sample period is between 1993 and 2006.	-9,067
Less firm-year observation of a firm whose CEO turnover information cannot be verified in Factiva.com. Sample period is between 1993 and 2006.	-14
Final sample of firm-year observations between 1993 and 2006	5,912

Panel B: Summary Statistics

Variable	Mean	Q1	Median	Q3	Std. Dev	n
CEO Turnover	0.100	0.000	0.000	0.000	0.300	5912
Earnings Quality	0.042	0.022	0.035	0.055	0.028	5,912
Discretionary EQ	-0.002	-0.018	-0.006	0.010	0.025	5,912
Innate EQ	0.044	0.033	0.043	0.054	0.016	5,912
Earnings restatement	0.053	0.000	0.000	0.000	0.225	4,386
Missing forecast frequency	0.906	0.000	1.000	2.000	1.097	5,416
Idiosyncratic risk	2.399	1.577	2.120	2.963	1.115	5,912
Systematic risk	1.055	0.531	0.882	1.373	0.744	5,912
Firm Size (\$mils)	3,680.98	431.16	1,051.64	3,144.31	7,237.18	5,912
Tobin's Q	2.075	1.262	1.650	2.373	1.319	5,912
Leverage	0.148	0.034	0.121	0.224	0.133	5,912
ROA	0.050	0.024	0.056	0.091	0.083	5,912
BHAR	0.059	-0.243	-0.007	0.262	0.481	5912
CEO Age	57.347	52.000	58.000	62.000	7.446	5,912
CEO Tenure	12.313	7.000	10.000	15.000	7.671	5,912
CEO Duality	0.756	1.000	1.000	1.000	0.430	5,912
CEO Ownership	3.522	0.186	0.606	2.689	7.167	5,912

This panel presents the summary statistics of the variables used in the study. The full sample comprises 5,912 firm-year observations between 1993 and 2006. All the continuous variables have been winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 2

Correlation Coefficients

	Turnover	EQ	Di EQ	In EQ	Restate	Miss	I risk	S risk	Size	Q	Leverage	ROA	BHAR	Age	Tenure	Duality
CEO	1.00															
Turnover		1.00														
Earnings	0.02															
Quality																
Discretionary	0.04	0.82	1.00													
EQ																
Innate EQ	-0.04	0.44	-0.15	1.00												
Earnings	0.00	0.00	0.01	-0.01	1.00											
restatement																
Missing	0.02	0.02	-0.03	0.09	0.03	1.00										
forecast freq																
Idiosyncratic	0.01	0.30	0.00	0.54	-0.03	0.09	1.00									
risk																
Systematic	-0.02	0.13	-0.03	0.28	0.00	-0.05	0.46	1.00								
risk																
Firm Size	0.06	-0.30	0.11	-0.70	0.01	-0.13	-0.45	-0.09	1.00							
Tobin's Q	0.00	0.03	-0.03	0.11	-0.03	-0.21	0.06	0.10	-0.06	1.00						
Leverage	0.02	-0.10	-0.04	-0.11	0.00	0.19	0.06	-0.10	0.19	-0.51	1.00					
ROA	-0.04	-0.11	0.02	-0.23	-0.03	-0.28	-0.33	-0.25	0.08	0.36	-0.37	1.00				
BHAR	-0.03	0.05	0.00	0.09	0.01	-0.23	0.07	0.09	-0.06	0.34	-0.21	0.19	1.00			
CEO Age	0.18	-0.09	0.01	-0.18	-0.02	0.03	-0.18	-0.10	0.15	-0.03	0.06	0.04	-0.03	1.00		
CEO Tenure	0.06	-0.01	-0.01	0.01	0.00	0.04	0.08	0.04	-0.10	0.05	-0.04	0.00	0.01	0.32	1.00	
CEO Duality	0.09	-0.04	0.07	-0.16	0.02	-0.06	-0.09	-0.09	0.19	-0.06	0.05	0.01	-0.05	0.23	0.15	1.00
CEO	-0.02	0.06	0.05	0.03	-0.02	0.04	0.09	-0.03	-0.18	0.03	-0.08	0.06	0.02	0.08	0.38	0.06
Ownership																

