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**CEO TURNOVER AND INTERNAL CONTROL MATERIAL
WEAKNESSES**

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PH.D

The Hong Kong Polytechnic University

2012

THE HONG KONG POLYTECHNIC UNIVERSITY
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**CEO TURNOVER AND INTERNAL CONTROL MATERIAL
WEAKNESSES**

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A thesis submitted in partial fulfillment of the requirements for the
degree of Doctor of Philosophy

September 2011

CERTIFICATE OF ORIGINALITY

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ABSTRACT

In this thesis I examine the relation between CEO turnover and subsequent internal control material weaknesses. Drawing on the literature that agency problems around CEO turnover are likely to increase and that CEO turnover causes organizational dislocation, I posit that CEO turnover may be associated with weak internal control quality. Using 7, 680 firm-year observations from 2004 to 2010 in the U.S. market, I document that firms with CEO turnover within three years *before* the internal control weakness disclosure tend to be associated with more internal control material weaknesses than firms without CEO turnover.

This thesis also documents the impact of Chairman and CEO duality on the relation between CEO turnover and internal control material weaknesses. CEO and Chairman non-duality implies less interests alliance between the CEO and the shareholders and thus may lead to more agency problems around CEO turnover as well as more post-turnover organizational dislocation. The findings show that in firms whose CEO is not Chairman of the board the CEO turnover is significantly related with subsequent internal control material weaknesses while in firms whose CEO is also the Chairman the relation between CEO turnover and internal control material weakness is no longer significant.

Keywords: CEO Turnover, Internal Control Material Weakness, CEO and Chairman Duality

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CHAPTER 1

INTRODUCTION

1.1 Objectives and motivations

Chief executive officer (CEO) turnover has been a much investigated topic in accounting research (Weisbach, 1995; Parrino, 1997; Bushman et al., 2010; Taylor et al., 2010). As the top manager of the firm, the CEO is responsible for the management of overall business and operations. Although the CEO is under direct monitoring of the board of directors and the key business decisions need to be eventually approved by the board, the CEO's power over the board and the implementation of firm policies and decisions can be quite influential. Each move of the CEO can lead to rippling effects within the firm because of the critical position of the CEO. The turnover of CEO is a very important event in the firm and has far-reaching ramifications and significance in the corporate structure and governance of the firm (Engel et al., 2007; Bushman et al., 2010). This study aims to analyze if there is a link between CEO turnover and the effectiveness of the internal control system.

After the spate of accounting failures including Enron, Tyco International and Worldcom, the Sarbanes–Oxley Act (SOX) was enacted on July 30, 2002 with the goal of strengthening corporate governance and protecting the investors by improving the effectiveness

of internal controls and providing high-quality financial reports. Recent research has focused on Section 404 of SOX which requires both the management and external auditor to certify the effectiveness of the firm's internal control over financial reporting and report any internal control material weakness (ICMW). The CEO's role in maintaining good internal control quality is enhanced and the pressure on the CEO is also increased. This study uses sample firms after the effective date of Section 404 to investigate the relation between CEO turnover and internal control quality. The underlying notion is that CEO turnover and the resulting instability in corporate governance and management control including organizational dislocations are likely to lead to a decline in internal control quality (see section 2.3.3). Based on this reasoning there should be a positive relation between CEO turnover and the internal control material weakness.

This study is motivated by the following factors. First, agency problems which derive from the separation of ownership and management are a key theoretical factor in CEO-related studies. The divergence of shareholder interests and CEO interests suggests that the CEO is not likely to work entirely in the interests of the shareholders. This problem is likely to be aggravated in the period before the CEO turnover. CEO decision horizon is found to be positively related with agency costs (Antia et al, 2010). When the CEO expects himself to leave the firm in the foreseeable future, he is likely to act in his own interests and place less emphasis on the firm's operations including insuring that

a high-quality internal control system is in place, thus CEO turnover is likely to lead to more internal control deficiencies.

Second, CEO turnover may cause organizational dislocation both before and after the turnover. The turnover decision of the CEO may affect the job decision of other employees. Turnover contagion is likely to occur and this may lead to unstable personnel structure. It also takes time for the new CEO or personnel to adjust to the work environment. The internal control quality relies heavily on the personnel arrangement and the management chaos caused by the unstable personnel structure around the CEO turnover is likely to damage the effectiveness of the internal control system.

Third, much research has been conducted on internal control material weakness determinants. Doyle et al. (2007a) find that firm size, firm age, financial health, the complexity of business operations, business expansion, and undergoing restructuring that is disruptive to business processes, personnel turnover and accounting estimates are associated with reported material weaknesses. Ashbaugh-Skaife et al. (2007) find firms disclosing control deficiencies before the mandated audits tend to have more complex operations, more recent organizational structure changes such as mergers and acquisitions, higher accounting risks, more auditor resignation and less resource to put in control system. Li et al. (2010) examine the issue from corporate governance structure perspective and show that the lack of qualified CFO is linked with

subsequent material weakness disclosure. Since the company's principal executive and principal financial officers are key personnel in providing reasonable assurance on financial reporting for external purposes, the study on the relation between top management characteristics and behaviors such as CEO turnover and internal control deficiencies is important in obtaining a better understanding of corporate governance's role in maintaining the effectiveness of internal control systems.

Fourth, recent research has explored the relation between internal control deficiencies and corporate governance structure. The disclosure of internal control material weakness, required under Sarbanes–Oxley Act, is found to have a positive relation with improvements in corporate governance characteristics (Johnstone et al., 2010). Material weakness firms seek to enhance the effectiveness and efficiency of internal control system and solidify the public image in the stock market by selecting more capable board and management, and audit committee members. Johnstone et al. (2010) document that internal control material weakness disclosures lead to more turnovers of board members, top management including CEOs and CFOs, and audit committees, yet they do not provide evidence for pre-disclosure turnovers. So far, research attention is focused on the post weakness disclosure stage. The only study providing empirical evidence on the pre-disclosure corporate governance characteristics and the disclosure of internal control material weakness is Li et al. (2010) which find that the lack of qualified CFO is associated with the report of material weakness. This study adds to this literature by

examining the relation between CEO turnover and internal control material weaknesses and argues that CEO turnover is likely to be positively related with weak internal controls and therefore the probability of disclosing a Section 404 internal control material weakness.

1.2 Overview of research methods and major findings

In this study I posit three hypotheses. Hypothesis 1 tests the relation between CEO turnover and internal control material weaknesses and I assume that the relation is positive. Hypothesis 2 tests the moderating effect of material weakness classification by control auditability on the above relation in Hypothesis 1. Hypothesis 3 tests the impact of CEO and Chairman duality on the relation between CEO turnover and internal control material weaknesses.

Using 7, 680 firm-year observations during the sample firms' fiscal years 2004 to 2010, I find evidence supporting Hypothesis 1 and 3. Both the univariate tests and logistic regressions results show that the hypothesized relations hold for the sample period. The dependent variable is ICMW which is a dummy variable equal to 1 for firms that report at least one material weakness in the internal control system and 0 otherwise. The major explanatory variable is CEO_Turnover. If the CEO leaves the firms within three years before the fiscal year end of each weakness disclosing sample year then for that sample year the variable CEO_Turnover is equal to 1 and 0 otherwise. In Hypothesis 2, the

internal control material weaknesses are classified into less auditable and more auditable weaknesses according to Hammersley et al. (2007). The less auditable or more systemic weaknesses are more difficult to monitor by the board and audit committee as well as external auditors. The variable `Less_Auditable_MW` (`More_Auditable_MW`) is equal to 1 for firms that have at least one less (more) auditable internal control material weakness and 0 for firms without any material weakness. The logistic regressions for Hypotheses 3 also use this classification. CEO and Chairman duality data for Hypothesis 3 are collected from ExecuComp and SEC EDGAR databases. The variable `Duality_Turnover` (`Non_Duality_Turnover`) is equal to 1 for firms with CEO turnover and at the same time whose CEO is (not) Chairman of the board, and 0 for firms without CEO turnover.

Major findings show that CEO turnover is positively related with the probability of having internal control material weaknesses. CEO turnover is significantly related with both less auditable and more auditable material weaknesses. The turnover of non-Chairman-CEO, the CEO who is not the Chairman, tends to lead to more internal control material weaknesses and the turnover of Chairman-CEO, the CEO who is also the Chairman, is not related with subsequent internal control material weaknesses.

1.3 Contributions

This study contributes to both the CEO turnover and internal control

literature in the following ways. First, while most studies focus on corporate governance changes after the internal control disclosure this study investigates the pre-disclosure top management turnover's impact on the subsequent weakness disclosure. This enriches our understanding of the relation between corporate governance and internal control quality.

Second, the CEO and Chairman duality issue is included in this study. There has been a debate on whether CEO and Chairman duality aggravates or mitigates the agency problem in the related literature. This study provides supportive evidence on the mitigation argument. The duality could align the interests of CEO and shareholders and firms with CEO and Chairman duality tend to have less agency problems around CEO turnover thus associated with less internal control problems.

1.4 Thesis structure

The rest of the thesis is composed of the following chapters. Chapter two presents the literature review. Chapter three provides the hypotheses development. Chapter four presents the methodology and research design. Chapter five reports the results of this study including a discussion of the results. Chapter six concludes the study and suggests future research opportunities.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews related literature on SOX, internal control weakness, and CEO turnover. SOX and internal control weakness studies have been extensive and corporate governance is closely related with these studies. CEO turnover is an important research topic in corporate governance. By reviewing the extant literature in the above areas, this study aims to combine the related propositions and put forward new arguments and evidence on corporate governance and internal control studies. Section 2.2 reviews literature of SOX and internal control, the determinants and classifications of internal control material weaknesses, and the corporate governance changes around internal control material weakness disclosure. Section 2.3 reviews literature of CEO turnover and firm performance, agency theory, organizational dislocation, CEO and Chairman duality.

2.2 Internal control material weakness

2.2.1 Sarbanes-Oxley Act and internal control

After a series of corporate governance failures starting from Enron to Xerox and Worldcom in the U.S., the U.S. regulatory authorities decisively took efficient actions to remedy the corporate deficiencies in corporate governance legislation. The Sarbanes-Oxley Act (SOX) was

passed by the U.S. House and Senate in September 2002 and it includes 11 titles covering corporate governance, internal control assessment, auditor independence, etc. Section 302 and 404 are the most studied SOX sections in the accounting literature. Section 302 aims at ensuring that all material information of the firm is disclosed in the financial reports. Effective controls must be carried out to ensure the disclosure of all material information. Section 404 is more stringent in that it requires that all firms filed with SEC should provide a management's assessment of internal control effectiveness in addition to the auditor's opinion on the effectiveness of internal control system. Management should certify that appropriate internal controls are in place to be able to effectively detect or prevent errors or fraud that would lead to material misstatements in the financial reports.

Ever since the passage of SOX, researchers have been studying its theoretical as well as its practical effects on corporate governance and the overall operating efficiencies of the firms. Studies have found that corporate governance structure has experienced distinct changes in the post-SOX period which result in actual improvements in internal control effectiveness. According to SOX 302 and 404 sections, top management, i.e. CEOs and CFOs, of public companies must certify as a personal endorsement to the disclosure/internal control effectiveness and the accuracy and completeness of the financial reporting. The financial expertise and job experience are important factors in helping management deal with internal control problems over financial reporting.

The then Enron CEO and Worldcom CEO claimed that the accounting failure may be partly blamed on their lack of financial knowledge and expertise. Geiger and Taylor III (2003) provide in-depth description and explanation on the necessity of CEO/CFO's certifications of financial information. Empirical evidence also shows that the top management possesses more financial and accounting expertise in the post-SOX period (Johnstone et al., 2010).

Researchers have carried out SOX related studies from various perspectives. Patterson and Smith (2007) investigate Sarbanes-Oxley's impact on the strategic choice of a firm's internal control system as well as the auditor's internal control testing. In their theoretical model the manager may choose to be dishonest or honest, in other words, fraudulent or not fraudulent, and they may also choose the strength level of internal controls and whether or not to commit fraud. The auditor can decide on the amount of control tests and substantive tests on the internal controls. The control testing under SOX provides effective motivation for dishonest managers to choose the stronger internal control system and thus deters the otherwise possible frauds, that is, under SOX the expected fraud declines. On the other hand, control testing that identifies stronger internal control system would be followed with less substantive testing as the amount of the latter is based on the results of the control testing. The implication is that while the expected fraud would decrease as a result of dishonest manager's choosing stronger level of internal controls, the audit risk which is the risk of a

material misstatement being undetected by the auditor and the expected undetected fraud would both increase as the amount of substantive testing declines under SOX regime.

Wang (2010) examines the corporate governance changes regarding CFOs after SOX required more stringent internal control disclosure. This study finds that in post-SOX period for firms with stronger internal controls, the CFOs receive higher compensation and experience no significant forced turnover changes. In contrast firms with weaker internal controls, the CFOs receive lower compensation and experience significantly more forced turnover. Firms with stronger internal controls refer to those who have no reported material weakness while firms with weaker internal controls are those who have disclosed at least one material weakness. This study uses two control groups, namely the non-CEO and non-COO management groups in the analysis as the non-CEO and non-COO executive officers tend not to be significantly affected by the SOX requirements on internal control disclosures but may be equally affected by the firm-level risks. Wang (2010) contributes to the SOX literature by providing solid evidence that SOX implementation effectively reduces the information asymmetry on the CFO capability in the labor market and the existence of internal control material weakness serves well as a performance measure for financial management.

Much research has been carried out regarding the costs and benefits

of the SOX implementation. SOX 404 requires all accelerated filers with fiscal year ends on or after November 2004 to file with SEC in their annual reports a management assessment of the internal control effectiveness together with an auditor's opinion in this respect. Non-accelerated filers with fiscal year ends on or after December 2007 are required to follow the above requirements from fiscal year 2007. On one hand, by strictly stipulating the internal control disclosure requirements and the liabilities of the management and the auditors SOX has greatly enhanced the transparency and credibility of financial reports. The information asymmetry between the management and the stakeholders has to a certain extent been effectively reduced. Many studies have documented the improvement in corporate governance efficiency and the operating and market performance. On the other hand, the investigation on the costs of SOX inflicted on the firms has produced some significant results. The significant SOX compliance costs, including the additional administrative work, staffing training, policy and regulation development, hardware updating and auditing cost take up much effort and resource (Engel et al., 2007). Such costs are seen by many small firms as too heavy and unacceptable and many firms are forced to transform their business strategies and operation.

Engel et al. (2007) investigate the firms' going-private decisions in the post-SOX period. Since the implementation of SOX inflicts heavy costs on the firms, those firms for which the costs exceed the benefits from SOX may choose to avoid SOX and go private. Using sample firms

from January 1998 to May 2005 that file Schedule 13E-3 with SEC and aimed for deregistration from public stock market, the authors find that there are more firms undertaking going-private transactions in the post-SOX period than in the pre-SOX period. Smaller firms are found to experience more negative abnormal returns around key events¹ leading to the passage of SOX implying that SOX-related net costs tend to be heavier for those firms and they are more likely to undertake going-private transactions. Further evidence shows that small firms with large inside ownership proxied by manager and director ownership tend to have higher abnormal returns around the going-private announcement in the post-SOX period than in the pre-SOX period, which suggests that small firms with large management ownership tend to have effective corporate governance in the pre-SOX period and by going private those firms could avoid the heavy SOX compliance costs while still maintain good corporate governance. This study provides more evidence for the costs and benefits studies of SOX. Such findings reinforce the debate on which is the dominating effect under SOX regime, the beneficial effect or the value-destroying effect.

While SOX effectively curbs the management frauds that may lead to significant damage to the corporate welfare, the rigid requirements on internal controls may restrain management from engaging in vigorous investment projects. Risky and complicated investment projects require more sophisticated internal controls and tend to be more likely related

¹ In Engel et al. (2007), the key events that lead to the passage of SOX are identified by examining related press releases from February 13 to July 25, 2002 using Factiva. This is the period when the SEC worked on the formation of SOX.

with internal control material weaknesses. Under the increased pressure in the post-SOX period, the management tends to forego the risky projects to maintain the stableness of internal control system. Barger et al. (2010) examine the economic effects of SOX from corporate risk-taking perspective and find that the risk-taking significantly declines in the post-SOX period. The role of independent directors is increased in corporate governance and they are held more liable for the corporate material weaknesses. The CEOs and the CFOs are required to personally certify the firms' financial statements. Such provisions hold back the board and the management from taking risky and complex projects that may lead to more control weaknesses. Barger et al. (2010) use a sample of U.S. firms and non-U.S. firms including public firms in the U.K. and Canada which are not cross-listed in the U.S. from 1994 to 2006, and find supportive evidence consistent with their assumptions. They also document cross-sectional differences in risk-taking. Five key risk-taking variables are adopted which are CAPEX for capital expenditures, R&D for research and development expenditures, INVEST for the sum of CAPEX and R&D, CASH for cash and short-term securities, and STD for standard deviation of stock returns. Large firms tend to have greater reduction in capital expenditures and R&D expenditures than small firms. Firms with high R&D expenditures before SOX tend to have greater reduction in capital expenditures, cash and short-term securities and stock return volatilities.

Ogneva (2006) examines relation between internal control material

weakness and cost of equity under SOX Section 404. The cost of equity is marginally higher for firms disclosing internal control material weaknesses than firms disclosing no material weaknesses, yet after controlling the analyst forecast bias and firm characteristics previously documented to be related with internal control material weaknesses (Ge and McVay, 2005; Ashbaugh-Skaife et al., 2005; Doyle et al., 2005) such as firm size, business segments, sales growth, foreign transactions and Z-score in the regressions, the above result is no longer significant. Although there are plausible reasons that cost of equity may be negatively related with internal control material weaknesses since the latter may lead to increased information risk and the systematic risk, the results of Ogneva (2006) do not support that the cost of equity is directly related with internal control material weaknesses. This study provides additional empirical evidence on the cost and benefit analysis of SOX implementation. Theoretically the reduced information risk under SOX regime may lead to lowered cost of equity, yet up to present there is no compelling evidence for this argument and further investigation should be carried out on this issue.

Prakash (2008) investigates both the costs and benefits of SOX 404 for small public firms. While most studies of SOX focus on accelerated filers, Prakash (2008) provides valuable evidence on non-accelerated filers which are required to comply with SOX section 404 about three years after the effective date for accelerated filers. The findings show that the implementation cost of SOX 404 is very heavy for those small

firms, yet on the other hand, SOX helps increase the quality of earnings and the financial information quality increase would then decrease the information risk and correspondingly the cost of equity. Prakash (2008) constructs a comprehensive measure to include both direct and indirect costs of SOX implementation.

Leuz (2007) presents a discussion of Zhang (2007) and Engel et al. (2007). Zhang (2007) proposes that SOX inflicts net costs to the firm thus generating negative market returns. Engel et al. (2007) find that there are more firms going private in the post-SOX period to avoid SOX compliance costs. Leuz (2007) criticizes the two papers and argues that their findings may be contaminated and not attributable to SOX. The control group selection problem and the independent impact of events problem are presented against Zhang (2007)'s work. The definition of going-private and the complex reasons for going-private trend since 2005 are used to shed doubts on Engel et al. (2007)'s study. Leuz (2007) also reviews other studies on the costs and benefits of SOX and suggests more caution be exercised when interpreting the findings.

Beneish et al. (2008) analyze the market responses to SOX 302 and 404 disclosures. Using 330 firms disclosing unaudited material weaknesses under SOX 302 and 383 firms disclosing material weaknesses under SOX 404, the authors find that the market has significantly negative response towards disclosures under Section 302. This result suggests that the Section 302 disclosures are informative and

the disclosing firms have great pre-disclosure information uncertainty. In contrast, disclosing firms under Section 404 experience no significant market response towards the disclosure meaning that the disclosures do not provide additional information on the control environment. Beneish et al. (2008) also find the auditor quality² enhances the negative market response towards Section 302 disclosures. The high-quality auditor could increase the credibility of disclosures and make the disclosures more informative. Firms disclosing material weaknesses under Section 302 experience abnormally negative earnings forecast revisions and abnormally positive cost of capital increase after the disclosure. No significant results on earnings forecast revisions or cost of capital are found for disclosing firms under SOX 404 and this is consistent with previous literature (Ogneva et al., 2007).

Zhang (2007) investigates the economic consequences of SOX by exploring the stock prices reactions to the SOX legislative events. The stock prices are assumed to incorporate all the available information on the costs and benefits and could proxy for the economic consequences of SOX events. By adjusting the stock returns of U.S. firms and non-U.S.-traded firms, the author documents significantly negative cumulative abnormal returns around SOX legislative events. This result suggests that the costs incurred by SOX exceed the benefits. The author further investigates the cross-sectional implications of the major

² Audit quality (AQ) has the following proxies in Beneish et al. (2008): BIG, is equal to 1 when the audit firm is one of the Big 4 audit firms and 0 otherwise; INDSPEC, is equal to 1 when the firm is audited by an industry specialist that has at least 20 percent of market share in industries with no less than 30 firms; NONSPEC_BIG, is equal to 1 when the audit firm is one of the Big 4 audit firms but not an industry specialist. Positive coefficients for BIG, INDSPEC, and NONSPEC_BIG are expected in Beneish et al. (2008).

provisions of SOX and finds that the restriction of non-audited services is related with more negative market returns. Firms with more foreign transactions and more complex operations as well as weaker governance are confronting more costs under SOX regime. Additional tests results show that the deferring compliance with SOX 404 is good news for the market and small firms with deferred compliance experienced higher returns than other firms around the announcement. Zhang (2007) contributes to the literature on the economic consequence study of security legislation in the context of SOX.

The impact of firm features such as cross-listing on SOX implementation has also been explored. Gong (2010) examines the moderating effect of investor protection in home country and management ownership on the implementation of SOX 302 internal control deficiency disclosure requirements in the cross-listed firms. Gong (2010) finds that the cross-listed firms from home countries of weak investor protection and whose management also has controlling voting rights tend not to disclose internal control deficiencies under SOX 302 regime. Since section 302 only requires that disclosure controls be well in place and does not require management personal testimony on the effectiveness of the entire internal control system as section 404 requires, the management in the aforementioned situation has more discretion over the internal control deficiency disclosures. Further investigation for section 404 regime shows that the same group of firms tends to deregister from SEC before the section 404 effective

date. In contrast there is no similar evidence for firms domiciled in strong investor protection countries. For the weak investor protection countries with concentrated management ownership, management with voting rights exceeding cash flow rights tend to protect their private control rights when hiding internal control deficiencies is considered beneficial.

2.2.2 Internal control weakness determinants

Studies on the internal control weakness determinants have been substantial and fruitful. This section presents extant literature on internal control weakness determinants.

Bryan and Lilien (2005)'s study provides early evidence on the determinants of internal control material weaknesses. They find firms with material weaknesses have smaller firm size and poor performance and higher betas than the industry peers. They indicate that the majority of firms reporting material weaknesses are small firms. They also discuss the costs and benefits of SOX implementation. Their research casts doubt on the benefits of SOX; in particular they look at the earnings management in the post-SOX era and shows that firms still manage pro forma earnings.

Ashbaugh-Skaife et al. (2007) investigate the economic factors that lead to internal control risks and management's reports on internal control deficiencies. Their study is based on SOX Section 302 which

requires the management to evaluate the effectiveness of disclosure controls and report any significant changes in internal controls since the last SEC 10-K or 10-Q filing. Internal control disclosures between the effective date of Section 302 and 404 are used in this study. Material weaknesses as well as less significant deficiencies are reported during this era. Non-accelerated filers also report the weaknesses under Section 302 which enables the authors to document broader factors affecting the control weaknesses. The tests results show that firms disclosing internal control deficiencies have more complex business operations, more accounting risks and auditor resignations, undertake organizational changes and have limited resources for internal controls. In firms that have more financial restatements and SEC enforcement actions the managers are more incentivized to discover and report internal control deficiencies. It is also found that the internal control deficiency reporting firms tend to use a dominant audit firm such as Big 4 audit firms and have more concentrated institutional ownership.

Doyle et al. (2007a) provide important evidence on the determinants of control weaknesses. Using 779 firms with internal control material weaknesses from August 2002 to 2005 and a series of firm characteristics as the explanatory variables, the authors find that firm size and age, financial position, business complexity, growth rate and restructuring activities are all determinants of weaknesses in internal controls. Firms that are small, young, with weak financial position and/or complex business, growing rapidly, and/or undertaking

restructuring activities tend to have internal control material weaknesses. The material weaknesses are also classified into firm-level and account- or transaction-level weaknesses, weaknesses related to staffing, complexity and general stuff. With the two schemes of classification the authors provide more evidence on the relations between the above factors and internal control weaknesses. Firms with more severe firm-level weaknesses are relatively small, young, and financially weaker while firms with less severe account-level weaknesses have less financial problem, more complex and diversified business and operations. It is also found that the strength of the above weakness determinants varies with the types of disclosed weaknesses.

