How do mandatory clawback provisions affect firm value? Evidence from the SEC' s enforcement actions

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Evidence from the SEC's enforcement actions

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NANYANG BUSINESS SCHOOL

2014

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ABSTRACT

I examine how the SEC's enforcement actions on mandatory clawback provisions affect shareholder wealth. I hypothesize that enforcing clawback provisions is likely to be value-increasing for firms with a higher likelihood of restating earnings, value-decreasing for firms with a higher likelihood of engaging in real earnings management and value-decreasing for firms with more risk-averse managers. My results support my hypotheses and suggest that the mandatory clawback provisions may create value for some firms but it may destroy value for others. My study provides important implications for the valuation consequences of the mandatory adoption of clawback provisions under the Dodd-Frank Act.

Keywords: Clawback; Section 304 of SOX; The Dodd-Frank Act.

JEL Classification: G18, G34, M41.

1. Introduction

Clawback provisions are provisions which allow firms to recoup compensation from executives in the event of accounting improprieties. They were first introduced by the 2002 Sarbanes-Oxley Act (SOX). Specifically, Section 304 of SOX authorizes the Securities and Exchange Commission (SEC) to enforce the recovery of bonuses paid to CEOs and CFOs of public companies when the firm restates its financial statements due to misconduct. However, as the sole enforcer of clawback provisions, the SEC didn't enforce SOX 304 until 2007 in a few stock options backdating cases and accounting fraud cases. After 2009, the SEC stepped up its enforcement of clawback provisions by interpreting Section 304 of SOX more liberally and charged more cases against executives. Since the passage of SOX, the SEC enforced the clawback provisions for 27 firms¹. From investors' perspective, an important question naturally arises: how do the SEC's enforcement actions on mandatory clawback provisions affect firm value? I attempt to provide some related empirical evidence in this paper.

The clawback provisions are intended to reduce noncompliance with accounting rules through ex ante deterrence. Similar to any regulations with deterrent objectives, the effectiveness of clawback provisions depends on the target audience's assessment of the likelihood of being punished in the event of violating the rules. Each announcement of the SEC's successful enforcement action is incrementally informative of the likelihood of being punished for earnings restatements, motivating managers to alter their behaviors in response. Investors anticipate the changes in managerial behaviors and revise the valuation of the firm accordingly.

I hypothesize that the valuation impact of the SEC's enforcement actions on clawback provisions varies with firm characteristics. My first hypothesis is that the enforcement actions on clawback provisions are more positively related to shareholder wealth for firms perceived to be at a greater risk of earnings restatements. Clawback provisions impose additional penalty on managers who manipulate earnings and ex ante deter managers from engaging in this type of behavior. To the extent that earnings restatements are costly to firms (Palmrose et al., 2004), clawback provisions

¹ Please refer to Appendix 1 for details.

increase shareholder value by reducing the likelihood of earnings restatements, and the increase in the shareholder value is likely to be greater for firms with a greater restatement risk.

My second hypothesis is that the SEC's enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with a greater likelihood of real earnings management. While managers can manipulate earnings through accruals, they can also achieve the same objective through real earnings management, which is hard to identify and does not lead to earnings restatements. For example, Graham et al. (2005) show that a vast majority of executives are willing to manipulate earnings to beat earnings targets by choosing value-destroying investment projects. By increasing the cost of earnings management through accruals, clawback provisions may force managers to switch to real earnings management, ultimately reducing shareholder value². The drop in shareholder value is likely to be more pronounced for firms with a greater likelihood of real earnings management. This constitutes my second hypothesis.

My third hypothesis is that the SEC's enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with more risk-averse CEOs. By recouping the bonuses in the event of earnings restatements, enforcing clawback provisions increases the uncertainty of managerial compensation stream and exposes the manager to greater risks.³ In the typical principal-agent framework, the agent has to be compensated for the risks he bears and the amount of compensation increases in the risk-aversion of the agent. Since the compensation to the executive is costly to the firm, clawback provisions are more negatively related to shareholder wealth for firms with more risk-averse managers.

Following Zhang (2007), who study the valuation consequence of the SOX, I test my hypotheses by using an event-study approach. The short-window value change helps us to clearly identify the impact of the event on firm value.

² I also discuss another possibility in Section 2 that instead of switching to real earnings management, managers may be incentivized to behave themselves and maximize firm value to generate 'true' earnings.

³ Earnings restatements represent a risk not entirely under managerial control. For example, firms may restate earnings due to unintentional managerial errors, or due to earnings manipulations by subordinates instead of managers (Hennes et al., 2008).

I choose the days related to the SEC's stand-alone enforcement actions of clawback provisions, pursuant to Section 304 of SOX. By conducting a thorough search for the SEC's documents, I identify 31 announcement dates associated with the SEC's enforcement actions of clawback provisions.⁴ I use the following three criteria to select the event date. The first is that the SEC's announcements are related to stand-alone enforcement actions of clawback provisions. If the announcements are related to non-standalone enforcement actions, i.e., enforcement actions of both clawback provisions and other securities laws, the market reactions may reflect the valuation consequence of enforcing other securities laws and the noise may potentially bias the coefficient of my regressions and therefore contaminate my results. Second, the announcements shall resolve major uncertainties over the outcome of the enforcement actions. It's difficult to assess the valuation implication for firms if the outcome remains murky. Finally, the announcement shall receive media attention. Media coverage is a good indicator of the significance of the events, since journalists have the incentive to report on events which are of substantial impact to the society. In addition, the heightened awareness brought by media attention increases the likelihood that this event changes managerial behavior and the likelihood that the investor alters his valuation accordingly. I identify November 15, 2011 as my event date, after applying these criteria.

I test my hypotheses by examining changes in the market value of firms during the three-day period centered on my event date. Specifically, I use firm characteristics to form portfolios and use the Fama-French-Carhart 4-factor model to estimate the abnormal return of each portfolio during the event window. I find that consistent with my hypotheses, the abnormal portfolio return is significantly higher for firms at a greater risk of earnings restatements (measured by the disclosure of earnings restatement, disclosure of internal control weakness and the earnings quality) and is significantly lower for firms with a greater likelihood of real earnings management and firms with more risk-averse managers. The difference in the average event-period daily abnormal return is 0.27% between firms with earnings restatement history and firms without, 0.49% between firms with internal control

⁴ The SEC website is supposed to be the first-hand information source for SEC's enforcement actions. Prior literature studying SEC's enforcement actions also rely on the Accounting and Auditing Enforcement Releases (AAERs) database posted in the SEC website. Besides, I've searched the Lexis Nexis database as well and don't find any more dates. Therefore, the 31 announcement dates shown in the Appendix 1 are comprehensive.

weaknesses and firms without, is 0.45% between firms with high and firms with low earnings quality, is 0.23% between firms with high and firms with low likelihood of real earnings management, and is 0.22% between firms with high and firms with low risk-averse managers.

I further examine how the stock market reactions to the event date vary with firm characteristics (e.g., the likelihood of earnings restatements, the likelihood of real earnings management and the risk-aversion of managers), following Sefcik and Thompson (1986) methodology, which controls for the cross-sectional dependence and heteroscedasticity in contemporaneous stock returns. The overall results are consistent with my hypotheses that the stock market perceives the effect of enforcement actions on clawback provisions to be more value-increasing for firms with a higher likelihood of restating earnings, more value-decreasing for firms with a higher likelihood of engaging in real earnings management and more value-decreasing for firms with more risk-averse managers.

My contribution to the literature lies in the following. First, as one of the first paper to examine the valuation consequences of the SEC's enforcement actions on clawback provisions, I contribute to the literature on clawback provisions. Clawback provisions have received academic attention and most of existing studies investigate firms which adopt clawback provisions voluntarily. These studies face an endogeneity concern, which stems from the nonrandom nature of firms' decision on adopting the clawback provisions. For example, Chan et al. (2012) and Dehaan et al. (2012) find evidence consistent with the notion that the voluntary adoption of clawback provisions increases accounting quality and lowers audit risk. However, they do not consider potential costs to firms, such as costs related to real earnings management and costs related to compensating managers for taking more risks. Besides, in her discussion of Chan et al. (2012), Denis (2012) questions the existence of causal relationship, because voluntary adopters may be firms that are most likely to benefit from the adoption. I study the market reaction to the exogenous shocks brought by the SEC's enforcement actions and my conclusions are less susceptible to this endogeneity concern.

Second, I provide important policy implications for the mandatory adoption of clawback provisions. The 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act mandates all

listed firms to implement a policy to recover compensation from any current or former executive after a restatement due to material noncompliance with the GAAP. Since the mandatory adoption of clawback provisions was part of the Dodd-Frank Act and was bundled with other rules, it is difficult to directly examine its valuation consequences using event-study approach. Instead, we can draw implications from the valuation impact of the SEC's enforcement actions on clawback provisions. To the extent that both the SEC's enforcement actions under SOX and the mandatory adoption of clawback provisions under the Dodd-Frank Act influence managers' behaviors by increasing their likelihood estimate of compensations being clawed back, it is reasonable to draw inferences on the valuation effect of the mandatory adoption of clawback provisions from the market's reactions to the SEC's enforcement actions. Our findings of possible negative consequences of the clawback provisions (e.g. the switch to real earnings management and the increase of executive compensation) cautions the regulatory bodies in implementing regulatory changes.

Lastly, I also contribute to the literature on the SEC's enforcement actions. A stream of studies examines the consequences of the SEC's enforcement actions. For example, Feroz et al. (1991), Nourayi (1994) and Chen et al. (2005) document negative stock returns and costly economic consequences for firms subject to enforcement actions. Barua and Smith (2013) find that firms subject to an SEC enforcement action experience high audit fee premiums in subsequent years. Instead of focusing on firms subject to enforcement actions only, I examine the valuation impact of the SEC's enforcement actions on all the firms. I show that the valuation impact varies with firm characteristics. It may create value for some firms but it may destroy value for others.

The rest of the paper proceeds as follows. Section 2 covers institutional background and develops the three hypotheses. Section 3 discusses the methodology. Section 4 covers the empirical results and Section 5 concludes.