This table presents the correlation coefficients of the variables used in the study. The full sample comprises 5,912 firm-year observations between 1993 and 2006. All the continuous variables have been winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 3

Logistic Regressions of CEO Turnover Dummy on Earnings Quality

	M1	M2	M3	M4
Earnings Quality	4.09** (5.24)			
Discretionary EQ		4.18** (4.93)		4.25** (5.12)
Innate EQ			2.74 (0.26)	3.56 (0.43)
Log Firm Size	0.11*** (9.55)	0.08** (5.48)	0.11** (4.43)	0.11** (4.25)
Tobin's Q	0.09* (3.33)	0.09* (3.57)	0.08* (3.08)	0.09* (3.37)
Leverage	-0.18 (0.16)	-0.15 (0.10)	-0.25 (0.31)	-0.18 (0.15)
ROA	-2.38*** (15.36)	-2.50*** (17.16)	-2.44*** (15.28)	-2.39*** (14.69)
BHAR	-0.33*** (8.10)	-0.33*** (7.78)	-0.33*** (7.95)	-0.33*** (8.03)
Log CEO Age	5.62*** (150.20)	5.59*** (149.11)	5.59*** (147.91)	5.62*** (149.28)
Log CEO Tenure	-0.06 (0.37)	-0.06 (0.37)	-0.06 (0.41)	-0.06 (0.36)
CEO Duality (dummy)	0.44*** (10.89)	0.43*** (10.82)	0.44*** (11.10)	0.43*** (10.77)
CEO Ownership	-0.03*** (9.58)	-0.03*** (9.58)	-0.02*** (9.16)	-0.03*** (9.60)
Intercept	-27.30*** (189.26)	-26.79*** (185.16)	-27.12*** (169.13)	-27.24*** (170.54)
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Max-Rescaled R ²	0.1152	0.1152	0.1136	0.1153
Number of OBS.	5,912	5,912	5,912	5,912

This table presents the results of logistic regressions of the CEO turnover dummy on earnings quality. All the independent variables are measured as of year t-1. The full sample comprises 5,912 firm-year observations between 1993 and 2006. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All of the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 4
Logistic Regressions of CEO Turnover Dummy on Alternate Measures of Earnings Quality

Variable	M1	M2
Five-year σ (performance-matched discretionary accruals)	1.69** (4.47)	
Five-year average of performance-matched discretionary accruals		1.61* (2.79)
Log Firm Size	0.13*** (16.14)	0.12*** (15.61)
Tobin's Q	0.06* (2.98)	0.06* (2.99)
Leverage	-0.20 (0.26)	-0.19 (0.25)
ROA	-1.80*** (16.50)	-1.82*** (16.86)
BHAR	-0.25** (6.24)	-0.25** (6.33)
Log CEO Age	5.29*** (178.38)	5.28*** (177.48)
Log CEO Tenure	-0.12 (2.06)	-0.12 (2.01)
CEO Duality (dummy)	0.36*** (10.08)	0.36*** (10.19)
CEO Ownership	-0.02*** (6.76)	-0.02*** (6.81)
Intercept	-24.96*** (235.88)	-24.88*** (234.08)
Year Fixed Effects	YES	YES
Industry Fixed Effects	YES	YES
Max-Rescaled R ²	0.1018	0.1013
Number of OBS.	7,813	7,813

This table presents the results of logistic regressions of the CEO turnover dummy on alternate measures of earnings quality. All the independent variables are measured as of year t-1. The full sample comprises 13,674 firm-year observations between 1993 and 2006 after we require all other control variables to be non-missing. Sample size is reduced to 7,813 when we require the alternate measures of earnings quality to be non-missing and CEO tenure to be equal to or greater than 5 years. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All of the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 5

