

Effects of Post-SOX Restatement Characteristics and Management Behavior on CEO/CFO Turnover *

Ya-Fang Wang

Department of Accounting
College of Management
Providence University
Phone: 886-4-2632-8001 ext. 13216
Email: yfwang2@pu.edu.tw

Ling-Tai Lynette Chou

Department of Accounting
College of Commerce
National Chengchi University
Phone: 886-2-2939-3091 ext. 81245
Email: chou@nccu.edu.tw

August 28, 2009

* We thank Hsiou-wei Lin, Chan-Jane Lin, Yu-Cheng Chen, and Yi-Tsung Lee for their insightful and helpful comments. We also appreciate the comments and suggestions from workshop participants at the National Chengchi University.

Effects of Post-SOX Restatement Characteristics and Management Behavior on CEO/CFO Turnover

ABSTRACT: Understanding whether the likelihood of management turnover related to financial restatements changes after SOX is especially important because restatements have become much more common, with over 10 percent of publicly traded companies announcing restatements in 2006 (Johnson 2008). By surveying post-SOX company restatements, this study focuses on restatement characteristics as well as related management behavior and provides insights into their consequences. Our findings provide evidence that the likelihood of CEO or CFO turnover increases for companies with higher restatement severity. Specifically, restatement characteristics, including core-earnings and magnitude of amounts, significantly affect the likelihood of management turnover. The results show that there is no “cop a plea” effect and when restatements are prompted by companies, management turnover is associated with the magnitude of overstated amount on income and/or restatements affecting core earnings. In addition, after controlling for the restatement severity, our empirical results provide strong evidence that when post-SOX executives window-dress earnings to portray a more favorable earnings picture, they are more likely to be terminated following financial restatements.

Keywords: *restatements; management turnover; restatement characteristics; management behavior; earnings management.*

Data Availability: *Data used in this study are available from public sources.*

JEL classification: M41; M42; J63, K20

Effects of Post-SOX Restatement Characteristics and Management Behavior on CEO/CFO Turnover

1. Introduction

Although SOX initiated a series of regulations to improve corporate financial reporting quality, the consequences of the resultant regulatory changes have not yet been fully studied. More importantly, understanding whether the likelihood of management turnover changes after SOX is especially important because restatements have become much more common, with over 10 percent of publicly traded companies announcing restatements in 2006 (Johnson 2008). Thus, we focus on surveying post-SOX company restatements and provide analyses regarding their consequences by investigating into specific restatement characteristics and management behavior.

This study examines three important issues. First, prior literature on the likelihood of managerial turnover after restatements has been mixed² (Agrawal et al. 1999; Beneish 1999; Jayaramnan et al. 2004; Arthaud-Day et al. 2006; Desai et al. 2006; Land 2006; Collins et al. 2009, Hennes et al. 2008; and Burks 2010), and there is yet consistent evidence on the association between management turnover and financial restatements. A recent survey done by the Audit Analytics (2008) finds that companies that filed financial restatements during the years 2005 to 2007 were significantly more likely to be associated with C-level executive departures.³ This raises the question of whether executive turnover following restatements may be more likely in the current regime than in prior periods due to new or more stringent penalties imposed on companies and executives. Additionally, are restatement characteristics really important when companies decide to fire executives? Second, prior studies use the prompter as a measure of restatement severity and find mixed results (Anderson and Yohn 2002; Palmrose et al. 2004; Desai et al. 2006; Arthaud-Day et al. 2006). We question the appropriateness of using prompters as a measure of restatement severity by prior research. Third, Kim (2008) finds that the board of directors became less tolerant of underperformance after SOX. Richardson et al. (2003) also indicate that restating companies have been attempting to maintain a string of consecutive positive earnings growth and/or quarterly earnings surprises. Thus, managers who face a high likelihood of termination have strong incentives to select income-increasing earnings management. Are these managers less likely to be retained in their jobs, especially if they select aggressive accounting practices to

² See Section 2.1 for detailed discussions in prior studies about the association between management turnover and financial restatements or litigation claims exist.

³ The SEC does require companies to disclose the departure of CEO/CFO, but reasons are provided only if disagreements or litigation claims exist.

window-dress earnings?

Our results provide evidence that the likelihood of CEO or CFO turnover significantly increases for companies with higher restatement severity. Specifically, restatement characteristics including core-earnings accounts and magnitude of amounts significantly affect the likelihood of management turnover. The results show that there is no “cop a plea” effect even when restatements are prompted by companies. Management turnover appears to be associated with the dollar amount of overstated income and/or whether the restatement affects core earnings. After controlling for the restatement severity, our empirical results provide evidence that when executives window-dress earnings to portray a more favorable earnings picture, they are more likely to be terminated following financial restatements.

Our findings contribute to the literature in several ways. First, this research examines management turnover within the context of restatement characteristics. Prior literature on the likelihood of managerial turnover after restatements in the post-SOX period is mixed (Collins et al. 2009; Hennes et al. 2008; Burks 2010). We argue that prior research ignores that restatements have different characteristics and may make various impacts on companies. The hand-collected restatement characteristics in this study can provide a good opportunity to re-examine and extend prior empirical findings. Evidence on whether and how restatement characteristics, including core-earnings, magnitude of amounts, scope of accounts affected and duration, actually affect the likelihood of management turnover is examined.

Second, prior researches use the prompter as a measure of restatement severity and find mixed results (Anderson and Yohn 2002; Palmrose et al. 2004; Desai et al. 2006; Arthaud-Day et al. 2006). Our empirical results indicate that there is no “cop a plea” effect following a company-prompted restatement. Companies nevertheless consider different restatement characteristics and their impacts when they decide to terminate executives. Hence, the results imply that using the prompter as a measure of restatement severity is inappropriate.

Third, prior studies suggest that SOX is effective in mitigating earnings management behavior, and board members react more unfavorably to earnings management behavior based on aggressive accounting because it is interpreted as a signal of non-compliance with SOX or poor quality of financial reporting. This study takes a step further and finds that company boards are more likely to terminate executives who via restatements adjust prior period earnings downward but in the meantime continue to increase current period earnings. Board members are becoming less tolerant to executives who practice aggressive accounting and/or window-dress earnings.

Finally, our findings suggest that the power of tests on the consequences of restatements

can be greatly enhanced by singling out *PostPost* observations from Post-SOX samples. When researchers investigate the adverse consequences of restatements, it is imperative to consider individual restatement contents (i.e., core-earnings, magnitude of amounts, scope of accounts affected and duration) and composite severity measures. In addition, our focus on the investigation of income-decreasing restatements proves to be fruitful in providing powerful test results for the research issues.

The remainder of this paper is organized as follows. Section 2 discusses prior studies in restatements that are most relevant to our study and presents the hypotheses development. Section 3 describes the sample selection procedure and research design. Section 4 reports the empirical results together with their implications. The sensitivity analyses are presented in Section 5. Section 6 provides our concluding remarks.

2. Literature review and hypotheses development

Prior studies on management turnover failing to find high turnover rates associated with financial restatements is somewhat perplexing (Agrawal et al. 1999; Beneish 1999). One possible reason for the lack of significant results to date is that the samples employed in management turnover studies tend to be rather small (Desai et al. 2006). Another potential reason may be due to the fact that strengthened shareholder activism and effective corporate governance stand for relatively recent trends (Agrawal and Chadha 2005; Farber 2005; Baber et al. 2007; Erickson et al. 2006; Efendi et al. 2007). Therefore, research on the association between restatements and managerial turnover remains to be worthwhile.

A natural question, given the extant evidence, is whether the lower than expected turnover rate for restating companies is due to an agency problem, where boards fail to take action expeditiously to remove senior management when they should, or because that a large fraction of restatements are simple errors and do not warrant management turnover. Considering restatement characteristics and corporate governance factors should help answer this question. Our investigation provides a good opportunity to re-examine and extend prior empirical findings.

2.1 Management turnover and restatement

In general, managerial turnover entails significant costs and benefits for a company. One would expect a company to replace management if the benefits (e.g., in order to re-gain or re-establish reputation) exceed the costs.⁴ Several studies find that turnover of corporate

⁴ Although replacing management following restatements or other accounting problems offers the benefit of restoring investor confidence and reducing the probability of future misstatements, the replacement action itself can be costly to the company (Burks 2009).

executives increases after restatements or other accounting problems (Jayaramnan et al. 2004; Arthaud-Day et al. 2006; Desai et al. 2006; Land 2006; Collins et al. 2009, Hennes et al. 2008; and Burks 2010). However, Agrawal et al. (1999) and Beneish (1999) find little evidence of high executive turnover rates for companies engaging in fraud and are surprised by the finding because fraudulent actions often cause companies to change managers.

By imposing more stringent civil and criminal penalties for issuing misstated financial statements,⁵ SOX lifted the accountability of CEOs and CFOs to certify financial reports to the SEC (Section 302).⁶ This raised the question of whether executive turnover around restatements may be more likely in the current regime than in the past. Anecdotal evidence suggests that for some companies, their CEO or other top executive turnover is related to the accounting restatement, as the following excerpts illustrate:

November 02, 2005 -- Three of Mercury Interactive Corp.'s top executives, including CEO Amnon Landan, resigned today after an internal probe into stock-option grants resulted in a scathing report on their oversight of the software company's accounting. The company plans to restate several years' worth of financial filings.

March 07, 2005 -- Greenberg, 79, stepped down as AIG's chief executive officer in March 2005 amid accounting probes that led to a \$3.4 billion restatement of profits.

April 30, 2004 -- Chief financial officer and director John Dwyer resigned on Wednesday from gym chain Bally Total Fitness Holding Corp., as the Securities and Exchange Commission launched an investigation into the company's recent restatement.

Although the CEOs or CFOs in the above examples terminated in large part because of the restatements, prior literature on the likelihood of managerial turnover after restatements has been mixed⁷ (Agrawal et al. 1999; Beneish 1999; Jayaramnan et al. 2004; Arthaud-Day

⁵ For example, Section 304 requires management to return bonuses or profits from stock sales received within 12 months of a restatement resulting from material non-compliance with financial reporting requirements as a result of misconduct. Section 305 also sets standards for imposing officer and director bars and penalties. In addition, Section 804 increases the statute of limitations for private securities fraud lawsuits. The limitations period for proceedings commenced on or after the date of enactment is now the earlier of two years after discovery of the facts constituting the violation, and no more than five years after the violation. Section 805 also contains several emergency directives to the United States Sentencing Commission generally pertaining to fraud and obstruction of justice offenses.

⁶ Section 302 requires the CEOs and CFOs to certify that quarterly and annual financial reports fairly present the company's financial condition and operating performance.