2. Background and Hypotheses

2.1. The background of clawback provisions and the SEC's enforcement actions of Section 304 of SOX

Section 304 of the SOX in 2002 first introduced clawback provisions. Specifically, it designates the SEC as the sole enforcer to recover the bonuses or other incentive-based or equity-based compensation earned by CEOs and CFOs of firms that have to restate financial reports due to misconduct. The SEC's enforcement actions are influenced by its leader (the SEC's chairman) and subject to resource constraints. Since the passage of SOX, there have been four SEC chairmen (Harvey Pitt, William Donaldson, Christopher Cox and Mary Schapiro). Each of them sets different priorities for the SEC's enforcement actions and faces different budget situations. For example, while the SEC's budget was either flat or increased by a small margin under Christopher Cox (August 2005-January 2009), the SEC's budget saw a big jump in 2010 under Mary Schapiro (January 2009-present).⁵ It's unsurprising that the frequency of enforcing clawback provisions differs greatly under the four chairmen. For example, while no firm was charged for violating clawback provisions under Chairman Pitt and Chairman Donaldson, 10 firms were charged under Chairman Cox.

Under current Chairman Schapiro, the SEC stepped up its enforcement of clawback provisions by interpreting Section 304 of SOX more liberally. While the SEC's prior enforcement actions under Christopher Cox targeted executives who are personally responsible for accounting misstatements, in July 2009, the SEC launched a landmark case against Mr. Jenkins, the former CEO and Chairman of CSK Auto Corp, who was not personally responsible for the accounting restatement of the firm. It is the first time that the SEC invoked clawback provisions against an executive it didn't accuse of wrongdoing. The legal community was divided on the merit of the SEC's case. While John Coffee, a Columbia Law School professor, welcomed this case and said "This (referring to Section 304 of SOX) is a weapon that's always there, and it's hard to understand why it was used so little until now", Larry Ribstein, a University of Illinois law professor, called the SEC's policy "questionable" and said "You are talking about punishing someone, namely the CEO or CFO, despite the fact that

⁵ See http://www.cfo.com/article.cfm/8657849/2/c_2984347?f=related for the SEC's budgets for years 2006, 2007 and 2008. See <http://www.investmentnews.com/apps/pbcs.dll/article?AID=/20080519/REG/146014631/1009/rss01&rssfeed=rss01> for the SEC's budget for year 2009. See <http://articles.latimes.com/2011/feb/05/business/la-fi-sec-schapiro-20110205> for the SEC's budget for year 2010.

that person was not guilty of any misconduct” (Scheer et al., 2009). Although members of the legal community disagreed on the merit of the case, they agreed on its importance. John Coffee stated that this case “will get attention”, while Philip Khinda, a practicing lawyer, said “It (referring to this case) raises the question of whether this will become a standard enforcement expectation any time there is a restatement” (Scheer et al., 2009).

From the onset, the outcome of the case was far from certain. The defendant of the case, Mr. Jenkins, was defiant, and hired a lawyer to defend himself. A lengthy legal battle ensued. On November 15, 2011, the SEC announced that it had reached a deal to claw back \$2.8 million in bonus compensation and stock profits from Mr. Jenkins. The outcome of this case sets precedents for future cases and shapes expectations of the SEC’s enforcement actions of clawback provisions. Not surprisingly, the outcome announcement received wide media attention and was reported in all four major media in the U.S. (New York Times, The Washington Post, USA Today, and Wall Street Journal). Subsequent to the SEC’s lawsuit against Mr. Jenkins, the SEC charged and successfully settled with several executives for violating clawback provisions and these executives were not alleged to have otherwise violated the securities laws.

Although the SEC recently stepped up its enforcement actions of clawback provisions, the number of enforcement actions pales in comparison with the number of restatement cases and there was a wide spread concern that the SEC’s enforcement actions were inadequate. This concern was addressed by Section 954 of the Dodd-Frank Act, which requires all listed firms to adopt and implement the clawback provisions. Differ from Section 304 of SOX, which designates the SEC as the sole enforcer⁶, Section 954 of the Dodd-Frank Act gives corporate boards the right to recover incentive compensation in the event of accounting restatements. This point of departure greatly increases the likelihood of clawback provisions being enforced since corporate boards are not subject to the resource constraints faced by the SEC.

⁶ Dvorak and Ng (2006) reported that “when companies and shareholders have tried to use the law in civil courts, they’ve been rebuffed by judges and arbitrators who say the vaguely worded rule (referring to Section 304 of SOX) suggests only the SEC can enforce the provision.” Morgenson (2011) also reported that “Only the S.E.C. can bring cases under Section 304. Companies can’t. Nor, it appears, can shareholders. In 2009, the Court of Appeals for the Ninth Circuit ruled that there was no private cause of action for violations of Section 304.”

2.2. Hypotheses

I examine how the SEC's enforcement actions on clawback provisions affect firm value. My hypotheses are discussed below.

The first hypothesis is related to the fact that accounting restatements are costly to shareholders. Several studies (e.g., Anderson and Yohn, 2002; Hribar and Jenkins, 2004; Palmrose et al., 2004; Wilson, 2008) show that accounting restatements result in a decline in the share price, partly because investors lose their confidence in firms' accounting practice. Clawback provisions are potentially effective in reducing the likelihood of accounting restatements, because they impose monetary penalties on managers in such events. Although the absolute amount of penalties may be small, the enforcement actions of clawback provisions may draw the attention of the public and lead to substantial reputational losses in the labor market. Through an ex post settling up, clawback provisions diminish the ex ante likelihood of accounting restatements.

Prior studies offer evidence in support of this view. For example, Chan et al. (2012) and Dehaan et al. (2012) show that accounting quality increases and the audit risks decreases after firms voluntarily adopt clawback provisions. Enforcement actions on clawback provisions increase managerial likelihood estimate of being punished in the event of accounting restatements. Therefore, they increase shareholder value by avoiding the restatement-related costs.⁷ Furthermore, this value-increasing effect is likely more pronounced for firms that have a greater likelihood of restating earnings. I therefore hypothesize the following:

H1: The SEC's enforcement actions on clawback provisions are more positively related to shareholder wealth for firms perceived to be at a greater risk of earnings restatements.

⁷ Chan et al. (2012) and Dehaan et al. (2012) show that a certain proportion of firms voluntarily adopt clawback provisions. Despite the fact that more and more firms voluntarily adopt clawback provisions in recent years, they rarely enforce the clawback provisions. Babenko et al. (2012) examine 232 earnings restatements among firms that voluntarily adopted clawback provisions and find no incidence of enforcing clawback provisions. In comparison, SEC's enforcement actions sends a powerful signal to the market on the SEC's stance on clawing back erroneously paid compensation to executives. In this sense, the clawback provisions enforced by the SEC is more powerful than the ones adopted by firms themselves and enforced by the boards. Therefore, the SEC's enforcement actions on clawback provisions are meaningful to the voluntary adopters.

My second hypothesis is related to real earnings management, which refers to managers making value-decreasing economic decisions to manipulate earnings to a certain level. Graham et al. (2005) reported that a vast majority of CEO/CFOs being surveyed were willing to take value-destroying projects to meet earnings targets. While real earnings management changes the firm's fundamentals and causes a drop in shareholder value, it is difficult to detect and it typically does not lead to accounting restatements.

Managers have incentives to manage earnings to meet or beat various earnings targets, because failing to do so would lead to the penalties of lower compensation and reduced job security (Matsunaga and Park, 2001; Mergenthaler et al., 2009). Since the enforcement actions on clawback provisions increase the costs of managers using accounting tricks to manipulate earnings, the manager may turn to real earnings management to achieve the same objective. This prediction is supported by some recent studies. Cohen et al. (2008) document a substitution effect between accruals management and real earnings management after the passage of SOX. Zang (2012) finds that managers trade off the accrual earnings management and real earnings management based on their relative costs. More direct evidence is presented in Chan et al. (2014). They find that while the voluntarily adopted clawback provisions effectively reduce accrual earnings management, they come at a cost of increasing real earnings management. Managers' actions of turning to real earnings management inevitably reduce shareholder value, and this drop in shareholder value is conceivably more substantial for firms with a greater likelihood of real earnings management.⁸

It is also possible that after the SEC's enforcement actions, the higher cost of doing accrual earnings management motivates managers to behave themselves in order to generate true earnings and maximize firm value. In this sense, managers will not switch to real earnings management as a way to meet/beat earnings targets, and we will not observe a greater loss in shareholder value for firms with a greater likelihood of real earnings management.

⁸The benefits of doing less accrual earnings management and the costs of doing more real earnings management are mixed. Our underlying assumption is that the costs of doing more real earnings management outweigh the benefits of doing less accrual earnings management. Compared with accrual earnings management which are 'number games', real earnings management involves departures from normal operational practices, and therefore potentially imposes greater long-term costs on the company (Roychowdhury, 2006).

Based on the above two arguments, whether the SEC's enforcement actions on clawback provisions lead to a more substantial drop in shareholder value for firms with a greater likelihood of real earnings management becomes an empirical issue. I state the second hypothesis as follows (in alternative form):

H2: The SEC's enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with a greater likelihood of real earnings management.

My third hypothesis is related to the compensation to managers for bearing more risks. The SEC's enforcement actions on clawback provisions increase the chances that managerial compensation is clawed back in the event of accounting restatements. From the manager's perspective, it increases the uncertainties of the manager's future income streams and exposes him to greater risks associated with earnings restatements and not entirely under his control. There are two reasons why managers cannot remove the risks by eliminating the possibility of earnings restatements. First, a substantial proportion of earnings restatements are unintentional. For example, Hennes et al. (2008) examine earnings restatements during the period between 2002 and 2005 and they classify 76 percent of the restatements as unintentional. Since these restatements are not the result of purposeful managerial earnings management, it is difficult to prevent them from occurring. Second, earnings restatements are possibly the result of earnings manipulations at the lower, instead of the top level. For example, Mr. Jenkins, the former CEO of CSK Auto Corp, was not aware of the fraud that led to the accounting restatement when he was the CEO of the firm. The moral hazard issue between the top management and the employees makes it impossible to eliminate the risk of earnings restatements.