Petrovits (2011) investigates the determinants of internal control deficiencies in non-profit organizations. Internal control problem in non-profit organizations is defined as “the existence of a reportable condition over financial reporting or over compliance with federal program requirements”. This definition is similar to that for for-profit organizations and the findings on internal control problem determinants are similar as well. Petrovits (2011) finds that non-profit organizations that are small, financial stressed, growing fast, with complex activities tend to have internal control problems. This study also investigates the subsequence of internal control weaknesses. The reporting of internal control problems is found to lead to less subsequent donations and/or less government grants, and this shows that the donors and the government are in a similar position as the investor for the for-profit

firms in the sense that they use information from the internal control quality report.

Krishnan (2005) investigates the relation between audit committee quality and the internal control problems. Using sample firms that disclose internal control problems when changing the auditors and control firms with auditor change but no reported internal control problem, the author finds that the independence and financial expertise of audit committee are significantly related to internal control effectiveness. More independent audit committee and more financial expertise of the audit committee members lead to less internal control weaknesses. The internal control weaknesses are classified into weaknesses of reportable conditions and material weaknesses, and the above relations hold for both categories of weaknesses.

The reporting of internal control material weaknesses can be compared with other corporate governance deficiencies or failures, such as the restatements of financial reporting or bankruptcy. Determinants of restatements may also affect internal control quality thus the investigation on these factors provides useful indicators in internal control studies.

Kinney and McDaniel (1989) analyze the characteristics of firms correcting previously reported earnings in the quarterly reports. They find that earning-correcting firms tend to be smaller, more leveraged,

less profitable, growing more slowly and having more uncertainty-qualified auditor opinions. The stock returns between original report and the correction are significantly negative, especially for those overstating the earnings in the quarterly report. Their findings are consistent with internal control material weaknesses studies. Firm size, financial positions and growth rate tend to be associated with corporate governance problem.

Shumway (2001) develops hazard models to forecast bankruptcy. The factors associated with bankruptcy may also have impacts on the internal control efficiencies, as bankruptcy risk may affect the whole business and operation of the firm. Many studies use static models to predict bankruptcies. Shumway (2001) lists the problems with those static models and also the corresponding advantages of hazard models. Static models fail to adjust the risk for period while hazard models adjust for period automatically. Hazard models allow for the time-varying features of the explanatory variables and static models do not. Hazard models could also incorporate more data than static models thus increasing the forecast capabilities and efficiencies. Using both market-related returns and accounting variables as explanatory variables, Shumway (2001) finds that market size, past stock returns, idiosyncratic returns volatility are significantly related with bankruptcy. The hazard models seem to produce more accurate bankruptcy forecasts than other models.

Defond and Jiambalvo (1991) analyze the factors associated with accounting errors in the financial statements. Financial statements errors can be made both intentionally and unintentionally. In this study, the authors find 41 firms overstating the earnings in contrast to only three firms with understatements. This suggests that management purposely manipulates earnings. Defond and Jiambalvo (1991) further show that firm characteristics are related with earnings management. Firms with diffuse ownership and low growth rates tend to overstate the earnings and firms with audit committees are less likely to overstate. The overall results indicate that earnings management is common especially in firms with weak corporate governance.

2.2.3 Internal control weakness classification

Classifications of internal control weaknesses are widely adopted in internal control related studies. By investigating the moderating effects of the classifications, the researchers expand and deepen the understanding of the internal controls. The following section discusses the various types of internal control weakness classifications.

Doyle et al. (2007b) investigate the relation between accrual quality and internal control effectiveness. They use sample firms that report at least one material weakness under SOX Section 302 and 404 regimes from August 2002 to November 2005. Accruals quality reflects the quality of financial reporting, thus should be affected by the internal control environment. Intentional earnings management and unintentional

accrual estimation errors due to weaknesses in internal control system may both lead to poor accrual quality. However, by classifying the weaknesses into company-level and account-specific categories, the authors find that the above relation is basically driven by the company-level weaknesses. One explanation is the company-level weaknesses are more difficult to “audit around” thus may lead to more space for earnings management and unintentional errors. In addition, the authors find the relation between accrual quality and material weaknesses are stronger under Section 302 than under Section 404. The increased scrutiny of Section 404 may help identify more material weaknesses than may affect accruals quality.

Feng et al. (2009) investigate the relation between the effectiveness of internal control system and the quality of management guidance. Managers generally use unaudited internal management reports to make management guidance. Thus the quality of financial information provided through the internal control system will have an impact on the management earnings forecast as well as other decisions based on the internal management reports. Using 2, 994 sample firms with earnings guidance and SOX 404 reports from 2004 to 2006 and measuring the accuracy of management guidance as the realized forecast errors, the authors find that firms with internal control weakness disclosures have significantly larger forecast errors in management guidance than those without. The results confirm the authors’ assumption that internal control quality has an impact on the management guidance accuracy. In addition,

the internal control weaknesses are further classified to test the relation between weakness nature and management forecast accuracy. It is found that revenue-related and cost of goods sold-inputs-related weaknesses have greater impact on management guidance than weaknesses of other nature.

Ge and McVay (2005)'s work is among the early studies of internal control material weakness disclosure. Based on clustered descriptive statistics, they give a preliminary and rough classification of internal control material weaknesses. They indicate that inadequate accounting resources could be the major reason for the majority of internal control material weaknesses. They identify that lack of qualified personnel, deficient revenue-recognition policies, improper segregation of duties, and deficient report-closing process as the most common causes for material weaknesses. Weaknesses related to current accrual accounts and subsidiary-specific weaknesses are also commonly cited. The authors further explore the firm characteristics related to internal control material weaknesses. They find business complexity is positively related to material weakness disclosure while firm size and profitability are negatively related to material weakness disclosure. Finally, the results show that firms audited by large audit firm tend to have more material weakness disclosure.

Ettredge et al. (2006) study the impact of SOX 404 section on audit delay. Audit delay is the period between a firm's fiscal year-end and the

date on which the auditor signs the report. The stringent SOX Section 404 requirements of both management's and the external auditor's assessments on internal control over financial reporting create heavy workload for the firms and the auditors, thus the audit delay would be consequently lengthened. Using sample firms that files with SEC from January 2005 to June 2005 and doing OLS regressions to compare the audit delays in fiscal year 2004 which is the first implementation year of Section 404 and in fiscal year 2003, the authors find that Section 404 leads to significant increases in audit delays. This paper further inspects whether the above relation varies with the types of material weaknesses. The internal control material weaknesses are classified into general and specific weaknesses. The "general" material weaknesses refer to firm-wide weaknesses and the "specific" material weaknesses refer to account-level or transaction-level weaknesses. The general weaknesses are found to be related with longer audit delay than the specific weaknesses. They also find material weaknesses related to "personnel", "processed procedure", "segregation of duties" and "closing procedures" are associated with longer delay. Ettredge et al. (2006)'s classification of internal control material weaknesses is preliminary compared with subsequent studies on material weaknesses classification.

Hammersley et al. (2008) investigate the market reactions towards internal control weakness disclosures under Section 302 of SOX. In this study the internal control weaknesses are classified into several categories by different criteria on weakness characteristics. The severity

of weaknesses, management's overall evaluation of the effectiveness of internal control system, the auditability of weaknesses, the vagueness of disclosures, the discoverer of weaknesses and the auditor status are the bases for the classification. The sample includes 358 weakness disclosures from November 2003 to January 2005. The results show that overall the market responds negatively at the announcement of weakness disclosures. The nature of weaknesses affects the market returns and the severity of control weaknesses strengthens the above negative relation. Severe weaknesses may be considered by investors to be more difficult to remediate and linked with higher possibility of material errors in the financial statements. A positive evaluation on the effectiveness of internal control system by the management and the presence of a Big Four auditor help decrease the negative market returns. Findings also include that less auditable weaknesses and vague disclosures cause more negative returns. The authors conclude that control weaknesses are informative and the investors are more concerned about the possibility of successful audit by the external auditors and this can be significantly affected by the severity of weaknesses.

Lin et al. (2007) study the relation between internal audit characteristics and internal control material weaknesses. The internal audit function (IAF) of the firm plays an important role in implementing the policies and procedures of internal control system (see Lin et al., 2007 for more details). Using a series of IAF effectiveness measures mainly based on GAIN survey data for 2003 and 2004, the authors

document a negative relation between IAF quality and internal control material weakness and a positive relation between governance scores and IAF outsourcing. The internal control material weaknesses are then classified into firm-level and account-transaction-specific weaknesses. The former is negatively related with IAF quality and positively related with IAF objectivity and the latter is positively related with IAF's attention on financial auditing.

2.2.4 Internal control material weakness and corporate governance changes

Studies on the internal control weaknesses and corporate governance mostly focus on the corporate governance changes after the internal control weakness disclosure. Firms with internal control material weakness report tend to experience improved corporate governance changes after the weakness disclosure. Such changes in many cases could lead to subsequent weakness remediation.

Ettredge et al. (2010) examine the auditor status after the internal control material weakness disclosure. Using a sample of accelerated filers under SOX Section 404 requirements from November 2004 to December 2007, the authors find that firms with adverse opinion on internal control effectiveness tend to dismiss the auditors and this phenomenon persists for four years after the negative opinion. The authors propose that material weaknesses in internal control system can be a new and significant determinant factor of auditor dismissals. Firms

with internal control material weaknesses and subsequent auditor dismissals are more likely to hire high quality auditor such as Big 4 auditors than firms with effective internal control system and auditor changes. This is an indication of the firms' intention of remediating the material weaknesses. The results also show that if the newly fired auditor specializes in the firm's industry then the firm is more likely to receive improved auditor's opinion on the internal control over financial reporting.

Johnstone et al. (2010) investigate the corporate governance changes after the internal control material weakness disclosure. Firms with material negative events such as restatement of financial reporting tend to have changes in corporate governance, i.e. board and management turnover, in order to remediate the problem. Using 733 firms with internal control material weaknesses during fiscal years 2004 to 2006, the authors find that firms with material weaknesses tend to have more board member, audit committee and top management turnovers. Further tests show that the remediation of internal control material weaknesses is positively related with audit committee turnover and the changes in the characteristics of board members and top management. The increased board independence, the improved financial expertise of audit committee members, the increased accounting expertise of CFOs and CFO-specific job experiences, as well as better CEO reputation³, are all positively

³ CEO reputation shifts are measured by ΔCEOBOD , which is equal to 1 (-1) if "the CEO not serving (serving) on between one and three boards is replaced by a CEO serving (not serving) on between one and three boards" and 0 if the CEO is not changed or if both the replaced and the new CEO serve (do not serve) on between one and three boards.

related with subsequent remediation of internal control material weaknesses.

Literature on the relation between corporate governance status before the internal control disclosure and material weaknesses is relatively limited and research in this area could be further expanded.

Li et al. (2010) investigate the relation between financial executive quality, internal control material weakness and financial executive turnover after the weakness disclosures. The CFO takes up a key position in a firm's internal control system. The CFO needs to assist the CEO in providing reliable financial information to the stakeholders. Under SOX regime the responsibility of CFO is further emphasized. The authors expect to see that the CFO qualification is negatively related with subsequent internal control material weaknesses and firms with material weaknesses tend to have higher CFO turnover and hire CFOs with better qualifications. The CFO quality is measured by the professional qualifications in this study. Using accelerated filers in their fiscal year 2004 after SOX Section 404 effective date, the authors confirm their assumptions by finding that firms with adverse Section 404 opinions have more low-quality CFOs and these firms tend to have more CFO turnover after the control disclosure. Further results show that firms with initial adverse Section 404 opinions and subsequent improvements in CFO qualifications are more likely to receive improved Section 404 opinion. The paper contributes to the research on corporate

governance characteristics both before and after the internal control weakness disclosure.

Hoitash et al. (2009) investigate the relation between corporate governance and internal control material weaknesses. They find the financial expertise of audit committee members is significantly related with material weakness disclosure. The study uses control disclosures under both SOX Section 302 and 404. The results show that the accounting as well as supervisory financial expertise of the audit committee members is negatively related with the material weakness disclosure under Section 404. The accounting and supervisory expertise relates to different types of material weaknesses. The authors also find the designation of multiple financial experts in audit committee increases the likelihood of material weakness disclosure. In addition, the board level corporate governance quality is found to be negatively related with Section 404 material weakness disclosure.

2.3 CEO turnover

2.3.1 CEO turnover and firm performance

There is a large body of literature on CEO turnover and firm performance measured by both accounting measures and stock returns. Using sample firms from 1977 to 1980 Coughlan and Schmidt (1985) find that CEO turnover has an inverse relation with stock performance. Warner et al. (1988) follow Coughlan and Schmidt (1985)'s study and using sample firms from 1963 to 1978 further indicate that the

probability of turnover is only materially affected by extreme bad performance and that the stock price volatility increases upon the turnover announcement, yet the volatility is non-systematic.

Weisbach (1988) investigates the board composition's impact on the relation between CEO turnover and firm performance. Using the sample composed of large companies from 1974 to 1983, he finds the turnover and performance relation is stronger for firms in which the board is dominated by outside directors. Outside directors are regarded as more independent and effective monitors than inside directors, thus the results show that the more independent the board, the more likely the CEO turnover due to poor performance.

The post-turnover corporate behaviors are also investigated by researchers. Asset write-offs (Strong and Meyers, 1987; Elliot and Shaw, 1988) and income reducing accounting arrangements (Pourciau, 1993) and investment divestitures (Weisbach, 1995) are documented to have increased following the CEO turnover. These events are considered to be aiming at correcting the value-destroying behaviors of the previous CEO.

Murphy and Zimmerman (1993) explore the relation between various financial variable changes around CEO turnover and pre-turnover firm performance. Previous studies generally focus on individual financial variables and this study provides a more

comprehensive picture of financial variables changes surrounding CEO turnover. They find that the turnover-related financial variables changes such as the changes in R&D and accounting accruals are due to poor firm performance and only in firms with poor pre-turnover firm performance the departing or the new CEO could exercise discretion over the above financial variables. Management discretion in firms with good performance and CEO retirement is not found according to their evidence.

Engel et al. (2003) investigate the precision and timeliness of accounting-based performance measures and market-based performance measures and the effect of both measures on the CEO turnover decision. By devising proxies of the value-relevant information (signal) and noise in the accounting and market performance measures and applying them to the sample CEO turnovers between 1975 and 2000, the authors find that the board's reliance on accounting performance measures which are based on current earnings increases with the timeliness of the earnings and decreases with the noise of earnings. Correspondingly the board's reliance on market performance measures decreases in earnings timeliness and the noise of stock performance. Findings of this research show that the accounting-based performance measures receive greater weights in the turnover decision and are more precise and sensitive than market-based performance measures.

Farrell and Whidbee (2003) also examine the performance-turnover

relation. They use 1-year analyst forecast errors as the performance measure and hypothesize that there exists a negative relation between the forecast errors and CEO turnover. They further assume that this relation is even stronger when the analysts have similar forecasts (less forecast dispersion). Farrell and Whidbee (2003) use a sample of 363 CEO turnovers between 1986 and 1997 and in total 4, 015 firm-year observations for their study. Their results are supportive of the major hypotheses. Apart from the negative relation between earnings forecast errors and the CEO turnover probability, they also document a negative relation between industry-adjusted 5-year earnings growth forecast and an outside CEO successor. When there is greater analyst forecast dispersion on the 5-year earnings growth forecast which implies more uncertainty of the firm's long-term growth, the board tends to appoint an outsider as the successor CEO as the latter is expected to bring about more changes in the firm's policies and strategies which are considered to be beneficial to the firm value.

Brickley's (2003) work is a discussion on the empirical research on performance-turnover relation and it focuses on the evidences of Engel et al. (2003) and Farrell and Whidbee (2003). Brickley (2003) summarizes the existing literature on the performance-turnover relation and points out that even though researchers have documented a negative relation between firm performance and CEO turnover using various performance measures, both the magnitude and the significance of the relation is limited. The explanatory power of the overall tests is also not

quite strong. Brickley (2003) suggests more factors apart from firm performance in understanding the CEO turnover events. Age of the CEO has been found to be highly relevant in explaining the CEO turnover in large firms (Hallock and Murphy, 1999). Brickley (2003) puts forward a series of research questions based on the age-turnover relation and argues that performance-turnover research so far has produced limited contributions.

DeFond and Park (1999) investigate the relative performance evaluation (RPE)'s effect on the CEO turnover decision made by the board. RPE provides useful information on the relative capability of the CEO among the industry peers. Using 301 sample firms with CEO turnovers from 1988 to 1992 and 621 control firms without CEO turnover, the authors find that CEO turnover is higher for more competitive industries than less competitive industries. In more competitive industries the CEOs are facing similar external market conditions and internal operational environment thus RPE is most effective in these industries. This paper documents that RPE-based performance measures are more significantly related to CEO turnover in more competitive industries than less competitive industries, while firm-specific performance measures are more appropriate for less competitive industries.

DeFond and Hung (2004) add investor protection factor on the study of the relation between CEO turnover and firm performance. Good

corporate governance implies strong investor protection and identifying poorly-performing CEO is a key role of corporate governance, thus it is expected that in countries with strong investor protection the performance-turnover relation should be more significant. Strong investor protection is measured by two proxies – the strong law enforcement institutions and the extensive investor protection laws. Based on a sample of 21, 483 firm-year observations across 33 countries from 1997 to 2001, DeFond and Hung (2004) find that the strong law enforcement institutions strengthen the negative relation between firm performance and CEO turnover while the extensive investor protection laws do not. The reasons provided by the authors for the above major findings are that law enforcement effectiveness is more indicative of the strength of investor protection and that the investor protection laws requires the supplement of strong law enforcement for eventual strong investor protection. The sample bias and measurement errors may also be the possible reasons for the insignificant impact of the extensive investor protection laws.

Menon and Williams (2008) investigate the impact of auditor resignation on the relation between firm performance and CEO turnover. Auditor is considered to possess inside information and the resignation of auditor is found to generate negative market reactions, thus is seen as an unfavorable event. Firms with auditor changes are required to file with SEC for any reportable event that may generate unreliable information in the financial statements. Using sample firms audited by

Big 5 auditors and having auditor changes between 1990 and 2001, the authors find that both CEO and CFO turnovers increase after auditor resignations and the increase is more significant when the firm file a reportable event⁴. Previous literature majorly focuses on the CEO turnover and this paper provides additional evidence to the CFO turnover study and enriches the non-CEO executive turnover literature.

Dahya et al. (2002) examine the impact of corporate governance effectiveness on the relation between firm performance and CEO turnover with U.K. evidence. The Cadbury Committee which was formed by the Financial Reporting Council, the London Stock of Exchange and the accountancy profession aims to address the financial aspects of corporate governance. In December 1992, the Cadbury Committee issued The Code of Best Practice which recommended that the boards include minimum three non-executive officers and the Chairman of the board and the CEO be taken up by two different persons. The provisions of the Code are voluntary yet at the same time disciplinary. They enhance the board independence and restrain the management power over the board. The corporate governance effectiveness is increased after the code implementation. Since good corporate governance should function well in firing poorly performing CEO, the authors expect to find an increase of CEO firings in the

⁴ Firms changing auditors are required to file with SEC an 8-K report in which any “reportable event” must be noted. Reportable events are classified into internal control reportable events and reliability reportable events. (Whisenant et al., 2003) Internal control reportable events arise when the auditor believes the client’s internal control system is not strong enough to generate reliable financial statement. Reliability reportable events arise when the auditor believes the manager’s presentations on financial statements are not credible or that the auditor needs to expand the scope of audit.

post-Code period as the Code improves the corporate governance effectiveness and strengthens the board's ability to single out bad CEOs. Using 460 sample firms listed on the London Stock Exchange as of December 1988 and checking out their corporate performance for 7 years before and 4 years after the Code, the authors find supportive evidence for their assumptions. The CEO turnover increased after the Code issuance and meanwhile the negative relation between CEO turnover and performance is strengthened.

Wu and Zhang (2009) examine the impact of voluntary adoption of international accounting standards on the internal performance evaluation process. While most studies on the adoption of international accounting standards focus on the informational benefits, this paper investigates the adoption from internal stewardship perspective. The adoption not only increases the earnings credibility but also improves the overall internal performance evaluations and corporate governance effectiveness. With improved earnings quality, the internal performance valuation puts more weight on the accounting earning which helps identify the poorly performing CEOs which potentially increases the sensitivity of CEO turnover to accounting earnings. The authors further assume that the employee layoffs are also more sensitive to the accounting earnings for the same reason. The sample includes the Continental European firms that have voluntary adoption of IFRS or U.S. GAAP between 1988 and 2004. The results confirm the authors' assumptions on the sensitivity of the CEO and employee turnover to the

earnings quality.

Bushman et al. (2010) investigate the impact of firm performance risk on the CEO turnover decisions of the board. The firm performance volatility may be driven by either the unobservable CEO talent or the factors unrelated to CEO talent. Stock returns are the performance measure in this paper and the volatility of stock returns are decomposed into idiosyncratic and systematic components. The idiosyncratic volatility is assumed to be more informative of firm performance than systematic volatility thus it may better reflect the impact of CEO talent on the firm performance and the informational content of this volatility can assist the boards to evaluate the CEO talent and make CEO turnover decision. The systematic volatility is assumed to be caused by noise or economy-wide factors that are unrelated to CEO talent and thus could not be relied on for accurate assessment of CEO's contribution to the firm performance. This study provides solid evidence for the hypothesis that idiosyncratic risk of the firm is positively related with the likelihood of CEO turnover while the systematic risk is negatively related with CEO turnover.

2.3.2 CEO turnover and agency problem

The agency problem around the time of CEO turnover is an interesting research topic. Much research has been conducted to shed more lights on this issue.

Antia et al. (2010) investigate the relation between CEO decision horizon and firm performance. Using expected CEO tenure as the proxy for CEO decision horizon, the authors find that CEO decision horizon is inversely related with agency costs. Shorter CEO decision horizon is related with more agency costs. Their results also show that longer CEO decision horizon is associated with higher market valuation and lower information risk. The CEO with shorter expected tenure is more likely to make investments with shorter payback period at the cost of long-run firm value.

Laux (2008)'s study of agency problem between the CEO and the board is based on board independence and CEO turnover. The CEO has information advantage over the board and the more independent the board the more active the board is in trying to dismiss the inappropriate CEO and also the more reluctant the CEO is to share information with the board. Their model predicts that CEO turnover would be higher with the trend towards greater board independence. The information asymmetry facilitates the benefits extraction on the CEO side and where the board is slack in monitoring the CEO, the latter may use the information advantage for self-interest.

Shleifer and Vishny (1989) investigate agency problem from the management entrenchment perspective. They find that managers could entrench themselves by making manager-specific investments. Such investments inflict extra costs for the firm to replace the CEO and the

CEO could also extract higher payment and more perquisites. The management power of CEO is increased by these manager-specific investments. Managers tend to get themselves entrenched so that their job is more secured and they are more able to use their power for self-interest. The entrenched managers have more advantages in extracting extra benefits around the time of turnover.

Kalyta (2009) studies the relation among earnings management, horizon problem and CEO retirement benefits. The CEO's horizon becomes shorter when the retirement stage approaches and if the pension of the CEO depends on the performance in the final pre-retirement years then the CEO is more likely to do income-increasing earnings management. The agency problem is clearly more distinct in the pre-retirement years and the evidence from this research shows that the market also identifies the increased agency problem by demonstrating a negative response for CEO retirement in firms whose retiring CEO's pension is contingent on the pre-retirement performance.

Aboody and Kasznik (2000) investigate the agency problem using CEO stock options and the timing of corporate voluntary disclosures and find that CEOs manipulate the corporate disclosure timing to maximize their stock option awards values. Around the time of CEO stock option awards the CEOs tend to delay good news and disclose in advance the bad news so that they could make the best of the options. Thus even though the CEO stock options aim to mitigate agency problem by

aligning the interests of the CEO and the shareholders, their effectiveness is challenged as the CEO is also an economic person and always prefer more self benefits.

Core et al. (1999) examine the relations among corporate governance structure, CEO compensation and firm performance. They find that weak corporate governance structure is related to greater agency problems and poorer subsequent firm performance. The board size and composition are important factors in determining the effectiveness of board monitoring on management and therefore the corporate governance effectiveness. The weaker the governance structure, the stronger the management power and the greater the agency problem. Firm performance is assumed to be poorer for firms with more agency problem.