⁷ For example, Beneish (1999) and Agrawal et al. (1999) find no significantly higher management turnover following violations of generally accepted accounting procedures or revelations of corporate frauds. Similarly,

et al. 2006; Desai et al. 2006; Land 2006; Collins et al. 2009, Hennes et al. 2008; and Burks 2010), and there is yet systematic evidence on the association between management turnover and financial restatements. Four concurrent studies that examine the association between the management turnover and restatements are Desai et al. (2006), Collins et al. (2009), Hennes et al. (2008), and Burks (2010). Desai et al. (2006) examine a sample of 146 companies that announce earnings restatements during 1997-1998. They find that the top management (CEO, Chairman, and President) of these companies experiences abnormally large turnover and diminished job prospects following restatements. Collins et al. (2009) examine a sample of 363 companies that announce earnings restatements during 1997-1999 and 2002-2003. They find that the passage of SOX has not increased CFO turnover rates following restatements. In contrast, Burks (2010) finds that CFO turnover rates are significantly higher in the post-SOX period whereas CEO turnover rates are not. Similar to Collins et al. (2009), Hennes et al. (2008) also find no evidence that CEO or CFO turnover increases in the post-SOX environment.

2.2 Restatement characteristics

In this study, we focus on whether restatement characteristics are associated with management turnover, because we argue that restatements have different characteristics and may cause various influences to companies. For example, companies correcting core-earnings accounts may have higher management turnover rates. Hence, we conjecture that companies will consider different characteristics and impacts of restatements when they decide to fire executives.

Our restatement contents include whether or not the restatement involves core earnings, the number of accounts affected, the magnitude of amounts, and the number of years restated. These restatement contents have received some research attention. For example, prior studies (Palmrose et al. 2004; Palmrose and Scholz 2004; Romanus et al. 2008) suggest that investors regard restatements of core accounts as more serious. Palmrose et al. (2004) capture the pervasiveness of the restatement (measured by the number of accounts affected) within the income statement. Regarding restatement duration and restatement amounts, Srinivasan (2005) indicates that restatement duration measures the length of time the quality of accounting was compromised, whereas higher restatement magnitude indicates poorer prior representation of the actual numbers. Additionally, we include the composite index that combines four

Land (2006) argues that not all restatement companies experience higher likelihood of CEO turnover. However, recent work shows more significant associations between financial reporting failure and management turnover. For instance, Desai et al. (2006), Collins et al. (2009), Hennes et al. (2008), and Burks (2009) find that top management turnover is higher for companies that restate earnings.

restatement contents into a single comprehensive variable that captures the company's overall restatement severity.

Section 302 requires the CEOs and CFOs to certify that quarterly and annual financial reports fairly present the company's financial condition and operating performance. To ensure that CEOs and CFOs make an informed certification, Section 302 commands careful review of the information disclosed in the report for accuracy and completeness. Section 404 also requires managers to disclose their assessment of internal controls annually and auditors to render an opinion on management's assessment.⁸ Empirical evidence suggests that there were significant positive changes made to both internal and external monitoring mechanisms after the SOX (Fairfax 2005; Krishnan 2005; Richardson 2005; Patterson and Smith 2007). Therefore, we assume that the impact of SOX will affect the association between restatement characteristics and management turnover. For example, we expect a higher management turnover for restatements affecting core earnings after SOX because companies are now facing more stringent civil and criminal penalties for untruthful financial reporting under SOX. Hypotheses are stated in the alternative form:

H₁₁: Restatement characteristics are associated with the likelihood of management turnover.

To extend our research issues, restatement prompters are used as an alternative proxy for restatement severity in this study. Prior researches use the prompter as a measure of restatement severity, but their results are mixed⁹ (Anderson and Yohn 2002; Palmrose et al. 2004; Desai et al. 2006; Arthaud-Day et al. 2006). They predict that restatements prompted by external parties (SEC and auditors) are more severe and should thus increase the likelihood of CEO turnover, but they find no such evidence. Desai et al. (2006) also use the prompter to proxy for restatement severity but choose a different partition. They argue that company-prompted and auditor-prompted restatements are likely to be more severe than SEC-initiated restatements and find evidence that company- and auditor-prompted restatements are associated with higher levels of management turnover. As discussed above, in the management turnover context, results using the restatement prompter to gauge the severity of the restatement are mixed. Compared with auditor- and SEC-prompted

⁸ Although top management was responsible for company financial reporting and internal control prior to SOX (COSO 1987), these provisions of SOX represent an attempt to hold CEOs and CFOs more accountable for these processes.

⁹ For example, Palmrose et al. (2004) predict positive effects of company-prompted restatements on stock returns. Contrary to their prediction, however, they find that company-prompted restatements give rise to the second largest negative stock returns (-13 percent).

restatements, company-prompted restatements are more susceptible to SOX provisions regarding top management's misconducts and financial reporting responsibility (e.g. §304). This raises a question of whether executive turnover following a restatement prompted by the company is less likely due to the "cop a plea" effect. Thus, we examine the relation between restatement characteristics and the probability of management turnover following a company-prompted restatement. The following hypothesis is developed:

H₁₂: Management turnover is associated with restatement characteristics following a company-prompted restatement.

2.3 Management behavior

Kaplan and Minton (2006) find that poor performance of the company triggers the board to replace the top managers and that the board became more intense in replacing the managers after 2002. Kim (2008) also finds that the board of directors became less tolerant of underperformance after SOX. In other words, poor company performance increases the likelihood of management turnover (e.g., Coughlan and Schmidt 1985; Warner et al. 1988; Weisbach 1988; Denis et al. 1997; Engel et al. 2003; Bonnier and Bruner 1989; Furtado and Rozeff 1987; Kaplan and Minton 2006; Kim 2008).¹⁰ In addition, Richardson et al. (2003) find that restating companies have been attempting to maintain a string of consecutive positive earnings growth and/or quarterly earnings surprises. These managers may be more likely to select aggressive accounting practices and to window-dress earnings because income-decreasing restatements suggest that the company followed aggressive accounting practices in the past (Srinivasan 2005). When executives window-dress earnings and portray a more favorable earnings picture in the period a restatement is announced, the question is whether they are more likely to be retained in their jobs. After controlling for the restatement severity, we investigate the association between the likelihood of management turnover and management behavior after SOX. Additionally, we focus on the restatement in the *post-post* period because market participants may consider such restatements signals of non-compliance with SOX. Hence, we state hypotheses in the alternative form:

H₂: For income-decreasing restatement cases in the *post-post* period,¹¹ earnings

¹⁰ Prior research on management turnover can be broadly divided into three categories: (1) factors contributing to turnover, (2) immediate market reactions to the management turnover event, and (3) evaluation of subsequent company performance. See Furtado and Karen (1990) for a detailed discussion of the literature concerning CEO turnover.

¹¹ The *post-post* period indicates that restatements announced in the post-SOX period restating financial statements issued in the post-SOX period.

management is associated with the likelihood of management turnover.

3. Research design

We investigate financial accounting restatements announced between August 1, 2002 and December 31, 2005, using a probit model to examine our research issues. In this section, we first detail the data sources and sample selection used to generate the research sample. Second, we introduce the research models, followed by a discussion of the test and control variables.

3.1 Data and sample selection

To control for the homogeneity to comply with the SEC disclosure rules and avoid any exchange-market effect, we restrict our sample to companies listed at NASDAQ and NYSE only.

Restatement announcements¹² and characteristics

We hand-collect data about the dates of initial restatement announcements and the characteristics of these restatements from the *Lexis-Nexis News Library*, covering all interim and annual restatements announced from August 1, 2002, through December 31, 2005.¹³ Identifying exact announcement dates related to restatements is challenging. Thus, we only consider each company's first release of its restatement announcement at a given year. Similar to Palmrose et al. (2004) and Kinney et al. (2004), our search uses several key words for restatements, such as "restate," "restatement," "revise," "revision," "adjust," and "error." The event day is determined by the first restatement announcement date identified in the *Lexis-Nexis News Library*. We also search the EDGAR database to cross-check whether these event days are correct.¹⁴ Finally, we add restating companies mentioned in other sources discussing restatements such as GAO's (2006) report, *SEC Filing Library*, *Accounting Today News*, *BNET Today News*, *CFO.com News* and *Compliance Week News*. All hand-collected data about the dates of initial restatement announcements and characteristics are available from public filings and databases.

¹² Identifying exact announcement dates related to restatements is challenging. Similar to Palmrose et al. (2004) and Kinney et al. (2004), our restatement announcement date is determined by the first restatement announcement date identified in the *Lexis-Nexis News Library*.

¹³ Following Srinivasan (2005) and Hennes et al. (2008), we also narrow our investigation to companies' income-decreasing restatements for three reasons. First, income-decreasing restatements suggest that the company has followed aggressive accounting practices in the past. Consequently, we expect our final sample to provide a more powerful test of the hypotheses. Second, prior researches find that the relationship for income-increasing sample is unclear (Srinivasan 2005; Myers et al. 2005). Finally, income-decreasing restatements have received more adverse consequences than income-increasing restatements by market participants (Srinivasan 2005).

¹⁴ SEC rules adopted in August 2004 require companies to file a Form 8-K within four days of discovering a misstatement in previously issued financial statements. These rules also greatly expand the scope of information required to be disclosed about the restatement.

Management turnover¹⁵

Following Desai et al. (2006), Collins et al. (2009) and Hennes et al. (2008), we identify the CEO and CFO of the restatement company by reading proxy statements (Form DEF-14A) as well as press releases. If the proxy statement is not available, then we search 10-Ks and 8-Ks.¹⁶ To enhance the power of tests and improve the generality of results, we also hand-collect data about the CEO and CFO of turnover from the *Lexis-Nexis News Library*, *CFO.com News* and *WebCPA News*. We define management turnover as the turnover of a person or persons holding titles of Chairman, CEO, CFO, and/or President. A company is said to have turnover if an individual holding the title of Chairman, CEO, CFO, or President leaves the company within 24 months around (6 months before and 18 months after) the restatement announcement.¹⁷ In addition, if the company merges or is acquired within 24 months and as long as the manager does not leave the company prior to the merger, we do not consider it as a turnover.

Corporate governance

Information on board size, audit committee size, board independence and audit committee independence is also hand-collected from the appointing companies' proxy statements (Form DEF-14A). If the Form DEF-14A was not available, then we search 10-Ks. Form DEF-14A requires companies to state whether they have standing audit, compensation, or nominating board committees. If such committees exist, then companies must disclose their functions, responsibilities, and their members.