In the typical principal-agent framework, the agent has to be compensated for bearing more risks and the compensation increases in the risk-aversion of the manager (Holmstrom, 1979). Since the SEC's enforcement actions on clawback provisions expose the manager to greater risks, these uncertainties and risks would increase the discount rate, and lead to a lower NPV of future income. Managers would ex ante demand an increase in compensation to counteract the lower NPV of future income. Conceptually, for more risk-averse managers, the increase in the discount rate and the drop in the NPV of future income would be more pronounced. Therefore, the increase in compensation costs

for firms with more risk-averse managers is more substantial and it is more likely to outweigh the incremental benefit, resulting in a net loss of value (Chen et al., 2014)⁹. I therefore hypothesize the following:

H3: The SEC's enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with more risk-averse managers.

3. Methodology

3.1. Research design

Prior studies (Zhang, 2007; Li et al., 2008; Cai and Walkling, 2011) examine the valuation impact of regulations through event studies. Specifically, they identify key events in the rule-making process and examine the market's response to the events. Since firm characteristics that potentially affect returns, such as the size, are known prior to the event, it is unlikely that the change in the market value in the short window around the event is explained by these known characteristics.

Following the event-study approach, I identify an event date associated with the SEC's enforcement actions of clawback provisions. The ideal event is an event which involves the SEC's stand-alone enforcement actions of clawback provisions, which is unambiguous in the nature of the news and which receives wide media attention. To identify this date, I use the "Advanced search option" to search "SEC documents" at the SEC's website: www.sec.gov. Specifically, I search for the exact phrase "Section 304" in all sections during the period between January 1, 2002 to June 30, 2012. I read each of them and identify 31 event dates pertaining to 27 firms associated with the SEC's enforcement actions of clawback provisions. Please refer to Appendix 1 for details.

Among the dates, 26 involve non-standalone enforcement actions, which refer to enforcement actions of both clawback provisions and other securities laws. I eliminate these 26 dates because the

⁹ An alternative explanation is that more risk-averse managers are those less likely to engage in accrual earnings management and at a lower risk of restating earnings. According to Hypothesis 1, the effect of mandatory adoption of clawback provisions would be less value-increasing for these firms with more risk-averse managers, consistent with Hypothesis 3. However, as shown in the correlation matrix, the measure for risk-aversion is not significantly correlated with the proxies for the likelihood of restating earnings, somehow alleviating this concern.

market reaction on these dates may reflect the valuation implications of enforcement actions of other securities laws, and the noise may potentially bias the coefficient of my regressions and therefore contaminate my results. For example, on May 31, 2007, the SEC sued the former Mercury officers for stock option backdating and other fraudulent conduct, including violation of Section 304 of SOX. On the same day, the SEC reached settlement with Mercury Interactive LLC, which is the first SEC civil fraud settlements related to stock option backdating. The SEC's successful enforcement actions on stock option backdating would send a powerful signal to all firms on the SEC's stance on backdating cases. Firms with a higher likelihood to engage in backdating would be less likely to do it in the future. This is value-increasing to shareholders and therefore, they would experience positive market reactions. However, firms likely to engage in the stock option backdating are likely to be those strategic firms with earnings restatement history / ICW / poor earnings quality (proxies for the likelihood of future earnings restatements in my paper). The predictions based on the SEC's enforcement actions on backdating would go in the same direction as the predictions based on the SEC's enforcement actions on clawback provision, therefore preventing us from using event dates with confounding news.

The remaining five dates are detailed in Table 1. The column "Company" reports the name of the firm involved in the SEC's enforcement actions. The column "Title" and "Name" report the title and the name, respectively, of the individual being targeted by the SEC. The column "Date" is the announcement date. The column "Description of events" adds information on the event. The column "Uncertainty resolution" provides information on whether the SEC's announcements resolve uncertainties on the outcome of the cases. "Y" indicates "yes", while "N" indicates "No". The two dates with "N" (July 22, 2009 and April 2, 2012) are not considered as my choice of the event day because substantial uncertainties remain on the outcome of the cases. For example, on July 22, 2009, the SEC sued the former CEO of CSK Auto Corp, Mr. Maynard Jenkins for violation of clawback provisions. However, Mr. Jenkins was defiant and a lengthy court battle ensued. On this event day, there remained substantial uncertainties over the final outcomes, making it difficult to assess its valuation implications for firms.

The column “Media coverage by all four major media” indicates whether the SEC’s announcement on the day is covered by all four major media in the U.S with nationwide circulation (New York Times, The Washington Post, USA Today, and the Wall Street Journal). My definition of major media follows Fang and Peress (2009). Among the three remaining dates, November 15, 2011 is chosen as the base event day for my empirical analyses, because it is the only date when the SEC’s announcement is covered by all four major media. I let media coverage decide for the following two reasons.¹⁰ First, media coverage is a good indicator of the significance of the events, since journalists have the incentive to report on events which are of substantial impact to the society. Second, both the manager and the investor are more likely to be aware of the event covered by all major media. The heightened awareness increases the likelihood that this event changes managerial behavior and the likelihood that investors alter their valuation accordingly.

The chosen date on November 15, 2011 is eye-catching to the media for the following reasons. First of all, the case against the former CEO and Chairman of CSK Auto Corporation, Maynard Jenkins, is “first solely under ‘clawback’ provision of Sarbanes-Oxley Act” (SEC, 2009). Different from previous enforcement actions which involves both clawback provisions and other securities laws, this case is the first one which “made the enforcement of clawback provisions the sole focus of a case, rather than one of several charges,” said an SEC Commissioner, Luis A. Aguilar (Aguilar, 2010). Besides, the case is also marked as the agency’s first SOX clawback case against an individual who was not alleged to have otherwise violated the securities laws. According to a news report by The Wall Street Journal, “It is the first time the SEC has used a dormant part of the 2002 Sarbanes-Oxley act to recover money from an otherwise innocent CEO whose company restated earnings. That is what makes the Jenkins case, first filed in 2009, so important” (Berman, 2010). Due to the prominence of the Jenkins case, the settlement on November 15, 2011 sends a powerful signal to the market on the SEC’s stance on enforcing clawback provisions that “CEOs should know that they can

¹⁰ The stock market reaction to the target firms on the event date is not a good measure to capture the significance of the event in my setting. First of all, the SEC’s enforcement actions on clawback provisions target at individual executives instead of firms. Moreover, as shown in Table 1, all the individual executives targeted by SEC’s enforcement actions were no longer in the target firms at the time of the enforcement actions. Therefore, the stock market reactions to the target firms are not informative of the significance of the event.

be deprived of bonuses or stock profits they received while accounting fraud was occurring on their watch” (SEC, 2011).

I test my hypotheses by examining market reactions of firms during the event period (-1, +1) centering on Nov. 15, 2011, my event day.¹¹ Since the abnormal returns during the same event window may be correlated across firms and therefore bias the statistical inferences, I follow prior literature (Schwert, 1981; Campbell, Lo and MacKinlay, 1997) and use standard portfolio approach to diversify the cross-sectional correlation among the individual stocks. Specifically, I form portfolios based on the likelihood of earnings restatements, the likelihood of real earnings management and the risk-aversion of managers. I test whether the abnormal event period return of the portfolios exhibits the predicted pattern.

I use the Fama-French-Carhart 4-factor model as a benchmark and run the following regression to obtain the estimate of the abnormal event period return of the portfolio:

$$R_{p,t} - R_{f,t} = \alpha + \beta_1(R_{m,t} - R_{f,t}) + \beta_2SMB_t + \beta_3HML_t + \beta_4UMD_t + \beta_5D_EVENT_t + \mu_t \quad (1)$$

where $R_{p,t}$ is the equally weighted portfolio return at date t ; $R_{m,t}$ is the value-weighted return on all NYSE, AMEX, and NASDAQ stocks at date t ; $R_{f,t}$ is the one month Treasury bill rate at date t ; SMB_t is the size factor, computed as the average return on the three small portfolios minus the average return on the three big portfolios at date t ; HML_t is the book-to-market factor, computed as the average return on the two value portfolios minus the average return on the two growth portfolios. UMD_t is the momentum factor, computed as the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios. The dummy variable D_EVENT equals 1 for the event period (-1, +1) centering on Nov 15, 2011, and 0 for all other dates. The

¹¹ I also tried alternative event windows, such as [0, +1], [-1, +3], and my results remain qualitatively similar.

estimation period spans the 255 trading days between Nov 15, 2010 and Nov 16, 2011.¹² The coefficient β_5 is my estimate of the average daily abnormal return during the event window.

To test the significance of the difference in the abnormal event-period returns between two portfolios, I form an arbitrage portfolio by taking a long position in one portfolio and a short position in the other. I then use the return to the arbitrage portfolio to run Regression (1) and base my inferences on β_5 .

3.2. Variable measurement

3.2.1. The likelihood of restating earnings

I measure the likelihood of restating earnings in three ways. The first proxy is the earnings restatement history. I use the restatements file in the Audit Analytics database to identify restatements of annual financial statements. I define a dummy variable *RESTATE*, which equals 1 if the firm discloses earnings restatements in the recent three fiscal years prior to the event date, and 0 otherwise. Empirically I find that earnings restatement history (*RESTATE*) is a good measure to proxy for the likelihood of having earnings restatement in the future.¹³ I form two portfolios based on *RESTATE*, one portfolio consisting of firms with *RESTATE*=0 and the other portfolio consisting of firms with *RESTATE*=1.

The second proxy is the occurrence of material internal control weakness. The purpose of having good internal control is to prevent errors or fraud that could result in a misstatement of the financial statements. By definition, when there is a material weakness in internal control, there is “more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected” (PCAOB, 2004). Consistent with this view, Li and

¹² I obtain similar results after excluding the three-day windows centered on the dates when the SEC took enforcement actions of clawback provisions as shown in Appendix 1. There are five dates within my estimation period: January 13, 2011, March 3, 2011, August 30, 2011, June 27, 2011, October 24, 2011.

¹³ I use a pooled logistic regression to regress the dummy indicating earnings restatement in year $t+1$ on *RESTATE* in year t . The coefficient is significant at 1% level. I find that the odds of firms restating their earnings in year $t+1$ are 249% higher for firms with *RESTATE* equal to 1 than for firms with *RESTATE* equal to 0.

Wang (2006) document that firms disclosing material control weaknesses are more likely to restate earnings in the future. I define a dummy variable ICW404, which equals 1 if the firm's auditor discovers material internal control weaknesses in the recent three fiscal years prior to the event date, and 0 otherwise. The auditor's finding has to be disclosed in the firm's financial statements, as required by Section 404 of SOX, and the data are available from Audit Analytics. I form two portfolios based on ICW404, one portfolio consisting of firms with ICW404=0 and the other portfolio consisting of firms with ICW404=1.