Matta and Beamish (2008) investigate the CEO career horizon problem. They show that CEOs at different stages of career horizon have different risk preferences. A longer CEO career horizon is associated with more risk taking while a shorter one is associated with conservative risk taking. Their evidence is based on international acquisition and they find that CEOs approaching the age of retirement and with large unexercised options and shareholdings tend to be conservative and less likely to take on international acquisitions. The investment decisions can be highly manipulated by the CEO's personal preferences and may deviate from optimal investment decisions with more risks that give

shareholders' interests top priority. Such opportunity costs are agency costs and Matta and Beamish (2008)'s evidence shows that such costs can be greater around the CEO turnover period.

March and Simon (1958)'s early work on the "theory of organizational equilibrium" suggest that the length of service within an organization is positively related with the employee's specialization and the latter has a negative relation with extraorganizational alternative successors. Specialization could lead to CEO entrenchment. The longer the CEO serves for the firm the more specialized he becomes and to a certain extent the more management power he has. Thus the CEO tenure is an important variable in studying the agency problem of the CEO.

Daily and Dalton (1995) find that CEO and director turnover tend to be greater in the 5-year period prior to firm bankruptcy than for the nonbankrupt control group. Firms facing financial distress are under the pressure to make improvement in the corporate governance structure so as to maintain confidence of external stakeholders. CEO and director turnover as well as board composition adjustment are the actions taken for this purpose. Even though the researchers document the corporate structure adjustment prior to the bankruptcy, they do not have explicit theoretical explanation on the causal relationship between the adjustment of corporate governance structure and the bankruptcy. Hambrick and D'Aveni (1992) show the existence of a "vicious cycle" between top management team deterioration featuring "shrinking team size, fewer

outside directors, less core function expertise, and lower compensation levels” and firm performance. While the former has a negative impact on the firm performance, poor firm performance, in turn, aggravate the top management team deterioration. Thus the causal relationship between corporate governance structure and the subsequent bankruptcy is still an unsettled issue.

Combs and Skill (2003) examine the contributions of managerialism⁵ and human capital theory to management pay premiums. By managerialism the pay premiums represent the executives’ ability to influence compensation decisions. In contrast, human capital theory maintains that pay premiums are fair representation of top executive’s unique managerial skills. Their study on the executive’s power and corporate governance strength provides mixed evidence in that the pay premiums depend more on executive’s power in some firms while, in other firms, the pay premiums depend more on the governance strength as measured by board independence and the presence of a nominating committee. This shows that managerialism, in other words, management entrenchment has its influence in top management compensation decision process and the pay premiums can be one part of the agency cost due to management entrenchment.

Weisbach (1995) studies the relation between CEO turnover and investment decisions of the firm. The CEO turnover may be followed by

⁵ Managerialism suggests that top executives actively seek to get themselves entrenched and gain more power in payment negotiation. (Tosi et al., 2000)

changes in corporate decisions made by the successor and this may be the practical reason underlying the stock price changes around the CEO turnover. Using 270 major acquisitions that took place between 1971 and 1982, Weisbach (1995) documents that after the CEO turnover there is an increase in the divestitures of poorly-performing acquisitions made during the leaving CEO's tenure. This relation holds for both CEO turnovers by normal retirement and by resignation.

2.3.3 CEO turnover and organizational dislocation

The behaviors of the employees within a firm tend to be mutually affected. The CEO's attitudes and activities may have influential impacts on that of the employees and CEO turnover may lead to more employee turnovers that would jointly cause organizational dislocation around the CEO turnover period. This section reviews related literature in organizational behavior that may help explain the relation between CEO turnover and organizational dislocation.

Felps et al. (2009)'s work looks at an important concept in management – “turnover contagion”. The behaviors of coworkers may influence the employees' job decisions. The job searching can be contagious, in particular when the job embeddedness⁶ is low. Voluntary turnover of employees is higher in the above situation (Allen, 2006). This suggests that in CEO turnover research the turnover of CEO can lead to voluntary turnover of the employees. When the CEO has high

⁶ Job embeddedness addresses the extent to which the employees fit in their jobs and communities, the interpersonal link and the sacrifice in leaving the job. (Mitchell et al., 2001)

prestige among employees, that is when the job embeddedness of the CEO and his subordinates is high, his leaving would highly probably be contagious and that his subordinates may be willing to leave with him. This is common in real world that a management team as a whole move from one firm to another and the soul person of the team's decision is likely to affect the team members' decisions.

Zhang (2008) studies the newly appointed CEO's dismissal from information asymmetry perspective. Around the time of CEO turnover, the board of directors may not have sufficient information about the new CEO and later when better information about the new CEO is acquired, the board may adjust the succession and dismiss the new CEO. The more information asymmetry, the more likely the board would dismiss the newly appointed CEO. This can be classified into post-turnover chaos. For voluntary turnover, especially the retirement turnover, the departing CEO and the board may have plenty of time and mental preparation to look for or foster a CEO candidate, thus there will be less information asymmetry on the board side and the new CEO could smoothly take over the position.

Graen et al. (1982) examine the leadership style and employee turnover and find that leader-member exchange is an effective predictor of employee turnover. This study can be linked to the turnover contagion research by Felps et al. (2009). CEO's management style is an important determinant of the working environment for the employees. Personal

charisma of the CEO also affects the job satisfaction of the employees. The departure of a respectable and charismatic leader may reduce the confidence and interests of the employees in the firm. The turnover contagion derived from CEO turnover can be much higher than contemporary employees. Thus, from leader-member exchange perspective employee turnover can be partly predicted.

Fee and Hadlock (2004) provide research evidences on both CEOs turnover and non-CEOs turnovers and focus on non-CEOs turnovers. Using 443 large sample firms between 1993 and 1998, they find that the forced non-CEO turnover rate is no smaller than forced CEO turnover rate. They also document a negative relation between stock performance and the forced non-CEOs turnover and show that the magnitude of the relation is smaller than that for CEO turnover and stock performance. The non-CEOs turnover rate is also found to be elevated around the CEO turnover period, especially when the successor CEO is from outside. According to Fee and Hadlock (2004), the board carries out continual assessment of non-CEOs and dismisses the suboptimal ones. The stock performance measure is more informative for CEO's capability than for non-CEOs. Since the CEO and the non-CEOs work as a team, the departure of the CEO definitely has an impact on the decision of the rest executives. Fee and Hadlock (2004) present reasons from the board's perspective and argue that the non-CEOs have "team-specific human capital" and when the original team leader leaves and new leader from outside joins the firm and organizes a new team,

the original “team-specific human capital” becomes obsolete and that triggers the high non-CEOs turnover. This study also investigates the labor market for leaving executives and documents a compensation decline for the dismissed CEOs and non-CEOs.

2.3.4 CEO and Chairman duality

The CEO and Chairman duality refers to the corporate governance practice of combining the positions of CEO and Chairman of board. The management role of the CEO and the monitoring role of the Chairman are taken up by the same person. The board of directors represents the interests of shareholders and the Chairman has the duty of monitoring the CEO’s management behaviors and ensuring that the CEO works for the best benefits of the shareholders. This leadership structure has attracted much debate on whether it mitigates or aggravating the agency problem within the firm. The objectors of the duality practice basically argue that the power concentration may lead to arbitrary behaviors of the Chairman-CEO as the effectiveness of the monitoring mechanism is weakened under such practice. The supporters view the duality efficiency from other perspectives and consider the practice as effective “unity of command”⁷ and a close interest alignment of the CEO and the shareholders. Agency theories on corporate governance argue that it is the separation of ownership and management that causes the agency problem and the measures that can connect the interests of the CEO and the shareholders would incentivize the CEO to work more diligently for

⁷ Unity of command is defined as the “existence of a single top manager with formal authority to whom all other managers report”. (Finkelstein and D’Aveni, 1994)

the welfare of the firm.

Coles and Hesterly (2000) examine the CEO and Chairman duality issue from the CEO independence and board composition perspective. Empirical evidence on the impact of duality leadership on the CEO independence and financial performance of the firm is mixed. Coles and Hesterly (2000) argue that the board composition, the outside directors' monitoring and the valuable information provided by the inside directors are critical to the duality leadership structure efficiency. The characteristics of the CEO also have moderating effects on the duality leadership operationalization.

O'Connor et al. (2006) investigate the relation between CEO stock options and fraudulent financial reporting. CEO stock option is conventionally taken as a measure for interest alliance between the CEO and shareholders and it is supposed to mitigate agency problems. Fraudulent financial reporting is expected to be less in the presence of more CEO stock options. However their study by including CEO duality and director stock options finds that the relation between CEO stock options and fraudulent financial reporting is mixed and can be either positive or negative. The relation can be further strengthened by the presence of CEO duality and director stock options. The results imply that CEO duality in some circumstances can better enable the CEO to work for the interests of the shareholders.

Worrell et al. (1997) extend the CEO and Chairman duality research by including a third title “President” on top of Chairman-CEO. They find when the CEO receives a second title, the stock market does not respond negatively and when the CEO receives another two titles, the market return declines. The authors provide agency theory explanation for the findings. CEO duality is often related with more management power which may weaken the board’s monitoring on the CEO thus may lead to negative impact on the firm value. Worrell et al. (1997) provide opposite evidence. For this negative market response towards the triple titles held by the CEO, Harris and Helfat (1998) propose another explanation. They posit that lack of managerial succession planning can be a reason for the negative market returns as the title “President” is often reserved for the apparent CEO successor. When the Chairman-CEO also takes on the title of president, the market may have concerns and worries on the successor issues beyond the current CEO’s tenure.

Baliga et al. (1996) test the relation between CEO duality and firm performance. Duality is blamed by some researchers for poor performance, yet their empirical evidence is limited. This study uses short-term market returns, operating returns, and long-term market returns as performance measures and finds no significant relation between CEO duality and firm performance. Either the short-term market returns or the operating returns change with the duality status. Duality only weakly affects the long-term performance. Duality

leadership structure is often criticized for possible abuse of managerial discretion; however the managerial incentives and external monitoring are also in place to ensure proper managerial behaviors. The interaction between duality and other corporate governance features is likely to produce a variety of different results.

The empirical evidence of Tuggle et al. (2010) shows the attention of the board members on monitoring the management is negatively affected by the CEO and Chairman duality. The sample consists of 979 firm-year observations from 1994 to 2000. They argue that Chairman-CEO has greater incentive and ability to divert the board members' monitoring attention. The subsequent CEO entrenchment and norms initiated by the CEO to hinder the monitoring function of the board increases the agency cost. The duality also has a moderating effect on the relation between the deviation from prior accounting performance and the board's monitoring attention. Consistent with the agency cost increasing argument, the duality weakens the relation between negative deviation from prior performance and board's monitoring attention and strengthens the relation between positive deviation from prior performance and board's monitoring attention.

2.3.5 Forced and Voluntary CEO Turnover

There are many reasons for CEO turnover, yet based on the willingness of CEO to leave the firm, the turnover can only be classified

into voluntary turnover and forced turnover. Studies on forced and voluntary turnover have been extensive. Researchers have examined the factors affecting forced and voluntary turnover.

Felps et al. (2009)'s examined at an important concept in management – “turnover contagion”. The behaviors of coworkers may influence the employees’ job decisions. The job searching can be contagious, in particular when the job embeddedness is low. Voluntary turnover of employees is higher in the above situation. This provides some insights to CEO turnover research, that is, the turnover of CEO can lead to voluntary turnover of the employees. When the CEO has high prestige among employees, his departure would highly probably be contagious and that his subordinates may be willing to leave with him. This is common in real world that a management team as a whole move from one firm to another and the “soul” person of the team’s decision affects the team members’ decisions.

Zhang (2008) studies the newly appointed CEO’s dismissal from an information asymmetry perspective. Around the time of CEO turnover, the board of directors may not have sufficient information about the new CEO and later when the better information about the new CEO is acquired, the board may adjust the succession and dismiss the new CEO. The more information asymmetry, the more likely the board would dismiss the newly appointed CEO. This evidence can be classified into post-turnover chaos, especially for the forced turnover case. For

voluntary turnover, i.e., the retirement turnover, the departing CEO and the board may have plenty of time and mental preparation to look for or foster a CEO candidate, thus there will be less information asymmetry on the board side and the new CEO could smoothly take over the position. In the case of forced turnover which in general happens on a short notice, the board and the top management team may not be fully prepared to find an appropriate successor. The successor's ability to do a better job than the previous CEO is in doubt and this information uncertainty needs some time for removal.

Graen et al. (1982) examine the leadership style and employee turnover and find that leader-member exchange is an effective predictor of employee turnover. This study can be linked to turnover contagion research of Felps et al. (2009). CEO's management style is an important determinant of the working environment for the employees. Personal charisma of the CEO also affects the job satisfaction of the employees. The leaving of a respectable and charismatic leader may reduce the confidence and interests of the employees in the firm. The turnover contagion derived from CEO turnover can be much higher than contemporary employees. Thus from leader-member exchange, the employee turnover can be partly predicted.

Faleye (2007) investigates the relations among classified boards, firm value and management entrenchment. Classified boards are the ones in which the directors are divided into different classes and serve

overlapping terms. Faleye (2007) argues that the classified board practice reduces board monitoring effectiveness and facilitates management entrenchment. The author finds that firms with classified boards have less forced CEO turnover and the sensitivity of turnover to firm performance is also lower for these firms. Results of this study indicate that corporate governance effectiveness is lower for firms with classified boards, and the management entrenchment brings out greater agency costs as the top management is under slack monitoring of the board and could easily extract personal benefits at the cost of firm value.

Parrino et al. (2003) examine the institutional ownership changes around forced CEO turnover. They argue that institutional investors are more sensitive and informed and favor prudent securities than individual investors. They tend to be momentum traders. Based on sample firms with CEO turnovers from 1982 to 1993, the authors find evidence that the institutional ownership declines in the year prior to the forced CEO turnover, and the number of institutional investors also decreases. Correspondingly, there is found to be an increase in individual investors. It is also found that firms with pre-turnover institutional ownership decline tend have forced CEO turnover and also subsequent outside CEO succession. It can be argued with their evidences that pre-turnover firms tend to be less prudent and have more operational and financial problems due to the top management changes and the institutional investors who have better information sources than individual investors tend to act on the turnover information and make momentum trading for

abnormal profits.

Huson et al. (2001) examines the changes in the features of CEO turnover from 1971 to 1994. They find an increase in both forced CEO turnover and outside succession. The sample period is featured with more independent board with more outside directors and more incentives paid to them for better monitoring on the top management. The institutional investors also exert more pressure on the whole board. In accompany with the increase in internal control strength, the external takeover market expansion during 1970s and 1980s also provides more discipline on the executive market, thus the authors expect to find that the changes in both internal control and external control market would lead to a stronger negative relation between firm performance and forced CEO turnover. Their evidence shows a definite change in the nature of CEO turnover across the sample years, yet the changes in both internal governance mechanism and takeover market do not lead to significant changes the performance-turnover relation. This evidence corresponds to the line of literature that finds little evidence for performance-turnover relation.

Taylor (2010) examines the forced CEO turnover rate across the sample period from 1971 to 2006 and works on the quantification of cost to shareholders with forced turnover. Previous studies have documented that an average of 2% of CEOs in large U.S. firms are fired annually (Huson et al., 1001, Kaplan and Minton, 2006). Taylor (2010) further

explores the reasons for this low rate of forced CEO turnover and finds that firing the present CEO is costly to the firms. The cost to shareholders including the searching cost for a replacement CEO is great. The information asymmetry between the CEO and the board prevents the board from differentiating a good CEO from a bad one in a timely manner. The present CEO may also try to entrench himself with various measures and when the CEO becomes entrenched it is more difficult for the board to fire the CEO. Taylor (2010) mentions the “effective personal turnover cost” to the board members suggesting that CEO turnover may hurt some directors’ personal interests which counts on the CEO’s maintaining current position. Taylor (2010)’s model also predict a rise of 3% of shareholder value when the perceived turnover cost is eliminated.

Fee and Hadlock (2004) provide research evidences on both CEOs turnover and non-CEOs turnovers and focus on non-CEOs turnovers. Using 443 large sample firms between 1993 and 1998, they find that the forced non-CEO turnover rate is no smaller than forced CEO turnover rate. They also document a negative relation between stock performance and the forced non-CEOs turnover and show that the magnitude of the relation is smaller than that for CEO turnover and stock performance. The non-CEOs turnover rate is also found to be elevated around the CEO turnover period, especially when the successor CEO is from outside. According to Fee and Hadlock (2004), the board carries out continual assessment of non-CEOs and dismisses the suboptimal ones.

The stock performance measure is more informative for CEO's capability than for non-CEO'. Since the CEO and the non-CEOs work as a team, the leaving of the CEO definitely has an impact on the mind of the rest non-CEOs. Fee and Hadlock (2004) present reasons from the board's perspective and argue that the non-CEOs has "team-specific human capital" and when the original team leader leaves and new leader from outside joins the firm and organizes a new team, the original "team-specific human capital" becomes obsolete and that makes the high non-CEOs turnover. This paper also investigates the labor market for leaving executives and documents a compensation decline for the dismissed CEOs and non-CEOs.

CHAPTER 3

HYPOTHESES DEVELOPMENT

3.1 Introduction

This chapter presents the hypotheses development. There are three hypotheses in this study. Section 3.2 describes the development of Hypothesis 1 which predicts the relation between CEO turnover and internal control material weaknesses. Section 3.3 presents the development of Hypothesis 2 which deals with the moderating effect of internal control material weakness classification on the relation between CEO turnover and internal control material weaknesses. Section 3.4 presents the development of Hypothesis 3 which predicts the impact of CEO and Chairman duality on the relation between CEO turnover and internal control material weaknesses.

3.2 Hypothesis 1

Agency problems result from the segregation of ownership and management in an organization. The non-alliance of interests of the management and the shareholders is the root of agency costs. The management personnel, as majorly represented by the CEO, are economic persons, therefore would put personal economic benefits at top priority. An economic person is assumed to be non-satiable towards pecuniary interests, thus the CEO is expected to acquire extra benefits

for himself apart from the normal compensation package. As the steward of the firm, the CEO has all the advantages that facilitate the extraction of self-interest. He has the prime knowledge of the overall business of the firm which the board of directors has not. This information asymmetry provides good cover for the CEO's self-benefiting value-transfer activities.

Internal control system, under SOX regime, aims for providing fair and truthful financial statements for the stakeholders. The deficiencies in internal control system may lead to false and misleading financial information that could lead the stakeholders to make incorrect decisions. The effectiveness of internal control system significantly relies on effective implementation of control procedures which are under direct supervision of the CEO. The CEO's efforts are a vital factor in keeping the internal control system well in operation. However, the internal control system can also be utilized by the CEO for opportunistic self-benefits. The control procedures that would have traced out the CEO's wealth transfer activities may be manipulated by the CEO so that "misbehaviors" could be covered. The accounting scandals such as Enron before the SOX enactment demonstrate the CEO's ultimate opportunistic behavior at the cost of shareholder's interests. The implementation of SOX greatly enhances the self-discipline of the CEO on the operation of internal control system, yet as long as the segregation of management and ownership exists, the self-benefiting behavior of the CEO and the agency costs are likely to continue. The CEO may not

venture to move directly against the laws, but he would choose a variety of safer ways for his purpose and the agency cost even though may be lessened by SOX, may still prevail.

Around the time of CEO turnover, the CEO's concern and interests regarding the firm's overall business declines significantly and his interest in looking after his own benefits is likely to increase. The agency problem around the turnover period is likely to become more severe and this may have a negative impact on the firm's business and the integrity of internal control system is likely to suffer. Not only the CEO's efforts spent on keeping internal control system well in operating decline, but also that he may take advantage of his familiarity with the internal control system and take various measures to manipulate the controls to arrange for his possible "wealth transfer" activities. Management power has been extensively examined in literature (Dahya et al., 2002; Shleifer and Vishny, 1989; Core et al., 1999). These studies show that management power can literally influence firm's business and operations and the CEO has much discretion in managing and operating the firm and may be able to design an internal control system that favors his interests. Such arrangement in short term may not be perceived by the board and auditors as hurting the firm value, yet in the long run, the negative impacts can accumulate and lead to undesirable consequence which is the disclosure of internal control material weaknesses in the post-turnover period.

Reasons for internal control material weaknesses report in the post-turnover period are diversified. The pre-turnover manipulation of internal controls can be one major reason for the material weaknesses. The CEO when foreseeing his departure from the firm could make personnel arrangement beforehand which facilitates his various opportunistic wealth transfer activities. The CEO may also have the power of revising or persuading the board to revise the parts of regulations on internal controls that relate to the CEO's intended activities. The CEO's power over the board of directors can be influential. The board functions to monitor the management's behaviors, yet due to various reasons, the board's monitoring effectiveness may not be fully reached. The information asymmetry between the board and the CEO, or other factors such as a classified board⁸ that have directors reselected not every so often and also sitting on many boards thus lack of attention on the firm's business, the collusion of board members and the CEO, may all lead to the undesired result of weak monitoring.

The manipulation of internal controls also includes the manipulation of the remediation of existing control deficiencies. Remediation of internal control deficiencies could be done before the internal control disclosures should the CEO be well incentivized to do so. The initial implementation of SOX Section 404 puts the CEOs under great pressure. The compliance cost and the unknown consequence of reporting material weaknesses in internal controls and other unspecified or

⁸ Classified boards of directors are divided into several classes and the directors serve on multiyear terms. Approximately each director is up for reelection every three years. (Faleye, 2001)

unknown pressures all drive the CEOs to make important decision upon the SOX 404 implementation. The argument that CEOs in firms of weak internal controls may leave the firm before the internal control efficiency disclosure for fear of having their reputation ruined by internal control material weaknesses report is not well grounded in that the internal control quality is often not the primary criteria for selecting an appropriate CEO. The CEO's major responsibility is to maximize the shareholders' value by increasing the expected profits, thus although the CEO's ability to maintain a sound internal control system is important, there are other abilities that a high-quality CEO needs to possess. The possible internal control material weakness report does not constitute a serious threat to the CEO's reputation and position in the firm. If the CEO could expect or foresee that the failure of internal control could lead to the loss of job, they could either work hard to remediate the weakness before the disclosure or leave the job unattended. In the latter case previous significant internal control failures may lead to material weaknesses. There are deficiencies and imperfections in internal control system in all firms. Management's attitudes and actions thus determine the severity of the internal control problems. The departing CEOs of accelerated filers rarely continue to work for firms of equal size. Lucian A. Taylor (2010), states that previous studies find "when dismissed CEOs go on to manage another firm, that firm is 90% smaller and the CEO is paid significantly less". Thus those departing CEOs have less concern on post-turnover reputation on the executive market than those who look for equivalent positions in other firms and their decision

horizon is shorter which is associated with more agency costs (Antia et al., 2010).

Agency problem may also contribute to the internal control material weakness disclosure through the CEO's resigning before the weakness disclosure. The pre-disclosure CEO turnover may be due to a variety of reasons. The CEO may intentionally resign before the disclosure or may be dismissed by the board. That the turnover happens before the disclosure does not directly indicate that the turnover is driven by existent significantly deficient internal controls.

When the CEO resigns based on his judgment of the internal control effectiveness and decides that the possibility of the firm's disclosing internal control material weaknesses is high, agency problem may contribute to the eventual material weakness disclosure even if the CEO's judgment on the internal control effectiveness is inaccurate. As the agent of the shareholders, the CEO has different interests from maximizing the firm's welfare. When the firm is indeed having internal control deficiencies, which may not be as severe as material weaknesses, the CEO, if acting for the best benefits of the shareholders, should work with full attention to detect the deficiencies and prevent them from developing into material weaknesses. The CEO's attitude and efforts on dealing with the internal control problem is critical and that the CEO takes active or inactive actions in remedying the deficiencies may be followed by different consequences. The CEO turnover may provoke

more employee turnovers including top management turnover. Such increased turnovers may directly cause organizational dislocation which then has negative impacts on the internal control system as personnel changes may invariably affect the well operations of internal controls. Thus even though the intentional pre-disclosure resigning is not based on considerations of weak internal controls and possible disclosure of material weaknesses, the turnover may still have negative impact on the effectiveness of internal control system through the CEO's decreased attention and efforts on maintaining good internal controls and the turnover-lead organizational dislocation.