Others

Company-level accounting data are obtained from the Standard and Poor's *COMPUSTAT* Annual Industrial, Research, and Full Coverage files. The *Compustat* database includes not only data found in balance sheets, income statements, and statement of cash flows, but also industry classification, and audit opinions for U.S. companies. For most variables of interest in this study, they are available from the database.

3.2 Research models

3.2.1 Primary tests of H₁₁ — *Restatement characteristics*

¹⁵ Following Furtado and Rozeff (1987), Agrawal et al. (1999), Beneish (1999), Jayaraman et al. (2004), Arthaud-Day et al. (2006), Desai et al. (2006), Land (2006), Hennes et al. (2008), and Burks (2009), we also don't classify the management turnover event as voluntary or forced in this study. We don't intend to distinguish between forced turnover and voluntary turnover because it's very difficult to judge by their appearance of news or press releases.

¹⁶ On November 7, 2006, the SEC released final rules to the Form 8-K regarding the disclosure of the departure of any named executive officer, as well as the principal executive officer, president, principal financial officer, principal operating officer and principal accounting officer.

¹⁷ Thus, if a person occupies the position of Chairman and CEO prior to the restatement but following the restatement retains the title of only Chairman, this is not considered a turnover.

We investigate the reputational penalties to managers of companies for restatements announced in the post-SOX period. Prior literature on managerial turnover after restatements has been mixed in the post-SOX period (Collins et al. 2009; Hennes et al. 2008; Burks 2010). Thus, we re-examine the association between restatement and management turnover, controlling for other factors that are known to influence managerial turnover. More importantly, we include four restatement characteristics to interrogate the consequences to managers for restating financial statements. The primary specification model is:

$$\begin{aligned} TURNOVER_{i,t} = & \alpha_0 + \alpha_1 CORE_{i,t} + \alpha_2 AMOUNT_{i,t} + \alpha_3 ACCOUNTS_{i,t} + \alpha_4 RYEARS_{i,t} \\ & + \alpha_5 GC_{i,t} + \alpha_6 GROWTH_{i,t} + \alpha_7 ROA_{i,t} + \alpha_8 LNASSET_{i,t} + \alpha_9 BOARD_{i,t} \\ & + \alpha_{10} INDBOARD_{i,t} + \alpha_{11} [Fixed\ Effects] + \varepsilon_{i,t} \end{aligned} \quad (1-1)$$

We also use a composite index that combines four characteristics (*CORE*, *AMOUNT*, *ACCOUNTS*, *RYEARS*) of the restatement severity into a single comprehensive variable (*SEVERITY*) that captures the company's overall restatement severity.

$$\begin{aligned} TURNOVER_{i,t} = & \alpha_0 + \alpha_1 SEVERITY_{i,t} + \alpha_2 GC_{i,t} + \alpha_3 GROWTH_{i,t} + \alpha_4 ROA_{i,t} \\ & + \alpha_5 LNASSET_{i,t} + \alpha_6 BOARD_{i,t} + \alpha_7 INDBOARD_{i,t} \\ & + \alpha_8 [Fixed\ Effects] + \varepsilon_{i,t} \end{aligned} \quad (1-2)$$

where

TURNOVER = 1 if the CEO¹⁸ leaves the company within 24 months¹⁹ around (6 months before²⁰ and 18 months after) the restatement announcement, and 0 otherwise;

CORE = 1 if a restatement involves revenue, cost of sales or on-going operating expenses, and 0 otherwise;

AMOUNT = The cumulative amount of net income overstatement scaled by total assets in the year prior to the restatement announcement;

ACCOUNTS = Number of account groups affected in a restatement. The seven account groups are revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items;

¹⁸ In contrast to the growing amount of researches on CEO and restatements, prior research on CFO has been fairly limited in this area (Aier et al. 2005). In addition, the CFO is the officer with primary responsibility for the financial reporting process. Thus, in our analysis, we include analyses of the post-SOX CFO turnover as part of our tests.

¹⁹ In our primary analysis, we use a 24 months turnover window around (6 months before and 18 months after) the restatement announcement. In addition, we also use alternative definition of turnover window that the management leaves the company within 24 months after the restatement announcement as part of our sensitivity tests.

²⁰ For example, AIG released its restatement announcement first in May 2005, but its CEO stepped down in March 2005.

RYEARS = Sum of years restated, where a fiscal year = 1 and each additional quarter = 0.25;

SEVERITY = Combines four characteristics of the restatement severity (*CORE*, *AMOUNT*, *ACCOUNTS*, *RYEARS*) into a single comprehensive variable;²¹

GC = 1 if the company receives a going concern opinion at announcement year, and 0 otherwise;

GROWTH = One-year percentage change in sales reported at announcement year;

ROA = Net income divided by book value of total assets reported at announcement year;

LNASSET = Natural log of book value of total assets reported at announcement year;

BOARD = Number of directors on the board at announcement year;

INDBOARD = Number of independent directors on the board divided by the total board size at announcement year;

Fixed Effects = Dummy variables controlling for fixed effects of industries and calendar years;

ε = the residual term.

Following Desai et al. (2006) and Lehn and Zhao (2006), Balsam and Miharjo (2007) used the same process to select management turnover cases. Our classification of turnover is more conservative according to a number of criteria.²² We estimate a probit regression model where the dependent variable, *TURNOVER*, equals one if the company experiences turnover in at least one of the top four positions (Chairman, CEO, CFO, or President) within 24 months around the restatement announcement.

3.2.2 Primary tests of H_{12} —*Company-prompted restatement*

In this section, to consider the effects of restatement prompter, we use the equation (2) to examine the question whether executive turnover following restatements may be less likely, when companies had high restatement severity but prompted restatements by themselves to reap the benefit of “cop a plea”. The primary specification model is;

²¹ We code companies equal to 1 for higher restatement severity if the *AMOUNT* (*ACCOUNTS*, *RYEARS*) variable is above the median of samples, and 0 otherwise. Then, we construct our comprehensive restatement severity (*SEVERITY*) measure by summing the four dichotomous measures for each sample observation. Our measure method is similar to DeFond et al. (2005).

²² For instance, if the company merges with or is acquired by another company within 24 months after the restatement announcement and as long as the manager does not leave the company prior to the merger, we do not consider it as a turnover, even though prior research suggests that an acquisition significantly increases the likelihood of managerial turnover (Agrawal and Walkling 1994; Martin and McConnell 1991). In addition, if a person occupies the position of Chairman and CEO prior to the restatement but following the restatement retains the title of only Chairman, this is not considered a turnover.

$$\begin{aligned}
TURNOVER_{i,t} = & \alpha_0 + \alpha_1 CORE_{i,t} + \alpha_2 CORE_{i,t} \times ATTCOMP_{i,t} + \alpha_3 AMOUNT_{i,t} \\
& + \alpha_4 AMOUNT_{i,t} \times ATTCOMP_{i,t} + \alpha_5 ACCOUNTS_{i,t} \\
& + \alpha_6 ACCOUNTS_{i,t} \times ATTCOMP_{i,t} + \alpha_7 RYEARS_{i,t} \\
& + \alpha_8 RYEARS_{i,t} \times ATTCOMP_{i,t} + \alpha_9 GC_{i,t} + \alpha_{10} GROWTH_{i,t} \\
& + \alpha_{11} ROA_{i,t} + \alpha_{12} LNASSET_{i,t} + \alpha_{13} BOARD_{i,t} + \alpha_{14} INDBOARD_{i,t} \\
& + \alpha_{15} [Fixed\ Effects] + \varepsilon_{i,t}
\end{aligned} \tag{2}$$

where $ATTCOMP = 1$ for companies having restatements prompted by themselves, and 0 otherwise.

3.2.3 Primary tests of H₂—*Management behavior*

Several studies find that poor financial performance often lead to CEO turnover (e.g., Coughlan and Schmidt 1985; Warner et al. 1988; Weisbach 1988; Denis et al. 1997; Engel et al. 2003; Bonnier and Bruner 1989; Furtado and Rozeff 1987; Kaplan and Minton 2006; Kim 2008). When executives window-dress earnings and portray a more favorable earnings picture in the period a restatement is announced, the question is whether they are more likely to be retained in their jobs. Thus, we estimate equation (3-1) and (3-2) to investigate the association between management turnover and earnings management.

$$\begin{aligned}
TURNOVER_{i,t} = & \alpha_0 + \alpha_1 PMDA_{i,t} + \alpha_2 PostPost_{i,t} + \alpha_3 PMDA_{i,t} \times PostPost_{i,t} + \alpha_4 CORE_{i,t} \\
& + \alpha_5 AMOUNT_{i,t} + \alpha_6 ACCOUNTS_{i,t} + \alpha_7 RYEARS_{i,t} + \alpha_8 GC_{i,t} \\
& + \alpha_9 GROWTH_{i,t} + \alpha_{10} ROA_{i,t} + \alpha_{11} LNASSET_{i,t} + \alpha_{12} BOARD_{i,t} \\
& + \alpha_{13} INDBOARD_{i,t} + \alpha_{14} [Fixed\ Effects] + \varepsilon_{i,t}
\end{aligned} \tag{3-1}$$

Additionally, this study also follows Wang and Yu (2008) to partition the sample years into two distinct groups: restatements announced in the post-SOX period restating financial statements issued in the pre-SOX period (denoted by *PostPre*), and restatements announced in the post-SOX period restating financial statements issued in the post-SOX period (denoted by *PostPost*).

$$\begin{aligned}
TURNOVER_{i,t} = & \alpha_0 + \alpha_1 PMDA_{i,t} + \alpha_2 PostPost_{i,t} + \alpha_3 PMDA_{i,t} \times PostPost_{i,t} \\
& + \alpha_4 SEVERITY_{i,t} + \alpha_5 GC_{i,t} + \alpha_6 GROWTH_{i,t} + \alpha_7 ROA_{i,t} \\
& + \alpha_8 LNASSET_{i,t} + \alpha_9 BOARD_{i,t} + \alpha_{10} INDBOARD_{i,t} \\
& + \alpha_{11} [Fixed\ Effects] + \varepsilon_{i,t}
\end{aligned} \tag{3-2}$$

Our *PMDA* variable as a measure of earnings management is the performance matched discretionary accrual (Kothari et al. 2005). The Kothari et al. (2005) performance-matched discretionary accrual is obtained by matching on the basis of two-digit SIC code, year and

current ROA. The performance-matched discretionary accrual is defined as the accrual for company i in year t from the Jones-model discretionary accrual in year t minus the matched company's Jones-model discretionary accrual in year t .