Logistic Regressions of CEO Turnover Dummy on Earnings Quality after Controlling for Earnings Restatement, Missing Forecast Frequency, or Idiosyncratic Risk and Systematic Risk

	M1	M2	M3	M4	M5	M6
Earnings Quality	4.69** (5.21)		4.33** (5.29)		3.76** (4.34)	
Discretionary EQ		4.91** (5.15)		4.57** (5.32)		3.98** (4.45)
Innate EQ		2.67 (0.19)		3.46 (0.37)		2.49 (0.20)
Earnings restatement (dummy)	-0.13 (0.28)	-0.13 (0.28)				
Missing forecast frequency			0.06 (1.49)	0.06 (1.47)		
Idiosyncratic risk					0.17*** (6.70)	0.18*** (6.70)
Systematic risk					-0.24** (6.08)	-0.24** (5.92)
Log Firm Size	0.13*** (8.97)	0.11* (3.42)	0.13*** (10.94)	0.12** (4.84)	0.16*** (15.66)	0.15*** (7.75)
Tobin's Q	0.09* (2.89)	0.09* (2.93)	0.09* (3.52)	0.09* (3.59)	0.09* (3.34)	0.09* (3.41)
Leverage	0.06 (0.01)	0.08 (0.02)	-0.41 (0.71)	-0.40 (0.66)	-0.41 (0.82)	-0.40 (0.76)
ROA	-2.41*** (12.32)	-2.45*** (12.21)	-2.40*** (13.52)	-2.43*** (13.11)	-2.16*** (11.08)	-2.18*** (11.09)
BHAR	-0.23* (3.42)	-0.23* (3.27)	-0.28** (5.10)	-0.27** (5.01)	-0.34*** (8.56)	-0.34*** (8.38)
Log CEO Age	5.42*** (104.42)	5.41*** (103.02)	5.55*** (133.81)	5.55*** (133.09)	5.72*** (152.42)	5.72*** (151.87)
Log CEO Tenure	-0.00 (0.00)	-0.00 (0.00)	-0.02 (0.04)	-0.02 (0.04)	-0.05 (0.30)	-0.05 (0.30)
CEO Duality (dummy)	0.46*** (9.78)	0.46*** (9.69)	0.41*** (9.03)	0.41*** (8.99)	0.44*** (10.90)	0.43*** (10.79)
CEO Ownership	-0.02** (6.03)	-0.02** (6.02)	-0.02** (6.62)	-0.02*** (6.65)	-0.03*** (10.43)	-0.03*** (10.45)
Intercept	-27.30*** (138.26)	-27.04*** (122.46)	-27.44*** (171.55)	-27.36*** (155.47)	-28.12*** (190.30)	-27.99*** (174.82)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Max-Rescaled R ²	0.1205	0.1205	0.1144	0.1145	0.1183	0.1183
Number of OBS.	4,386	4,386	5,416	5,416	5,912	5,912

This table presents the results of logistic regressions of the CEO turnover dummy on earnings quality after controlling for earnings restatement, missing forecast frequency, or idiosyncratic risk and systematic risk. All the independent variables are measured as of year t-1. The full sample comprises 5,912 firm-year observations between 1993 and 2006. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All of the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 6

Logistic Regressions of CEO Turnover Dummy on Earnings Quality Conditional on Turnover Type (Forced vs. Normal)