The third proxy is the earnings quality. Obviously, firms with poor earnings quality are more likely to restate earnings. Following Francis et al. (2004, 2005), I estimate earnings quality based on the Dechow and Dichev (2002) model and the Francis et al. (2005) model respectively (Please refer to Appendix 2 for computation details). DD_AQ is calculated as the standard deviation of the residuals from a regression that regresses total current accruals on lagged, current and future cash flows. F_AQ is calculated as the standard deviation of the residuals from a regression that regresses total current accruals on not only lagged, current and future cash flows but also the PPE and changes in revenues, PPE and changes in revenues are included in the regression because they are important in forming expectations about current accruals (McNichols, 2002). Both DD_AQ and F_AQ are inverse measures of accounting quality. A higher value of DD_AQ/F_AQ indicates poorer accounting quality. I form two portfolios based on DD_AQ, one portfolio consisting of firms with DD_AQ below sample median (i.e., good accounting quality portfolio), and the other portfolio consisting of firms with DD_AQ above sample median (i.e., poor accounting quality portfolio). Similarly, I form two portfolios based on F_AQ.

3.2.2. *Real earnings management*

Following Cohen and Zarowin (2010), I construct two comprehensive metrics of real earnings management activities. The first metric, REM1, is computed as $REM1 = R_DExp * (-1) + R_PROD$. R_DExp is the abnormal discretionary expenses while R_PROD is the abnormal production costs. Firms may boost current period earnings by cutting discretionary expenses (e.g., advertising expenses, SG&A expenses and R&D expenses). Consequently, the abnormal discretionary expenses are low.

Alternatively, firms may manage earnings upwards by overproduction. The production and holding costs on the over-produced items result in high abnormal production costs relative to sales. Therefore, a higher value of REM1 indicates a higher likelihood that the firm engages in real earnings management through overproduction or cutting discretionary expenses.

The second metric, REM2, is computed as $REM2 = R_CFO * (-1) + R_DExp * (-1)$. R_CFO is the abnormal cash flow from operations. It is multiplied by -1, because unusual negative cash flow from operations may indicate real earnings management through price discounts/lenient credit terms. A higher value of REM2 indicates a higher likelihood that the firm engages in real earnings management through either sales manipulations or cutting discretionary expenses. I form two portfolios based on the average REM1 in the last three years prior to my event date, according to whether the value is below or above the sample median. I form two portfolios based on REM2 in the same way.¹⁴

3.2.3. Risk-aversion of managers

Hall and Murphy (2002)'s model recognizes that risk-averse executives typically exercise options early to maximize their expected utilities. Conceptually, risk-averse executives are expected to exercise stock options in the same way as low confidence managers. I follow the low-confidence measure in Campbell et al. (2011).¹⁵ The manager is deemed as exhibiting risk-aversion behaviors, if (s)he exercises stock options that are less than 30% in the money and does not hold any exercisable option that are greater than 30% in the money in the year (Please refer to Appendix 2 for computation details).

I define a dummy variable $RAverse$, which equals 1 if the CEO of the firm exhibits the risk-aversion behaviors at least once in the recent three years prior to the event date, and 0 otherwise. I

¹⁴ To check the validity of the two measures of real earnings management, I use a pooled regression to regress one-year-ahead real earnings management measure on current year REM1/REM2. For both regressions, I find that the slope coefficient is positive and significant at the 1% level, suggesting that firms that use real earnings management currently are likely to continue doing so in the future. Therefore, the current REM1/REM2 is a reasonable proxy for the feasibility of subsequent real earnings management.

¹⁵ I acknowledge the measurement errors in my proxy of risk-aversion. It is possible that this measure mainly captures the extent of over-confidence of managers, which is essentially a behaviour bias and conceptually different from risk-aversion. However, this measurement error is likely to bias towards insignificant findings for Hypothesis 3. To the extent that my results are significant, this is unlikely to be a serious concern.

form two portfolios based on R_{Averse}, one portfolio consisting of firms with R_{Averse}=0 and the other portfolio consisting of firms with R_{Averse}=1.

4. Empirical results

4.1. Sample

The initial sample consists of all companies with available data from Audit Analytics, Compustat and CRSP databases. I exclude financial firms (i.e., those with Fama-French 48 industry classification codes between 44 and 47) from the analysis as financial institutions that received federal bailout funds during the financial crisis in 2008 and 2009 were subject to mandatory clawback provisions enforced by the Department of Treasury. I require the following variables to be non-missing: ICW404, DD_AQ, F_AQ, REM1, and REM2 (please refer to Appendix 3 for detailed variable definitions). The final sample consists of 2,102 firms. For the data analysis requiring R_{Averse}, there are only 617 firms. This data requirement reduces the sample size dramatically because the computation of R_{Averse} requires stock option data from the ExecuComp database and because the value of R_{Averse} is missing for CEOs with no options and CEOs with out-of-the-money options.

4.2. Descriptive statistics

Panel A of Table 2 provides the summary statistics. The mean value of RESTATE is 0.121, suggesting that 12.1% of firms in my sample discloses earnings restatements in the three years prior to the event date. The mean value of ICW404 is 0.085, suggesting that 8.5% of firms in my sample discloses internal control weakness in the three years prior to the event date. The mean value of DD_AQ is 0.045 and the median value is 0.033. The mean (median) value of F_AQ is 0.046 (0.034). The mean value of REM1 is 0.125 and its median value is 0.071, which is consistent with the notion that firms in my sample manipulate earnings upwards through overproduction and cutting discretionary expenses. The average value of REM2 is 0.056 and its median value is 0.025, implying

that my sample firms manage earnings by cutting discretionary expenses and manipulating sales through price discounts and lenient credit terms. The mean value of *RAverse* is 0.261, suggesting that 26.1% of the CEOs exhibit risk-aversion behaviors in the past three years.

Panel B shows the Pearson/Spearman correlation coefficients. I find that the correlation coefficients among the four measures of the likelihood of restating earnings (*RESTATE*, *ICW404*, *DD_AQ* and *F_AQ*) are all positive and significant. This is expected since they are meant to capture the same underlying construct. Similarly, *REM1* and *REM2* are positively correlated. The correlation coefficient between *DD_AQ/F_AQ* and the likelihood of real earnings management (*REM1/REM2*) is negative and significant, suggesting that earnings quality is better for firms which are more likely to manipulate earnings via real activities. This result is consistent with prior findings that managers view accrual earnings management and real earnings management as substitutes (Cohen et al., 2008; Cohen and Zarowin, 2010; Ewert et al., 2005; Zang, 2012).

4.3. Testing H1

H1 posits that the SEC's enforcement actions on clawback provisions are more positively related to shareholder wealth for firms perceived to have a greater risk of earnings restatements. I therefore predict that the market's response to the enforcement actions is more favorable for firms with a greater risk of earnings restatements.

In my analysis, the risk of earnings restatements is measured by the disclosure of earnings restatement (*RESTATE*), the disclosure of internal control weakness (*ICW404*) and accounting quality (*DD_AQ/F_AQ*). If H1 is true, I expect that the event-period abnormal return to be greater for firms with earnings restatement history (i.e., firms with *RESTATE*=1), firms which report internal control weakness (i.e., firms with *ICW404*=1) and firms which have poor accounting quality (i.e., firms with high *DD_AQ/F_AQ*).

Panel A of Table 3 reports the results from estimating Model (1), using returns to the two portfolios formed based on *RESTATE*. For the portfolio with *RESTATE*=0 (i.e., the portfolio of firms

that without earnings restatement disclosures in the recent three years), the coefficient on D_EVENT is 0.0002, not significant at the 10% level. For the portfolio with $RESTATE=1$ (i.e., the portfolio of firms that disclose earnings restatements), the coefficient on D_EVENT is 0.0029, not significant at the 10% level. To test the significance of the difference in the abnormal event-period return between the two portfolios, I construct an arbitrage portfolio, which longs the portfolio with $RESTATE=1$ and shorts the portfolio with $RESTATE=0$. I use the return to the arbitrage portfolio to run Model (1) and the coefficient on the D_EVENT captures the return difference. It is 0.0027, significant at the 10% level, suggesting that the market response to the SEC's enforcement actions is more favorable for firms which disclose earnings restatements.

Panel B of Table 3 reports the results for the two portfolios formed based on $ICW404$. For the portfolio with $ICW404=0$ (i.e., the portfolio of firms that do not report internal control weakness), the coefficient on D_EVENT is close to 0, not significant at the 10% level. For the portfolio with $ICW404=1$ (i.e., the portfolio of firms that report internal control weakness), the coefficient on D_EVENT is 0.0049, not significant at the 10% level. I construct an arbitrage portfolio, which longs the portfolio with $ICW404=1$ and shorts the portfolio with $ICW404=0$. I use the return to the arbitrage portfolio to run Model (1) and the coefficient on the D_EVENT is 0.0049, significant at the 5% level, suggesting that the market response to the SEC's enforcement actions is more favorable for firms which disclose internal control weakness.

Panel B reports the results for the two DD_AQ portfolios. I find that the coefficient on D_EVENT is -0.0018 and significant at the 10% level, for the portfolio with high accounting quality while it is 0.0027, not significant at the 10% level, for the portfolio with low accounting quality. The difference (low quality minus high quality) in the event-window abnormal return is 0.0045, significant at the 5% level. This result shows that the market's response to the SEC's enforcement actions is significantly more favorable for firms which have poor accounting quality.

Panel C is similar to Panel B, except that the measure of accounting quality is now F_AQ . The coefficient on D_EVENT is -0.0012 for firms with high accounting quality and it is 0.0021 for firms with low accounting quality. The difference in the event-period abnormal return (low quality

minus high quality) is 0.0033, significant at the 10% level. This result is consistent with the result in Panel B, suggesting that the valuation impact of the SEC's enforcement action is more positive for firms with low accounting quality.

To summarize, Table 3 shows that the market's response to the SEC's enforcement actions of clawback provisions is significantly more favorable for firms with a greater risk of earnings restatement. This finding is consistent with H1.