3.3 Severity of restatement variables

The first test variable is an indicator variable for core-earnings (denoted by *CORE*), which equals one if a restatement involves core earnings and zero otherwise. According to Penman (2001), core earnings in an income statement include sales revenue, cost of sales, and on-going operating expenses. We include *CORE* as a test variable because prior studies have shown that market participants regard restatements of core earnings as more serious due to their potential litigations and react negatively (Palmrose and Scholz 2004; Palmrose et al. 2004).

Second, *AMOUNT* measures the size (magnitude) effect of a restatement on net income. Following Palmrose et al. (2004), Myer et al. (2005), Srinivasan (2005), Lev et al. (2007), Collins et al. (2009) and Hennes et al. (2008), we compute *AMOUNT* as the restated income (loss) less originally reported income (loss), scaled by the book value of total assets at the year-end immediately preceding the restatement announcement.

Third, we measure the number of account groups affected (denoted by *ACCOUNTS*). We follow Palmrose et al. (2004) by focusing on seven account groups in the income statement (i.e., revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items) and expect *ACCOUNTS* (which can range from one to seven) to be positively associated with cost of debt capital. In addition, *CORE* captures the overall impact of accounting numbers whereas *ACCOUNTS* indicates whether market participants consider the detailed line items (within the income statement) involved in a restatement and react accordingly.

Fourth, duration (denoted by *RYEARS*) is measured by the number of years financial statements are restated in a single restatement (where a fiscal year = 1 and a quarter = 0.25). Therefore, *RYEARS* captures the “cumulative compromise” of financial reporting quality over a specific length of time. Fifth, we also use a composite index that combines four characteristics of the restatement severity into a single comprehensive variable (*SEVERITY*) that captures the company's overall restatement severity.

As discussed above, a dummy variable including *CORE* pertains to qualitative characteristics of restatements. *AMOUNT*, *ACCOUNT*, and *RYEAR* are added to capture the quantifiable characteristics of restatements.

3.4 Control variables

Similar to previous studies (e.g., Dechow et al. 1996; Richardson et al. 2003; Desai et al. 2006), we control for company's size effect (denoted by *LNASSET*) because company size might capture company-specific risk (Fama and French 1992). Also, controlling for size can potentially mitigate the problem of correlated omitted variables (Myers et al., 2005; Ahmed and Goodwin 2007). Consistent with DeFond and Jiambalvo (1991), Kinney and McDaniel (1989), Sennetti and Turner (1999), we also consider two proxies for a company's financial condition: company's profitability (denoted by *ROA*) and sales growth rate (denoted by *GROWTH*).

Following DeFond and Jiambalvo (1991), Kinney and McDaniel (1989), Sennetti and Turner (1999), we include the going concern opinion as an indicator variable (denoted by *GC*). Corporate boards are responsible for monitoring managerial performance in general. Accordingly, we include two measures to proxy for a company's governance environment: *BOARD*, and *INDBOARD*. Dechow et al. (1996) and Beasley (1996) find that outside independent directors are effective monitors of managerial actions.

4. Empirical results

4.1 Sample selection

As reported in Table 1, Panel A, a number of companies are excluded from our sample for the following reasons. First, we exclude 12 companies lacking of identifying information, such as perm number, cusip, gvkey, or cnum. Second, we can not find 8-K, 10-K/A, 10-Q/A or restatement data for 183 companies. Third, the restatements of 554 companies do not decrease net income and are deleted. Fourth, 480 companies announce restatements before SOX and are excluded. Fifth, 57 companies are merged or acquired within 24 months of the restatement. Sixth, 40 companies are excluded because of missing *Compustat* financial data. Our final sample is composed of 512 companies that overstated earnings and announced income-decreasing restatements in the post-SOX period.

[Insert Table 1 here]

Table 1, Panel B, details the industry composition of restatement companies. The industry that is most heavily represented (21.29% of sample companies) is retailing. Restatements are also relatively common among companies involved in the financial services and durable manufacturers, with 17.58% and 15.43% of the sample, respectively, coming from these two industries. Panel B also shows that retailing, computers and durable manufacturing industries have the highest percentages of restatements in the CEO turnover subsample (25.33%, 16.67% and 16%, respectively). In addition, Panel C also shows that

retailing, durable manufacturing, computers and services industries have the highest percentages of restatements in the CFO turnover subsample (22.29%, 22.29%, 14.01% and 14.01%, respectively). When CEO and CFO turnover are combined, Panel D shows that retailing, durable manufacturing, and computers industries have the highest percentages of restatements in the CEO or CFO turnover subsample (23.61%, 18.89%, and 14.59%, respectively).

4.2 Descriptive statistics and univariate tests

Table 2 presents the descriptive statistics for all the variables used in our analyses, partitioned by two subsamples: CEO terminated following restatements ($n = 150$), and CEO not terminated following restatements ($n = 362$). As such, comparing two subsamples provides evidence as to whether characteristics of the restatement severity affect the probability of CEO turnover.

[Insert Table 2 here]

The mean (median) of *CORE* reported in the CEO turnover subsample is significantly larger than those reported in the no CEO turnover subsample at least at the 0.01 level for both tests. The medians of *AMOUNT* and *RYEARS* reported in the CEO turnover subsample are significantly larger than those reported in the no CEO turnover subsample at the 0.05 level. Univariate comparisons indicate that CEO turnover companies have larger overstatement value (*AMOUNT*), longer duration (*RYEARS*), and are more likely to affect core earnings accounts (*CORE*) than no CEO turnover companies. In addition, the mean (median) of *SEVERITY* reported in the CEO turnover subsample is also significantly larger than those reported in the no CEO turnover subsample at least at the 0.10 level for both tests. Overall, these findings suggest that the CEO turnover is more likely to be associated with higher restatement severity. When CEO and CFO turnover are combined, results are very similar to Table 2 (results are not tabled).

Table 3 reports the Pearson correlations for the test and control variables to be used in the probit models. As depicted in this Table, most explanatory variables are not significantly correlated with each other. Correlations between characteristics of the restatement severity and *TURNOVER* are in the predicted direction. Table 3 shows that *TURNOVER* is positively correlated with *CORE* (0.108), and *SEVERITY* (0.093), statistically significant at the 0.05 level, implying that the probability of CEO turnover is associated with higher restatement severity, and core earnings affected in a restatement. Also, *TURNOVER* is negatively correlated with *ROA* (-0.078) and statistically significant at the 0.10 level, suggesting that companies having better performance are associated with lower probability of CEO turnover.

[Insert Table 3 here]

4.3 Multivariate analysis

4.3.1 Management turnover and restatement characteristics

To examine the association between the management turnover (CEO, CFO, and combined CEO/CFO turnover) and the restatement severity, we estimate model (1) using four characteristics of the restatement severity (*CORE*, *AMOUNT*, *ACCOUNTS*, *RYEARS*) and model (2) using a composite index that combines four characteristics of the restatement severity into a single comprehensive variable (*SEVERITY*) that captures the company's overall restatement severity. We perform restatement severity variables and control variables on management turnover using a probit model with the standard errors corrected for heteroskedasticity (White 1980). Table 4 presents estimates from a probit regression of equation (1-1) and (1-2).

[Insert Table 4 here]

Table 4 reports results for our management turnover (CEO, CFO, and combined CEO/CFO turnover) regressions in the post-SOX period. Consistent with our prediction, in column (1), the coefficient on *CORE* is 0.27 (significant at $p < 0.10$), and *AMOUNT* is 1.90 (significant at $p < 0.10$). These results suggest that a CEO is more likely to be terminated if restatements involve core earnings accounts as well as larger overstatement values. In addition, we use a comprehensive variable of the restatement severity in column (2). The coefficient on *SEVERITY* is 0.21 (significant at $p < 0.01$). These results are consistent with the idea that the probability of CEO turnover significantly increases for companies with higher restatement severity. The coefficient on *ROA* is significant in expected direction ($p < 0.05$), suggesting that higher probability of CEO turnover is more likely for unprofitable companies.

Results for CFO turnover are very similar to our CEO turnover results. The coefficient on *CORE* is 0.23 (marginally significant at $p < 0.10$) and *AMOUNT* is 2.41 (significant at $p < 0.01$), suggesting that, a CFO is more likely to be terminated if restatements involve core earnings accounts as well as larger overstatement values. In column (4), the coefficient on *SEVERITY* is positive and insignificant. Overall, these results are consistent with the idea that the probability of CFO turnover significantly increases for companies with higher restatement severity. The coefficient on *GROWTH* is also significantly negative in the CFO regression ($p < 0.10$), suggesting that higher probability of CFO turnover is more likely for unprofitable companies.

When CEO turnover and CFO turnover are combined, results are very similar to respective CEO or CFO turnover results. Overall, these results suggest that in all of our

models the likelihood of CEO or CFO turnover significantly increases for companies with higher restatement severity. To further explore the association between management turnover and restatement severity in different sample periods, we partition the sample into two distinct periods: restatements announced in the post-SOX period restating financial statements issued in the pre-SOX period (*post-pre*), and restatements announced in the post-SOX period restating financial statements issued in the post-SOX period (*post-post*). Untabulated results for different sample periods are very similar to Table 4, suggesting that the probability of management turnover significantly increases for companies with high restatement severity, no matter whether these restating financial statements are issued in the *post-pre* period or in the *post-post* period.

4.3.2 Management turnover and company-prompted restatement

Compared with auditor- and SEC-prompted restatements, company-prompted restatements are more susceptible to SOX provisions (e.g. §304) regarding top management's misconducts and financial reporting responsibility. This raises a question of whether executive turnover following a restatement prompted by the company is less likely, even if the company may actually suffer higher restatement severity due to the "cop a plea" effect. Table 5 displays the distribution of restating companies by the prompter and shows that the CEO and CFO have the highest percentages of turnover in the company-prompted subsample (17.78% and 19.35%, respectively). Although there is no requirement for companies to reveal this information, about 68.16 percent²³ of our sample observations provide reasonably clear prompter in their press releases or subsequent amended filings.

[Insert Table 5 here]

Thus, in this section, we examine the relation between restatements characteristics and the probability of management turnover for company-prompted restatements. The coefficients associated with the main effects of each of the four restatement characteristics ($\alpha_1, \alpha_3, \alpha_5, \alpha_7$) measure the relation between the characteristics and the probability of management turnover for non company-prompted restatements. Since we are primarily interested in the relation between restatement characteristics and the probability of management turnover for company-prompted restatements, for each restatement characteristic, we sum the coefficient on the main effect of that characteristic plus the coefficient on the term that interacts the characteristic with the *ATTCOMP* indicator variable.²⁴ Table 6 reports the results.

[Insert Table 6 here]

²³ Palmrose et al. (2004) also found 68 percent in their restatement sample.