The shareholders represented by the board of directors, under the pressure of stringent SOX section 404 requirement of a management's assessment on the internal control effectiveness and fearing the disclosure of internal control material weaknesses may hurt the firm's reputation and thus the shareholders' interests, may dismiss the CEO before the disclosure when the board of directors decides that the possibility of having internal control material weaknesses is high and seeks for more competent CEO to remedy the internal control problem. In the early years after the SOX implementation, this is more likely to happen as the reputation damage to the firm through the material weakness disclosure is uncertain. The well-intended dismissal of CEO who is unlikely to remedy the internal control deficiencies may not necessarily lead to ideal results of remedying the material weaknesses before the disclosure date. One possibility is that the CEO turnover

actually aggravates the internal control deficiencies which in nature are not material weaknesses before the turnover. The organizational dislocation after the turnover is likely to counteract the good intention of remedying the internal control deficiencies. Forced CEO turnover is in general accompanied by more employee turnovers as the board may use the same set of standards for dismissing related personnel such as CFOs. The recruiting and training of new personnel is time-consuming during which time the effectiveness of internal control system may be compromised.

The organizational dislocation caused by CEO turnover is another factor that may attribute to the relation between CEO turnover and internal control material weaknesses. Organizational dislocation might partly result from turnover contagion which suggests that the employees' job searching behavior can be contagious. The resignation of one employee can lead to more resignations within an organization (Felps et al., 2009). In the context of CEO turnover, this contagion theory also applies. The CEO necessarily has a core team that is under his direct command and the team members may be greatly influenced by the CEO's management style, personality and vision, thus may develop a loyalty towards the CEO. The departure of the CEO may have direct impacts on those members' stay-or-leave choice. The turnover contagion within the top management team can be further passed on to the lower level of personnel. All these may lead to personnel inadequacy or adjustment that would result in organizational dislocation which may

have negative impacts on the efficient operation of internal control system. The damage on the internal control system caused by organizational dislocation is likely to be extended until after the new CEO comes in as the problems could not be solved immediately.

The new CEO's adjusting period in the firm may also be associated with post-turnover management chaos and internal control deficiencies. The compatibility of the new CEO with the firm is to be tested in the post-CEO turnover era. The inside successor may take the shortest time adjusting to his new position. The outside successor who has plenty of experience within the industry may also take short time for adjustment. Successors of other sources may take longer. Yet, the overall working environment is relatively new to all successors. Even the inside successor needs time to get accustomed to his new role as well as the colleagues. The management style takes time to emerge and get recognized across the firm and during this process the whole personnel's behaviors would unavoidably change to meet the changes in the management style. Such changes may lead to transitory problems in the firm operation and in the context of this study in the internal control system as well.

The organizational dislocation around the CEO turnover period that has negative impacts on the effectiveness of internal control system can thus be blamed on the turnover contagion and successor adjustment process.

The above reasoning leads to my first hypothesis as follows:

Hypothesis 1: CEO turnover is positively related with the probability of having subsequent internal control material weaknesses.

3.3 Hypothesis 2

Hypothesis 1 assumes that CEO turnover is positively related with overall internal control material weakness. The internal control material weaknesses can be classified into different categories and previous evidences indicate that the classification of internal control material weaknesses has moderating effects on various internal control related research. Studies have shown that not all internal control weaknesses are of equal importance. Some weaknesses tend to have more significant impact on the overall control effectiveness and are treated with more attention by the corporate management, external auditor and investors, while some are of lesser importance and could be corrected with less effort and time (Johnstone et al., 2010). In this study the classification by the “auditability of internal control weaknesses” (Hammersley et al., 2007) is adopted.

By auditability, the internal control material weaknesses are classified into less auditable and more auditable weaknesses. Hammersley et al. (2007) provide the detailed classification descriptions.

The classification is based on surveys of professional auditors and one senior manager who are asked to scale the internal control weaknesses by the auditability. The classification is compatible with Moody's proposed categories. The less auditable internal control material weaknesses consist of weaknesses of more pervasive nature in terms of control environment and financial reporting and are considered to be more severe. In contrast, more auditable ICMWs are less severe and relate to internal controls of account or transaction level.

Less auditable internal control material weaknesses, according to Hammersley et al. (2007), are weaknesses in key personnel, inadequate communication between management, accounting personnel, and external auditors that cause errors in financial reporting, problems with financial statement closing procedures, lack of key financial personnel, management's override of duties⁹. The less auditable weaknesses are more difficult to monitor by the board and audit committee as well as external auditors. The CEO with his superior knowledge and experience on the overall control environment has substantial power in manipulating the less auditable controls for special purpose. Such manipulations are less perceptible, such as the CEO may make special personnel arrangement for his own use while this arrangement may look absolutely normal. The management override of controls is even more difficult to distinguish as the CEO has the power and even duties to interfere with operational details where he considers necessary. The

⁹ See Appendix for additional examples of the classification schemes

CEO may also pretend to have solid ground for discretion over financial statement closing procedures. The board of directors, due to lack of direct access to operational and management details, may be misled by the CEO to make decisions upon financial reporting that is beneficial to the CEO. The inadequate or ineffective communication between management and accounting staff and auditors that leads to incorrect recording of accounting evidence may also be the result of management's intentional arrangement.

The agency cost derived from the less auditable control weaknesses is greater than from more auditable weaknesses and this difference tends to be more distinct around the CEO turnover period. When the CEO plans to leave, his attention on internal control operation weakens and the control areas that are more flexible in implementation and less easy to be evaluated by performance and audited tend to have more problems. Clearly if the CEO seeks to satisfy his own interests before he officially leave the firms, he would start from the less auditable controls. As the chief executive, he has superior knowledge about the control system and knows well how to get covered from improper actions that hurts the firm's welfare but increases his own.

More auditable internal control material weaknesses include the rest control weaknesses that do not belong to the less auditable category. The more auditable control weaknesses generally relate to weaknesses of account or transaction level and are of a less significant nature which can

be remediated with less difficulty than less auditable weaknesses. There are four subcategories for more auditable control weaknesses as follows:

- 1) Weaknesses in personnel: different from the personnel weaknesses in less auditable categories, these weaknesses basically relate to lack of technical training of lower financial and accounting staff and lack of internal control functions or human resources.
- 2) Weaknesses in control system: these weaknesses generally refer to procedural deficiencies in maintaining sound financial information recording and approval system. Poor segregation of duties and deficient IT support are the major reasons that account for these weaknesses.
- 3) Weaknesses in transaction accounting: the processing of financial information for financial statements is improper due to these transaction process weaknesses. Examples of these weaknesses include the transactions of revenue recognition, financial statement consolidation and financial leasing. Such weaknesses include the incorrect or improper processing of financial information due to the lack of knowledge and experience of accounting personnel and would lead to low-quality financial statement with misleading information. The transaction accounting weaknesses can be more easily detected and remediated. For these internal controls there are universally adopted valid rules and principles to follow, thus unless the firm's control system is in complete chaos, they could be easily monitored. Professional accounting personnel should be able to detect these problems and keep these controls in good operation.
- 4) Lack of control over routine transactions: similarly as the transaction accounting weaknesses, these weaknesses reflect the inability of accounting

personnel to follow basic accounting rules and principles in daily operations. Such weaknesses may be accompanied by the lack of internal control functions as weaknesses in routine transactions are most easily detectable. Well-trained and experienced accounting professionals should have little difficulty in keeping good control over routine transactions. For external auditors, these weaknesses can be spotted immediately. Because of the easiness to monitor and audit, the CEOs would not want to intentionally disrupt the routine operations of these controls for personal interests. The faulty behaviors may be easily found out before the control disclosure and the causes as well as the responsible personnel can also be easily traced out. The CEO should be quite aware of this and would not venture at high risk of being found out and blamed even for negligence during office.

The existence of internal control material weaknesses could be compared to other corporate problems, such as the restatement of financial statements. Previous literature finds that restatements are also of varying severity. Hennes et al. (2008) classify restatements as either errors – unintentional misstatements, or irregularities – intentional misstatements. Restatements related to irregularities are the more severe type of restatements which are followed by more class actions lawsuits and generate more negative market reactions. The CEO/CFO turnover following the restatements related to irregularities is higher than that related to errors. The irregularities tend to be associated with internal control material weaknesses of a more pervasive nature, in my context of

research, the less auditable material weaknesses. Factors that lead to less auditable weaknesses also tend to cause irregularities-related misstatement problems. In contrast the errors-related restatements tend to be associated with control weaknesses of a less severe nature, which are the more auditable control weaknesses. The more auditable material weaknesses are the transaction- or account-level weaknesses which can be more easily detected and remediated. These weaknesses tend to cause errors in the financial statements, yet because they are also easier to be detected and corrected, the errors-related misstatements are less severe and cause less negative market reactions.

Although there is a lack of evidence so far documenting the relation between pre-restatement CEO turnover and the restatement, the assumption is similar to that in my research of control weaknesses. The agency problems as well as the post-turnover operational chaos that lead to less auditable internal control material weaknesses may also cause irregularities-related misstatements. It can be hypothesized that CEO turnover is associated with restatements caused by irregularities.

In sum for this section, when the CEO leaves or plans to leave the firm, the type of the internal control weakness that is more likely to go wrong is the less auditable control weakness. This reasoning leads to my second hypothesis.

Hypothesis 2: CEO turnover is more positively related with

subsequent less auditable internal control material weaknesses than more auditable weaknesses.

3.4 Hypothesis 3

Chairman-CEO duality is an important factor in CEO behavior research (Worrell et al., 1997; Tuggle et al., 2010). When the CEO is also Chairman of the board which represents the interests of the shareholders, his interests would be more aligned with that of the shareholders, thus is linked with less agency problems. When the CEO is not Chairman of the board, there is less interest alliance between the CEO and the shareholders and agency problems are more serious than in the case of Chairman-CEO.

The bond between the CEO and the firm grows stronger with the service years of the CEO. For one thing, the emotional ties also grow stronger. Long years of cooperation strengthen the personal relationship among the colleagues and the CEO also tends to associate personal success with the success of the firm. According to Maslow's hierarchy of needs (Maslow, 1943), when the sense of belonging increases the CEO may seek for higher level of demands and work for esteem and self-value actualization. The Chairman-CEOs tend to be more self-motivated to work hard and do a good job. Non-Chairman-CEOs tend to leave the firms at a younger age and work for the firm for a shorter period and the sense of belonging for the non-Chairman-CEOs is not as strong as for the Chairman-CEOs. When leaving the firm, the

Chairman-CEOs should still feel part of the firm while the non-Chairman-CEOs are more likely to feel like an outsider even when he is still working as the CEO. The stewardship theory argues that CEO and Chairman duality is linked with greater commitment to the firm and centralization of authority which enhances management efficiency and thus is associated with better firm performance. Donaldson and Davis (1991) document better shareholder returns for duality firms than those with separate leadership structure. The Chairman-CEOs tend to be better stewards of the firm's business than the non-Chairman-CEOs as they are more motivated by the sense of responsibility and have greater management power for effective policy implementation. The Chairman-CEO is also likely to make arrangements that facilitate the smooth transition of the CEO position and this may be associated with less post-turnover management chaos. All these make a difference in the corporate governance efficiency and the turnover of non-Chairman-CEOs tends to be related with more internal control problems.

On the other hand, the longer the CEO works for a firm, the more they develop special expertise in the firm. When the specialty cannot be used in other firms, the CEO may tend to stay in the firm and commit himself to the job. The more easily the specialties can be transferred to other firms, the less loyal of the CEO to the firm. The Chairman-CEOs usually work long years, thus they have a great deal of knowledge and experiences that are firm-specific. Such would entrench the CEO in his

current position and the small possibility of finding a good job elsewhere keeps the CEO working diligently for the firm. Lucian A. Taylor (2010), states that previous studies find “when dismissed CEOs go on to manage another firm, that firm is 90% smaller and the CEO is paid significantly less”¹⁰.

The non-Chairman-CEO tends to have shorter management horizon than the Chairman-CEO. The short horizon would involve human resource allocation that best serves the non-Chairman-CEO’s interests. When the CEO is leaving the firm, because his interests are not well aligned with that of the firm’s investors, he would try to maximize his own benefits even at the cost of the investor’s interests, as long as the actions are within the safe boundary. Personnel arrangement is crucial in the implementation of the CEO’s decisions. The CEO would arrange the key personnel in a most favorable way for his own interests. Internal controls related to staffing are most likely to have problems. In many cases, particularly in firms with separate Chairman and CEO leadership, the CEO brings along his own management team to the firm when he takes the CEO position and this may inherently lead to staffing related internal control problems after the CEO turnover as the management team may also leave with the CEO and this may cause temporary personnel instability and internal control deficiencies.

The above reasoning leads to my third hypothesis:

¹⁰ From the article “The Cost of Entrenchment: Why CEOs Are Rarely Fired” published on January 19, 2011 in Knowledge@Wharton

Hypothesis 3: Non-Chairman-CEO turnover is positively related with subsequent internal control material weaknesses while Chairman-CEO turnover is not significantly related with internal control material weaknesses.

CHAPTER 4

METHODOLOGY AND RESEARCH DESIGN

4.1 Introduction

This chapter presents the methodology and research design of this study. Section 4.2 describes the sample and variable measurements. Section 4.3 presents the model specifications.

4.2 Methodology

4.2.1 Sample

The initial sample consists of U.S. accelerated filers with fiscal years between 2004 and 2010. Internal control material weaknesses and CEO turnover data are collected from AuditAnalytics SOX 404 database and the ExecuComp database respectively. Control variables data are obtained from Compustat. Since this study focuses on SOX 404 evidence, firm with fiscal year ends before November 2004 are deleted from the initial sample. The firms without sufficient data for CEO turnover and control variables are not included. The sample excludes firms in the financial industries as their internal control systems are significantly different from that in other industries. The final sample includes 7,680 firm-year observations. All the continuous variables are winsorized at 1st and the 99th percentiles to reduce the influence of outliers. Panel A of Table 1 presents the sample selection procedure.

4.2.1 Variable measurements

Internal control material weakness is the major dependent variable. The dummy variable ICMW is equal to 1 for firms that report at least one material weakness in the internal control system and 0 otherwise. The auditor's opinion on the material weakness assessment is used. The nature of material weakness may have an effect on the relation between CEO turnover and the material weakness disclosure, so I further include the classification of internal control material weaknesses to capture this impact. The internal control material weaknesses are divided into less auditable weaknesses and more auditable weaknesses by disclosure auditability. Hammersley et al. (2007)'s classification of control weaknesses by control auditability is adopted. The variable `Less_Auditable_MW` is equal to 1 for firms that have at least one less auditable internal control material weakness and 0 for firms without any material weakness. Less auditable material weaknesses include weaknesses in key personnel, inadequate communication between management, accounting personnel, and external auditors that cause errors in financial reporting, problems with financial statement closing procedures, lack of key financial personnel, management's override of duties and other weaknesses of more pervasive nature. The variable `More_Auditable_MW` is equal to 1 for firms that have at least one more auditable internal control material weakness and 0 for firms without any material weakness. More auditable material weaknesses include lack of technical training of lower financial and accounting staff and lack of internal control functions or human resources, procedural deficiencies in

maintaining sound financial information recording and approval system, deficient IT support, and transaction process weaknesses and other control weaknesses of less pervasive nature. The internal control material weaknesses also have other classifications, such as firm-level and account-level weaknesses, systematic and non-systematic weaknesses, staffing, complexity and general weaknesses classified by the operating nature of control weaknesses. The reason why auditability of internal control material weaknesses is selected to be the major classification criterion is that Hammersley et al. (2007) provide more distinct and unique classification descriptions than other classification methods (Doyle et al., 2007a; Johnstone et al, 2010). Additional tests using other classifications of control weaknesses are also conducted.

The major independent variable is CEO_Turnover. If the CEO leaves the firms within three years before the fiscal year end of each control weakness disclosing sample year then for that sample year the variable CEO_Turnover is equal to 1 and 0 otherwise. CEO characteristics may have moderating effects on the relation between CEO turnover and internal control material weaknesses. The CEO and Chairman duality is an important factor in CEO related research. Agency problem is mitigated by the CEO and Chairman duality. Chairman of the board is the representative of the firm's ownership and the CEO is selected by the board to be in charge of management duties. The segregation of ownership and management is the root for agency problems. Yet if the Chairman is also the CEO of the firm, then the

agency costs for the firm would naturally decline as the Chairman when performing management duties will try to maximize the shareholders' interest. Thus the firms with CEO turnover and whose CEO is also Chairman of the board should have less internal control problems. The Chairman and CEO duality data are collected from ExecuComp database, and where the duality information is missing, I manually collect the data from 10-k form on SEC EDGAR database. The variable Duality_Turnover is equal to 1 for firms with CEO turnover and at the same time whose CEO is also Chairman of the board, and 0 for firms without CEO turnover. The variable Non_Duality_Turnover is equal to 1 for firms with CEO turnover and at the same time whose CEO is not Chairman of the board, and 0 for firms without CEO turnover.

Prior literature has documented a variety of important determinants of internal control quality and these factors are controlled in the logistic regressions. The following control variables are selected on the basis of Doyle et al. (2007a).

- 1) Firm size, measured by the natural log of total assets, is negatively related with the probability of having internal control weaknesses. Large firms tend to have better human resources as well as more financial resources to improve the effectiveness of internal control system. Since large firms have a much larger number of the stakeholders than small firms, the damage to their reputation would lead to more severe consequences. The report

of internal control material weakness may be taken as a signal of management's inability to operate the firm well and the loss of investor confidence is relatively less easy to remediate. The investors usually assume that small firms have more deficiencies in the corporate governance system and they are prepared to face the operating risks. In contrast, the large firms are expected to operate in a stable manner and the internal control system is expected to be well fitted. The replacement of CEO in large firms requires much more efforts and scrutiny than in small firms as any policy change would lead to strategic and operating movement changes. As expected, CEO turnover in large firms has more far-reaching consequence and significance.

- 2) Firm age, measured as the log of the number of years existing in CRSP, is negatively related with the internal control material weaknesses. Firms that have run the business for long years tend to have more mature internal control systems than younger firms. These firms are more likely to have more financial and human resources to improve the efficiency and effectiveness of the internal controls.
- 3) Financial health, measured by the aggregate loss of the firm (where Aggr_loss is equal to 1 for firms whose sum of earnings before extraordinary items for year t and t-1 is negative and 0 otherwise), is positively related with the probability of having

internal control material weaknesses. For firms in difficult financial position the completeness and effectiveness of internal control system may be of lesser importance than that for financially healthy firms. The former may also have less financial resources to invest in improving internal controls.

4) Growth of the firm, as measured by the sales growth rate, is positively related with internal control material weaknesses. Firms with rapid expansion may experience many changes related to transactions and personnel arrangement, yet due to the limited time such changes may not be optimal from the internal control efficiency's perspective. Rapidly growing firms may also have less financial arrangements for upgrading of internal control system, thus the firm's growth is positively related with internal control material weaknesses.

5) Complexity of operating environment, measured by the number of operating and geographic segments and the existence of foreign currency adjustment, is positively related with internal control material weaknesses. Firms with more complex operating environment require more sophisticated internal control system. The routine internal controls in segments of different regions or business areas are different and the consolidation of financial reports from various divisions requires more financial expertise and coordination. The complexity of internal control designs may

hurt the efficiency of the control system and may lead to a higher probability of internal control weaknesses.

- 6) Restructuring, measured by restructuring charges, is positively related with internal control material weaknesses. Firms experiencing restructuring have new departmental and personnel arrangement as well as accounting integration. The staffing and business adjustment may have an impact on the internal control system. The establishment of new internal control policies and procedures can temporarily affect the effectiveness of internal control system, thus firms undergoing restructuring are more likely to have more internal control material weaknesses.

According to Ashbaugh-Skaife et al. (2007), Altman Z-score is also included as control variable.

- 7) Altman Z-score. It captures the distress risk of the firm. With financial difficulties firms have less resources for internal control system, thus the control effectiveness could be affected. Higher Z-score is associated with less distress risk thus less likelihood of internal control deficiencies.

4.3 Model specification

To test the relation in Hypothesis 1 between CEO turnover and subsequent internal control material weaknesses, I use the following

logistic regression model¹¹:

$$ICMW_i = a_0 + a_1Size_i + a_2Aggr_loss_i + a_3Growth_sale_i + a_4Foreign_transactions_i + a_5Firm_age_i + a_6Segments_i + a_7RES_i + a_8Zscore_i + a_9CEO_Turnover_i + e \quad (1)$$

Using the above logistic model, I predict that the coefficient a_9 for CEO_Turnover is significantly positive showing that the CEO turnover is a factor that leads to internal control material weaknesses.

For Hypothesis 2 which is to test the relation between CEO turnover and internal control material weaknesses classified by auditability, I follow Doyle et al. (2007a)'s regression pattern and use Less_Auditable_MW, which is equal to 1 for firms that have at least one less auditable internal control material weaknesses and 0 for firms without any internal control material weakness, and More_Auditable_MW, which is equal to 1 for firms that have at least one more auditable internal control material weaknesses and 0 for firms without any material weakness, as the dependent variables. The control variables for all the models in this study are the same. In Model (2.1) and (2.2) the coefficients a_9 for CEO_Turnover are assumed to be positive and the magnitude of a_9 in Model (2.1) is expected to be greater than that in Model (2.2) showing that CEO turnover is more strongly related with less auditable internal control material weaknesses than more auditable weaknesses.

¹¹ Refer to Exhibit 1 for variable definitions.

$$Less_Auditable_MW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9CEO_Turnover_t + e$$

(2.1)

$$More_Auditable_MW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9CEO_Turnover_t + e$$

(2.2)

For Hypothesis 3 which is to test the relation between CEO turnover, CEO and Chairman duality and internal control material weaknesses, I use Non_Duality_Turnover which is 1 for firms with CEO turnover and at the same time whose CEO is not the Chairman of the board, and 0 for firms without CEO turnover, Duality_Turnover, which is 1 for firms with CEO turnover and at the same time whose CEO is also the Chairman of the board, and 0 for firms without CEO turnover as the independent variables. In Model (3.1) the coefficient a_9 for Non_Duality_Turnover is assumed to be positive showing that firms whose CEO is not the Chairman of the board tend to have internal control material weaknesses after the CEO turnover. In Model (3.2) and (3.3) the coefficients a_9 for Non_Duality_Turnover are assumed to be positive and the magnitude of a_9 in Model (3.2) is assumed to be greater than that in Model (3.3) showing that Non_Duality_Turnover is more strongly related with less auditable internal control material weaknesses than more auditable weaknesses. In Model (3.4) the coefficient a_9 for Duality_Turnover is assumed to be insignificant showing that firms whose CEO is also the Chairman of the board tend not to have internal control material weaknesses after the CEO turnover.

$$\begin{aligned} ICMW_t = & a_0 + a_1 Size_t + a_2 Aggr_loss_t + a_3 Growth_sale_t + a_4 Foreign_transactions_t + a_5 Firm_age_t \\ & + a_6 Segments_t + a_7 RES_t + a_8 Zscore_t + a_9 Non_Duality_Turnover_t + e \end{aligned} \quad (3.1)$$

$$\begin{aligned} ICMW_t = & a_0 + a_1 Size_t + a_2 Aggr_loss_t + a_3 Growth_sale_t + a_4 Foreign_transactions_t + a_5 Firm_age_t \\ & + a_6 Segments_t + a_7 RES_t + a_8 Zscore_t + a_9 Duality_Turnover_t + e \end{aligned} \quad (3.2)$$

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Introduction

This chapter reports the results of the empirical tests. Section 5.2 includes the descriptive statistics and the regression results. Section 5.3 presents the results of additional tests.

5.2 Results

5.2.1 Descriptive statistics

Panel B of Table A presents the yearly distribution of the sample. The yearly observations are decomposed by CEO turnover and internal control weakness dummies. There are a total of 7,680 firm-year observations for the three sample years from 2004 to 2010. Firms with fiscal year ends on or before November 2004 are not included in the sample as they are not required to comply with SOX 404 for the fiscal year 2004, and this causes the firms with CEO_Turnover equal to 1 in 2004 nearly half as many as in 2005. The numbers of firms with CEO turnover within three years before the disclosure of internal control weaknesses across the years are generally persistent, particularly in the early years after SOX 404 implementation. The number has slightly declined from 348 to 334 in 2008. The CEOs in the early years after SOX 404 implementation are likely to have the tendency of avoiding the pressure of having to personally certify the effectiveness of internal

control system as well as the handling the increased compliance costs. It is likely that there are deficiencies in internal control system in most firms and that the CEO resigns before the weakness disclosure does not immediately indicate that there exist material weaknesses in internal control system. SOX' impact on the firms' that disclose internal control material weaknesses as well as the CEOs' reputation is uncertain in the early years of SOX 404's implementation, thus both the firms and the CEOs have greater intention of either dismissing the CEOs or voluntarily resigning before the disclosure date even though the present internal control deficiencies are not as severe as material weaknesses. The high rate of CEO turnover in the early years of Section 404 implementation results from the joint impact of the uncertainty of the consequence of internal control material weakness disclosure and the CEO's decision of either staying and bearing the high compliance cost or leaving the position for this sensitive and transition period. After several years of SOX implementation, the SOX compliance procedure is well established and both the firms and the auditors have learned to cooperate and communicate in terms of remedying the deficiencies in internal controls, SOX's impact on corporate governance should gradually decrease and the number of firms with internal control material weaknesses also has significant decrease from year 2008. Panel C presents the decomposition of the sample by CEO_Turnvoer and ICMW. The decomposition table shows that the ratios between ICMW firms and non-ICMW firms within CEO_Turnover firms are higher for most years than that within firms without CEO turnovers. The basic ratios

comparison passes the message that firms with CEO turnover tend to have more internal control material weaknesses.