4.4. Testing H2

H2 posits that the SEC's enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with a greater likelihood of real earnings management.

I use REM1 and REM2 to measure the likelihood of real earnings management. A greater likelihood is measured by a higher value of the two variables. I form two portfolios based on the median split and report my results in Table 4.

Panel A shows the results based on REM1. The coefficient on D_EVENT is 0.0016 for firms with a low likelihood of real earnings management, and it is -0.0007 for firms with a high likelihood of real earnings management. The difference in the event-period abnormal return (high REM1 minus low REM1) is captured by the coefficient on D_EVENT when I use the return to the arbitrage portfolio to run the regression. The coefficient is -0.0023, significant at the 10% level. This result shows that the valuation impact is less favorable for firms with a high likelihood of real earnings management.

Panel B shows the results based on REM2. My findings are similar. The daily event-period abnormal return is estimated to be 0.0017 for the portfolio with a low likelihood of real earnings management while it is estimated to be -0.0008 for the portfolio with a high likelihood. The difference between the event-period return is -0.0025, significant at the 5% level.

To summarize, Table 4 provides evidence that the valuation consequence of the SEC's enforcement actions of clawback provisions is less positive for firms with a greater likelihood of real earnings management, lending support to H2.

4.5. Testing H3

H3 conjectures that the SEC's enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with more risk-averse managers.

My results are reported in Table 5. The coefficient on D_EVENT is 0.0013 for firms whose CEOs have exhibited risk-aversion behaviors at least once in the past three years while it is -0.0009 for other firms. The difference in the event-period abnormal return is -0.0022 (risk-averse group minus non-risk-averse group), suggesting that the valuation consequence of the SEC's enforcement actions is indeed less favorable for firms with more risk-averse CEOs. This finding supports H3.

4.6. Cross-sectional variation in the stock market reaction following Sefcik and Thompson (1986)

I also examine how the stock market reactions to the event date vary with firm characteristics, following Sefcik and Thompson (1986) methodology, which controls for the cross-sectional dependence and heteroscedasticity in contemporaneous stock returns.¹⁶ I estimate the regression using daily returns for the one-year period ending on Nov 16, 2011 (i.e., Nov 15, 2010 to Nov 16, 2011).

The Sefcik and Thompson (1986) test is essentially a two-stage portfolio OLS regression. In the first stage, I obtain weighted portfolio returns for the firms based on each firm characteristic. I consider the following key variables: the likelihood of earnings restatements (RESTATE, ICW404, DD_AQ and F_AQ), the likelihood of real earnings management (REM1, REM2) and the risk-aversion of managers (RAverse). To control for the common firm size and book-to-market effects, I additionally include MV and BM as control variables. MV is the log value of market value of

¹⁶ I also try the bootstrapping method to estimate the coefficient estimates in regressing CAR from the market model on firm characteristics, following Zhang (2007). My results remain robust towards this alternative method.

common shares outstanding, computed as stock price times total shares outstanding at the end of the quarter immediately before the event date. BM is book-to-market ratio, measured as the book value of equity divided by the market value of equity.

In the second stage, I use a time-series regression as follows for each portfolio:

$$WR_{p,t} = \alpha_p + \beta_p R_{m,t} + \gamma_p D_EVENT_t + \varepsilon_{p,t}$$

where $WR_{p,t}$ is the weighted portfolio return on date t calculated from first stage, and $R_{m,t}$ is the value-weighted return on the market portfolio on date t . The coefficient on D_EVENT dummy for each portfolio is reported in Table 6. It measures the effect of the firm characteristic on the abnormal stock return on the event date.

As seen from Table 6, when I include only one key variable in the regression, the results are consistent with my hypotheses. The coefficients on D_EVENT for the RESTATE portfolio, ICW404 portfolio, DD_AQ portfolio and F_AQ portfolio are all significantly positive at 10% level, suggesting that the stock market perceives the effect of SEC's enforcement actions on clawback provisions to be more value-increasing for firms with a greater likelihood of restatements. The coefficients on D_EVENT for the REM1 portfolio and REM2 portfolio are all significantly negative at 5% level, implying that the stock market perceives the effect of SEC's enforcement actions on clawback provisions to be more value-decreasing for firms with a higher likelihood to engage in real earnings management. The coefficient on D_EVENT for the RAverse portfolio is also negative, significant at 10% level, showing that the abnormal stock return on the event date is more negative for firms with risk-averse managers.

I also include multiple key variables in the Sefcik and Thompson (1986) regression to test three hypotheses jointly. First, I compose aggregate measures for the likelihood of earnings restatement and the likelihood of real earnings management. $Agg_RESTATE$ is an aggregate measure of the likelihood of future restatement, calculated as the first factor generated from a principal component analysis of four variables used in testing H1: RESTATE, ICW404, DD_AQ and F_AQ. Similarly, Agg_REM is an aggregate measure of the likelihood of real earnings management,

calculated as the first factor generated from a principal component analysis of two variables used in testing H2: REM1 and REM2. Next, I include both Agg_RESTATE and Agg_REM in the regression to test H1 and H2 jointly. I find that the coefficient estimate on D_EVENT dummy for the Agg_RESTATE portfolio is significantly positive at 1% level, while the coefficient estimate for the Agg_REM portfolio is significantly negative at 5% level. These results are consistent with H1 and H2. I further include RAverse in the regression to test all three hypotheses jointly. Due to the data requirement for computing RAverse, the number of firms included in the regressions drops from 2,102 to 617. All the coefficients show predicted sign but only the coefficient on D_EVENT dummy for the RAverse portfolio is significant at 10% level. This result seems to suggest that in a relatively small sample, the effect of H3 dominates the other two predictions.

5. Conclusions

I am interested in the valuation consequence of the SEC's enforcement actions on clawback provisions. The SEC's enforcement actions on clawback provisions increase the probability of managerial compensations being clawed back in the event of earnings restatements. Thereby it diminishes managerial incentives to manipulate earnings and avoids the valuation loss associated with accounting restatements. I therefore expect that the SEC's enforcement actions on clawback provisions are more positively related to shareholder wealth for firms with a greater risk of earnings restatements.

The threat of compensations being clawed back however may force managers to turn to costly real earnings management, which is less detectable and does not usually lead to earnings restatements. This tendency is more pronounced for firms with a greater likelihood of real earnings management, and these firms are more likely to experience a value decrease as a result of adopting clawback provisions. This constitutes my second hypothesis that the SEC's enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with a greater likelihood of real earnings management.

Lastly, I argue that the enforcement actions on clawback provisions are more negatively related to shareholder wealth for firms with a more risk-averse CEO. The general principal-agent model argues that the agent needs to be compensated for taking extra risk. Since the risk of compensations being clawed back is elevated, I expect an increase in the CEO compensation. This costly increase is likely to be more pronounced when the CEO is more risk-averse.

I use event-studies to test my hypotheses. By conducting a comprehensive search for the SEC's documents, I identify 31 event dates pertaining to 27 firms associated with the SEC's enforcement actions of clawback provisions. The majority of the dates (26 out of 31) are related to enforcement actions of both clawback provisions and other securities laws. It's difficult to draw inferences from these dates because the market reaction may reflect enforcement actions of securities laws other than clawback provisions, and the noise may potentially bias the coefficient of my regressions and therefore contaminate my results. Among the remaining five dates, I choose November 15, 2011 as my event day of analysis. On this day, the SEC announced the outcome of its enforcement actions against Mr. Maynard Jenkins. This date is chosen because the SEC's announcement resolves all uncertainties related to the SEC's case and because it is the only date on which the SEC's enforcement action was covered by all four major media in the U.S. with nationwide circulation (New York Times, The Washington Post, USA Today, and the Wall Street Journal). Wider media attention not only reflects a greater significance of the SEC's actions, but also leads to investors and managers' greater awareness of them.

Using the abnormal return to the event-period window (the three-day window centered on November 15, 2011), I test my predictions and find supportive results. I use the disclosure of earnings restatements, disclosure of internal control weakness and accounting quality to measure the risk of earnings restatements. Consistent with my hypothesis, the event-period abnormal return is more favorable for firms with a greater earnings-restatement risk. In addition, I show that firms with a greater likelihood of real earnings management experience lower event-period returns than firms with a lower likelihood of real earnings management, suggesting that investors anticipate and price a possible switch from accrual earnings management to real earnings management. Lastly, I show that

the valuation consequence is less favorable for firms with more risk-averse managers, consistent with the view that investors expect an increase in executive compensation as executives face higher clawback risks. I further examine the cross-sectional variation in the stock market reaction, following Sefcik and Thompson (1986) methodology, and obtain supportive results.

My results are subject to two important caveats. First, Chan et al. (2012) and Dehaan et al. (2012) show that a certain proportion of firms voluntarily adopt clawback provisions. Arguably these firms are less affected by the SEC's enforcement actions on mandatory clawback provisions, and it is possible that my results are mainly driven by firms that have not voluntarily adopted clawback provisions prior to the event date. Second, my results can potentially be explained by events taking place on November 15, 2011, which I fail to consider. For this alternative explanation to work, there must exist an event which is value-increasing for firms with a greater restatement risk, value-decreasing for firms with a higher likelihood of real earnings management and value-decreasing for firms with a more risk-averse CEO. I searched for all events taking place on my date of analysis. To the best of my knowledge, an event that fits this description does not exist.

These caveats notwithstanding, my paper offers some important insights on the valuation impact of the SEC's enforcement actions on clawback provisions. My results show that the valuation impact varies across firms. The enforcement actions on clawback provisions are positively related to shareholder wealth for firms with a greater restatement risk, are negatively related to shareholder wealth for firms with a greater likelihood of real earnings management and are negatively related to shareholder wealth for firms with a more risk-averse CEO. In addition, while prior studies (Chan et al., 2012; Dehaan et al., 2012) show the benefits of clawback provisions, my paper points to possible negative consequences of clawback provisions: managers may switch to real earnings management and the executive compensations may be increased. My study therefore extends prior research on clawback provisions. Finally, Section 954 of the Dodd-Frank Act requires all listed firms to adopt and implement the clawback provisions. To the extent that the mandatory adoption of clawback provisions has the same effect on managerial behavior as the SEC's enforcement actions, my study also provides

important implications for the valuation consequences of the mandatory adoption of clawback provisions under the Dodd-Frank Act.