²⁴ We also include the base level of *ATTCOMP* as a main effect in the model, but it provides no incremental explanatory power (the company-prompted rate is about 54 percent of the final sample).

By focusing on company-prompted restatements, the likelihood that the company terminated its management (CEO, CFO, and CEO or CFO) increases if core earnings accounts are affected in a restatement ($\alpha_1 + \alpha_2 > 0$), and when the amount of net income overstatement grows ($\alpha_3 + \alpha_4 > 0$; except the CEO turnover subsample). However, we find no significant relation between the likelihood of CEO turnover and the number of account groups restated ($\alpha_5 + \alpha_6$ is not significantly different from 0, $p=0.94$), and marginally significant relation between the likelihood of CEO turnover and the number of quarters restated ($\alpha_7 + \alpha_8$ is marginally significant, $p=0.18$). Results for CFO turnover and CEO or CFO turnover are very similar to our CEO turnover results. The results show that there is no “cop a plea” effect. When restatements are prompted by companies, management turnover appears to be more associated with dollar amounts of the overstated income and/or restatements affecting core earnings.

In addition, we use a comprehensive variable of the restatement severity to rerun Table 6 (results are not tabled). The result reports that there is a significant positive relation between restatements severity and management turnover (CEO, CFO, and CEO or CFO) for company-prompted restatements.

4.3.3 Management turnover and management behavior²⁵

Table 7 documents the results of management turnover regressed on earnings management. Then we further explore the association between management turnover and earnings management in different sample periods. As discussed above, the sample is partitioned into two distinct periods: restatements announced in the post-SOX period restating financial statements issued in the pre-SOX period (*post-pre*), and restatements announced in the post-SOX period restating financial statements issued in the post-SOX period (*post-post*).

[Insert Table 7 here]²⁶

The CEO turnover column of Table 7 indicates that, the coefficient of *PMDA*²⁷ is significantly negative ($p < 0.05$) whereas the coefficient of *PMDA* \times *PostPost* is significantly positive ($p < 0.01$). These findings suggest that when executives window-dress earnings to portray a more favorable earnings picture in the post-post period, they are more likely to be

²⁵ In Cohen et al.’s (2008) term, the traditional discretionary (abnormal) accruals are called artificial earnings management activities in capturing managers’ earnings management. However, in many cases, managers may have employed real activities to manipulate earnings numbers as well. Thus, we also use the abnormal production costs proxy developed by Roychowdhury (2006) to measure real earnings management as part of our sensitivity tests. The empirical results remain the same.

²⁶ In this section, we eliminate 121 firms with insufficient data to compute the performance matched discretionary accrual.

²⁷ We also carry out performance matching based on two-digit SIC code, year, and lagged ROA. Similar results are obtained.

terminated following financial restatements.²⁸ In the past, a negative association between corporate performance and CEO turnover was found (e.g., Coughlan and Schmidt 1985; Warner et al. 1988; Weisbach 1988; Denis et al. 1997; Engel et al. 2003; Bonnier and Bruner 1989; Furtado and Rozeff 1987; Kaplan and Minton 2006; Kim 2008). For the same reason, in income-decreasing restatements, our empirical results indicate that in the *post-pre* period, if companies have more income-increasing accounting accruals, CEOs are less likely to be fired for income-decreasing restatements.

In addition, the reversal from negative CEO turnover in the *PostPre* period to positive CEO turnover in the *post-post* period imply that companies indeed take into consideration the years being restated in reacting to CEOs' earnings management behavior after SOX. Lobo and Zhou (2006) also document that the CEO/CFO certification requirement in Section 302 of SOX has made managers more conservative. These empirical results imply that SOX is effective in mitigating CEOs' earnings management behavior. Board actions react more unfavorably to earnings management behavior in the *post-post* period because aggressive accounting is interpreted as signals of non-compliance with SOX or poor quality of financial reporting. When CEO and CFO turnover are combined, as reported in column (5) and (6), results are very similar. Finally, our results concerning the relations among (1) CEO turnover, (2) earnings management and (3) the years being restated, are unique to the income-decreasing restatement context and do not generalize to the more common situation.

5. Sensitivity analyses

This section examines the sensitivity of the reported empirical results by exploring whether the evidence persists for a series of variables, sample re-specifications and alternate estimation techniques.²⁹

5.1 Alternative definitions of turnover window

In our primary analysis, we use a 24 months turnover window around (6 months before and 18 months after) the restatement announcement. However, prior studies lack of consensus on the appropriate measurement window for management turnover around restatements. Following Desai et al. (2006), Arthaud-Day et al. (2006), and Collins et al. (2009), we also consider a company experiencing management turnover if the top manager leaves the company within 24 months after the restatement announcement. The empirical results are

²⁸ DeAngelo (1988) suggests that managers window-dress earnings to portray a favorable earnings picture during the campaign and thereby increases the managers' chances of retaining their jobs.

²⁹ Because of the similarity of the sensitivity results to the results already reported in the paper, and for the sake of parsimony, we do not tabulate the sensitivity analyses.

similar to those reported in previous sections.

5.2 Alternative definitions of earnings management

Cohen et al. (2008) and Roychowdhury (2006) use real activity measures³⁰ to investigate companies' earnings management behavior before and after SOX and find that, while managers tend to use traditional accruals to manage earnings before SOX, they switch to the real activities earnings management after SOX. To ensure that our results are not sensitive to the measure of earnings management, we replicate the previous tests using Roychowdhury (2006) definition of abnormal production costs. In general, the empirical results are similar to those reported in previous sections.

5.3 Alternative definitions of the post-SOX period

In our primary tests, we define the post-SOX period which announced restatements after August 1, 2002. To ensure that our results are not sensitive to the definitions of the post-SOX period, we re-define the post-SOX period using January 1, 2003 as the cutoff point. Our empirical results are unaffected by this alternative definition.

5.4 Exclude Arthur Andersen clients and restatements announced in 2002

We exclude Arthur Andersen's clients who made restatements in 2002 to eliminate any potential "Andersen effect" that may bias our empirical analyses. Since SOX was signed into law in July 30, 2002, we also exclude restatements announced from August 1 to December 31 in 2002 to eliminate any "Act effect." The empirical results are similar to those reported in previous sections.

5.5 Exclude financial services industry

We exclude companies in the financial services industry because their financial ratios differ from other companies, and their corporate governance is subject to different regulator oversight. The empirical results are similar to those reported in previous sections.

5.6 Alternative measure of test variable *CORE*

Following Hribar and Jenkins (2004), we also re-define *CORE* equal to one if the restatement is categorized as affecting revenue recognition, cost of sales, operating expenses, or loan-loss provisions, and zero otherwise. The results and conclusions remain unchanged.

5.7 Include control variables

Corporate boards are responsible for monitoring managerial performance in general, and

³⁰ Roychowdhury (2006) identifies three major *real manipulation activities* that are relatively free of the effects of pure accrual manipulations: (1) accelerate the timing of sales and/or generate additional unsustainable sales through increased price discounts or more lenient credit terms, (2) reduce discretionary expenditures to report higher margins, and (3) overproduce or increase production to report lower cost of goods sold.

in particular financial reporting, a task that is delegated to the audit committees. Beasley and Salterio (2001) and Klein (2002a) shows that audit committee independence is positively associated with board size and board independence. Klein (2002b) further indicates that audit committee independence is negatively associated with the level of earnings management. Thus, we also consider two additional control variables: audit committee size and audit committee independence. The results and conclusions remain unchanged.

5.8 Exclude technical restatement

Following Palmrose and Scholz (2004), Agrawal and Chadha (2005), and Hennes et al. (2008), we exclude the companies with technical restatements because no financial reporting failures are involved (e.g., restatements for mergers, discontinued operations, accounting rule changes, changes in accounting method). The empirical results are similar to those reported in previous sections.

6. Conclusions

Aiming to make widespread governance and financial reporting improvements, a major emphasis of the SOX is to enhance the role of the CEOs and CFOs in corporate financial reporting. Thus, the increased criminal and civil sanctions codified by SOX suggest that more severe penalties will be imposed on CEOs and CFOs in the post-SOX environment. However, professional institutions and the press have reported a dramatic increase in restatements in the post-SOX period (e.g., Baldwin and Yoo 2005; GAO 2006; Grothe et al. 2006; Audit Analytics 2007; PCAOB 2007; Scholz 2008). This raises the concern of whether executives should be responsible for restatements. Hence, we investigate the restatement content and management behavior to interrogate the consequences of restating financial statements for executives.

This study provides evidence that the likelihood of CEO/CFO turnover increases for companies with higher restatement severity. Specifically, restatement characteristics, including core-earnings and magnitude of amounts, significantly affect the likelihood of management turnover. The results also indicate that for restatements prompted by companies, management turnover is associated with the magnitude of income overstatement and restatements affecting core earnings. After controlling for the restatement severity, our empirical findings provide evidence that when CEOs who face a high likelihood of termination pressure have incentives to select income-increasing accounting accruals to portray a more favorable earnings picture in the post-Sox period, they are more likely to be terminated following financial restatements.