[Insert Table 1 Here]

Panel D of Table 1 presents the sample composition by industry. The sample firm-year observations are divided 17 categories based on the first two-digit of the firms' SIC (Standard Industry Classification) codes and then put into subcategories based on the CEO_Turnover and ICMW. Computer equipments and services take up the majority shares in all the four subcategories and the reason is this industry has most small and medium firms. For firms with CEO turnover, those in computer equipment and services, chemical products and retailing have more firms with internal control material weaknesses than in other industries, taking up 26.67%, 12.12%, and 9.09% respectively out of all the sample observations. In comparison, the firms with CEO turnover but without internal control material weaknesses are relatively concentrated in computer equipment and services, electronic equipment, and chemical products with share percentages as 18.90%, 10.24%, and 8.71% respectively.

Previous literature documents a number of internal control material weaknesses determinants that are adopted as control variables in this research and the descriptive statistics of which are shown in Table 2. Panel A of Table 2 presents the yearly descriptive statistics. In Panel B of

Table 2, the firm-year observations are classified by CEO_Turnover and ICMW. The means for the key variables used in this study are given. The *t*-tests results for mean comparison for CEO_Turnover and Non-CEO_Turnover groups, ICMW and Non-ICMW groups are provided. The statistics show that firms with CEO turnovers are significantly larger, older, having more business segments, aggregate losses, more restructuring activities and more distress risk than firms without CEO turnovers. The mean comparisons are all significant at lower than 5% level. The ICMW firms are significantly smaller, younger, having more business segments, more foreign transactions and less distress risk than non-ICMW firms. The mean comparisons are also significant at lower than 5% level.

[Insert Table 2 Here]

In Panel B of Table 2, firms with CEO turnovers are classified by CEO and Chairman duality. Non-Duality_Turnover group includes firms with CEO turnovers and at the same time whose CEO is not Chairman of the board, and Duality_Turnover group includes firms with CEO turnovers and at the same time whose CEO is also Chairman of the board. The *t*-tests for mean comparison are given. The results indicate that firms without duality tend to be larger, older, and have less aggregate losses and foreign transactions than firms with CEO and Chairman duality.

Table 3 presents the spearman correlations among the key variables. As shown, CEO_Turnover is positively correlated with ICMW with p -value lower than 0.01. This is supportive of the primary hypothesis in this study. There are negative correlations between ICMW and some control variables such as firm size and Z-score and they are all significant at lower than 0.01 significance levels. Other control variables such as aggregate losses, foreign transactions, segments and restructuring are positively correlated with ICMW with p -values lower than 0.05. CEO_Turnover is positively correlated with firm size, firm age, aggregate losses, foreign transactions, segments and restructuring with significance level lower than 0.01, and is negatively correlated with sales growth, and Z-score with p -values lower than 0.01.

[Insert Table 3 Here]

5.2.2 Regression results

Table 4 provides the logistic regression results for Model (1) which tests the relation between CEO turnover and internal control material weaknesses in Hypothesis 1. The dependent variable is ICMW which is equal to 1 for firms disclosing at least one material weakness and 0 otherwise. The major test variable is CEO_Turnover which is equal to 1 for firms having CEO turnover within three years before the internal control weakness disclosure and 0 otherwise. The control variables are the factors that have been documented in previous literature as the determinants of internal control material weaknesses. Column (1)

provides full-sample logistic regression result. Consistent with previous literature, the result shows that firm size is negatively related with the probability of having internal control material weaknesses. The coefficient estimate for Size is -0.416, significant at lower than 0.05 level. Firms with more aggregate losses, foreign transactions and more business segments tend to have more material weaknesses as well. The coefficient estimates for Aggr_loss, Foreign_transactions, and Segments are 0.667, 0.397 and 0.244, all significant at lower than 0.01 level. The coefficient for Z-score is -0.082, significant at lower than 0.01 level, suggesting that firms with more distress risk tend to have more material weaknesses in internal control system. The above relations are consistent with Doyle et al. (2007a) and Ashbaugh-Skaife et al. (2007). The coefficient for CEO_Turnover is 0.271 with p-value being less than 0.05. This shows that CEO turnover prior to the internal control weakness disclosures is positively associated with the probability of having material weaknesses in internal control system. This evidence is supportive of Hypothesis 1.

[Insert Table 4 and Table 5 Here]

This research aims to document and explain the negative relation between CEO turnover and the internal control material weakness. CEO turnover prior to the internal control weaknesses disclosure tends to cause more internal control material weaknesses. The causality issue needs to be stressed in this study. Could the existence of internal control

material weaknesses be the cause of CEO turnover before the internal control effectiveness disclosure instead? The CEOs have comprehensive and concrete knowledge about the weaknesses and strengths of internal control system and to a certain extent they are able to manipulate the effectiveness of internal control system. Facing the internal control deficiencies they have choices of either remedying the deficiencies or leaving it unattended. That the CEO leaves the firm before the control disclosure does not necessarily imply that the CEO intends to avoid the direct confrontation with the responsibility for the material weaknesses. The material weaknesses can be the aggravated result of previously less significant control deficiencies. The problems around the CEO turnover, the agency problem and the post-turnover management turmoil, may all contribute to the eventual material weaknesses in internal control system. The argument that the already existing material weaknesses drive the CEO turnover instead of the CEO turnover leading to material weaknesses is weak in that the factors affecting the CEO turnover are complex. The fear of being blamed for material weakness report does not constitute a strong incentive for CEO resignation, nor is the concern for material weaknesses in internal control system the primary consideration for CEO turnover decision at the board level. Table 5 presents the departing CEOs' job position after the turnover and compares the number of CEOs who find CEO position in new firms. As this study is based on SOX 404 evidence for accelerated filers, thus CEOs who have found jobs in smaller firms are not included in this table. Panel A is based on the final sample firms and Panel B is based on the

initial sample with CEO turnover data from ExecuComp database, without further removing the firms without control variables. On average the percentage of CEOs who find CEO position again in new firms is very small. In Panel B the numbers for 2004 and 2005 within material weakness firms are 6.25% and 6.25% compared with 2.75% and 5.99% for firms without material weaknesses. The early years of SOX 404 implementation should have attracted more attention from stakeholders of the firms as well as the executive labor market, thus if ever the disclosing of material weaknesses in internal control system has significantly negative impacts on the CEO's reputation and affects their job seeking in the post turnover years, the numbers in 2004 and 2005 should be significantly small for material weakness firms.

In column (2) of Table 4, the firms with CEO turnover within one year before the internal control weakness disclosures are excluded from the full sample. By excluding these firms, the causality issue can be partially alleviated. There are studies documenting an increased CEO turnover after the disclosure of internal control material weaknesses. CEO turnover in the same year as the weakness disclosure may be more likely attributed to the threat of existing material weaknesses. The board may decide to fire the CEO for the internal control deficiencies before the disclosure and seek for replacement CEO to remediate the problems, or the CEO himself may feel threatened by the eventual disclosure of internal control material weaknesses which he could not manage to remediate before the disclosure date and thus leaves the firm before the

disclosure. The logistic regression results are similar with full-sample regression results with the coefficient for CEO_Turnover being 0.212, significant at lower than 0.1 level, suggesting that the reverse causality issue is likely to be insignificant for this study.

In column (3) the firms that have disclosed material weaknesses in internal control system under SOX 302 regime for fiscal years 2002 and 2003 are removed for the sample year 2004 to further mitigate the causality issue. The CEOs are less likely to be fired in 2005 and 2006 for the material weakness report in 2002 and 2003. The internal control systems of the rest sample firms are without material weaknesses prior to the period for CEO turnover and internal control quality study, thus it could be reasonably assumed that the CEO turnover is not the result of deficient internal control management. The regression result is the same as in the full sample regression with the coefficient for CEO_Turnover being 0.285 and the *p*-value being less than 0.01. This further proves that the reverse causality issue is insignificant and CEO turnover prior to the internal control weakness disclosures is positively associated with the probability of having material weaknesses in internal control system.

Panel B of Table 4 provides regression results with CEO_Turnover split into 1, 2 and 3 year turnover dummies. The CEO_Turnover dummy in Model (1) is replaced with 1year_Turnover, 2year_Turnover, Turnover_year2, and Turnover_year3 respectively. 1year_Turnover is equal to 1 if the CEO leaves the firm in the internal control weakness

disclosure year t , and 0 otherwise; $2year_Turnover$ is equal to 1 if 1 if the CEO leaves the firm in the internal control weakness disclosure year t or $t-1$, and 0 otherwise; $Turnover_year2$ is equal to 1 if the CEO leaves in the year $t-1$ before the disclosure year t , and 0 otherwise; $Turnover_year3$ is equal to 1 if the CEO leaves in the year $t-2$ before the disclosure year t , and 0 otherwise. The coefficient for $1year_Turnover$ is 0.407, significant at lower than 0.05 level. The coefficient for $2year_Turnover$ is 0.214, significant at lower than 0.1 level. The coefficient for $Turnover_year2$ is insignificant in individual regression as shown in Column (4). Column (5) shows that $Turnover_year3$ has significantly positive coefficient. In the pooled regression in Column (6), both coefficients for $1year_Turnover$ and $Turnover_year3$ are significant. The results confirm that CEO turnover has negative impacts on the effectiveness of internal control system through agency problem and organizational dislocation. The organizational dislocation after the CEO turnover emerges gradually and may persist over the years and the extent of dislocation varies across firms. That the coefficient for $Turnover_year3$ is significantly positive suggests that the CEO turnover has far-reaching significance in maintaining effective internal control system. The coefficient for $1year_Turnover$ has greater magnitude and significance than $Turnover_year3$. The CEOs of the accelerated filers tend to be more discreet in making turnover decisions than that of the small firms, as the opportunity costs are relatively higher, thus the CEOs are reasonably expected to make pre-turnover arrangements for their future job and their job-seeking may invariably affect their attention and

efforts spent on the old firm, thus agency problem starts to affect the CEO's attitude and efforts way before the turnover is realized. So for firms with CEO turnover in the disclosure year, it is likely that the turnover decision is made before the disclosure year. The service termination notice period on the CEO's side is normally 6 months while on the firm's side it could be as long as 12 months. Before the realize CEO turnover, the expected turnover may have already triggered the employee turnovers and decreased operational efficiency. Such should have significant and negative impacts on the effectiveness of internal control system and are more likely to aggravate the existing internal control deficiencies into material weaknesses.

Table 6 presents the regression results of Model (2.1) and (2.2) for Hypothesis 2. *Less_Auditable_MW* is a dummy variable which is equal to 1 for firms with at least one less auditable internal control material weaknesses and 0 for firms without any material weakness. *More_Auditable_MW* is a dummy variable which is equal to 1 for firms with at least one more auditable internal control material weakness and 0 for firms without any material weakness. The dependent variable for column (1) is *Less_Auditable_MW*. Similarly as the results in Table 4, small firms and firms with more aggregate losses, business segments and distress risks tend to have more material weaknesses. The coefficient for *CEO_Turnover* is 0.230 with *p*-value being less than 0.05. This shows that the CEO turnover prior to the internal control material weakness disclosure is positively related with less auditable material weaknesses.

The dependent variable in Column (2) is `More_Auditable_MW`. The coefficients for control variables in Column (2) are generally consistent with Column (1) and Table 4. The result shows that the CEO turnover prior to the internal control material weakness disclosure is also positively related with more auditable material weaknesses. The regression results do not show that CEO turnover is more positively related with subsequent less auditable internal control material weaknesses than more auditable weaknesses.

[Insert Table 6 Here]

Table 7 presents results of regressions for models (3.1) to (3.2) for Hypothesis 3. Firms with CEO turnover are divided into firms with CEO and Chairman duality and firms without CEO and Chairman duality. `Duality_Turnover` is defined as the dummy variable which is equal to 1 for firms with CEO turnover within three years before the weakness disclosure and at the same time whose CEO is also the Chairman of the board, and 0 for firms without CEO turnover. `Non_Duality_Turnover` is defined as the dummy variable which is equal to 1 for firms with CEO turnover within three years before the weakness disclosure and at the same time whose CEO is not the Chairman of the board, and 0 for firms without CEO turnover. Panel A presents the CEO tenure and age comparison between duality firms and non-duality firms. The CEO tenure for duality firms is significantly longer than for non-duality firms. CEO tenure is used as one proxy for management horizon and short

CEO tenure is found to be related with more agency costs and lower firm valuation (Antia et al, 2010).

[Insert Table 7 Here]

Panel B of Table 7 presents the result for the logistic regressions with `Non_Duality_Turnover` as the major dependent variable. Tests using split `Non_Duality_Turnover` dummy into 1, 2 and 3 years individual dummies are also carried out. `1year_Turnover_Non_Duality` is equal to 1 for firms with CEO turnover in the internal control weakness disclosure year t and the departing CEO is not Chairman of the board, and 0 otherwise; `2year_Turnover_Non_Duality` is equal to 1 for firms with CEO turnover in the internal control weakness disclosure year t or $t-1$ and the departing CEO is not Chairman of the board, and 0 otherwise; `Turnover_year2_Non_Duality` is equal to 1 for firms with CEO turnover in the year $t-1$ before the disclosure year t and the departing CEO is not Chairman of the board, and 0 otherwise; `Turnover_year3_Non_Duality` is equal to 1 for firms with CEO turnover in the year $t-2$ before the disclosure year t and the departing CEO is not Chairman of the board, and 0 otherwise. The individual turnover dummies over the three years before the weakness disclosures are all significantly related with subsequent internal control material weaknesses. The magnitude of coefficients for split turnover dummies increases from year 3 to year 1 which is the disclosure year. CEO and Chairman non-duality implies less interests alliance between the CEO

and the shareholders, thus compared with Chairman-CEO, the non-Chairman-CEO's attention decreases much faster and may also make self-serving arrangements before the turnover. Agency problem increases from the time that the turnover decision is made. Since there is a service termination notice period, the agency problem due to the decreased efforts of the CEO may be pervasive around the turnover period. The Chairman-CEO, because of the closer interest alliance with the shareholders, is more likely to cooperate with the board and make arrangements for smooth transition, thus in this case there may be less employee turnovers, especially management turnover. The non-Chairman-CEO is more likely to be dismissed by the board than the Chairman-CEO, and other non-CEO executives who closely cooperate with the CEO may also be dismissed or they would follow the CEO and resign. It is more probable that the management team turnover exist in firms of non-duality. The joint impact of agency problem and organizational dislocation is thus associated with stronger year 1 turnover result. The organizational dislocation's effect is likely to drift over the years, thus the turnovers in the third year before the weakness disclosure date may still contribute to the eventual disclosure of material weaknesses in internal control system. The coefficient for Duality_Turnover is not significant and the Chairman-CEO is more likely to make arrangements that facilitate the new CEO to take over the position and avoid management chaos in the turnover period and maintain the effectiveness of internal control system.

5.3 Additional tests

As an additional test to investigate the impact of CEO characteristics on the relation between CEO turnover and internal control material weaknesses, I classify the CEO turnovers into retirement turnovers and non-retirement turnovers. The incentives for the CEOs facing the two types of turnovers are different and could generate different managerial behaviors which may have different impacts on the internal control system. The normal CEO retirement age is 65 (Weisbach, 1995), thus retirement turnovers are defined as the turnovers for CEOs leaving the firms at or beyond the age of 65. The turnovers for CEOs under the age of 60 are defined as non-retirement turnovers. The firms with CEO turnovers between the age of 60 and 65 are excluded from this set of tests as it is difficult to decide if these turnovers are retirement turnovers or non-retirement turnovers..

The CEO who leaves the firm under the age of retirement is reasonably assumed to try to secure a job in another firm before he officially resigns. This job-seeking behavior of the CEO takes up his time and attention. The CEO's concern and efforts in the old firm's business and operation correspondingly decline. This affects the effectiveness of the internal control system. The managerial horizon for these departing CEO is short and he may be less concerned with the future effects of his current actions as he should have secured another

job before the turnover (Lambert, 2001).

The CEO facing retirement has different incentives and behaviors before he officially retires. The binding between the retiring CEO and the firm should still be strong compared to the departing CEO before the retirement age and the agency problem before the turnover is expected to be less in the retirement turnover case. The retiring CEO is less likely to look for an equivalent job after the retirement thus his attention on the firm's welfare is less distracted. The retiring CEO is more likely to make transitional arrangements regarding personnel, policies and regulations beforehand that would enable the successor CEO to take over the management position with few obstacles. The retiring CEO is more likely to willingly cooperate with the board for actions that aim at smooth transition. Thus there would be less management chaos in firms with retirement turnovers and those firms should have less internal control problems than firms with non-retirement turnovers.

I use the following models to test the relations between non-retirement and retirement turnovers and internal control material weaknesses. $Non_Retirement_Turnover$ is equal to 1 for $CEO_Turnover$ firms whose CEO leaves under the age of 60 and 0 for firms without CEO turnover. $Retirement_Turnover$ is equal to 1 for $CEO_Turnover$ firms whose CEO leaves beyond the age of 65 and 0 for firms without CEO turnover. Model (4.1) tests the relation between non-retirement turnovers and internal control material weaknesses and the coefficient

for Non_Retirement_Turnover is expected to be significantly positive meaning that firms with retirement turnovers tend to have more internal control material weaknesses. Model (4.2) tests the relation between retirement turnovers and internal control material weaknesses and the coefficient for Retirement_Turnover is expected to be insignificant showing that firms with retirement turnovers tend not to have internal control material weaknesses.

$$ICMW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9Non_Retirement_Turnover_t + e \quad (4.1)$$

$$ICMW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9Retirement_Turnover_t + e \quad (4.2)$$

I also carry out tests on Model (4.1) and (4.2) by replacing Non_Retirement_Turnover and Retirement_Turnover with split turnover dummies. 1year_Turnover_Non_Retirement is equal to 1 for firms whose CEO leaves under the age of 60 in the internal control weakness disclosure year t, and 0 otherwise; 2year_Turnover_Non_Retirement is equal to 1 for firms whose CEO leaves under the age of 60 in the internal control weakness disclosure year t or t-1, and 0 otherwise; Turnover_year2_Non_Retirement is equal to 1 for firms whose CEO leaves under the age of 60 in the year t-1 before the disclosure year t, and 0 otherwise; Turnover_year3_Non_Retirement is equal to 1 for firms whose CEO leaves under the age of 60 in the year t-2 before the disclosure year t, and 0 otherwise.

Table 8 shows the regression results of Model (4.1) and (4.2). Column (1) presents the regression result for the test with Non_Retirement_Turnover as the major test variable. The coefficients for the control variables are generally consistent with previous tests for CEO turnover and internal control material weaknesses. In the regression, the coefficient for Non_Retirement_Turnover is 0.479 with *p*-value being lower than 0.01. This shows that firms with non-retirement CEO turnover tend to have more material weaknesses in internal control system. Column (2) to (6) report the regression result of Model (4.2) with split turnover dummies for firms with non-retirement turnovers. As shown, the coefficients for turnover dummies for the disclosure year and the year before are significantly positive. In Column (7) the regression result shows that the coefficient for Retirement_Turnover is not significant, suggesting that firms with retirement turnovers tend not to have internal control material weaknesses. The retiring CEOs, because of less intention of finding an equivalent job after the retirement, tend to spend less time in job-seeking than the non-retiring departing CEOs. Retiring CEOs are also more likely to make pre-arrangements for smooth transition. The non-retiring CEOs not only spend more efforts in arranging for their future job, but also are more likely to take advantages of their knowledge of the firms' business and operations and utilize the existing deficiencies of the internal control system to make certain self-serving activities. The post-turnover organizational dislocation may aggravate the internal

control deficiencies into material weaknesses.

[Insert Table 8 Here]

There have been many studies on CEO tenure and firm performance. Antia et al. (2010) use expected CEO tenure as a proxy for managerial horizon and find that short CEO tenure is related with more agency costs and lower firm valuation. Simsek (2007) finds that the long-tenured CEO has accumulated sufficient firm-specific knowledge and skills thus he is more confident in strategic risk taking than short-tenured CEO and the risk taking is also associated with better firm performance. Both studies maintain that long CEO tenure is positively related with firm performance. As an additional test on CEO turnover and internal control quality, I expect that the tenure of the departing CEO has a moderating effect on the relation between CEO turnover and the effectiveness of internal control system and the turnover of short-tenured CEO is positively related with subsequent internal control material weakness while the turnover of long-tenured CEO is not related with subsequent internal control material weakness.

CEO tenure is the number of years that the CEO holds the position in a firm. The tenure data are obtained from Compustat ExecuComp database. I divide the firms with CEO turnovers into two equal groups by the CEO tenure, namely the turnover firms with long and short CEO tenure. The dummy variable Short_Tenure_Turnover is equal to 1 for the

turnover firms with short CEO tenure and 0 for firms without CEO turnovers, and the dummy variable Long_Tenure_Turnover is equal to 1 for the turnover firms with long CEO tenure and 0 for firms without CEO turnovers. Model (5.1) tests the relation between the short-tenured CEO turnovers and internal control material weaknesses and the coefficient for Short_Tenure_Turnover is expected to be significantly positive showing that firms with short-tenured CEO turnovers tend to have more internal control material weaknesses. Model (5.2) tests the relation between the long-tenured CEO turnovers and internal control material weaknesses and the coefficient for Long_Tenure_Turnover is expected to be insignificant showing that firms with long-tenured CEO turnovers tend not to have internal control material weaknesses.

$$ICMW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9Short_Tenure_Turnover_t + e \quad (5.1)$$

$$ICMW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9Long_Tenure_Turnover_t + e \quad (5.2)$$

[Insert Table 9 Here]

Logistic regressions of Model (5.1) and (5.2) by replacing Short_Tenure_Turnover and Long_Tenure_Turnover with split turnover dummies are also carried out. Table 9 shows the regression results. . Column (1) presents the regression result with Short_Tenure_Turnover as the major test variable. The coefficients for the control variables are

qualitatively consistent with previous tests for CEO turnover and internal control material weaknesses. The coefficient for Short_Tenure_Turnover is 0.333 and the p -value being less than 0.01. This shows that the turnover firms with long-tenured CEOs tend to have more material weaknesses in internal control system. Column (2) – (6) reports the regression results with split turnover dummies for firms whose departing CEOs are short-tenured. The coefficient for Turnover_year2_Short_Tenure which is equal to 1 for firms with CEO turnovers within two years before the internal control weakness disclosure is significantly positive. The result in Column (7) shows the coefficient for Long_Tenure_Turnover is not significant suggesting that the turnover firms with long-tenured CEOs tend not to have internal control material weaknesses. The results are generally consistent with the argument that short-tenured CEOs tend to have short managerial horizon and are related with more agency problems especially around the turnover period, thus the turnovers of short-tenured CEOs are more likely to lead to more internal control material weaknesses. This set of tests is also preliminary and subject to further investigations.

CEO turnover can also be classified into forced and voluntary turnover. Forced turnover happens when the CEO is pressed to leave the firm before the normal retirement age. Forced turnover can be further divided into direct and indirect forced turnover. Cases for the direct type of turnover are that CEOs are forced to leave as a result of deteriorated performance or corporate misbehaviors such as insider trading, etc.

Indirect forced turnover may arise from unharmonious relation between the board of directors and the CEO. In such situations, the board may take on uncooperative attitude towards the CEO's work. The CEO is likely to feel uncomfortable at work and the hidden pressure may eventually lead to the CEO's "voluntary" resignation. Even though the departing CEO may not disclose the real reason for leaving, the chance is big that he is passively obliged to leave. For such turnover cases, the conflict situation would invariably frustrate the CEO at work. Consequently the management efficiency is likely to be negatively influenced and the efforts on maintaining sound internal control system are likely to decrease.