	Forced CEO Turnover				Normal CEO Turnover			
	M1	M2	M3	M4	M5	M6	M7	M8
Earnings Quality	5.16*** (6.73)				-2.53 (0.39)			
Discretionary EQ		5.09** (5.80)		5.17** (6.04)		-0.61 (0.02)		-1.18 (0.08)
Innate EQ			5.09 (0.71)	5.83 (0.93)			-15.73 (1.83)	-16.05 (1.89)
Log Firm Size	0.15*** (12.57)	0.11*** (7.42)	0.16*** (6.94)	0.16** (6.50)	0.08 (0.98)	0.09 (1.52)	-0.02 (0.03)	-0.02 (0.03)
Tobin's Q	0.10* (3.73)	0.11** (4.02)	0.10* (3.53)	0.10* (3.71)	0.05 (0.23)	0.05 (0.23)	0.06 (0.37)	0.06 (0.36)
Leverage	-0.11 (0.05)	-0.07 (0.02)	-0.21 (0.16)	-0.12 (0.05)	0.08 (0.01)	0.10 (0.01)	0.27 (0.09)	0.25 (0.08)
ROA	-2.56*** (15.38)	-2.71*** (17.49)	-2.62*** (15.15)	-2.54*** (14.27)	-1.22 (0.76)	-1.16 (0.69)	-1.57 (1.19)	-1.58 (1.20)
BHAR	-0.42*** (9.20)	-0.41*** (8.84)	-0.42*** (9.35)	-0.42*** (9.22)	-0.03 (0.02)	-0.03 (0.02)	-0.01 (0.00)	-0.01 (0.00)
Log CEO Age	1.55*** (9.64)	1.51*** (9.18)	1.51*** (9.11)	1.55*** (9.68)	21.11*** (253.25)	21.12*** (253.56)	21.05*** (251.96)	21.05*** (251.86)
Log CEO Tenure	-0.12 (1.11)	-0.12 (1.15)	-0.13 (1.31)	-0.12 (1.10)	-0.35** (4.60)	-0.36** (4.69)	-0.35** (4.42)	-0.35** (4.39)
CEO Duality (dummy)	0.43*** (8.37)	0.42*** (8.30)	0.44*** (8.81)	0.42*** (8.22)	0.51* (2.80)	0.51* (2.81)	0.53* (3.05)	0.53* (3.02)
CEO Ownership	-0.03** (5.76)	-0.03** (5.77)	-0.02** (5.32)	-0.03** (5.77)	-0.07*** (16.79)	-0.07*** (17.07)	-0.07*** (17.14)	-0.06*** (16.89)
Intercept	-11.36*** (26.94)	-10.68*** (24.29)	-11.26*** (23.68)	-11.46*** (24.50)	-91.97*** (265.37)	-92.21*** (267.47)	-90.57*** (247.98)	-90.55*** (247.92)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Max-Rescaled R ²	0.0659	0.0655	0.0634	0.0659	0.3895	0.3893	0.3904	0.3905
Number of OBS.	5,718	5,718	5,718	5,718	5,516	5,516	5,516	5,516

This table presents the results of logistic regressions of the CEO turnover dummy on earnings quality conditional on turnover type (forced vs. normal). All the independent variables are measured as of year t-1. The full sample comprises 5,912 firm-year observations between 1993 and 2006. In the tests for Forced CEO Turnover, we exclude the observation with a Normal CEO Turnover dummy that equals 1, and vice versa. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 7

Logistic Regressions of CEO Turnover Dummy on Earnings Quality Including The Corporate Governance Variables