REFERENCE

- Adams, J., and S. A. Mansi. 2008. CEO turnover and bondholder wealth. *Working Paper*, University of North Florida.
- Agrawal, A., and S. Chadha. 2005. Corporate governance and accounting scandals. *The Journal of Law & Economics* 48: 371–406.
- _____, and R. Walkling. 1994. Executive careers and compensation surrounding takeover bids. *Journal of Finance* 49: 985-1014.
- _____, J. F. Jaffe, and J. M. Karpoff. 1999. Management turnover and governance changes following the revelation of fraud. *Journal of Law and Economics* 42: 309-342.
- Ahmed, K., and J. Goodwin. 2007. An empirical investigation of earnings restatements by Australian firms. *Accounting and Finance* 47: 1–22.
- Aier, J. K., J. Comprix, M. T. Gunlock, and D. Lee. 2005. The financial expertise of CFOs and accounting restatements. *Accounting Horizons* 19: 123-135.
- Anderson, K., and T. Yohn. 2002. The effect of 10-K restatements on firm value, information asymmetries, and investors' reliance on earnings. *Working Paper*, Georgetown University.
- Arthaud-Day, M. L., S. T. Certo, C. M. Dalton, and D. R. Dalton. 2006. A changing of the guard: executive and director turnover following corporate financial restatements. *Academy of Management Journal* 49: 1119-1136.
- Audit Analytics, 2007. *Financial restatements and market reactions*. Ives Group Inc.
- Audit Analytics, 2008. *CEO and CFO departures briefing*. Ives Group Inc.
- Baldwin, T., and D. Yoo. 2005. Traversing shaky ground: An analysis for investors. *Yellow Card Trend Alert*. Glass Lewis & Co., LLC.
- Balsam, S., and S. Miharjo. 2007. The effect of equity compensation on voluntary executive turnover. *Journal of Accounting and Economics* 43: 95-119.
- Beasley, M. 1996. An empirical analysis between the board of director composition and financial statement fraud. *The Accounting Review* 71: 443-466.
- _____, and S. Salterio. 2001. The Relationship between board characteristics and voluntary improvements in audit committee composition and experience. *Contemporary Accounting Research* 18: 539-570.
- Beneish, M. D. 1999. Incentives and penalties related to earnings overstatements that violate GAAP. *The Accounting Review* 74: 425-457.
- Bonnier, K. A., and R. F. Bruner. 1989. An analysis of stock price reaction to management change in distressed firms. *Journal of Accounting and Economics* 11: 95-106.
- Burks, J. T. 2010. Disciplinary measures in response to restatements after Sarbanes-Oxley. *Journal of Accounting and Public Policy* (forthcoming).
- Cohen, D., A. Dey, and T. Lys. 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes Oxley periods. *The Accounting Review* 83: 757-787.
- Collins, D., A. Masli, A. L. Reitenga, and J. M. Sanchez. 2009. Earnings restatements, the Sarbanes-Oxley Act and the disciplining of chief financial officers. *Journal of Accounting, Auditing & Finance* 24: 1-34.
- Coughlan, A., and R. Schmidt. 1985. Executive compensation, management turnover and firm performance: An empirical investigation. *Journal of Accounting & Economics* 7: 43-66.
- DeAngelo, L. 1988. Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting*

- & *Economics* 10: 3-36.
- Dechow, P. M., R. G. Sloan, and A. Sweeney. 1996. Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research* 13: 1-36.
- DeFond, M. L., and J. Jiambalvo. 1991. Incidence and circumstances of accounting errors. *The Accounting Review* 66: 643-655.
- _____, M. Hung, E. Karaoglu, and J. Zhang. 2008. Was the Sarbanes-Oxley Act good news for corporate bondholders? *Working Paper*, University of Southern California.
- Denis, D. J., D. K. Denis, and A. Sarin. 1997. Ownership structure and top executive turnover. *Journal of Financial Economics* 45: 193-221.
- Desai, H., C. Hogan, and M. S. Wilkins. 2006. The reputational penalty for aggressive accounting: earnings restatements and management turnover. *The Accounting Review* 81: 83-112.
- Engel, E., R. M. Hayes, and X. Wang. 2003. CEO turnover and properties of accounting information. *Journal of Accounting and Economics* 36: 197-226.
- Fairfax, L. M. 2005. Spare the rod, spoil the director? Revitalizing directors' fiduciary duty through legal liability. *Houston Law Review* 42: 393-456.
- Fama, E., and K. French. 1992. The cross section of expected stock returns. *Journal of Finance* 47: 427-466.
- Files, R., E. P. Swanson, and S. Tse. 2009. Stealth disclosure of accounting restatements. *The Accounting Review* (forthcoming).
- Furtado, E. P., and M. S. Rozeff. 1987. The wealth effects of company initiated management changes. *Journal of Financial Economics* 18: 147-160.
- _____, and V. Karen. 1990. Causes, consequences, and shareholder wealth effects of management turnover: A review of the empirical evidence. *Financial Management* 19: 60-75.
- Gilson, S. 1989. Management turnover and financial distress. *Journal of Financial Economics* 25: 241-262.
- Government Accountability Office, 2006. Financial statement restatements: Updates of public company trends, market impacts, and regulatory enforcement actions, GAO-06-678.
- Grothe, M., A. Pham, and J. Saban. 2006. Getting it wrong the first time. *Yellow Card Trend Alert*. Glass Lewis & Co., LLC.
- Harris, M., and A. Raviv. 1990. Capital structure and the informational role of debt. *Journal of Finance* 45: 321-349.
- Hennes, K. M., A. J. Leone, and B. P. Miller. 2008. The importance of distinguishing errors from irregularities in restatement research: The case of restatements and CEO/CFO turnover. *The Accounting Review* 83: 1487-1519.
- Hribar, P., and N. Jenkins. 2004. The effect of accounting restatements on earnings revisions and the estimated cost of capital. *Review of Accounting Studies* 9: 337-356.
- Jayaraman, N., C. Mulford, and L. Wedge. 2004. Accounting fraud and management turnover. *Working Paper*, Georgia Institute of Technology.
- Johnson, S. 2008. Proposed restatement guidelines draw investor alarm. *CFO.com* (March, 17).
- Kaplan, S., and B. Minton. 2006. How has CEO turnover changed? Increasingly performance sensitive boards and increasingly uneasy CEOs. *Working Paper*, National Bureau of Economic Research.
- Kim, A. 2008. Effectiveness of the Sarbanes Oxley Action corporate governance: Evidence

- from executive turnover. *Working Paper*, University of Minnesota.
- Kinney, W. R., and L. S. McDaniel. 1989. Characteristics of firms correcting previously reported quarterly earnings. *Journal of Accounting and Economics* 11: 71-93.
- _____, Z-V. Palmrose, and S. Scholz. 2004. Auditor independence, non-audit services, and restatements: Was the U.S. government right? *Journal of Accounting Research* 42: 561-588.
- Klein, A. 2002a. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33: 375-400.
- _____, 2002b. Economic determinants of audit committee independence. *The Accounting Review* 77: 435-452.
- Kothari, S. P., A. J. Leone, and C. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39: 163-197.
- Krishnan, J. 2005. Audit committee quality and internal control: An empirical analysis. *The Accounting Review* 80: 649-675.
- Kwan, S. H. 1996. Firm-specific information and the correlation between individual stocks and bonds. *Journal of Financial Economics* 40: 63-80.
- Land, J. K. 2006. CEO turnover following earnings restatements. *Working Paper*, North Carolina Central University.
- Lazer, R., J. Livnat, and C. E. L. Tan. 2004. Restatements and accruals after auditor changes. *Working Paper*, New York University.
- Lehn, K., and M. Zhao. 2006. CEO turnover after acquisitions: Are bad bidders fired? *The Journal of Finance* 61: 1759-1811.
- Lobo, G. J., and J. Zhou. 2006. Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence. *Accounting Horizons* 20: 57-73.
- Martin, K. J., and J. J. McConnell. 1991. Corporate performance, corporate takeovers and management turnover. *Journal of Finance* 46: 671-688.
- Maxwell, W., and C. Stephens. 2003. The wealth effects of repurchases on bondholders. *Journal of Finance* 58: 895-920.
- Myers, J. N., L. A. Myers, Z-V. Palmrose, and S. Scholz. 2005. The length of auditor-client relationships and financial statement restatements. *Working Paper*, Texas A&M University.
- Palmrose, Z-V., V. J. Richardson, and S. Scholz. 2004. Determinants of markets reactions to restatement announcements. *Journal of Accounting and Economics* 37: 58-89.
- _____, and S. Scholz. 2004. The circumstances and legal consequences of non-GAAP reporting: Evidence from restatements. *Contemporary Accounting Research* 21: 139-180.
- Patterson, E. R., and J. R. Smith. 2007. The effects of Sarbanes-Oxley on auditing and internal control strength. *The Accounting Review* 82: 427-455.
- Penman, S. 2001. *Financial Statement Analysis and Security Valuation*. New York, NY: McGraw-Hill Ryerson.
- Plitch, P. and L. L. Wei. 2004. Moving the market: Auditor-client breakups rise, while disclosure often lags. *The Wall Street Journal* (August, 3).
- Public Oversight Board, 2007. *Changes in market responses to financial statement restatement announcements in the Sarbanes-Oxley era*. Washington, DC, PCAOB.
- Richardson, S., I. Tuna, and M. Wu. 2003. Capital market pressures and earnings management: The case of earnings restatements. *Working paper*, University of Pennsylvania.

- _____, 2005. Discussion of consequences of financial reporting failure for outside directors: Evidence from accounting restatements. *Journal of Accounting Research* 43: 335-342.
- Romanus, R. N., J. J. Maher, and D. M. Fleming. 2008. Auditor industry specialization, auditor changes, and accounting restatements. *Accounting Horizons* 22: 389-413.
- Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42: 335-370.
- Scholz, S. 2008. The changing nature and consequences of public company financial restatements 1997-2006. Washington, DC, PCAOB.
- Securities and Exchange Commission, 2003. Final rule: Standards relating to listed company audit committees, Release No. 33-8220: SEC Washington DC.
- Sennetti, J. T., and J. L. Turner. 1999. Post-audit restatement risk and brand-name audits. *Working Paper*, Nova Southeastern University.
- Srinivasan, S. 2005. Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. *Journal of Accounting Research* 43: 291-334.
- Standard and Poor's, 2006. Corporate ratings criteria. New York, NY: McGraw-Hill Ryerson.
- The Committee of Sponsoring Organizations of the Treadway Commission (COSO), 1987. *Report of the National Committee on Fraudulent Financial Reporting*. COSO, Washington, DC.
- Wang, Y. F., and H. C. Yu. 2008. Do restatements really increase substantially after the SOX? How does the stock market react to them? *Working Paper*, National Chengchi University.
- Warner, J., R. L. Watts, and K. H. Wruck. 1988. Stock prices and top management changes. *Journal of Financial Economics* 20: 461-492.
- Weisbach, M. 1988. Outside directors and CEO turnover. *Journal of Financial Economics* 20: 431-460.
- White, H. 1980. A heteroscedasticity-consistent covariance matrix estimator and a direct test for heteroscedasticity. *Econometrica* 48: 817-838.
- Wu, M. 2002. Earnings restatements: A capital market perspective. Ph. D. Dissertation, New York University.