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Table 1 SEC's stand-alone enforcement actions on clawback provisions

Company	Title	Name	Date	Description of events	Uncertainty resolution	Media coverage by all four major media
CSK Auto Corporation	Former CEO and Chairman	Maynard L. Jenkins	July 22, 2009	The SEC sued the former CEO for violations of Section 304 of the SOX Act, and asked the court to order the former CEO to reimburse the company and its shareholders more than \$4 million that he received in bonuses and stock sale profits while CSK was committing accounting fraud.	N	N
			Nov. 15, 2011	The SEC reached a settlement with Jenkins. Jenkins agreed to return \$2.8 million in bonus compensation and stock profits that he received while the company was committing accounting fraud.	Y	Y
Beazer Homes USA Inc.	Former CEO	Ian J. McCarthy	March 3, 2011	The SEC announced settlement with McCarthy to recover 6.5 million dollars in bonus compensation and stock profits that he received while the company was committing accounting fraud. A complaint was filed by the SEC on the same day.	Y	N
	Former CFO	James O'Leary	August 30, 2011	The SEC announced a settlement with O'Leary to recover 1.4 million bonus compensation and stock sale profits received while the company was committing accounting fraud. A complaint was filed on the same day.	Y	N
ArthroCare Corporation	Former CEO	Michael A. Baker	April 2, 2012	The SEC sued the two to recover bonus compensation and stock sale profits that they received during an accounting fraud at the company.	N	N
	Former CFO	Michael Gluk				
Note: Following Fang and Peress (2009), I choose four major media with nationwide circulation in the U.S. to measure media coverage. They are: New York Times, The Washington Post, USA Today, and Wall Street Journal.						

Table 2 Descriptive statistics

Panel A reports the summary statistics. Panel B reports the Pearson correlation (above the diagonal) and Spearman correlation (below the diagonal) among variables. Correlation coefficients that are significantly different from zero at less than 5% level are presented in bold. Please refer to Appendix 3 for detailed variable definitions.

Panel A: Summary statistics

Variables	Obs	Mean	Std. Dev.	Q1	Median	Q3
<i>RESTATE</i>	2,102	0.121	0.326	0	0	0
<i>ICW404</i>	2,102	0.085	0.279	0	0	0
<i>DD_AQ</i>	2,102	0.045	0.045	0.021	0.033	0.055
<i>F_AQ</i>	2,102	0.046	0.043	0.020	0.034	0.054
<i>REMI</i>	2,102	0.125	0.628	-0.152	0.071	0.421
<i>REM2</i>	2,102	0.056	0.404	-0.120	0.025	0.241
<i>RAverse</i>	617	0.261	0.440	0	0	1

Panel B: Pearson/Spearman correlation matrix

Variable	<i>RESTATE</i>	<i>ICW404</i>	<i>DD_AQ</i>	<i>F_AQ</i>	<i>REMI</i>	<i>REM2</i>	<i>RAverse</i>
<i>RESTATE</i>	1	0.347	0.040	0.033	0.016	0.012	0.004
<i>ICW404</i>	0.347	1	0.121	0.110	-0.009	0.020	0.013
<i>DD_AQ</i>	0.078	0.169	1	0.959	-0.075	-0.074	-0.005
<i>F_AQ</i>	0.064	0.147	0.899	1	-0.070	-0.073	-0.011
<i>REMI</i>	0.027	0.010	-0.086	-0.080	1	0.880	0.042
<i>REM2</i>	0.025	0.025	-0.089	-0.079	0.886	1	0.056
<i>RAverse</i>	0.004	0.013	0.002	-0.001	0.057	0.058	1

Table 3 The valuation implications of the SEC's enforcement actions on clawback provisions and the risk of earnings restatements: Testing H1

The sample consists of 2,102 firms that have data available for my portfolio analysis. $R_{p,t}$ is the equally weighted portfolio return at date t ; $R_{m,t}$ is the value-weight return on all NYSE, AMEX, and NASDAQ stocks at date t ; $R_{f,t}$ is the one month Treasury bill rate at date t ; SMB_t is the size factor at date t ; HML_t is the book-to-market factor at date t . UMD_t is the momentum factor at date t . The dummy variable D_EVENT equals 1 for the three-day event period centered on Nov 15, 2011, and 0 for all other dates. I estimate the regression using daily returns for the one-year period ending on Nov 16, 2011 (i.e., Nov 15, 2010 to Nov 16, 2011). The table reports coefficient estimates, with t-statistics in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Please refer to Appendix 3 for detailed variable definitions.

Panel A: Results of time-series 4-factor regression analysis across firms with and without earnings restatements

<i>VARIABLES</i>	<i>RESTATE=0</i>	<i>RESTATE=1</i>	Arbitrage portfolio (<i>RESTATE=1</i> Minus <i>RESTATE=0</i>)
<i>Constant</i>	-0.0002 (-1.61)	-0.0010*** (-5.40)	-0.0009*** (-5.93)
$R_{m,t} - R_{f,t}$	0.8930*** (104.62)	0.9270*** (54.17)	0.0340** (2.56)
<i>SMB</i>	0.5803*** (29.89)	0.7246*** (18.62)	0.1443*** (4.77)
<i>HML</i>	-0.0351 (-1.32)	0.0634 (1.19)	0.0984** (2.38)
<i>UMD</i>	0.0175 (1.13)	0.0710** (2.28)	0.0534** (2.21)
<i>D_EVENT</i>	0.0002 (0.16)	0.0029 (1.37)	0.0027* (1.67)
Observations	255	255	255
R-squares	0.991	0.970	0.269

Panel B: Results of time-series 4-factor regression analysis across firms with and without internal control weakness

<i>VARIABLES</i>	<i>ICW404=0</i>	<i>ICW404=1</i>	Arbitrage portfolio (<i>ICW404=1</i> Minus <i>ICW404=0</i>)
<i>Constant</i>	0.0000 (0.01)	-0.0029*** (-10.88)	-0.0029*** (-12.77)
$R_{m,t} - R_{f,t}$	0.9035*** (109.87)	0.8103*** (33.45)	-0.0932*** (-4.51)
<i>SMB</i>	0.6032*** (32.25)	0.5357*** (9.72)	-0.0675 (-1.44)
<i>HML</i>	-0.0331 (-1.29)	0.0699 (0.93)	0.1029 (1.60)
<i>UMD</i>	0.0168 (1.12)	0.0849* (1.92)	0.0680* (1.81)
<i>D_EVENT</i>	0.0000 (0.03)	0.0049 (1.64)	0.0049** (2.01)
Observations	255	255	255
R-squares	0.992	0.921	0.188

Panel C: Results of time-series 4-factor regression analysis across firms with high and low accounting quality --- using Dechow and Dichev (2002) measure

<i>VARIABLES</i>	High quality (Low DD_AQ)	Low quality (High DD_AQ)	Arbitrage portfolio (Low quality minus High quality)
<i>Constant</i>	0.0005*** (5.31)	-0.0010*** (-5.84)	-0.0014*** (-8.14)
$R_{m,t} - R_{f,t}$	0.9041*** (114.57)	0.8870*** (59.79)	-0.0171 (-1.08)
<i>SMB</i>	0.5322*** (29.65)	0.6626*** (19.64)	0.1303*** (3.62)
<i>HML</i>	-0.0516** (-2.10)	0.0030 (0.07)	0.0544 (1.11)
<i>UMD</i>	-0.0364** (-2.54)	0.0817*** (3.02)	0.1181*** (4.10)
<i>D_EVENT</i>	-0.0018* (-1.87)	0.0027 (1.48)	0.0045** (2.32)
Observations	255	255	255
R-squares	0.992	0.975	0.150

Panel D: Results of time-series 4-factor regression analysis across firms with high and low accounting quality -- - using Francis et al. (2005) measure

<i>VARIABLES</i>	High quality (Low F_AQ)	Low quality (High F_AQ)	Arbitrage portfolio (Low quality minus High quality)
<i>Constant</i>	0.0004*** (5.13)	-0.0009*** (-5.80)	-0.0014*** (-8.13)
$R_{m,t} - R_{f,t}$	0.8860*** (112.67)	0.9052*** (61.75)	0.0192 (1.24)
<i>SMB</i>	0.5323*** (29.76)	0.6626*** (19.87)	0.1302*** (3.70)
<i>HML</i>	-0.0686*** (-2.81)	0.0199 (0.44)	0.0883* (1.84)
<i>UMD</i>	-0.0431*** (-3.01)	0.0883*** (3.31)	0.1314*** (4.67)
<i>D_EVENT</i>	-0.0012 (-1.27)	0.0021 (1.17)	0.0033* (1.76)
Observations	255	255	255
R-squares	0.992	0.976	0.211

Table 4 The valuation implications of the SEC's enforcement actions on clawback provisions and the likelihood of real earnings management: Testing H2

The sample consists of 2,102 firms that have data available for my portfolio analysis. $R_{p,t}$ is the equally weighted portfolio return at date t ; $R_{m,t}$ is the value-weight return on all NYSE, AMEX, and NASDAQ stocks at date t ; $R_{f,t}$ is the one month Treasury bill rate at date t ; SMB_t is the size factor at date t ; HML_t is the book-to-market factor at date t . UMD_t is the momentum factor at date t . The dummy variable D_EVENT equals 1 for the three-day event period centered on Nov 15, 2011, and 0 for all other dates. I estimate the regression using daily returns for the one-year period ending on Nov 16, 2011 (i.e., Nov 15, 2010 to Nov 16, 2011). The table reports coefficient estimates, with t-statistics in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Please refer to Appendix 3 for detailed variable definitions.