	M1	M2	M3	M4	M5	M6	M7	M8
Earnings Quality	4.65** (4.92)		3.50* (3.39)		4.06** (3.97)		5.51** (5.58)	
Discretionary EQ		4.78** (4.64)		3.78* (3.58)		4.35** (4.13)		5.75** (5.43)
Innate EQ		4.34 (0.48)		2.92 (0.25)		1.49 (0.06)		4.31 (0.36)
Independent Board	-0.03 (0.04)	-0.03 (0.05)					-0.04 (0.09)	-0.04 (0.09)
Aggregate IO			-0.01** (5.83)	-0.01** (5.85)			-0.01* (3.82)	-0.01* (3.83)
GIM Index					0.08*** (13.78)	0.08*** (13.48)	0.05** (4.23)	0.05** (4.11)
Log Firm Size	0.07 (2.58)	0.07 (1.22)	0.12*** (9.64)	0.12** (4.07)	0.08* (3.68)	0.06 (1.09)	0.09* (3.60)	0.09 (1.43)
Tobin's Q	0.11** (4.10)	0.11** (4.11)	0.05 (0.87)	0.05 (0.89)	0.11** (4.20)	0.11** (4.33)	0.10 (2.70)	0.10* (2.74)
Leverage	0.22 (0.17)	0.22 (0.17)	-0.47 (0.94)	-0.46 (0.89)	-0.21 (0.16)	-0.18 (0.11)	0.12 (0.04)	0.13 (0.05)
ROA	-2.28*** (10.45)	-2.29*** (10.02)	-2.09*** (9.93)	-2.10*** (9.53)	-2.40*** (9.62)	-2.47*** (9.74)	-2.33*** (7.15)	-2.35*** (7.03)
BHAR	-0.22* (2.75)	-0.21* (2.72)	-0.29** (5.47)	-0.29** (5.39)	-0.24* (3.19)	-0.23* (3.05)	-0.13 (0.81)	-0.13 (0.77)
Log CEO Age	5.37*** (98.69)	5.37*** (97.88)	5.63*** (131.25)	5.63*** (130.15)	6.31*** (137.52)	6.29*** (136.13)	5.95*** (89.64)	5.94*** (88.79)
Log CEO Tenure	-0.02 (0.04)	-0.02 (0.05)	-0.08 (0.62)	-0.08 (0.61)	-0.07 (0.47)	-0.07 (0.47)	0.00 (0.00)	0.00 (0.00)
CEO Duality (dummy)	0.50*** (10.63)	0.50*** (10.57)	0.54*** (14.75)	0.54*** (14.62)	0.40*** (7.02)	0.40*** (7.03)	0.49*** (8.31)	0.49*** (8.28)
CEO Ownership	-0.02** (5.38)	-0.02** (5.36)	-0.03*** (11.40)	-0.03*** (11.45)	-0.02** (5.63)	-0.02** (5.62)	-0.03*** (7.46)	-0.03*** (7.48)
Intercept	-26.30*** (125.52)	-26.27*** (112.65)	-26.76*** (160.04)	-26.69*** (142.49)	-30.52*** (174.04)	-30.21*** (154.29)	-28.82*** (113.31)	-28.68*** (100.65)

Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Max-Rescaled R ²	0.1125	0.1125	0.117	0.1171	0.1255	0.1255	0.1286	0.1287
Number of OBS.	4,286	4,286	5,400	5,400	4,787	4,787	3,634	3,634

This table presents the results of logistic regressions of the CEO turnover dummy on earnings quality including the corporate governance variables. All the independent variables are measured as of year t-1. The full sample comprises 5,912 firm-year observations between 1993 and 2006, and sample size will be further reduced when certain corporate governance variables are required to be non-missing. “Independent board” refers to a board where more than two thirds of the directors are independent. “Aggregate IO” refers to the aggregate institutional ownership, while “GIM index” refers to the number of anti-takeover provisions. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 8

Logistic Regressions of CEO Turnover Dummy on Earnings Quality Conditional on CEO Entrenchment