The forced turnover of the CEO may be followed by increased employee turnovers. The subordinates that are loyal to the CEO may leave the firm with the CEO. Those who have cooperated together for years may feel disinclined to separate from the team, thus the non-CEO management turnover may increase following the CEO turnover. In the personnel hierarchy, the substitutability of staff decreases from junior to senior staff. The senior staff either would be thoroughly incompatible with the new CEO or would take some time to adjust to the new CEO. This may lead to a series of corporate dysfunctions. Firms with forced CEO turnovers tend to experience a period of unstable personnel structure and chaotic managerial status. Compared with voluntary turnover, forced turnover may provoke more hard feelings on the CEO side, thus the CEO forced to leave then puts less efforts in business and

operations. The internal control effectiveness is foreseeably lower under such circumstances.

Contrary to forced CEO turnover is voluntary turnover. The CEOs normally retire at the age of 60, thus for the CEO who leaves beyond the age of 60, in particular beyond 65, it could be assumed that they voluntarily leave their job. The binding between voluntarily leaving CEO and the firm should still be strong compared to the CEO who is forced to leave and the agency problem before the turnover is expected to be less in the voluntary turnover case. The impact of voluntary CEO turnover on firm's business is then different from that of the forced turnover. The CEO that expects a voluntary turnover may make transitional arrangements regarding personnel beforehand which enable the successor CEO to take over the management position and make decisions with few obstacles. The departing CEO would willingly cooperate with the board for actions that aim at smooth transition. There would be less management chaos in firms with voluntary turnover and those firms should have less internal control problems than firms with forced turnovers.

Forced_Turnover is set equal to 1 for firms whose CEO leaves under the age 55 for resignation or unknown reasons or under the age of 50 for the reason of retirement, and 0 for firms without CEO turnover. Voluntary_Turnover is set equal to 1 for firms whose CEO leaves beyond the age of 65 for unknown reasons or beyond the age of 60 for

reasons as resignation or retirement, and 0 for firms without CEO turnover. Model (6.1) tests the relation between the forced CEO turnovers and internal control material weaknesses and the coefficient for Forced_Turnover is expected to be significantly positive showing that firms with forced CEO turnovers tend to have more internal control material weaknesses. Model (6.2) tests the relation between the voluntary CEO turnovers and internal control material weaknesses and the coefficient for Voluntary_Turnover is expected to be insignificant showing that firms with voluntary CEO turnovers tend not to have internal control material weaknesses.

$$ICMW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9Forced_Turnover_t + e \quad (6.1)$$

$$ICMW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9Voluntary_Turnover_t + e \quad (6.2)$$

Tests with split turnover dummies for Forced_Turnover and Voluntary_Turnover are also carried out based on Model (6.1) and (6.2). Those split dummies are defined in similar manner as for the Retirement_Turnover and Non_Retirement_Turnover. Table 10 shows the regression results of Model (6.1) and Model (6.2). Column (1) presents the regression result with Forced_Turnover as the major test variable. The coefficient for Forced_Turnover is 0.466 with *p*-value being lower than 0.01. This shows that the turnover firms with forced CEOs tend to have more material weaknesses in internal control system.

Column (2) – (6) reports the regression results with split turnover dummies for firms with forced turnovers. Forced turnovers in the disclosure year and three years before the disclosure date are significantly related with material weakness disclosure. The disclosure of material weakness disclosure has not been documented as valid determinant of CEO turnover. That the turnover happens in the disclosure year does not immediately imply that the CEO is dismissed for the material deficiencies in internal control system. No research has done yet to formally evaluate the impact of the disclosure of material weakness in internal control system on the turnover decision on the board level. Forced CEO turnover is likely to be associated with more employee turnovers, especially the management turnover, as the board uses the same set of assessment standard for turnover decisions. The conflict between the CEO and the board may also result in CEO turnover. In such situations, the management members who closely cooperate with the CEO may resign at the same time the conflict may be extended to other management members. Thus forced CEO turnover is related with more employee turnovers. As the substitutability of top management is much less than the junior staff and it takes time for the new management member to adjust to the position, organizational dislocation is more likely to prevail in the case of forced CEO turnover. The increased employee turnovers around the forced turnover period may directly have negative impacts on the effectiveness of internal control system and may aggravate the existing internal control deficiencies into weaknesses of a more severe nature. The organizational dislocation may persist over the

years, thus the Year3_Forced_Turnover still has significantly positive coefficient. Column (7) reports the regression result with Voluntary_Turnover as the major test variable and the coefficient for Voluntary_Turnover is not significant, showing that firms with voluntary turnovers tend not to have internal control material weaknesses.

[Insert Table 10 Here]

In previous discussion, the turnover of charismatic leaders may lead to more employee turnover contagion. Following this logic, the CEO turnovers in large firms may lead to more internal control problems than in small firms as the CEOs in large firms tend to be more charismatic. I carry out logistic regressions to test this argument. I equally partition the sample by firm size into large, medium and small groups and then test the relation between CEO turnover and internal control material weaknesses using regression Model (1). CEO_Turnover are then replaced with split turnovers dummies in Model (1). The split dummies are defined in similar manners as for CEO_Turnover, only subject to large and small firms. The results of Table 11 show that the coefficient for CEO_Turnover_Large is 0.434 and significant at lower than 0.01 level. The coefficient for Year3_Turnover_Large has greater significance and magnitude than that for 1year_Turnover_Large, which suggests that CEO turnover in large firms is associated with more organizational dislocation, the negative effect of which on the internal control system persist over two years after the turnover In contrast, the

coefficient for the small-firm group is 0.123 and insignificant. This evidence is supportive of the above argument and shows that CEO turnover is an important factor in the internal control deficiency study. Previous studies find that large firms tend to have less internal control problems as they have more sound and mature internal control system. However, the CEO turnovers in large firms are then associated with more internal control material weaknesses than in small firms. This suggests that CEO turnover may have distinct impact on the effectiveness of internal control system.

[Insert Table 11 Here]

As additional tests, I adopt another two classification schemes for internal control material weaknesses. Internal control material weaknesses can be classified into staffing, complexity and general weaknesses by operating characteristics. The weaknesses can also be classified into firm-level and account- or transaction-level weaknesses.

Staffing related control weaknesses include the lack of qualified financial and accounting staff, inadequate training for accounting personnel, and poor segregation of duties. This type of control weaknesses is more severe than complexity weaknesses and general weaknesses. The objective efforts of the personnel, in particular of the senior personnel, are difficult to monitor and evaluate and could underlie other types of control weaknesses. During the CEO turnover period,

when the CEO's management attention is slack the internal controls related to staffing tend to go wrong. The CEO turnover is often accompanied by a series of staff position changes or turnovers and the lack of key control personnel or the unclear segregation of duties are natural results following the CEO turnover. Complexity related material weaknesses include the deficiencies in applying consistent corporate policies among different business units, as well as the weaknesses in unifying complex accounting standards across different segments. General control weaknesses include weaknesses in accounting for transactions thus are the transaction-level control weaknesses.

I repeat logistic regressions for Hypotheses 2 and replace the dependent variables *Less_Auditable_MW* and *More_Auditable_MW* with *Staffing_MW*, *Complexity_MW* and *General_MW*. *Staffing_MW* is equal to 1 for firms with at least one staffing related internal control material weakness and 0 for firms without any material weakness. *Complexity_MW* is equal to 1 for firms with at least one complexity related internal control material weakness and 0 for firms without any material weakness. *General_MW* is equal to 1 for firms with at least one general internal control material weakness and 0 for firms without any material weakness. The following models are used for this set of tests:

$$\begin{aligned}
 \text{Staffing_MW}_i = & a_0 + a_1\text{Size}_i + a_2\text{Aggr_loss}_i + a_3\text{Growth_sale}_i + a_4\text{Foreign_transactions}_i + a_5\text{Firm_age}_i \\
 & + a_6\text{Segments}_i + a_7\text{RES}_i + a_8\text{Zscore}_i + a_9\text{CEO_Turnover}_i + e
 \end{aligned}
 \tag{7.1}$$

$$\begin{aligned}
 \text{Complexity_MW}_i = & a_0 + a_1\text{Size}_i + a_2\text{Aggr_loss}_i + a_3\text{Growth_sale}_i + a_4\text{Foreign_transactions}_i + a_5\text{Firm_age}_i \\
 & + a_6\text{Segments}_i + a_7\text{RES}_i + a_8\text{Zscore}_i + a_9\text{CEO_Turnover}_i + e
 \end{aligned}$$

(7.2)

$$General_MW_t = a_0 + a_1Size_t + a_2Aggr_loss_t + a_3Growth_sale_t + a_4Foreign_transactions_t + a_5Firm_age_t + a_6Segments_t + a_7RES_t + a_8Zscore_t + a_9CEO_Turnover_t + e$$

(7.3)

As shown in Table 12, the coefficients a_9 for CEO_Turnover for regressions for Model (6.1), (6.2) and (6.3) are 0.306, 0.269 and 0.272 respectively and the p -values are all below 0.05. CEO turnovers are related with all three types of material weaknesses.

[Insert Table 12 Here]

Lastly, the internal control material weaknesses are classified into firm-level and account- or transaction-level weaknesses. Doyle et al. (2007a) also adopt this type of classification. Firm-level weaknesses include weaknesses are of a more pervasive nature and have firm-wide influence on the internal control system. Account- or transaction-level weaknesses are of a more technical or auditable nature that have relatively limited impacts on the overall effectiveness of internal control system. Firm-Level_MW is equal to 1 for firms with at least one firm-level material weakness and 0 for firms without any material weakness. Account/transaction-Level_MW is equal to 1 for firms with at least one account/transaction-level material weakness and 0 for firms without any material weakness. CEO turnover is significantly related with both weaknesses and the relation is marginally stronger for firm-level weaknesses. The following models are used in this context.

$$\begin{aligned} \text{Firm-Level_MW}_i &= a_0 + a_1\text{Size}_i + a_2\text{Aggr_loss}_i + a_3\text{Growth_sale}_i + a_4\text{Foreign_transactions}_i + a_5\text{Firm_age}_i \\ &+ a_6\text{Segments}_i + a_7\text{RES}_i + a_8\text{Zscore}_i + a_9\text{CEO_Turnover}_i + e \end{aligned}$$

(8.1)

$$\begin{aligned} \text{Account/transaction-Level_MW}_i &= a_0 + a_1\text{Size}_i + a_2\text{Aggr_loss}_i + a_3\text{Growth_sale}_i + a_4\text{Foreign_transactions}_i + a_5\text{Firm_age}_i \\ &+ a_6\text{Segments}_i + a_7\text{RES}_i + a_8\text{Zscore}_i + a_9\text{CEO_Turnover}_i + e \end{aligned}$$

(8.2)

Table 12 provides the logistic regression results. As shown, the coefficients a_9 for CEO_Turnover for Model (7.1) and (7.2) are 0.254 and 0.273, both significant at lower than 5% level. CEO turnovers are positively related with both firms-level and account/transaction-level internal control material weaknesses.

[Insert Table 13 Here]

CHAPTER 6

CONCLUSIONS

6.1 Introduction

This chapter concludes the thesis. Section 6.2 summarizes the major propositions and findings of the study. Section 6.3 describes the limitations of the study. Section 6.4 discusses future research opportunities.

6.2 Conclusions

SOX Section 404 requires both the management and external auditor to certify the effectiveness of internal control system and report any material weakness in internal controls. This study uses sample firms' data after the effective date of Section 404 to examine the relation between CEO turnover and internal control quality.

The agency problem increases before the CEO turnover and there is also likely to be management instability or dislocations around the turnover period. Both may lead to more deficiencies in the internal control system. Findings of this study show that firms with CEO turnover tend to have more internal control material weaknesses. When the CEO is planning to leave the firm, his attention and efforts on the firm's business and operations tend to decrease and his decision horizon tends to be short, thus the agency problems before the CEO turnover are

likely to increase. In the meantime, CEO turnover may lead to organizational dislocation. The personnel structure may be less stable due to turnover contagion and new personnel adjustment period. The imperfections of internal control system may grow into more significant problems because of the decreased attention and efforts of the CEO as well as the management chaos around the CEO turnover. After the CEO turnover the negative consequences may be aggravated and lead into internal control material weaknesses.

CEO and Chairman duality is another issue included in the CEO turnover and internal control quality study. That the CEO also takes up the position of Chairman of the board is an indication that the CEO has more joint interests with the shareholders, and thus may be associated with less agency problems. From Maslow's hierarchy of needs perspective, the Chairman-CEO tends to have more emotional attachment towards the firm and have better sense of responsibility than the non-Chairman-CEO. When the Chairman-CEO is leaving the firm, his interests in the firm are likely to decline at a lower rate than the non-Chairman-CEO. Tests results show that the turnover of Chairman-CEO is not significantly related with subsequent internal control material weaknesses and in contrast the non-Chairman-CEO turnover is significantly related with internal control problems which could be partly explained by the short management horizon and the higher probability of management team turnover.

6.3 Limitations

There are several limitations in this study. First of all, the sample period is limited to the years 2004-2006 due to unavailability of some control variables for the years after 2006. Second, this study is based on accelerated filers under SOX Section 404 thus the findings may not be generalizable on non-accelerated filers. Third, the study of the impacts of CEO characteristics is limited to CEO and Chairman duality, retirement and CEO tenure (as in the additional tests section).

6.4 Future research opportunities

Based on the proposals and findings of this study, future research work can be carried out in the following areas. Firstly, there can be more investigations on various aspects of corporate governance before the internal control weakness disclosure. This study examines the relation between CEO turnover and subsequent material weakness disclosure. The turnover of CFO, audit committee members and board members and internal control quality relation should be investigated in future studies. The changes of corporate governance before the control weakness disclosure can be interesting research topics as such changes definitely have some impact on the internal control system.

Secondly, the comparison between CEO turnover before and after the internal control material weakness disclosure may be interesting. The two categories of CEO turnovers can have different features in terms of CEO and Chairman duality, retirement and non-retirement turnovers and

CEO compensation. Findings and explanations for these differences can enrich our understanding of corporate governance and the operations of the internal control system.

Thirdly, the trend of internal control material weakness disclosures can be investigated. The differences between Section 302 and Section 404 disclosures or between yearly disclosures could provide useful information on the evolving nature of internal control system in the post-SOX period. This could also contribute to the literature on SOX's impact on corporate governance.

APPENDIX

Examples of internal control material weakness classification schemes

By control weakness auditability

Less auditable material weaknesses

- (1) Senior management competency, tone, reliability issues
- (2) Ethical or compliance issues with personnel
- (3) Ineffective, non-existent or understaffed audit committee
- (4) Scope (disclaimer of opinion) or other limitations

More auditable material weaknesses

- (1) Accounting documentation, policy and/or procedures
- (2) Information technology, software, security & access issue
- (3) Restatement or non-reliance of company filings
- (4) Untimely or inadequate account reconciliations
- (5) Journal entry control issues

By operating nature of control weakness

Staffing

-
- (1) Ineffective, non-existent or understaffed audit committee
 - (2) Senior management competency, tone, reliability issues
 - (3) Accounting personnel resources, competency/training
 - (4) Ethical or compliance issues with personnel
 - (5) Segregations of duties/ design of controls (personnel)

Complexity

- (1) Accounting documentation, policy and/or procedures
- (2) Restatement or non-reliance of company filings
- (3) Ineffective regulatory compliance issues
- (4) Journal entry control issues

General

- (1) Information technology, software, security & access issue
- (2) Untimely or inadequate account reconciliations
- (3) Non-routine transaction control issues
- (4) Treasury Control Issues

By firm-level or account- / transaction-level material control weaknesses

Firm-level material control weaknesses

-
- (1) Ineffective, non-existent or understaffed audit committee
 - (2) Senior management competency, tone, reliability issues
 - (3) Accounting personnel resources, competency/training
 - (4) Ethical or compliance issues with personnel
 - (5) Segregations of duties/ design of controls

Account- / transaction-level material control weaknesses

- (1) Information technology, software, security & access issue
- (2) Untimely or inadequate account reconciliations
- (3) Non-routine transaction control issues
- (4) Journal entry control issues
- (5) Treasury Control Issues

REFERENCES

- Aboody, D. Kasznik, R., 2000. CEO stock option awards and the timing of corporate voluntary disclosures. *Journal of Accounting and Economics* 29, 73-100.
- Allen, D. G., 2006. Do organizational socialization tactics influence newcomer embeddedness and turnover? *Journal of Management* 32, 237–256.
- Antia, M., Pantzalis, C., Park, J. C., 2010. CEO decision horizon and firm performance: An empirical investigation. *Journal of Corporate Finance* 16, 288-301.
- Ashbaugh-Skaife, H., Collins, D., Kinney, W., 2007. The discovery and reporting of internal control deficiencies prior to SOX-mandated audits. *Journal of Accounting and Economics* 44, 166–192.
- Baliga, B. R., Moyer, R. C., 1996. CEO duality and firm performance: What's the fuss? *Strategic Management Journal* 17, 41-43.
- Bargeron, L. L., Lehn, K.M., Zutter, C. J., 2010. Sarbanes-Oxley and corporate risk-taking. *Journal of Accounting and Economics* 49, 34–52.
- Beneish, M. D., Billing, M. B., Hodder, L. D., 2008. Internal control weaknesses and information uncertainty. *The Accounting Review* 83 (3), 665-703.
- Brickley, J. A., 2003. Empirical research on CEO turnover and firm-performance: A discussion. *Journal of Accounting and Economics* 36, 227–233.
- Brown, L. D., Carlor, M. L., 2006. Corporate governance and firm value.

Journal of Accounting and Public Policy 25, 409-434.

Bryan, S., Lilien, S., 2005. Characteristics of firms with material weaknesses in internal control: An assessment of section 404 of Sarbanes Oxley. Working paper. Wake Forest University.

Bushman, R., Dai, Z., Wang, X., 2010. Risk and CEO turnover. Journal of Financial Economics 96, 381-398.

Coles, J. W., Hesterly, W. S., 2000. Independence of the Chairman and board composition: Firm choices and shareholder value. Journal of Management 26 (2), 195-214.

Combs, J. G., Skill, M. S., 2003. Management and human capital explanations for key executive pay premiums: A contingency perspective. Academy of Management Journal 46 (1), 63-73.

Core, J. E., Holthausen, R. W., Larcker, D. F., 1999. Corporate governance, CEO compensation, and firm performance. Journal of Financial Economics 51, 371-406.

Coughlan, A. Schimdt, R., 1985. Executive compensation, management turnover, and firm performance: An empirical investigation. Journal of Accounting and Economics 7, 43-66.

Dahya, J., McConnell, J. J., Travlos, N. G., 2002. The Cadbury committee, corporate performance, and top management turnover. Journal of Finance 1, 461-483.

Daily, C. M., Dalton, D. R., 1995. CEO and director turnover in failing firms: An illusion of change? Strategic Management Journal 16, 393-400.

DeFond, M. L., Hung, M., 2004. Investor protection and corporate

governance: evidence from worldwide CEO turnover. *Journal of Accounting Research* 42 (2), 269-312.

_____, Jiambalvo, J., 1991. Incidence and circumstances of accounting errors. *The Accounting Review* 66 (3), 643-655.

_____, Park, C. W., 1999. The effect of competition on CEO turnover. *Journal of Accounting and Economics* 27, 35-56.

Donaldson, L., Davis, J. H., 1994. Boards and company performance: Research challenges the conventional wisdom. *Corporate Governance: An International Review* 2(3), 151–160.

Doyle J., Ge, W., McVay, S., 2007a. Determinants of weaknesses in internal control over financial reporting. *Journal of Accounting and Economics* 44, 193-223.

_____, _____, _____, 2007b. Accruals quality and internal control over financial reporting. *The Accounting Review* 82 (5), 1141-1170.

Elliot, J., Shaw, W., 1988. Write-offs as accounting procedures to manage perceptions. *Journal of Accounting Research* 26 (3), 91-119.

Engel, E., Hayes, R. M., Wang, X., 2007. The Sarbanes–Oxley Act and firms' going-private decisions. *Journal of Accounting and Economics* 44, 116–145.

_____, _____, _____, 2003. CEO turnover and properties of accounting information. *Journal of Accounting and Economics* 36, 197-226.

Ettredge, M., Li, C, Sun, L., 2006. The impact of SOX section 404 internal control quality assessment on audit delay in the SOX era.

Auditing: A Journal of Practice & Theory 25 (2), 1-23.

_____, Heintz, J., Li, C., Scholz, S., 2010. Auditor realignments accompanying implementation of SOX 404 ICFR reporting requirements. Working paper. University of Kansas.

Faleye, O., 2007. Classified boards, firm value, and managerial entrenchment. *Journal of Financial Economics* 83, 501–529.

Farrella, K. A., Whidbee, D. A., 2003. Impact of firm performance expectations on CEO turnover and replacement decisions. *Journal of Accounting and Economics* 36, 165–196.

Fee, C. E., Hadlock, C. J., 2004. Management turnover across the corporate hierarchy. *Journal of Accounting and Economics* 37, 3–38.

Felps, W., Mitchell, T. R., Hekman, D. R., Lee, T. W., Holton, B. C., Harman, W. S., 2009. Turnover contagion: how coworkers' job embeddedness and job search behaviors influence quitting. *Academy of Management Journal* 52 (3), 545–561.

Feng, M., Li, C., McVay, S., 2009. Internal control and management guidance. *Journal of Accounting and Economics* 48, 190–209.

Finkelstein, S., D'Aveni, R. A., 1994. CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance and unity of command. *Academy of Management Journal* 37, 1079-1108.

Ge, W., McVay, S., 2005. The disclosure of material weaknesses in internal control after the Sarbanes-Oxley Act. *Accounting Horizons* 19 (3), 137-158.

Geiger, M. A., Taylor III, P. L., 2003. CEO and CFO certifications of financial information. *Accounting Horizons* 17 (4), 357-368.

Gong, G., Ke, B., Yu, Y., 2010. Home country investor protection, ownership structure and cross-listed firms' compliance with SOX-mandated internal control deficiency disclosures. Working Paper. Pennsylvania State University.

Graen, G. B., Liden, R. G., Hoel, W., 1982. Role of leadership in the employee withdrawal process. *Journal of Applied Psychology*, 67, 868-872.

Hambrick, D. C., D'Aveni, R. A., 1992. Top team deterioration as part of the downward spiral of large corporate bankruptcies. *Management Science* 38, 1445-1466.

Hammersley, J. S., Myers, L. A., Shakespeare, C., 2008. Market reactions to the disclosure of internal control weaknesses and to the characteristics of those weaknesses under section 302 of the Sarbanes Oxley Act of 2002. *Review of Accounting Studies* 13, 141-165.

Harris, D., Helfat, C. E., 1998. CEO duality, succession, capabilities and agency theory: Commentary and research agenda. *Strategic Management Journal* 19, 901-904.

Hennes, K. M., Leone, A. J., Miller, B. P., 2008. The importance of distinguishing errors from irregularities in restatement research: The case of restatements and CEO/CFO turnover. *The Accounting Review* 83 (6), 1487-1519.

Hoitash, U., Hoitash, R., Bedard, J. C., 2009. Corporate governance and internal control over financial Reporting: A comparison of regulatory regimes. *The Accounting Review* 84 (3), 839-867.

Huson, M. R., Parrino, R., Starks, L. T., 2001. Internal monitoring

mechanisms and CEO turnover: A long-term perspective. *Journal of Finance* 6, 2265-2297.

Johnstone, K., Li, C., Rupley, K. H., 2010. Changes in corporate governance associated with the revelation of internal control material weaknesses and their subsequent remediation. Working paper. University of Wisconsin-Madison.

Kalyta, P., 2009. Accounting discretion, horizon problem, and CEO retirement benefits. *The Accounting Review* 84 (5), 1553-1573.

Hallock, K. F., Murphy, K. J., 1999. *The Economics of executive compensation*. Edward Elgar Publishing.

Kaplan, S. N., Minton, B. A., 2006. How has CEO turnover changed? Increasingly performance sensitive boards and increasingly uneasy CEOs. Working paper, University of Chicago.

Kinney, W. R., McDaniel, L. S., 1989. Characteristics of firms correcting previously reported quarterly earnings. *Journal of Accounting and Economics* 11, 71-93.

Krishnan, J., 2005. Audit committee quality and internal control: An empirical analysis. *The Accounting Review* 80 (2), 649-675.

Lambert, R. A., 2001. Contracting theory and accounting. *Journal of Accounting and Economics* 32, 3-87.

Laux, V., 2008. Board independence and CEO turnover. *Journal of Accounting Research* 46 (1), 137-171.

Leuz, C., 2007. Was the Sarbanes–Oxley Act of 2002 really this costly? A discussion of evidence from event returns and going-private decisions. *Journal of Accounting and Economics* 44, 146–165.