Table 1
Sample selection for the sample of management turnover

Panel A: Number of observations lost due to data requirements		<i>n</i> ^a
Sample of 10-K or 10-Q restatements		1,838
Observations without perm number, cusip, gvkey, cnum, etc.		(12)
Observations with missing restatement data		(183)
Observations not income-decreasing restatements		(554)
Restatements announced before SOX		(480)
Observations merged or acquired		(57)
Observations not on Compustat or with missing Compustat data		(40)
Final Sample		<u>512</u>

Panel B: Distributions of CEO turnover by industry						
Industry^b	Turnover		No Turnover		Total	
	Obs.	%	Obs.	%	Obs.	%
Agriculture	0	0.00	1	0.28	1	0.20
Mining & construction	4	2.67	3	0.83	7	1.37
Food	3	2.00	2	0.55	5	0.98
Textiles & printing / publishing	5	3.33	10	2.76	15	2.93
Chemicals	0	0.00	4	1.10	4	0.78
Pharmaceuticals	7	4.67	11	3.04	18	3.52
Extractive	2	1.33	10	2.76	12	2.34
Durable manufacturers	24	16.00	55	15.19	79	15.43
Transportation	1	0.67	31	8.56	32	6.25
Utilities	3	2.00	15	4.14	18	3.52
Retail	38	25.33	71	19.61	109	21.29
Financial services	22	14.67	68	18.78	90	17.58
Services	16	10.67	41	11.33	57	11.13
Computers	25	16.67	40	11.05	65	12.70
Total	150	100	362	100	512	100

Panel C: Distributions of CFO turnover by industry

Industry ^b	Turnover		No Turnover		Total	
	Obs.	%	Obs.	%	Obs.	%
Agriculture	0	0.00	1	0.28	1	0.20
Mining & construction	0	0.00	7	1.97	7	1.37
Food	1	0.64	4	1.13	5	0.98
Textiles & printing / publishing	4	2.55	11	3.10	15	2.93
Chemicals	0	0.00	4	1.13	4	0.78
Pharmaceuticals	4	2.55	14	3.94	18	3.52
Extractive	2	1.27	10	2.82	12	2.34
Durable manufacturers	35	22.29	44	12.39	79	15.43
Transportation	7	4.46	25	7.04	32	6.25
Utilities	7	4.46	11	3.10	18	3.52
Retail	35	22.29	74	20.85	109	21.29
Financial services	18	11.46	72	20.28	90	17.58
Services	22	14.01	35	9.86	57	11.13
Computers	22	14.01	43	12.11	65	12.70
Total	157	100	355	100	512	100

Panel D: Distributions of CEO or CFO turnover by industry

Industry ^b	Turnover		No Turnover		Total	
	Obs.	%	Obs.	%	Obs.	%
Agriculture	0	0.00	1	0.36	1	0.20
Mining & construction	4	1.72	3	1.08	7	1.37
Food	3	1.29	2	0.72	5	0.98
Textiles & printing / publishing	6	2.58	9	3.23	15	2.93
Chemicals	0	0.00	4	1.43	4	0.78
Pharmaceuticals	9	3.86	9	3.23	18	3.52
Extractive	3	1.29	9	3.23	12	2.34
Durable manufacturers	44	18.89	35	12.54	79	15.43
Transportation	7	3.00	25	8.96	32	6.25
Utilities	8	3.43	10	3.58	18	3.52
Retail	55	23.61	54	19.35	109	21.29
Financial services	31	13.30	59	21.15	90	17.58
Services	29	12.45	28	10.04	57	11.13
Computers	34	14.59	31	11.11	65	12.70
Total	233	100	279	100	512	100

^a Number of restatements identified in our searches. Summary statistics are provided only for observations with available data.

^b Industry membership is determined by SIC code as follows: agriculture (0100-0999), mining and construction (1000-1999, excluding 1300-1399), food (2000-2111), textiles and printing/publishing (2200-2799), chemicals (2800-2824, 2840-2899), pharmaceuticals (2830-2836), extractive (1300-1399, 2900-2999), durable manufacturers (3000-3999, excluding 3570-3579 and 3670-3679), transportation (4000-4899), utilities (4900-4999), retail (5000-5999), financial services (6000-6999), services (7000-8999, excluding 7370-7379), and computers (3570-3579, 3670-3679, 7370-7379).

Table 2
Descriptive statistics of variables for the sample of management turnover

Variable ^a	Turnover Companies (N=150)			No Turnover Companies (N=362)			Differences ^b	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Parametric <i>t</i> tests	Mann-Whitney <i>z</i> tests
<i>CORE</i>	0.780	1.000	0.416	0.670	1.000	0.470	2.590***	2.448***
<i>AMOUNT</i>	0.026	0.006	0.067	0.018	0.004	0.057	1.356	2.048**
<i>ACCOUNTS</i>	1.210	1.000	0.453	1.160	1.000	0.406	1.023	1.062
<i>RYEARS</i>	2.085	2.000	1.483	1.848	1.250	1.592	1.562	2.023**
<i>SEVERITY</i>	1.970	2.000	0.926	1.780	2.000	0.932	2.120**	1.906*
<i>GC</i>	0.450	0.000	0.499	0.460	0.000	0.499	-0.189	-0.189
<i>GROWTH</i>	0.082	0.062	0.268	0.122	0.075	0.506	-0.905	-1.464
<i>ROA</i>	-0.034	0.012	0.213	-0.006	0.016	0.141	-1.502	-0.609
<i>LNASSET</i>	6.912	7.133	2.287	6.922	6.601	2.176	-0.045	0.409
<i>BOARD</i>	8.790	9.000	3.203	8.660	8.000	2.738	0.486	0.373
<i>INDBOARD</i>	0.797	0.826	0.159	0.796	0.809	0.167	0.006	-0.028

^aThe definitions of the variables reported in this table are: *TURNOVER* = 1 if the CEO leaves the company within 24 months around (6 months before and 18 months after) the restatement announcement, and 0 otherwise; *CORE* = 1 if a restatement involves revenue, cost of sales or on-going operating expenses, and 0 otherwise; *AMOUNT* = The cumulative amount of net income overstatement scaled by total assets in the year prior to the restatement announcement; *ACCOUNTS* = Number of account groups affected in a restatement. The seven account groups are revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items; *RYEARS* = Sum of years restated, where a fiscal year = 1 and each additional quarter = 0.25; *SEVERITY* = Combines four characteristics of the restatement severity (*CORE*, *AMOUNT*, *ACCOUNTS*, *RYEARS*) into a single comprehensive variable; *GC* = 1 if the company receives a going concern opinion at year end and 0 otherwise; *GROWTH* = One-year percentage change in sales reported at year end; *ROA* = Net income divided by book value of total assets, both reported at year end; *LNASSET* = Natural log of book value of total assets reported at year end; *BOARD* = Number of directors on the board at the restatement year; *INDBOARD* = Number of independent directors on the board divided by the total board size at the restatement year.

^bAsterisks *, **, *** indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 3
Pearson correlation coefficients for the sample of management turnover

Variable ^a	<i>CORE</i>	<i>AMOUNT</i>	<i>ACCOUNTS</i>	<i>RYEARS</i>	<i>SEVERITY</i>	<i>GC</i>	<i>GROWTH</i>	<i>ROA</i>	<i>LNASSET</i>	<i>BOARD</i>	<i>INDBOARD</i>
<i>TURNOVER</i>	0.108 (0.014)	0.064 (0.149)	0.047 (0.285)	0.069 (0.119)	0.093 (0.034)	-0.008 (0.850)	-0.040 (0.366)	-0.078 (0.078)	-0.002 (0.964)	0.021 (0.627)	0.000 (0.995)
<i>CORE</i>		0.028 (0.534)	0.231 (0.000)	0.056 (0.206)	0.588 (0.000)	0.025 (0.577)	-0.030 (0.502)	-0.086 (0.052)	-0.132 (0.003)	-0.120 (0.006)	0.034 (0.442)
<i>AMOUNT</i>			0.062 (0.158)	-0.039 (0.375)	-0.138 (0.002)	-0.036 (0.420)	0.047 (0.286)	-0.139 (0.002)	-0.196 (0.000)	-0.108 (0.015)	0.109 (0.014)
<i>ACCOUNTS</i>				0.116 (0.009)	0.517 (0.000)	-0.007 (0.869)	-0.018 (0.690)	-0.045 (0.310)	-0.076 (0.084)	-0.108 (0.014)	0.081 (0.067)
<i>RYEARS</i>					0.410 (0.000)	0.035 (0.430)	0.007 (0.868)	0.155 (0.000)	0.047 (0.293)	-0.024 (0.583)	-0.040 (0.361)
<i>SEVERITY</i>						0.032 (0.470)	-0.013 (0.763)	0.079 (0.075)	0.099 (0.025)	-0.018 (0.680)	-0.002 (0.956)
<i>GC</i>							-0.098 (0.026)	-0.099 (0.026)	0.224 (0.000)	0.097 (0.028)	-0.006 (0.884)
<i>GROWTH</i>								0.019 (0.675)	-0.029 (0.514)	-0.047 (0.287)	-0.039 (0.374)
<i>ROA</i>									0.273 (0.000)	0.140 (0.002)	-0.051 (0.249)
<i>LNASSET</i>										0.532 (0.000)	-0.172 (0.000)
<i>BOARD</i>											-0.151 (0.001)

^aThe definitions of the variables reported in this table are: *TURNOVER* = 1 if the CEO leaves the company within 24 months around (6 months before and 18 months after) the restatement announcement, and 0 otherwise; *CORE* = 1 if a restatement involves revenue, cost of sales or on-going operating expenses, and 0 otherwise; *AMOUNT* = The cumulative amount of net income overstatement scaled by total assets in the year prior to the restatement announcement; *ACCOUNTS* = Number of account groups affected in a restatement. The seven account groups are revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items; *RYEARS* = Sum of years restated, where a fiscal year = 1 and each additional quarter = 0.25; *SEVERITY* = Combines four characteristics of the restatement severity (*CORE*, *AMOUNT*, *ACCOUNTS*, *RYEARS*) into a single comprehensive variable; *GC* = 1 if the company receives a going concern opinion at year end and 0 otherwise; *GROWTH* = One-year percentage change in sales reported at year end; *ROA* = Net income divided by book value of total assets, both reported at year end; *LNASSET* = Natural log of book value of total assets reported at year end; *BOARD* = Number of directors on the board at the restatement year; *INDBOARD* = Number of independent directors on the board divided by the total board size at the restatement year.