	CEO Duality		Non-CEO Duality		High CEO Ownership		Low CEO Ownership	
	M1	M2	M3	M4	M5	M6	M7	M8
Earnings Quality	2.71 (1.84)		10.64** (5.40)		2.92 (1.33)		5.24** (3.93)	
Discretionary EQ		2.78 (1.78)		11.28** (5.12)		2.46 (0.87)		6.26** (4.92)
Innate EQ		1.89 (0.10)		15.11 (1.30)		8.69 (1.27)		-3.00 (0.14)
Log Firm Size	0.14*** (11.41)	0.13** (4.90)	-0.01 (0.01)	0.02 (0.02)	0.00 (0.00)	0.04 (0.27)	0.14*** (6.78)	0.07 (0.87)
Tobin's Q	0.05 (0.90)	0.05 (0.91)	0.22* (3.13)	0.22* (3.33)	0.04 (0.38)	0.04 (0.27)	0.17** (5.67)	0.17** (5.98)
Leverage	-0.37 (0.54)	-0.36 (0.52)	-0.22 (0.04)	-0.30 (0.06)	0.10 (0.02)	0.05 (0.01)	0.06 (0.01)	0.18 (0.07)
ROA	-2.98*** (20.18)	-3.00*** (19.19)	-1.69 (0.83)	-1.68 (0.80)	-3.64*** (17.51)	-3.45*** (14.65)	-1.24 (1.92)	-1.45 (2.53)
BHAR	-0.25* (3.81)	-0.25* (3.76)	-0.82** (6.61)	-0.84*** (6.69)	-0.07 (0.25)	-0.08 (0.31)	-0.73*** (14.20)	-0.71*** (13.47)
Log CEO Age	5.48*** (121.01)	5.48*** (120.34)	7.72*** (30.33)	7.79*** (30.45)	4.34*** (55.66)	4.38*** (56.19)	8.22*** (103.68)	8.18*** (102.21)
Log CEO Tenure	-0.05 (0.23)	-0.05 (0.23)	0.04 (0.02)	0.05 (0.02)	-0.01 (0.01)	-0.00 (0.00)	0.06 (0.18)	0.08 (0.27)
CEO Duality (dummy)					0.72*** (12.77)	0.72*** (12.52)	0.20 (1.15)	0.19 (1.01)
CEO Ownership	-0.02*** (6.65)	-0.02*** (6.65)	-0.07** (4.85)	-0.07** (4.96)				
Intercept	-26.53*** (147.47)	-26.44*** (132.95)	-43.53 (0.04)	-44.26 (0.04)	-22.70*** (68.13)	-23.43*** (64.95)	-38.21*** (128.85)	-37.21*** (113.83)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Max-Rescaled R ²	0.1062	0.1062	0.2369	0.2383	0.1119	0.1123	0.1731	0.1738
Number of OBS.	4,469	4,469	1,443	1,443	2,956	2,956	2,956	2,956

This table presents the results of logistic regressions of the CEO turnover dummy on earnings conditional on CEO Entrenchment. All the independent variables are measured as of year t-1. The full sample comprises 5,912 firm-year observations between 1993 and 2006. "CEO duality" ("Non-CEO duality") refers to the subsample where the CEO holds (does not hold) the title of "Chairman," and "High CEO ownership" ("Low CEO ownership") refers to the subsample where CEO ownership is higher (lower) than the sample median. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All of the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 9

Logistic Regressions of CEO Turnover Dummy on Earnings Quality Conditional on Corporate Governance