Panel A: Results of time-series 4-factor regression analysis across firms with high and low real earnings management --- measure 1

<i>VARIABLES</i>	Low <i>REMI</i>	High <i>REMI</i>	Arbitrage portfolio (High <i>REMI</i> Minus Low <i>REMI</i>)
<i>Constant</i>	-0.0007*** (-5.70)	0.0002 (1.58)	0.0008*** (7.15)
$R_{m,t} - R_{f,t}$	0.9091*** (85.55)	0.8821*** (87.78)	-0.0269** (-2.53)
<i>SMB</i>	0.5876*** (24.31)	0.6072*** (26.57)	0.0195 (0.81)
<i>HML</i>	0.0054 (0.16)	-0.0541* (-1.73)	-0.0597* (-1.80)
<i>UMD</i>	0.0564*** (2.91)	-0.0112 (-0.61)	-0.0676*** (-3.48)
<i>D_EVENT</i>	0.0016 (1.23)	-0.0007 (-0.59)	-0.0023* (-1.78)
Observations	255	255	255
R-squares	0.987	0.988	0.097

Panel B: Results of time-series 4-factor regression analysis across firms with high and low real earnings management --- measure 2

<i>VARIABLES</i>	Low <i>REM2</i>	High <i>REM2</i>	Arbitrage portfolio (High <i>REM2</i> Minus Low <i>REM2</i>)
<i>Constant</i>	-0.0006*** (-5.94)	0.0001 (1.30)	0.0008*** (7.47)
$R_{m,t} - R_{f,t}$	0.9117*** (93.13)	0.8794*** (85.05)	-0.0323*** (-3.38)
<i>SMB</i>	0.5782*** (25.97)	0.6167*** (26.22)	0.0384* (1.77)
<i>HML</i>	-0.0499 (-1.64)	0.0012 (0.04)	0.0509* (1.72)
<i>UMD</i>	0.0425** (2.38)	0.0027 (0.14)	-0.0398** (-2.29)
<i>D_EVENT</i>	0.0017 (1.39)	-0.0008 (-0.62)	-0.0025** (-2.10)
Observations	255	255	255
R-squares	0.989	0.987	0.110

Table 5 The valuation implications of the SEC's enforcement actions on clawback provisions and the risk-aversion of managers: Testing H3

The sample consists of 617 firms that have data available for my portfolio analysis. $R_{p,t}$ is the equally weighted portfolio return at date t ; $R_{m,t}$ is the value-weight return on all NYSE, AMEX, and NASDAQ stocks at date t ; $R_{f,t}$ is the one month Treasury bill rate at date t ; SMB_t is the size factor at date t ; HML_t is the book-to-market factor at date t . UMD_t is the momentum factor at date t . The dummy variable D_EVENT equals 1 for the three-day event period centered on Nov 15, 2011, and 0 for all other dates. I estimate the regression using daily returns for the one-year period ending on Nov 16, 2011 (i.e., Nov 15, 2010 to Nov 16, 2011). The table reports coefficient estimates, with t-statistics in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Please refer to Appendix 3 for detailed variable definitions.

Results of time-series 4-factor regression analysis across managers with high and low risk-aversion			
<i>VARIABLES</i>	<i>RAverse=0</i>	<i>RAverse=1</i>	Arbitrage portfolio (<i>RAverse=1</i> Minus <i>RAverse=0</i>)
<i>Constant</i>	0.0002** (2.47)	0.0001 (0.78)	-0.0001 (-1.21)
$R_{m,t} - R_{f,t}$	1.0317*** (125.62)	1.0629*** (96.66)	0.0313*** (3.19)
<i>SMB</i>	0.5803*** (31.07)	0.6395*** (25.57)	0.0591*** (2.65)
<i>HML</i>	-0.2445*** (-9.58)	-0.1980*** (-5.79)	0.0463 (1.52)
<i>UMD</i>	-0.0789*** (-5.28)	-0.0905*** (-4.52)	-0.0116 (-0.65)
<i>D_EVENT</i>	0.0013 (1.28)	-0.0009 (-0.67)	-0.0022* (-1.82)
Observations	255	255	255
R-squares	0.993	0.989	0.195

Table 6 Cross-sectional variation in the stock market reaction following Sefcik and Thompson (1986)

The table reports coefficient estimates obtained from a cross-sectional time series regression of individual firm's stock market reaction to the event date, following Sefcik and Thompson (1986). The dummy variable *D_EVENT* equals 1 for the three-day event period centered on Nov 15, 2011, and 0 for all other dates. *MV* is the log value of market value of common shares outstanding, computed as stock price times total shares outstanding at the end of the quarter immediately before the event date. *BM* is book-to-market ratio, measured as the book value of equity divided by the market value of equity. *Agg_RESTATE* is an aggregate measure of the likelihood of future restatement, calculated as the first factor generated from a principal component analysis of four variables used in testing H1: *RESTATE*, *ICW404*, *DD_AQ* and *F_AQ*. *Agg_REM* is an aggregate measure of the likelihood of real earnings management, calculated as the first factor generated from a principal component analysis of two variables used in testing H2: *REM1* and *REM2*. I estimate the regression using daily returns for the one-year period ending on Nov 16, 2011 (i.e., Nov 15, 2010 to Nov 16, 2011). *T*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test. Please refer to Appendix 3 for detailed variable definitions.

	<i>H1</i>				<i>H2</i>		<i>H3</i>	<i>Control Vars</i>	
	<i>RESTATE</i>	<i>ICW404</i>	<i>DD_AQ</i>	<i>F_AQ</i>	<i>REM1</i>	<i>REM2</i>	<i>RAverse</i>	<i>MV</i>	<i>BM</i>
<i>D_EVENT</i>	0.003* (1.91)							-0.0005 (-0.81)	0.0004 (0.25)
<i>D_EVENT</i>		0.004** (2.01)						-0.0005 (-0.71)	0.0004 (0.24)
<i>D_EVENT</i>			0.050*** (2.74)					-0.0002 (-0.32)	0.0010 (0.62)
<i>D_EVENT</i>				0.043** (2.23)				-0.0003 (-0.46)	0.0009 (0.55)
<i>D_EVENT</i>					-0.003*** (-2.70)			-0.0005 (-0.78)	0.0008 (0.50)
<i>D_EVENT</i>						-0.004** (-2.58)		-0.0006 (-0.89)	0.0008 (0.51)
<i>D_EVENT</i>							-0.002* (-1.79)	-0.001 (-1.10)	0.0004 (0.11)

	<i>H1</i>		<i>H2</i>	<i>H3</i>	<i>Control Vars</i>	
	<i>Agg_RESTATE</i>		<i>Agg_REM</i>	<i>RAverse</i>	<i>MV</i>	<i>BM</i>
<i>D_EVENT</i>	0.002*** (2.61)		-0.002** (-2.55)		-0.0001 (-0.22)	0.001 (0.89)
<i>D_EVENT</i>	0.001 (1.45)		-0.001 (-1.19)	-0.002* (-1.80)	-0.001 (-1.00)	0.0006 (0.20)

Appendix 1 The SEC's enforcement actions on clawback provisions

No.	Company	Title	Name	Date	SEC website for description of events	Stand-alone enforcement action	Confounding event
1	Mercury Interactive, LLC (formerly known as Mercury Interactive Corporation)	former Chairman and CEO former CFO	Amnon Landan Douglas Smith	May 31, 2007	http://www.sec.gov/news/press/2007/2007-108.htm	N	The SEC settled with Mercury Interactive, and sued former mercury officers for stock option backdating and other fraudulent conduct.
2	Engineered Support Systems, Inc.	former CEO	Michael F. Shanahan, Sr.	July 12, 2007	http://www.sec.gov/litigation/litreleases/2007/lr20193.htm	N	The SEC filed actions against former CEO and former board member relating to options backdating scheme.
3	KLA-Tencor Corporation	former CEO	Kenneth L. Schroeder	July 25, 2007	http://www.sec.gov/litigation/litreleases/2007/lr20207.htm	N	The SEC charged former CEO with fraud for improper stock options backdating and settled with the KLA-Tencor Corporation.
4	DHB Industries, Inc.	former CEO and Chairman of the Board	David H. Brooks	Oct. 25, 2007	http://www.sec.gov/litigation/litreleases/2007/lr20345.htm	N	The SEC filed against former CEO and Chairman of the Board for accounting fraud.
5	Maxim Integrated Products, Inc.	former CFO	Carl W. Jasper	Dec. 4, 2007 July 21, 2010	http://www.sec.gov/litigation/litreleases/2007/lr20381.htm http://www.sec.gov/litigation/litreleases/2010/lr21598.htm	N N	The SEC sued Maxim Integrated Products and former senior officers in stock option backdating scheme. The court entered judgments against former CFO Carl W. Jasper in stock options backdating case.
6	UnitedHealth Group Inc.	the former CEO and Chairman of the Board	William W. McGuire, M.D.	Dec. 6, 2007	http://www.sec.gov/news/press/2007/2007-255.htm	N	The SEC reached settlement with former CEO/Chairman of UnitedHealth Group for stock options backdating.
7	Broadcom Corporation	former CEO former CFO	Henry T. Nicholas William J.	May 14, 2008	http://www.sec.gov/litigation/litreleases/2008/lr20574.htm	N	The SEC charged four current and former Broadcom officers for backdating options.

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8	Microtune, Inc.	former Chairman and CEO former CFO and General Counsel	Douglas J. Bartek Nancy Richardson	June 30, 2008	http://www.sec.gov/news/pres/s/2008/2008-128.htm	N	The SEC charged Microtune and former officers for stock option backdating and other fraudulent conduct.
9	Sycamore Networks, Inc.	former CFO	Frances M. Jewels	July 9, 2008	http://www.sec.gov/litigation/lit/releases/2008/lr20638.htm	N	The SEC charged Sycamore Networks and three former officials in options backdating case.
10	Embarcadero Technologies, Inc.	former CEO, and Chairman former CFO	Stephen R. Wong Raj P. Sabhlok	Sept. 9, 2008	http://www.sec.gov/litigation/lit/releases/2008/lr20710.htm	N	The SEC sued former executives in stock option backdating scheme
11	CSK Auto Corporation	former CEO and Chairman	Maynard L. Jenkins	July 22, 2009	http://www.sec.gov/litigation/lit/releases/2009/lr21149a.htm	Y	-
				Nov. 15, 2011	http://www.sec.gov/news/pres/s/2011/2011-243.htm	Y	-
12	Isilon Systems, Inc.	former CFO	Stuart W. Fuhlendorf	Sept. 14, 2009	http://www.sec.gov/litigation/lit/releases/2009/lr21210.htm	N	The SEC charged former CFO with fraudulent accounting.
13	Home Solutions of America, Inc.	former CEO former CFO	Frank J. Fradella Jeffrey M. Mattich	Nov. 30, 2009	http://www.sec.gov/litigation/lit/releases/2009/lr21314.htm	N	The SEC charged the company and executives in accounting fraud and reached settlement with four individuals.
14	New Century Financial Corporation	former CEO and co-founder former CFO	Brad A. Morrice Patti M. Dodge	Dec. 7, 2009	http://www.sec.gov/litigation/lit/releases/2009/lr21327.htm	N	The SEC charged three former officers with accounting fraud.
15	Spongetech Delivery Systems, Inc.	CEO CFO, COO, CAO and Secretary	Michael Metter Steven Moskowitz	May 5, 2010	http://www.sec.gov/litigation/lit/releases/2010/lr21515.htm	N	The SEC charged the company and its senior officers for accounting fraud.
16	Diebold, Inc.	former CEO	Walden O'Dell	June 2, 2010	http://www.sec.gov/news/pres/s/2010/2010-93.htm	N	The SEC charged the company and former executives with accounting fraud.
17	Navistar International Corporation	CEO former CFO	Daniel C. Ustian Robert C. Lannert	August 5, 2010	http://www.sec.gov/litigation/lit/releases/2010/lr21616.htm	N	The SEC settled with Navistar and five current and former officers for accounting manipulations.