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- Li, C., Sun, L., Ettredge, M., 2010. Financial executive qualifications, financial executive turnover, and adverse SOX 404 opinions. *Journal of Accounting and Economics* 50, 93-110.
- Lin, S., Pizzini, M., Vargus, M., 2007. An investigation of internal audit characteristics and material weakness disclosures. Working paper. California State University.
- Maslow, A. H., 1943. A Theory of human motivation. *Psychological Review* 50, 370-396.
- Matta, E., Beamish, P. W., 2008. The accentuated CEO career horizon problem: Evidence from international acquisitions. *Strategic Management Journal* 29, 683-700.
- March, J., Simon. H., 1958. *Organizations*. Wiley. New York.
- Menon, K., Williams, D. D., 2008. Management turnover following auditor resignations. *Contemporary Accounting Research* 25 (2), 567-604.
- Murphy, K. J., Zimmerman, J. L., 1993. Financial performance surrounding CEO turnover. *Journal of Accounting and Economics* 16, 273-315.
- O'Connor, J. P., Priem, R. L., Coombs, J. E., Gilley, K. M., 2006. Do CEO stock options prevent or promote fraudulent financial reporting? *Academy of Management Journal* 49 (3), 483-500.
- Ogneva, M., Subramanyam, K.R., Raghunandan, K., 2006. Internal control weakness and cost of equity: Evidence from SOX section 404 disclosures. Working paper. University of Southern California.
- Parrino, R., Sias, R. W., Starks, L. T., 2003. Voting with their feet:

Institutional ownership changes around forced CEO turnover. *Journal of Financial Economics* 68, 3-46.

Patterson, E. R., Smith, J. R., 2007. The effects of SOX on auditing and internal control strength. *The Accounting Review* 82 (2), 427–455.

Petrovits, C., Shakespeare, C., Shih, A., 2011. The causes and consequences of Internal Control Problems in Nonprofit Organizations. *The Accounting Review* 86, 325-357.

Pourciau, S., 1993. Earnings management and nonroutine executive changes. *Journal of Accounting and Economics* 16 (1-3), 317-336.

Prakash, S., 2008. The Sarbanes-Oxley Act and Small Public Companies. Working paper. Stanford Graduate School of Business.

Shleifer, A., Vishny, R. W., 1989. Management entrenchment: The case of manger-specific investments. *Journal of Financial Economics* 25, 123-139.

Shumway, T., 2001. Forecasting bankruptcy more accurately. *Journal of Business* 74 (1), 101-124.

Simsek, Z., 2007. CEO tenure and organizational performance: An intervening model. *Strategic Management Journal* 28, 653-662.

Strong, J., Meyers, J., 1987. Asset writedowns: Managerial incentives and security returns. *Journal of Finance* 20, 643-663.

Taylor, L. A., 2010. Why are CEOs rarely fired? Evidence from structural estimation. *Journal of Finance* 6, 2051-2087.

Tosi, H. L., Werner, S., Katz, J. P., Gomez-Mejia, L., 2000. How much does performance matter? A meta-analysis of CEO pay studies. *Journal of Management* 26, 301-339.

Tuggle, C. S., Sirman, D. G., Reutzel, C. R., Bierman, L., 2010. Commanding board of director attention: Investigating how organizational performance and CEO duality affect board members' attention to monitoring. *Strategic Management Journal* 31, 946-968.

Wang, X., 2010. Increased disclosure requirements and corporate governance decisions: Evidence from chief financial officers in the pre- and post-Sarbanes-Oxley periods. *Journal of Accounting Research* 48 (4), 885-920.

Warner, J., Watts, R., Wruck, K., 1988. Stock prices and top management changes. *Journal of Financial Economics* 20, 461-492.

Weisbach, M. S., 1995. CEO turnover and the firm's investment decisions. *Journal of Financial Economics* 37, 159-188.

Worrell, D. L., Nemec, C., Davidson, W. N., 1997. One hat too many: Key executive plurality and shareholder wealth. *Strategic Management Journal* 18(6), 499–507.

Wu, J. S., Zhang, I. X., 2009. The voluntary adoption of internationally recognized accounting standards and firm internal performance evaluation. *The Accounting Review* 84 (4), 1281-1309.

Zhang, I. X., 2007. Economic consequences of the Sarbanes–Oxley Act of 2002. *Journal of Accounting and Economics* 44, 74–115.

Zhang, Y., 2008. Information asymmetry and the dismissal of newly appointed CEOs: An empirical investigation. *Strategic Management Journal* 29, 859-872.

Exhibit 1 Notation and Definitions of Variables

<i>ICMW</i>	=	1 for firms that report at least one material weakness in the internal control system in year t, and 0 otherwise;
<i>CEO_Turnover</i>	=	1 if the CEO leaves within 3 years before the internal control weakness disclosure, and 0 otherwise;
<i>1year_Turnover</i>	=	1 if the CEO leaves in the internal control weakness disclosure year t, and 0 otherwise;
<i>2year_Turnover</i>	=	1 if the CEO leaves in the internal control weakness disclosure year t or t-1, and 0 otherwise;
<i>Turnover_year2</i>	=	1 if the CEO leaves in the year t-1 before the disclosure year t, and 0 otherwise;
<i>Turnover_year3</i>	=	1 if the CEO leaves in the year t-2 before the disclosure year t, and 0 otherwise;

<i>SIZE</i>	=	natural log of total assets in year t;
<i>Aggr_loss</i>	=	1 for firms whose sum of earnings before extraordinary items for year t and t-1 is negative, and 0 otherwise;
<i>Growth_sale</i>	=	sales growth rate from year t-1 to year t;
<i>Foreign_transactions</i>	=	1 if the firm has non-zero foreign currency translation in year t, and 0 otherwise;
<i>Firm_age</i>	=	natural log of the number of years the firm existing in CRSP;
<i>Segments</i>	=	natural log of the number of operating and geographic segments in year t;
<i>RES</i>	=	Aggregate restructuring charges in years t and t-1 scaled by market capitalization of year t;
<i>Zscore</i>	=	Altman (1980) Z-score measure of distress risk;

<i>Non_Duality_Turnover</i>	=	1 for firms with CEO turnover within 3 years before the internal control weakness disclosure and the departing CEO is not Chairman of the board, and 0 otherwise;
<i>1year_Turnover_Non_Duality</i>	=	1 for firms with CEO turnover in the internal control weakness disclosure year t and the departing CEO is not Chairman of the board, and 0 otherwise;
<i>2yea_Turnover_Non_Duality</i>	=	1 for firms with CEO turnover in the internal control weakness disclosure year t or t-1 and the departing CEO is not Chairman of the board, and 0 otherwise;
<i>Turnover_year2_Non_Duality</i>	=	1 for firms with CEO turnover in the year t-1 before the disclosure year t and the departing CEO is not Chairman of the board, and 0 otherwise;
<i>Turnover_year3_Non_Duality</i>	=	1 for firms with CEO turnover in the year t-2 before the disclosure year t and the departing CEO is not Chairman of the board, and 0 otherwise;
<i>Duality_Turnover</i>	=	1 for firms with CEO turnover within 3 years before the internal control weakness disclosure and the departing CEO is also Chairman of the board, and 0 otherwise;

<i>Non_Retirement_Turnover</i>	=	1 for firms whose CEO leaves under the age of 60 within 3 years before the internal control weakness disclosure, and 0 otherwise;
<i>1year_Turnover_Non_Retirement</i>	=	1 for firms whose CEO leaves under the age of 60 in the internal control weakness disclosure year t, and 0 otherwise;
<i>2year_Turnover_Non_Retirement</i>	=	1 for firms whose CEO leaves under the age of 60 in the internal control weakness disclosure year t or t-1, and 0 otherwise;
<i>Turnover_year2_Non_Retirement</i>	=	1 for firms whose CEO leaves under the age of 60 in the year t-1 before the disclosure year t, and 0 otherwise;
<i>Turnover_year3_Non_Retirement</i>	=	1 for firms whose CEO leaves under the age of 60 in the year t-2 before the disclosure year t, and 0 otherwise;
<i>Retirement_Turnover</i>	=	1 for firms whose CEO leaves beyond the age of 65 within 3 years before the internal control weakness disclosure, and 0 otherwise;
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<i>Short_Tenure_Turnover</i>	=	1 for firms with short CEO tenure and CEO turnover within 3 years before the internal control weakness disclosure, and 0 otherwise;
<i>1year_Short_Tenure_Turnover</i>	=	1 for firms with short CEO tenure and CEO turnover in the internal control weakness disclosure year t, and 0 otherwise;
<i>2year_Short_Tenure_Turnover</i>	=	1 for firms with short CEO tenure and CEO turnover in the internal control weakness disclosure year t or t-1, and 0 otherwise;
<i>Short_Tenure_Turnover_year2</i>	=	1 for firms with short CEO tenure and CEO turnover in the year t-1 before the disclosure year t, and 0 otherwise;
<i>Short_Tenure_Turnove_year3</i>	=	1 for firms with short CEO tenure and CEO turnover in the year t-2 before the disclosure year t, and 0 otherwise;
<i>Long_Tenure_Turnover</i>	=	1 for firms with long CEO tenure and CEO turnover within 3 years before the internal control weakness disclosure, and 0 otherwise;
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<i>Forced_Turnover</i>	=	1 for firms whose CEO leaves under the age 55 for resignation or unknown reasons or under the age of 50 for the reason of retirement within 3 years before the internal control weakness disclosure, and 0 otherwise;
<i>1year_Forced_Turnover</i>	=	1 for firms whose CEO leaves under the age 55 for resignation or unknown reasons or under the age of 50 for the reason of retirement in the internal control weakness disclosure year t, and 0 otherwise;
<i>2year_Forced_Turnover</i>	=	1 for firms whose CEO leaves under the age 55 for resignation or unknown reasons or under the age of 50 for the reason of retirement in the internal control weakness disclosure year t or t-1, and 0 otherwise;
<i>Forced_Turnover_year2</i>	=	1 for firms whose CEO leaves under the age 55 for

		resignation or unknown reasons or under the age of 50 for the reason of retirement in the year t-1 before the disclosure year t, and 0 otherwise;
<i>Forced_Turnover_year3</i>	=	1 for firms whose CEO leaves under the age 55 for resignation or unknown reasons or under the age of 50 for the reason of retirement in the year t-2 before the disclosure year t, and 0 otherwise;
<i>Voluntary_Turnover</i>	=	1 for firms whose CEO leaves beyond the age of 65 for unknown reasons or beyond the age of 60 for reasons as resignation or retirement within 3 years before the internal control weakness disclosure, and 0 otherwise;

<i>CEO_Turnover_Large</i>	=	1 for large firms with CEO turnover within 3 years before the internal control weakness disclosure, and 0 otherwise;
<i>1year_Turnover_Large</i>	=	1 for large firms with CEO turnover in the internal control weakness disclosure year t, and 0 otherwise;
<i>2year_Turnover_Large</i>	=	1 for large firms with CEO turnover in the internal control weakness disclosure year t or t-1, and 0 otherwise;
<i>Year2_Turnover_Large</i>	=	1 for large firms with CEO turnover in the year t-1 before the disclosure year t, and 0 otherwise;
<i>Year3_Turnover_Large</i>	=	1 for large firms with CEO turnover in the year t-2 before the disclosure year t, and 0 otherwise;
<i>CEO_Turnover_Small</i>	=	1 for small firms with CEO turnover within 3 years before the internal control weakness disclosure, and 0 otherwise;

Table 1 Sample selection and distribution**Panel A Sample selection procedure**

	Total firm-years
Firms in AuditAnalytics SOX 404 database with fiscal year ending after November 2004	22850
Less firms in financial industries	(5077)
Less firms without CEO turnover data in ExecuComp database	(5796)
Less firms without control variables data	(4297)
Firms used in main analysis	7680

Panel B Yearly distribution of sample firms by CEO_Turnover and ICMW

Year	CEO_Turnover=1	CEO_Turnover=0	ICMW=1	ICMW=0
	N	N	N	N
2004	170	522	96	596
2005	351	909	153	1107
2006	349	892	98	1143
2007	348	842	71	1119
2008	334	815	44	1105
2009	308	812	21	1099
2010	268	760	18	1010
Total	2128	5552	501	7179

Panel C Yearly distribution of sample firms in intersections by CEO_Turnover and ICMW

	CEO_Turnover=1			CEO_Turnover=0			Total
	ICMW=1	ICMW=0	N1/N2	ICMW=1	ICMW=0	N1/N2	
	N1	N2		N1	N2		
2004	25	145	0.172	71	451	0.157	692
2005	55	296	0.186	98	811	0.121	1260
2006	27	322	0.084	71	821	0.086	1241
2007	29	319	0.091	42	800	0.053	1190
2008	16	318	0.050	28	787	0.036	1149
2009	8	300	0.027	13	799	0.016	1120
2010	5	263	0.019	13	747	0.017	1028
Total	165	1963		336	5216		7680

Panel A of Table 1 presents the sample selection procedure. Panel B presents the yearly distribution of sample firms by ICMW and CEO_Turnover. Panel C presents the yearly distribution of sample firms in intersections by ICMW and CEO_Turnover. Firms are first classified by CEO_Turnover and then subdivided by ICMW.

Panel D Industry distribution

Industry	Two-digit SIC codes	CEO_Turnover=1				CEO_Turnover=0			
		ICMW=1		ICMW=0		ICMW=1		ICMW=0	
		N	%	N	%	N	%	N	%
Oil and gas	13, 29	7	4.24	71	3.62	4	1.19	272	5.21
Food products	20	2	1.21	67	3.41	11	3.27	157	3.01
Paper and paper products	24–27	6	3.64	92	4.69	8	2.38	212	4.06
Chemical products	28	20	12.12	171	8.71	21	6.25	428	8.21
Manufacturing	30–34	10	6.06	104	5.30	14	4.17	316	6.06
Computer equipment and services	35, 73	44	26.67	371	18.90	87	25.89	988	18.94
Electronic equipment	36	12	7.27	201	10.24	48	14.29	548	10.51
Transportation	37, 39, 40–42, 44,45	11	6.67	114	5.81	16	4.76	289	5.54
Scientific instruments	38	9	5.45	149	7.59	25	7.44	410	7.86
Communications	48	4	2.42	30	1.53	15	4.46	101	1.94
Electric, gas, and sanitary services	49	5	3.03	135	6.88	8	2.38	285	5.46
Durable goods	50	1	0.61	47	2.39	7	2.08	152	2.91
Retail	53, 54, 56, 57, 59	15	9.09	132	6.72	23	6.85	339	6.50
Eating and drinking establishments	58	0	0.00	32	1.63	5	1.49	81	1.55
Entertainment services	70, 78, 79	0	0.00	21	1.07	4	1.19	35	0.67
Health	80	3	1.82	41	2.09	4	1.19	120	2.30
All others		16	9.70	185	9.42	36	10.71	483	9.26
Total		160	100	1466	100	293	100	3640	100

Panel D presents the sample distribution by industry. The percentage distribution is provided after the number of firms.

Table 2 Descriptive statistics**Panel A Yearly descriptive statistics**

Year	2004	2005	2006	2007	2008	2009	2010
	N=692	N=1260	N=1241	N=1190	N=1149	N=1120	N=1028
Variables							
Size	7.395	7.256	7.350	7.472	7.497	7.542	7.670
Aggr_loss	0.147	0.121	0.106	0.109	0.190	0.242	0.162
Growth_sale	0.190	0.159	0.150	0.134	0.095	-0.079	0.219
Foreign_transactions	0.358	0.338	0.343	0.365	0.403	0.399	0.398
Firm_age	24.913	23.781	24.278	25.380	26.151	27.242	28.455
Segments	2.042	2.014	2.026	2.064	2.088	1.689	1.063
RES	0.017	0.059	0.006	0.010	0.033	0.017	0.011
Zscore	4.788	5.441	5.249	4.871	3.671	4.122	4.386

Panel A of Table 2 presents yearly descriptive statistics. Refer to Exhibit 1 for variable definitions.

Panel B Descriptive statistics of firms categorized by CEO_Turnover or by ICMW

	Full sample N=7680	CEO_Turnover=1 N=2128	CEO_Turnover=0 N=5552		ICMW=1 N=501	ICMW=0 N=7179	
Variables	Mean		Mean	Mean Diff		Mean	Mean Diff
Size	7.450	7.597	7.394	0.203***	6.791	7.496	-0.705***
Aggr_loss	0.152	0.190	0.138	0.052***	0.297	0.142	0.155***
Growth_sale	0.120	0.078	0.137	-0.059***	0.136	0.119	0.017
Foreign_transactions	0.371	0.388	0.365	0.023*	0.465	0.365	0.100***
Firm_age	25.696	27.273	25.092	2.181***	21.692	25.975	-4.283***
Segments	1.863	1.900	1.848	0.052**	2.060	1.849	0.211***
RES	0.023	0.051	0.012	0.039***	0.103	0.017	0.086***
Zscore	4.665	4.144	4.864	-0.720***	3.780	4.726	-0.946***

*, **, or *** Significantly different from the other group by CEO_Turnover or ICMW at a one-tailed p -value no greater than 0.10, 0.05, or 0.01 respectively, under a t -test for mean comparison.

Panel C Descriptive statistics of CEO_Turnover firms based on CEO and Chairman duality

Variables	CEO_Turnover=1		Mean Diff
	Non_Duality_Turnover (N=1295)	Duality_Turnover (N=5682)	
		Mean	
Size	6.986	7.580	-0.594***
Aggr_loss	0.154	0.113	0.042***
Growth_sale	0.144	0.147	-0.003
Foreign_transactions	0.378	0.347	0.032**
Firm_age	20.396	26.944	-6.548***
Segments	2.007	2.061	-0.054**
RES	0.014	0.026	-0.011
Zscore	4.963	4.869	0.094

Panel C presents the means of CEO_Turnover firms categorized into Duality_Turnover and Non_Duality_Turnover firms.

*, **, or *** Significantly different at a one-tailed p -value no greater than 0.10, 0.05, or 0.01 respectively, under a t -test for mean comparison

Table 3 Spearman correlations

	CEO_Turnover	Size	Aggr_loss	Growth_sale	Foreign_transactions	Firm_age	Segments	RES	Zscore
ICMW	0.031 (0.0069)	-0.115 (0.0001)	0.107 (0.0001)	0.024 (0.0336)	0.051 (0.0001)	-0.056 (0.0001)	0.057 (0.0001)	0.032 (0.0056)	-0.060 (0.0001)
CEO_Turnover		0.062 (0.0001)	0.065 (0.0001)	-0.078 (0.0001)	0.021 (0.0689)	0.057 (0.0001)	0.026 (0.0253)	0.114 (0.0001)	-0.059 (0.0001)
Size			-0.121 (0.0001)	-0.070 (0.0001)	0.015 (0.2020)	0.385 (0.0001)	0.125 (0.0001)	0.122 (0.0001)	-0.369 (0.0001)
Aggr_loss				-0.185 (0.0001)	0.076 (0.0001)	-0.031 (0.0059)	-0.019 (0.0928)	0.278 (0.0001)	-0.343 (0.0001)
Growth_sale					0.001 (0.8990)	-0.205 (0.0001)	0.056 (0.0001)	-0.270 (0.0001)	0.236 (0.0001)
Foreign_transactions						0.000 (0.9799)	0.361 (0.0001)	0.200 (0.0001)	0.000 (0.9813)
Firm_age							0.074 (0.0001)	0.126 (0.0001)	-0.183 (0.0001)
Segments								0.183 (0.0001)	0.061 (0.0001)
RES									-0.265 (0.0001)

All continuous variables are winsorized at 1% and 99%.

Table 4 Logistic regressions of CEO turnover on internal control material weakness

Panel A Regressions for full sample and sub samples

	Predicted Sign	(1) Coefficient X ²	(2) Coefficient X ²	(3) Coefficient X ²
Intercept	?	-1.317*** (10.26)	-1.374*** (10.16)	-1.291 *** (9.83)
<i>CEO_Turnover</i>	+	0.271** (6.57)	0.212* (3.03)	0.285*** (7.20)
<i>Size</i>	-	-0.416*** (90.42)	-0.417*** (80.65)	-0.426*** (92.34)
<i>Aggr_loss</i>	+	0.677*** (28.81)	0.768*** (33.25)	0.663*** (26.95)
<i>Growth_sale</i>	+	0.024 (0.17)	0.019 (0.09)	0.026 (0.20)
<i>Foreign_transactions</i>	+	0.397*** (12.86)	0.420*** (12.82)	0.408*** (13.32)
<i>Firm_age</i>	-	0.002 (0.44)	0.002 (0.36)	0.002 (0.30)
<i>Segments</i>	+	0.244*** (11.00)	0.234*** (9.26)	0.239*** (10.55)
<i>RES</i>	+	0.089 (2.60)	0.012 (0.01)	0.090 (2.57)
<i>Zscore</i>	-	-0.082*** (29.08)	-0.079*** (25.15)	-0.080*** (28.00)
Year indicator variables		Included	Included	Included
Industry indicator variables		Included	Included	Included
Observations		7680	7066	7663
Likelihood ratio		525.672	475.340	503.906
<i>p</i> -value		0.0001	0.0001	0.0001
Pseudo R square		0.1729	0.173	0.1684

Panel A of Table 4 presents the results for logistic regression tests for Model (1). CEO_Turnover in column (1) is defined as the dummy variable that is equal to 1 for firms whose CEO leaves the firm within three years before the internal control weakness disclosure and 0 for firms without CEO turnover. CEO_Turnover in column (2) is defined as the dummy variable that is equal to 1 for firms whose CEO leaves the firm within three years before the internal control weakness disclosure but not within the disclosure year and 0 for firms without CEO turnover. In column (3) the firms that have disclosed internal control material weaknesses under SOX 302 regime for fiscal years 2002 and 2003 are removed for the sample year 2004. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Panel B Regressions with split CEO turnovers

	(1)	(2)	(3)	(4)	(5)	(6)
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
	X ²	X ²	X ²	X ²	X ²	X ²
Intercept	-1.278*** (9.65)	-1.286*** (9.77)	-1.317*** (10.26)	-1.297*** (9.95)	-1.324*** (10.37)	-1.311*** (10.14)
<i>1year_Turnover</i>	0.407** (6.13)					0.454*** (7.37)
<i>2year_Turnover</i>		0.214* (2.72)				
<i>CEO_Turnover</i>			0.271** (6.57)			
<i>Turnover_year2</i>				-0.049 (0.07)		0.042 (0.05)
<i>Turnover_year3</i>					0.229* (2.75)	0.280** (3.95)
<i>Size</i>	-0.417*** (90.36)	-0.416*** (89.85)	-0.416*** (90.42)	-0.409*** (87.71)	-0.408*** (87.80)	-0.417*** (90.06)
<i>Aggr_loss</i>	0.700*** (31.14)	0.700*** (31.04)	0.677*** (28.81)	0.711*** (32.09)	0.693*** (30.24)	0.678*** (28.83)
<i>Growth_sale</i>	0.022 (0.13)	0.022 (0.13)	0.024 (0.17)	0.020 (0.10)	0.022 (0.12)	0.024 (0.16)
<i>Foreign_transactions</i>	0.401*** (13.16)	0.403*** (13.26)	0.397*** (12.86)	0.403*** (13.31)	0.399*** (12.99)	0.395*** (12.75)
<i>Firm_age</i>	0.002 (0.58)	0.002 (0.55)	0.002 (0.44)	0.002 (0.61)	0.002 (0.51)	0.002 (0.46)
<i>Segments</i>	0.242*** (10.82)	0.243*** (10.94)	0.244*** (11.00)	0.243*** (10.91)	0.244*** (10.97)	0.243*** (10.88)
<i>RES</i>	0.091	0.089	0.089	0.097*	0.098*	0.092

<i>Zscore</i>	(2.47) -0.082*** (29.20)	(2.55) -0.082*** (29.16)	(2.60) -0.082*** (29.08)	(2.91) -0.082*** (29.21)	(3.01) -0.082*** (29.14)	(2.51) -0.082*** (29.12)
Year indicator variables	Included	Included	Included	Included	Included	Included
Industry indicator variables	Included	Included	Included	Included	Included	Included
Observations	7680	7680	7680	7680	7680	7680
Likelihood ratio	524.945	521.881	525.672	519.318	521.897	528.737
<i>p</i> -value	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Pseudo R square	0.1727	0.1717	0.1729	0.1709	0.1717	0.1739

Panel B presents the results for logistic regression tests for Model (1) with CEO_Turnover replaced by split turnover dummies. Refer to Exhibit 1 for variable definitions. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table 5 Departing CEOs' position as CEO in new firms

Panel A Turnover firms based on final sample firms

	ICMW=1			ICMW=0		
	CEO_Turnover=1 N	Find CEO job N	Find %	CEO_Turnover=1 N	Find CEO job N	Find %
2004	25	2	8.00%	145	4	2.76%
2005	55	2	3.64%	296	22	7.43%
2006	27	0	0	322	25	7.76%
2007	29	0	0	319	27	8.46%
2008	16	0	0	318	23	7.23%
2009	8	0	0	300	14	4.67%
2010	5	0	0	263	6	2.28%
Total	165	4	2.42%	1963	121	6.16%

Table 5 presents the departing CEO's job position after the turnover. Column 'Find CEO job' indicates the number of CEOs who takes on CEO position in new firms after the turnover. Panel A is based on turnovers in the final sample firms.