	Dependent Board		Independent Board		Low Aggregate IO		High Aggregate IO		High GIM Index		Low GIM Index	
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Earnings Quality	1.58 (0.32)		10.62*** (9.74)		1.08 (0.17)		6.45** (5.21)		2.67 (0.66)		4.89* (3.20)	
Discretionary EQ		2.35 (0.63)		10.23*** (8.06)		1.36 (0.24)		6.60** (4.88)		3.81 (1.24)		4.68* (2.60)
Innate EQ		-2.61 (0.10)		13.58 (1.69)		-1.23 (0.02)		8.12 (0.98)		-5.50 (0.29)		6.01 (0.51)
Log Firm Size	0.08 (1.54)	0.05 (0.32)	0.06 (0.86)	0.09 (0.75)	0.09* (3.09)	0.07 (0.80)	0.12* (3.70)	0.13 (2.36)	0.09 (1.83)	0.03 (0.08)	0.09 (1.94)	0.10 (1.28)
Tobin's Q	0.11 (2.53)	0.11 (2.57)	0.06 (0.51)	0.06 (0.43)	-0.02 (0.09)	-0.02 (0.07)	0.17** (4.70)	0.17** (4.62)	0.09 (0.95)	0.09 (1.07)	0.11 (2.40)	0.11 (2.33)
Leverage	0.30 (0.18)	0.35 (0.26)	-0.13 (0.02)	-0.17 (0.04)	-0.82 (1.67)	-0.78 (1.48)	0.19 (0.06)	0.17 (0.05)	-0.06 (0.00)	0.00 (0.00)	-0.27 (0.14)	-0.29 (0.15)
ROA	-1.88* (3.64)	-1.94** (3.85)	-1.97* (3.34)	-1.85 (2.68)	-1.90** (5.19)	-1.96** (5.17)	-2.86** (6.42)	-2.80** (5.90)	-1.50 (1.18)	-1.74 (1.50)	-3.31*** (11.87)	-3.28*** (11.21)
BHAR	-0.11 (0.46)	-0.11 (0.42)	-0.46** (4.45)	-0.45** (4.42)	-0.25 (2.20)	-0.25 (2.10)	-0.37** (4.08)	-0.38** (4.11)	-0.40* (3.48)	-0.39* (3.22)	-0.11 (0.41)	-0.11 (0.42)
Log CEO Age	4.37*** (45.59)	4.34*** (44.48)	8.12*** (59.49)	8.15*** (59.53)	4.79*** (54.06)	4.78*** (53.64)	7.12*** (81.03)	7.14*** (80.80)	8.78*** (88.24)	8.76*** (87.48)	5.15*** (53.01)	5.17*** (52.63)
Log CEO Tenure	-0.20 (1.87)	-0.20 (1.87)	0.33* (3.30)	0.32* (3.24)	-0.10 (0.53)	-0.10 (0.53)	-0.10 (0.43)	-0.10 (0.43)	0.02 (0.02)	0.03 (0.03)	-0.08 (0.26)	-0.08 (0.26)
CEO Duality	0.78*** (14.22)	0.78*** (14.38)	0.20 (0.72)	0.20 (0.71)	0.68*** (11.51)	0.68*** (11.52)	0.43** (4.54)	0.43** (4.55)	0.37 (2.13)	0.37 (2.16)	0.55*** (7.56)	0.55*** (7.50)
CEO Ownership	-0.01 (1.73)	-0.01 (1.72)	-0.03 (0.75)	-0.03 (0.71)	-0.03*** (6.73)	-0.03*** (6.78)	-0.01 (0.46)	-0.01 (0.46)	-0.06*** (7.41)	-0.06*** (7.18)	-0.01 (0.66)	-0.01 (0.64)

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TABLE 9 (Continued)

Intercept	-21.17*** (54.88)	-20.61*** (46.32)	-39.12*** (76.00)	-39.57*** (71.19)	-23.23*** (63.84)	-22.97*** (56.43)	-33.57*** (101.63)	-33.81*** (93.61)	-39.37*** (99.57)	-38.55*** (89.31)	-25.97*** (71.76)	-26.14*** (64.63)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Max-Rescaled R ²	0.1146	0.1149	0.1749	0.1744	0.1160	0.1161	0.1517	0.1520	0.1624	0.1632	0.1436	0.1434
Number of OBS.	2,345	2,345	1,941	1,941	2,700	2,700	2,700	2,700	2,111	2,111	2,676	2,676

This table presents the results of logistic regressions of the CEO turnover dummy on earnings conditional on corporate governance. All the independent variables are measured as of year t-1. The full sample comprises 5,912 firm-year observations between 1993 and 2006, and sample size will be further reduced when certain corporate governance variables are required to be non-missing. “Dependent board” refers to a board where no more than two thirds of the directors are independent, while “Independent board” refers to a board where more than two thirds of the directors are independent. “Low aggregate IO” (“High aggregate IO”) refers to the subsample where the aggregate institutional ownership is lower (higher) than the sample median, while “Low GIM index” (“High GIM index”) refers to the subsample where the number of anti-takeover provisions is lower (higher) than the sample median. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.