Table 4
Management turnover and restatement severity^a

Variable ^b	Pred. Sign	CEO Turnover		CFO Turnover		CEO or CFO Turnover	
		Individual ^c	Summary	Individual	Summary	Individual	Summary
Intercept		-1.76*** (3.48)	-1.80*** (3.65)	-1.47*** (2.80)	-1.48*** (2.94)	-1.00** (2.12)	-1.02** (2.25)
<i>CORE</i>	+	0.27* (1.81)		0.23 (1.54)		0.31** (2.30)	
<i>AMOUNT</i>	+	1.90* (1.92)		2.41*** (2.74)		2.46** (2.30)	
<i>ACCOUNTS</i>	+	0.02 (0.16)		-0.16 (1.07)		-0.08 (0.56)	
<i>RYEARS</i>	+	0.05 (1.31)		-0.00 (0.04)		0.02 (0.41)	
<i>SEVERITY</i>	+		0.21*** (3.34)		0.07 (1.23)		0.14** (2.41)
<i>GC</i>	+	0.12 (0.88)	0.09 (0.67)	0.22 (1.56)	0.19 (1.37)	0.12 (0.90)	0.10 (0.74)
<i>GROWTH</i>	-	-0.13 (0.78)	-0.12 (0.76)	-0.44* (1.92)	-0.38* (1.68)	-0.20 (1.31)	-0.17 (1.27)
<i>ROA</i>	-	-0.79** (1.99)	-0.79** (2.03)	0.37 (0.91)	0.26 (0.68)	-0.36 (0.91)	-0.46 (1.20)
<i>LNASSET</i>	+	0.01 (0.35)	0.02 (0.48)	-0.04 (1.14)	-0.05 (1.33)	-0.01 (0.25)	-0.01 (0.32)
<i>BOARD</i>	+	0.03 (1.24)	0.04 (1.33)	0.01 (0.21)	0.01 (0.26)	0.03 (1.47)	0.04 (1.50)
<i>INDBOARD</i>	+	0.06 (0.16)	0.06 (0.14)	0.03 (0.07)	0.04 (0.11)	0.28 (0.78)	0.28 (0.77)
<i>Fixed Effect</i>		Included	Included	Included	Included	Included	Included
Pseudo-R ² (%)		9.61	9.94	12.65	11.58	8.52	7.84
n		512	512	512	512	512	512

^a Outliers are winsorized using the 1% and 99% percentiles.

^b The definitions of the variables reported in this table are: *TURNOVER* = 1 if the CEO leaves the company within 24 months around (6 months before and 18 months after) the restatement announcement, and 0 otherwise; *CORE* = 1 if a restatement involves revenue, cost of sales or on-going operating expenses, and 0 otherwise; *AMOUNT* = The cumulative amount of net income overstatement scaled by total assets in the year prior to the restatement announcement; *ACCOUNTS* = Number of account groups affected in a restatement. The seven account groups are revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items; *RYEARS* = Sum of years restated, where a fiscal year = 1 and each additional quarter = 0.25; *SEVERITY* = Combines four characteristics of the restatement severity (*CORE*, *AMOUNT*, *ACCOUNTS*, *RYEARS*) into a single comprehensive variable; *GC* = 1 if the company receives a going concern opinion at year end and 0 otherwise; *GROWTH* = One-year percentage change in sales reported at year end; *ROA* = Net income divided by book value of total assets, both reported at year end; *LNASSET* = Natural log of book value of total assets reported at year end; *BOARD* = Number of directors on the board at the restatement year; *INDBOARD* = Number of independent directors on the board divided by the total board size at the restatement year.

^c Asterisks *, **, *** indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 5
Management turnover by prompter ^a

Prompter	CEO		CFO		CEO or CFO	
	Turnover	No Turnover	Turnover	No Turnover	Turnover	No Turnover
<i>Company-Prompted</i>						
Total	91	190	99	182	140	141
Percentage	17.78	37.11	19.35	35.55	27.34	27.54
<i>SEC-Prompted</i>						
Total	13	26	8	31	16	23
Percentage	2.54	5.08	1.56	6.05	3.13	4.49
<i>Auditor-Prompted</i>						
Total	4	25	8	21	10	19
Percentage	0.78	4.88	1.56	4.10	1.95	3.71
<i>Others</i>						
Total	42	121	42	121	67	96
Percentage	8.20	23.63	8.20	23.63	13.09	18.75

^a Following Palmrose et al. (2004), a restatement can be prompted by a company's disclosure of correcting previously issued financial statements, the SEC's request after reviewing the company's annual or quarterly filings, the auditor's advice due to material misstatements in the financial statements and others.

^b The percentage computes for the subsample are scaled by final samples.

Table 6
Management turnover analysis: Company-prompted restatement^a

Variable ^b	Pred. Sign	CEO Turnover ^c	CFO Turnover	CEO or CFO Turnover
Intercept		-1.55*** (2.88)	-1.42*** (2.66)	-1.41*** (2.93)
<i>CORE</i>	+	0.02 (0.07)	0.05 (0.21)	0.08 (0.42)
<i>CORE</i> × <i>ATTCOMP</i>	+	0.46 (1.64)	0.28 (0.99)	0.39 (1.49)
Joint Test ($\alpha_1 + \alpha_2$)	+	0.48** (5.71)	0.33* (3.02)	0.47*** (7.06)
<i>AMOUNT</i>	+	3.74** (2.04)	1.22 (0.65)	2.04 (1.11)
<i>AMOUNT</i> × <i>ATTCOMP</i>	+	-2.57 (1.21)	1.76 (0.84)	0.69 (0.30)
Joint Test ($\alpha_3 + \alpha_4$)	+	1.17 (1.05)	2.98*** (9.40)	2.73* (3.61)
<i>ACCOUNTS</i>	+	0.16 (0.80)	-0.17 (0.79)	0.01 (0.07)
<i>ACCOUNTS</i> × <i>ATTCOMP</i>	+	-0.17 (0.81)	-0.01 (0.05)	-0.15 (0.75)
Joint Test ($\alpha_5 + \alpha_6$)	+	-0.01 (0.00)	-0.18 (1.12)	-0.14 (0.73)
<i>RYEARS</i>	+	0.03 (0.47)	0.16 (0.27)	0.00 (0.05)
<i>RYEARS</i> × <i>ATTCOMP</i>	+	0.04 (0.55)	-0.03 (0.34)	0.02 (0.32)
Joint Test ($\alpha_7 + \alpha_8$)	+	0.07 (1.77)	-0.01 (0.04)	0.03 (0.27)
<i>GC</i>	+	0.14 (0.96)	0.22 (1.59)	0.12 (0.94)
<i>GROWTH</i>	-	-0.14 (1.11)	-0.43* (1.84)	-0.20 (1.34)
<i>ROA</i>	-	-0.78* (1.82)	0.35 (0.84)	0.39 (0.95)
<i>LNASSET</i>	+	0.02 (0.60)	-0.04 (1.10)	-0.01 (0.16)
<i>BOARD</i>	+	0.03 (1.23)	0.01 (0.19)	0.03 (1.43)
<i>INDBOARD</i>	+	0.05 (0.13)	0.01 (0.02)	0.26 (0.71)
<i>Fixed Effect</i>		Included	Included	Included
Pseudo-R ² (%)		10.51	13.18	9.09
n		512	512	512

^a Outliers are winsorized using the 1% and 99% percentiles.

^b The definitions of the variables reported in this table are: *TURNOVER* = 1 if the CEO leaves the company within 24 months around (6 months before and 18 months after) the restatement announcement, and 0 otherwise; *ATTCOMP* = 1 for companies having restatements prompted by themselves and 0 otherwise; *CORE* = 1 if a restatement involves revenue, cost of sales or on-going operating expenses, and 0 otherwise; *AMOUNT* = The cumulative amount of net income overstatement scaled by total assets in the year prior to the restatement announcement; *ACCOUNTS* = Number of account groups affected in a restatement. The seven account groups are revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items; *RYEARS* = Sum of years restated, where a fiscal year = 1 and each additional quarter = 0.25; *SEVERITY* = Combines four characteristics of the restatement severity (*CORE*, *AMOUNT*, *ACCOUNTS*, *RYEARS*) into a single comprehensive variable; *GC* = 1 if the company receives a going concern opinion at year end and 0 otherwise; *GROWTH* = One-year percentage change in sales reported at year end; *ROA* = Net income divided by book value of total assets, both reported at year end; *LNASSET* = Natural log of book value of total assets reported at year end; *BOARD* = Number of directors on the board at the restatement year; *INDBOARD* = Number of independent directors on the board divided by the total board size at the restatement year.

^d Asterisks *, **, *** indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 7
Management turnover analysis: Earnings management

Variable ^a	Pred. Sign	CEO Turnover		CFO Turnover		CEO or CFO Turnover	
		Individual	Summary	Individual	Summary	Individual	Summary
		Intercept		-1.67** (2.39)	-1.48** (2.29)	-1.99*** (2.87)	-1.97*** (2.92)
<i>PMDA</i>	?	-1.53** (2.50)	-1.34** (2.14)	0.51 (0.91)	0.77 (1.10)	-1.26*** (3.09)	-1.07*** (2.72)
<i>PostPost</i>	?	-0.25 (0.78)	-0.25 (0.78)	0.73 (1.52)	0.82 (1.63)	-0.09 (0.32)	-0.05 (0.20)
<i>PMDA</i> × <i>PostPost</i>	?	1.64*** (2.61)	1.49** (2.33)	-0.55 (0.96)	-0.77 (1.09)	1.26*** (2.99)	1.11*** (2.73)
<i>CORE</i>	+	0.38** (2.06)		0.33* (1.82)		0.37** (2.22)	
<i>AMOUNT</i>	+	1.79 (1.37)		-2.80*** (2.98)		3.24*** (2.16)	
<i>ACCOUNTS</i>	+	0.04 (0.23)		-0.05 (0.31)		0.00 (0.02)	
<i>RYEARS</i>	+	0.05 (1.11)		-0.01 (0.25)		-0.01 (0.14)	
<i>SEVERITY</i>	+		0.24*** (3.21)		0.13* (1.73)		0.15** (2.22)
<i>GC</i>	+	0.07 (0.46)	0.02 (0.14)	0.22 (1.37)	0.16 (0.97)	0.17 (1.10)	0.12 (0.79)
<i>GROWTH</i>	-	-0.11 (0.89)	-0.12 (0.93)	-0.63** (2.12)	-0.55* (1.82)	-0.19 (1.10)	-0.18 (1.22)
<i>ROA</i>	-	-0.60 (1.29)	-0.65 (1.41)	0.80* (1.67)	0.58 (1.33)	0.03 (0.07)	-0.17 (0.40)
<i>LNASSET</i>	+	0.03 (0.60)	0.04 (0.77)	-0.04 (0.91)	-0.04 (0.94)	0.00 (0.02)	-0.00 (0.04)
<i>BOARD</i>	-	0.04 (1.10)	0.04 (1.22)	-0.01 (0.41)	-0.01 (0.35)	0.02 (0.56)	0.02 (0.58)
<i>INDBOARD</i>	+	0.23 (0.51)	0.23 (0.53)	-0.05 (0.11)	-0.01 (0.02)	0.08 (0.19)	0.12 (0.29)
<i>Fixed Effect</i>		Included	Included	Included	Included	Included	Included
Pseudo-R ² (%)		13.55	13.67	14.54	13.24	10.38	9.13
n		391	391	391	391	391	391

^aPlease refer to Table 2 for variable definitions.