Panel B Turnover firms based on initial sample from ExecuComp

	ICMW=1			ICMW=0		
	CEO_Turnover=1 N	Find CEO job N	Find %	CEO_Turnover=1 N	Find CEO job N	Find %
2004	32	2	6.25%	181	5	2.75%
2005	63	4	6.25%	367	22	5.99%
2006	36	1	2.78%	400	28	7.00%
2007	32	0	0	404	32	7.88%
2008	20	1	5%	409	30	7.32%
2009	11	0	0	396	19	4.80%
2010	6	0	0	347	9	2.59%
Total	200	8	4%	2504	145	5.79%

Panel B is based on initial sample from ExecuComp(Without removing firms without control variables).

Table 6 Logistic regressions of CEO turnover on internal control material weakness categorized by control auditability

	(1) Coefficient X ²	(2) Coefficient X ²
<i>Intercept</i>	-1.717*** (13.82)	-1.408*** (11.49)
<i>CEO_Turnover</i>	0.230** (3.94)	0.269** (6.46)
<i>Size</i>	-0.419*** (77.37)	-0.413*** (88.66)
<i>Aggr_loss</i>	0.688*** (25.23)	0.691*** (29.92)
<i>Growth_sale</i>	0.040 (0.48)	0.028 (0.23)
<i>Foreign_transactions</i>	0.472*** (15.56)	0.401*** (13.07)
<i>Firm_age</i>	0.003 (0.85)	0.002 (0.43)
<i>Segments</i>	0.259*** (10.45)	0.250*** (11.47)
<i>RES</i>	0.036 (0.13)	0.088 (2.54)
<i>Zscore</i>	-0.088*** (26.91)	-0.081*** (28.49)
Year indicator variables	Included	Included
Industry indicator variables	Included	Included
Observations	7590	7678
Likelihood ratio	456.836	526.201
p-value	0.0001	0.0001
Pseudo R square	0.1702	0.1737

Table 6 presents the results for logistic regression tests for Hypothesis 2. Column (1) shows the regressions results for Model (2.1) with *Less_Auditable_MW*, a dummy variable that equal to 1 for firms with at least one less auditable internal control material weakness and 0 for firms without any material weakness, as the dependent variable. Column (2) shows the regressions results for Model (2.2) with *More_Auditable_MW*, a dummy variable that equal to 1 for firms with at least one more auditable internal control material weaknesses and 0 for firms without any material weakness, as the dependent variable. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table 7 Logistic regressions of CEO and Chairman duality, CEO turnover and internal control material weakness

Panel A CEO tenure and age comparison between duality and non-duality firms

Variables	Duality_Turnover	Non_Duality_Turnover	<i>p</i> -value	Duality_Turnover	Non_Duality_Turnover	<i>p</i> -value
	(N=1342)	(N=786)		(N=1342)	(N=786)	
	Mean			Median		
CEO tenure	9.99	6.82***	0.0001	8.11	5.45***	0.0001
CEO age	60.82	56.91***	0.0001	62	58***	0.0001

Panel A of Table 7 presents the CEO tenure and age comparison between duality firms and non-duality firms. Duality_Turnover (Non-Duality_Turnover) firms are the firms with CEO turnovers and at the same time whose CEO is (not) the Chairman of the board. CEO tenure is the number of years the CEO holds the position before the turnover. CEO age is the age of the CEO in the turnover year.

*, **, or *** Significantly different from duality firms at a one-tailed *p*-value no greater than 0.10, 0.05, or 0.01 respectively, under a *t*-test for mean comparison or Wilcoxon rank-sum test for median comparison.

Panel B Non-duality CEO turnover and internal control material weakness

	Non_Duality_Turnover Firms						Duality_Turnover Firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²
Intercept	-1.490*** (10.64)	-1.399*** (10.94)	-1.632*** (14.06)	-1.502*** (12.66)	-1.143*** (7.11)	-1.490*** (10.64)	-1.114** (6.13)
<i>1year_Turnover_Non_Duality</i>		0.447* (2.71)				0.511* (3.49)	
<i>2year_Turnover_Non_Duality</i>			0.437** (4.84)				
<i>Non_Duality_Turnover</i>	0.456*** (9.70)						
<i>Turnover_year2_Non_Duality</i>				0.343 (1.53)		0.479* (2.97)	
<i>Turnover_year3_Non_Duality</i>					0.362* (3.65)	0.421** (4.80)	
<i>Duality_Turnover</i>							0.158 (1.43)
<i>Size</i>	-0.392*** (64.29)	-0.409*** (81.76)	-0.393*** (72.89)	-0.396*** (79.55)	-0.410*** (79.39)	-0.392*** (64.37)	-0.442*** (85.33)
<i>Aggr_loss</i>	0.714*** (25.72)	0.764*** (34.88)	0.797*** (36.23)	0.739*** (33.22)	0.636*** (23.04)	0.716*** (25.80)	0.625*** (20.12)
<i>Growth_sale</i>	0.029 (0.22)	0.017 (0.07)	0.022 (0.13)	0.024 (0.17)	0.026 (0.17)	0.029 (0.22)	0.024 (0.14)
<i>Foreign_transactions</i>	0.405*** (10.87)	0.425*** (13.83)	0.415*** (12.55)	0.391*** (11.97)	0.394*** (11.72)	0.405*** (10.88)	0.410*** (11.83)
<i>Firm_age</i>	0.000 (0.01)	0.002 (0.46)	0.003 (0.56)	0.003 (0.72)	0.000 (0.00)	0.000 (0.01)	0.004 (1.11)
<i>Segments</i>	0.278*** (11.53)	0.235*** (9.61)	0.267*** (11.76)	0.273*** (13.11)	0.253*** (10.89)	0.278*** (11.51)	0.236*** (8.93)

<i>RES</i>	-0.045 (0.08)	0.028 (0.07)	-0.053 (0.10)	0.084 (2.21)	0.099* (2.98)	-0.047 (0.08)	0.197 (2.05)
<i>Zscore</i>	-0.074*** (21.34)	-0.074*** (23.93)	-0.070*** (21.46)	-0.078*** (26.69)	-0.085*** (29.19)	-0.073*** (21.28)	-0.082*** (26.15)
Year indicator variables	Included	Included	Included	Included	Included	Included	Included
Industry indicator variables	Included	Included	Included	Included	Included	Included	Included
Observations	6338	7300	6889	7269	7129	6338	6894
Likelihood ratio	448.357	482.651	474.023	508.333	491.171	448.445	450.992
<i>p</i> -value	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Pseudo R square	0.1793	0.1691	0.1741	0.1749	0.1744	0.1794	0.1704

Panel B presents the results for logistic regression tests for Model (3.1). The dependent variable for column (1) is Non_Duality_Turnover. The dependent variables for the rest columns are the split turnover dummies over the three years before the internal control material weakness disclosure for non-duality firms. Refer to Exhibit 1 for variable definitions. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table 8 Logistic regressions of Retirement and non-Retirement CEO turnover and internal control material weakness

	Non_Retirement_Turnover Firms					Retirement_Turnover Firms	
	(1) Coefficient X ²	(2) Coefficient X ²	(3) Coefficient X ²	(4) Coefficient X ²	(5) Coefficient X ²	(6) Coefficient X ²	(7) Coefficient X ²
Intercept	-1.671*** (13.09)	-1.497*** (12.45)	-1.626*** (14.29)	-1.416*** (11.58)	-1.305*** (8.81)	-1.657*** (12.87)	-0.801 (2.76)
<i>1year_Turnover_Non_Retirement</i>		0.723*** (10.18)				0.768*** (11.29)	
<i>2year_Turnover_Non_Retirement</i>			0.560*** (10.85)				
<i>Non_Retirement_Turnover</i>	0.479*** (10.85)						
<i>Turnover_year2_Non_Retirement</i>				0.366 (2.30)		0.453* (3.46)	
<i>Turnover_year3_Non_Retirement</i>					0.190 (0.67)	0.240 (1.04)	
<i>Retirement_Turnover</i>							0.164 (0.51)
<i>Size</i>	-0.372*** (58.84)	-0.407*** (82.31)	-0.386*** (71.91)	-0.389*** (77.33)	-0.402*** (75.52)	-0.376*** (59.77)	-0.457 (73.62)
<i>Aggr_loss</i>	0.630*** (19.36)	0.734*** (32.50)	0.740*** (31.36)	0.719*** (31.19)	0.621*** (21.21)	0.639*** (19.89)	0.622 (16.22)
<i>Growth_sale</i>	0.022 (0.09)	0.012 (0.03)	0.015 (0.05)	0.022 (0.13)	0.026 (0.16)	0.022 (0.09)	0.037 (0.38)
<i>Foreign_transactions</i>	0.404*** (10.94)	0.413*** (13.30)	0.407*** (12.41)	0.394*** (12.27)	0.405*** (12.12)	0.405*** (10.98)	0.449 (11.95)
<i>Firm_age</i>	-0.002 (0.29)	0.002 (0.51)	0.001 (0.18)	0.002 (0.27)	0.000 (0.00)	-0.002 (0.25)	0.002 (0.26)
<i>Segments</i>	0.249*** (9.29)	0.232*** (9.41)	0.237*** (9.43)	0.245*** (10.69)	0.259*** (11.12)	0.250*** (9.38)	0.261 (9.04)

<i>RES</i>	0.539 (1.60)	0.029 (0.08)	0.529 (1.64)	0.561 (1.92)	0.100* (2.97)	0.550 (1.69)	0.562 (1.54)
<i>Zscore</i>	-0.075*** (21.86)	-0.081*** (27.15)	-0.078*** (25.05)	-0.079*** (27.12)	-0.080*** (26.05)	-0.075*** (21.94)	-0.073 (20.36)
Year indicator variables	Included	Included	Included	Included	Included	Included	Included
Industry indicator variables	Included	Included	Included	Included	Included	Included	Included
Observations	6290	7324	6958	7314	7012	6290	5950
Likelihood ratio	432.209	497.005	483.866	507.975	468.583	435.030	497.005
<i>p</i> -value	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Pseudo R square	0.1736	0.1718	0.1738	0.1734	0.1707	0.1747	0.1769

Table 8 presents the results for logistic regression tests for Model (4.1) and (4.2). The dependent variable for column (1) is Non_Retirement_Turnover. The dependent variables for column (2) – (6) are the split turnover dummies over the three years before the internal control material weakness disclosure for firms with non-retirement turnovers. The dependent variable for column (7) is Retirement_Turnover. Refer to Exhibit 1 for variable definitions. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table 9 Logistic regressions of short-tenured and long-tenured CEO turnover and internal control material weakness

	Short_Tenured_Turnover Firms						Long_Tenured_Turnover Firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
	X ²	X ²	X ²	X ²	X ²	X ²	X ²
Intercept	-1.433*** (9.87)	-1.434*** (11.40)	-1.469*** (11.66)	-1.329*** (10.19)	-1.256*** (8.38)	-1.429*** (9.81)	-1.278*** (7.30)
<i>1year_Turnover_Short_Tenure</i>		0.381 (2.25)				0.431* (2.80)	
<i>2year_Turnover_Short_Tenure</i>			0.331* (3.39)				
<i>Short_Tenure_Turnover</i>	0.333** (5.21)						
<i>Turnover_year2_Short_Tenure</i>				0.260 (1.18)		0.346 (2.02)	
<i>Turnover_year3_Short_Tenure</i>					0.207 (0.95)	0.261 (1.47)	
<i>Long_Tenure_Turnover</i>							0.210 (1.74)
<i>Size</i>	-0.405*** (69.65)	-0.411*** (83.06)	-0.409*** (79.62)	-0.407*** (84.38)	-0.406*** (77.93)	-0.407*** (69.86)	-0.423*** (71.09)
<i>Aggr_loss</i>	0.664*** (21.36)	0.773*** (35.67)	0.740*** (30.45)	0.679*** (27.37)	0.649*** (23.62)	0.669*** (21.58)	0.643*** (19.34)
<i>Growth_sale</i>	0.026 (0.17)	0.013 (0.03)	0.021 (0.12)	0.026 (0.22)	0.024 (0.13)	0.026 (0.17)	0.032 (0.22)
<i>Foreign_transactions</i>	0.466*** (14.56)	0.458*** (16.04)	0.465*** (15.92)	0.406*** (13.07)	0.400*** (12.01)	0.466*** (14.53)	0.370*** (8.88)
<i>Firm_age</i>	0.001 (0.17)	0.003 (0.88)	0.003 (1.03)	0.003 (0.73)	0.001 (0.06)	0.002 (0.18)	0.002 (0.43)
<i>Segments</i>	0.256*** (9.86)	0.216*** (8.07)	0.243*** (9.90)	0.268*** (12.83)	0.258*** (11.16)	0.257*** (9.90)	0.259*** (9.89)

<i>RES</i>	0.599 (1.91)	0.029 (0.08)	0.535 (1.62)	0.546 (1.75)	0.100* (3.10)	0.597 (1.90)	0.679* (3.65)
<i>Zscore</i>	-0.077*** (22.39)	-0.078*** (25.45)	-0.076*** (24.09)	-0.081*** (27.88)	-0.083*** (27.56)	-0.077*** (22.41)	-0.074*** (21.29)
Year indicator variables	Included	Included	Included	Included	Included	Included	Included
Industry indicator variables	Included	Included	Included	Included	Included	Included	Included
Observations	6367	7318	6962	7324	7085	6367	6423
Likelihood ratio	452.435	495.486	490.306	514.495	480.109	452.712	401.888
<i>p</i> -value	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Pseudo R square	0.1811	0.1728	0.1775	0.1754	0.173	0.1812	0.1641

Table 9 presents the results for logistic regression tests for Model (5.1) and (5.2). The dependent variable for column (1) is Short_Tenure_Turnover. The dependent variables for column (2) – (6) are the split turnover dummies over the three years before the internal control material weakness disclosure for firms with short CEO tenure. The dependent variable for column (7) is Long_Tenure_Turnover. Refer to Exhibit 1 for variable definitions. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table 10 Logistic regressions of forced and voluntary CEO turnover and internal control material weakness

	Forced_Turnover Firms						Voluntary_Turnover Firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²
Intercept	-1.549*** (11.65)	-1.415*** (11.19)	-1.576*** (13.23)	-1.434*** (11.60)	-1.236*** (8.29)	-1.522*** (11.17)	-0.906* (3.71)
<i>1year_Forced_Turnover</i>		0.926*** (14.77)				0.975*** (16.16)	
<i>2year_Forced_Turnover</i>			0.534*** (7.87)				
<i>Forced_Turnover</i>	0.466*** (11.67)						
<i>Year2_Forced_Turnover</i>				-0.010 (0.00)		0.140 (0.22)	
<i>Year3_Forced_Turnover</i>					0.318* (3.36)	0.368** (4.38)	
<i>Voluntary_Turnover</i>							0.208 (1.42)
<i>Size</i>	-0.393*** (67.28)	-0.407*** (81.41)	-0.394*** (73.26)	-0.398*** (79.96)	-0.413*** (82.57)	-0.397*** (67.76)	-0.459*** (80.67)
<i>Aggr_loss</i>	0.662*** (22.64)	0.734*** (32.21)	0.757*** (32.69)	0.732*** (32.52)	0.633*** (23.32)	0.666*** (22.90)	0.624*** (17.46)
<i>Growth_sale</i>	0.021 (0.10)	0.012 (0.03)	0.017 (0.07)	0.025 (0.18)	0.023 (0.13)	0.022 (0.12)	0.036 (0.40)
<i>Foreign_transactions</i>	0.368*** (9.18)	0.415*** (13.30)	0.412*** (12.46)	0.400*** (12.47)	0.364*** (10.11)	0.368*** (9.19)	0.410*** (10.62)
<i>Firm_age</i>	-0.001 (0.03)	0.002 (0.30)	0.002 (0.28)	0.003 (0.62)	0.001 (0.03)	-0.001 (0.02)	0.003 (0.91)

<i>Segments</i>	0.252*** (9.61)	0.233*** (9.47)	0.246*** (9.94)	0.252*** (11.11)	0.251*** (10.83)	0.249*** (9.36)	0.298*** (12.61)
<i>RES</i>	-0.066 (0.15)	0.030 (0.09)	-0.071 (0.20)	0.084 (2.42)	0.099* (3.06)	-0.044 (0.07)	0.717* (3.83)
<i>Zscore</i>	-0.075*** (23.05)	-0.078*** (26.03)	-0.074*** (23.63)	-0.078*** (26.57)	-0.083*** (28.59)	-0.075*** (22.81)	-0.077*** (21.99)
Year indicator variables	Included	Included	Included	Included	Included	Included	Included
Industry indicator variables	Included	Included	Included	Included	Included	Included	Included
Observations	6390	7270	6852	7262	7218	6390	6238
Likelihood ratio	439.273	492.605	464.939	495.482	492.383	445.272	428.313
<i>p</i> -value	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Pseudo R square	0.1724	0.1713	0.1704	0.1713	0.1723	0.1747	0.1795

Table 10 presents the results for logistic regression tests for Model (6.1) and (6.2). The dependent variable for column (1) is Forced_Turnover. The dependent variables for column (2) – (6) are the split turnover dummies over the three years before the internal control material weakness disclosure for firms with forced CEO turnover. The dependent variable for column (7) is Voluntary_Turnover. Refer to Exhibit 1 for variable definitions. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table11 Logistic regressions of CEO turnover on internal control material weakness for large and small firms

	Large Firms				Small Firms		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²	Coefficient X ²
Intercept	-4.280*** (60.25)	-4.199*** (58.36)	-4.197*** (58.33)	-4.164*** (57.38)	-4.231*** (58.92)	-4.284*** (60.10)	-3.979*** (106.28)
<i>1year_Turnover_Large</i>		0.431* (3.02)				0.541** (4.47)	
<i>2year_Turnover_Large</i>			0.213 (1.10)				
<i>CEO_Turnover_Large</i>	0.434*** (6.31)						
<i>Year2_Turnover_Large</i>				-0.109 (0.14)		0.072 (0.06)	
<i>Year3_Turnover_Large</i>					0.487** (4.93)	0.571** (6.33)	
<i>CEO_Turnover_Small</i>							0.123 (0.83)
<i>Aggr_loss</i>	0.673*** (8.21)	0.712*** (9.29)	0.712*** (9.25)	0.730*** (9.72)	0.696*** (8.79)	0.673*** (8.21)	0.797*** (28.70)
<i>Growth_sale</i>	0.230 (0.28)	0.172 (0.16)	0.166 (0.15)	0.123 (0.08)	0.161 (0.14)	0.224 (0.26)	0.013 (0.04)
<i>Foreign_transactions</i>	0.578*** (9.16)	0.568*** (8.89)	0.572*** (9.04)	0.574*** (9.10)	0.584*** (9.37)	0.578*** (9.13)	0.315** (5.19)
<i>Firm_age</i>	-0.005 (1.30)	-0.004 (0.97)	-0.004 (0.99)	-0.004 (0.95)	-0.004 (1.28)	-0.005 (1.36)	0.000 (0.01)
<i>Segments</i>	0.348*** (6.86)	0.351*** (7.01)	0.351*** (7.01)	0.353*** (7.11)	0.351*** (7.00)	0.349*** (6.89)	0.161* (3.29)
<i>RES</i>	0.027	0.030	0.030	0.037	0.040	0.031	0.664*

<i>Zscore</i>	(0.26) -0.260*** (25.06)	(0.30) -0.261*** (25.29)	(0.32) -0.261*** (25.15)	(0.48) -0.261*** (25.03)	(0.55) -0.260*** (24.76)	(0.32) -0.260*** (25.04)	(3.00) -0.043*** (9.26)
Year indicator variables	Included	Included	Included	Included	Included	Included	Included
Industry indicator variables	Included	Included	Included	Included	Included	Included	Included
Observations	3840	3840	3840	3840	3840	3840	3840
Likelihood ratio	228.026	224.669	222.935	222.003	226.443	230.576	250.975
<i>p</i> -value	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Pseudo R square	0.1917	0.189	0.1875	0.1868	0.1904	0.1938	0.1901

Table 11 presents the logistic regression results for model (1) in large and small firms. The sample firms are equally partitioned into large, medium and small firms by firm size. Column (1) reports the regression result for large-firm group. Column (3)-(7) presents the regression results with split turnover dummies across the three years before the weakness disclosure. Column (7) reports the regression result for small-firm group. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table 12 Logistic regressions of CEO turnover on internal control material weakness categorized by operating nature

	(1) Staffing_MW	(2) Complexity_MW	(3) General_MW
	Coefficient X ²	Coefficient X ²	Coefficient X ²
<i>Intercept</i>	-2.608*** (21.51)	-1.400*** (10.75)	-1.412*** (11.54)
<i>CEO_Turnover</i>	0.306** (5.00)	0.269*** (6.09)	0.272*** (6.58)
<i>Size</i>	-0.378*** (44.45)	-0.411*** (83.29)	-0.412*** (88.27)
<i>Aggr_loss</i>	0.604*** (13.23)	0.676*** (26.87)	0.696*** (30.33)
<i>Growth_sale</i>	0.008 (0.00)	0.023 (0.12)	0.028 (0.23)
<i>Foreign_transactions</i>	0.603*** (17.44)	0.377*** (10.86)	0.396*** (12.75)
<i>Firm_age</i>	0.002 (0.33)	0.001 (0.06)	0.002 (0.41)
<i>Segments</i>	0.300*** (9.49)	0.241*** (10.10)	0.250*** (11.45)
<i>RES</i>	-0.041 (0.06)	0.032 (0.10)	0.088 (2.53)
<i>Zscore</i>	-0.104*** (21.82)	-0.081*** (27.12)	-0.081*** (28.24)
Year indicator variables	Included	Included	Included
Industry indicator variables	Included	Included	Included
Observations	7452	7646	7677
Likelihood ratio	313.065	496.066	524.302
<i>p</i> -value	0.0001	0.0001	0.0001
Pseudo R square	0.153	0.1706	0.1733

Table 12 presents the regression results for Model (7.1), (7.2) and (7.3) with Staffing_MW, Complexity_MW, and General_MW as the dependent variables. Staffing_MW is equal to 1 for firms with at least one staffing related internal control material weakness and 0 for firms without any material weakness. Complexity_MW is equal to 1 for firms with at least one complexity related internal control material weakness and 0 for firms without any material weakness. General_MW is equal to 1 for firms with at least one general internal control material weakness and 0 for firms without any material weakness. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.

Table 13 Logistic regressions of CEO turnover on firm-level and account/transaction-level internal control material weakness

	(1) Firm-Level_MW	(2) Account/Transaction-Level_MW
	Coefficient X ²	Coefficient X ²
Intercept	-1.430*** (11.48)	-1.410*** (11.51)
CEO_Turnover	0.254** (5.60)	0.273*** (6.63)
Size	-0.412*** (86.66)	-0.413*** (88.63)
Aggr_loss	0.662*** (26.47)	0.700*** (30.62)
Growth_sale	0.021 (0.11)	0.026 (0.20)
Foreign_transactions	0.384*** (11.73)	0.398*** (12.83)
Firm_age	0.002 (0.34)	0.002 (0.41)
Segments	0.267*** (12.81)	0.252*** (11.61)
RES	0.030 (0.09)	0.088 (2.52)
Zscore	-0.085*** (29.62)	-0.080*** (28.08)
Year indicator variables	Included	Included
Industry indicator variables	Included	Included
Observations	7666	7677
Likelihood ratio	515.991	525.005
p-value	0.0001	0.0001
Pseudo R square	0.1729	0.1735

Table 13 presents the regression results for Model (8.1) and (8.2) with Firm-Level_MW and Account/transaction-Level_MW as the dependent variables. Firm-Level_MW is equal to 1 for firms with at least one firm-level material weakness and 0 for firms without any material weakness. Account/transaction-Level_MW is equal to 1 for firms with at least one account/transaction-level material weakness and 0 for firms without any material weakness. *, **, *** indicate significant at less than the 0.10, 0.05, 0.01 level respectively.