TABLE 10
Future Employment Prospects of Displaced CEOs

	Forced CEO Turnover				Normal CEO Turnover			
	New Employment		New Top Employment		New Employment		New Top Employment	
	M1	M2	M3	M4	M5	M6	M7	M8
Earnings Quality	-6.83 (1.52)		-7.98 (2.21)		8.25 (0.30)		7.22 (0.24)	
Discretionary EQ		-10.12* (2.81)		-10.57* (3.27)		12.72 (0.67)		11.86 (0.59)
Innate EQ		21.32 (1.35)		21.16 (1.42)		-56.09 (1.28)		-49.90 (1.11)
Log Firm Size	-0.16 (1.95)	0.06 (0.12)	-0.06 (0.26)	0.18 (0.98)	0.11 (0.19)	-0.35 (0.69)	0.07 (0.09)	-0.33 (0.67)
Tobin's Q	-0.02 (0.03)	-0.01 (0.01)	-0.03 (0.04)	-0.02 (0.02)	-0.41 (1.60)	-0.38 (1.22)	-0.32 (0.89)	-0.28 (0.66)
Leverage	-4.26*** (9.73)	-4.50*** (10.54)	-3.34** (6.58)	-3.53*** (7.23)	-3.55 (1.61)	-2.02 (0.45)	-2.52 (0.78)	-1.10 (0.13)
ROA	-0.17 (0.01)	0.41 (0.06)	1.03 (0.46)	1.68 (1.15)	3.34 (0.35)	4.28 (0.57)	3.72 (0.46)	4.37 (0.63)
BHAR	-0.05 (0.01)	-0.10 (0.06)	0.01 (0.00)	-0.04 (0.01)	1.52** (4.81)	1.60** (5.32)	1.73** (5.49)	1.78** (5.80)
Log CEO Age	0.08 (0.00)	0.51 (0.10)	0.48 (0.10)	0.90 (0.34)	-2.51 (0.20)	-1.25 (0.04)	-7.61 (1.89)	-6.67 (1.33)
Log CEO Tenure	0.86** (6.07)	0.89** (6.31)	1.11*** (10.22)	1.15*** (10.71)	-0.91* (2.80)	-0.85 (2.32)	-0.54 (1.07)	-0.46 (0.74)
CEO Duality (dummy)	1.62*** (19.88)	1.64*** (20.12)	1.86*** (26.39)	1.88*** (26.83)	2.63** (5.84)	2.69** (5.99)	3.55*** (9.20)	3.65*** (9.42)
CEO Ownership	0.02 (0.55)	0.03 (0.89)	0.04 (1.40)	0.04 (1.91)	0.09 (1.75)	0.09 (1.82)	0.09 (1.91)	0.09 (1.91)
Intercept	10.72 (0.00)	5.96 (0.00)	8.23 (0.00)	3.31 (0.00)	3.50 (0.00)	1.28 (0.00)	22.79 (0.01)	21.42 (0.01)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Max-Rescaled R ²	0.3542	0.3612	0.3698	0.3759	0.5760	0.5853	0.5951	0.6027
Number of OBS.	396	396	396	396	194	194	194	194

This table presents the results of logistic regressions of the future employment prospects of displaced CEOs. All the independent variables are measured as of year t-1, prior to the year of CEO turnover. The full sample comprises 590 CEO turnover incidences between 1993 and 2006. Wald chi-square statistics are reported in parentheses. ***, ** and * stand for statistical significance at 1%, 5% and 10% level, respectively. All regressions control for year fixed effects and industry fixed effects. All the continuous variables are winsorized at 1% and 99%. Please refer to the appendix for variable definitions.