18	NutraCea	former CEO and Director	Bradley D. Edson	Jan. 13, 2011	http://www.sec.gov/litigation/litleases/2011/lr21819.htm	N	The SEC charged the company and former executives with accounting fraud.
19	Beazer Homes USA Inc.	former CEO	Ian J. McCarthy	March 3, 2011	http://www.sec.gov/news/press/2011/2011-61.htm	Y	-
		former CFO	James O'Leary	August 30, 2011	http://www.sec.gov/litigation/litleases/2011/lr22074.htm	Y	-
20	Basin Water, Inc.	CEO	Peter L. Jensen	June 27, 2011	http://www.sec.gov/litigation/litleases/2011/lr22014.htm	N	The SEC charged two former senior executives with accounting fraud.
		former CFO	Thomas C. Tekulve, Jr.				
21	Koss Corporation	CEO and former CFO	Michael J. Koss	Oct. 24, 2011	http://www.sec.gov/litigation/litleases/2011/lr22138.htm	N	The SEC filed complaint and proposed settlement against the company and Michael J. Koss.
				Feb. 22, 2012	http://www.sec.gov/litigation/litleases/2012/lr22279.htm	N	The judge approved settlement with Koss Corporation and Michael J. Koss.
22	Life Partners Holdings Inc.	Chairman and CEO	Brian Pardo	Jan. 3, 2012	http://www.sec.gov/news/press/2012/2012-2.htm	N	The SEC charged the company and three executives with disclosure and accounting fraud.
		CFO	David Martin				
23	WellCare Health Plans, Inc.	former CEO	Todd Farha	Jan. 9, 2012	http://www.sec.gov/litigation/litleases/2012/lr22221.htm	N	The SEC charged against three former executives with accounting fraud and insider trading.
		former CFO	Paul Behrens				
24	Symmetry Medical, Inc.	former CEO	Brian S. Moore	January 30, 2012	http://www.sec.gov/litigation/litleases/2012/lr22241.htm	N	The SEC settled financial fraud case with former officers and accountants.
		former CFO	Fred L. Hite				
25	ArthroCare Corporation	former CEO	Michael A. Baker	April 2, 2012	http://www.sec.gov/news/press/2012/2012-51.htm	Y	-
		former CFO	Michael Gluk				
26	Former Franklin Bank Corp	CEO	Anthony J. Nocella	April 6, 2012	http://www.sec.gov/news/press/2012/2012-55.htm	N	The SEC charged the CEO and CFO with accounting fraud.
		CFO	J. Russell McCann				
27	China Natural Gas, Inc.	Chairman and former CEO	Qinan Ji	May 14, 2012	http://www.sec.gov/litigation/litleases/2012/lr22368.htm	N	The SEC charged the company and its Chairman for accounting fraud.

Appendix 2 Variable computation details

I. Computation for earnings quality proxies

DD_AQ

Following Francis et al. (2005), I use all firms with available data in Compustat to estimate the Dechow-Dichev model for each industry and year combination. Industry is defined according to Fama and French (1997) and I require at least 20 observations in each regression.

My regression model is as follows.

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

where $TCA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t}$ = total current accruals in year t , $CFO_{j,t} = NIBE_{j,t} - TA_{j,t}$ = firm j 's cash flow from operations in year t , $NIBE_{j,t}$ = firm j 's net income before extraordinary items (Compustat #18) in year t , $TA_{j,t} = (\Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t} - DEPN_{j,t})$ = firm j 's total accruals in year t , $\Delta CA_{j,t}$ = firm j 's change in current assets (Compustat #4) between year $t-1$ and year t , $\Delta CL_{j,t}$ = firm j 's change in current liabilities (Compustat #5) between year $t-1$ and year t , $\Delta Cash_{j,t}$ = firm j 's change in cash (Compustat #1) between year $t-1$ and year t , $\Delta STDEBT_{j,t}$ = firm j 's change in debt in current liabilities (Compustat #34) between year $t-1$ and year t , $DEPN_{j,t}$ = firm j 's depreciation and amortization expense (Compustat #14) in year t . All the variables are deflated by average total assets (Compustat #6) in year t .

Earnings quality for firm j in year t ($DD_AQ_{j,t}$) is the standard deviation of the residual $v_{j,t}$, computed from year $t-4$ to year t . Since a higher standard deviation of residuals indicates poorer earnings quality, $DD_AQ_{j,t}$ is an inverse measure of earnings quality.

F_AQ

Following Francis et al. (2005), I use all firms with available data in Compustat to estimate the following regression model for each industry and year combination. Industry is defined according to Fama and French (1997) and I require at least 20 observations in each regression.

My regression model is specified as follows.

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

where $\Delta Rev_{j,t}$ = firm j 's change in revenues (Compustat #12) between year $t-1$ and year t , and $PPE_{j,t}$ = firm j 's gross value of PPE (Compustat #7) in year t . The other variables are defined above. All the variables are deflated by average total assets (Compustat #6) in year t . Changes in revenues and PPE are included in the regression because they are important in forming expectations about current accruals (McNichols, 2002).

Earnings quality for firm j in year t ($F_EQ_{j,t}$) is the standard deviation of the residual $v_{j,t}$, computed from year $t-4$ to year t . Since a higher standard deviation of residuals indicates poorer earnings quality, $F_EQ_{j,t}$ is an inverse measure of earnings quality.

II. Computation for real earnings management proxies

Following Cohen and Zarowin (2010), I first estimate the normal levels of cash flow from operations, discretionary expenses, and production costs, using the models developed by Dechow et al. (1998) and implemented by Roychowdhury (2006).

My models are specified as follows.

$$CFO_{i,t}/A_{i,t-1} = k_1 1/A_{i,t-1} + k_2 Sales_{i,t}/A_{i,t-1} + k_3 \Delta Sales_{i,t}/A_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

$$PROD_{i,t}/A_{i,t-1} = k_1 1/A_{i,t-1} + k_2 Sales_{i,t}/A_{i,t-1} + k_3 \Delta Sales_{i,t}/A_{i,t-1} + k_4 \Delta Sales_{i,t-1}/A_{i,t-1} + \varepsilon_{i,t} \quad (5)$$

$$DExp_{i,t}/A_{i,t-1} = k_1 1/A_{i,t-1} + k_2 Sales_{i,t-1}/A_{i,t-1} + \varepsilon_{i,t} \quad (6)$$

CFO is cash flow from operations in period t (Compustat data item 308 minus Compustat data item 124); $PROD$ represents the production costs in period t , defined as the sum of COGS (Compustat data item 41) and the change in inventories (Compustat data item 3); $DExp$ represents the discretionary expenditures in period t , defined as the sum of advertising expenses (Compustat data item 45), R&D expenses (Compustat data item 46) and SG&A (Compustat data item 189). I run the above models for each industry and year combination. The residuals from Regression (4), (5) and (6) respectively measure abnormal CFO (R_CFO), abnormal production costs (R_PROD) and abnormal discretionary expenses (R_DExp).

Following Cohen and Zarowin (2010), I use these residuals to compute two comprehensive measures of real earnings management activities. The first metric, $REMI$, is computed as $R_DExp*(-1) + R_PROD$. Firms may boost current period earnings by cutting discretionary expenses (e.g.,

advertising expenses, SG&A expenses and R&D expenses). Consequently, the abnormal discretionary expenses are low. Alternatively, firms may manage earnings upwards by overproduction. The production and holding costs on the over-produced items result in high abnormal production costs relative to sales. Therefore, a higher value of *REMI* indicates a higher likelihood that the firm engages in real earnings management through overproduction and/or cutting discretionary expenses.

The second metric, *REM2*, is computed as $R_CFO*(-1) + R_DExp*(-1)$. Firms may manipulate sales through price discounts or lenient credit terms, which may result in negative cash flow from operations. A higher value of *REMI/REM2* indicates a greater likelihood that firms engage in real earnings management activities through either sales manipulations or cutting discretionary expenses.

III. Computation for risk-aversion proxies

Follow the low-confidence measure in Campbell et al. (2011), the CEO is deemed as exhibiting risk-aversion behaviors, if (s)he exercises stock options that are less than 30% in the money and does not hold any exercisable option that are greater than 30% in the money in the year.

To estimate the percentage moneyness of the exercised options, I first compute a per-option value realized from exercising as the total value realized from exercising stock options (ExecuComp variable *OPT_EXER_VAL*) divided by the number of options exercised (ExecuComp variable *OPT_EXER_NUM*). The estimated average exercise price of the exercised options is the stock price at the fiscal year end (ExecuComp variable *PRCCF*) minus the per-option value realized from exercising. The average percent moneyness of the exercised options equals the per-option value realized from exercising divided by the estimated average exercise price.

To estimate the percent moneyness of the unexercised but exercisable option holdings, I first compute the realizable value per option as the total realizable value of the exercisable options (ExecuComp variable *OPT_UNEX_EXER_EST_VAL*) divided by the number of exercisable options (ExecuComp variable *OPT_UNEX_EXER_NUM*). I then subtract the per-option realizable value from the stock price at the fiscal year end (ExecuComp variable *PRCCF*) to obtain an estimate of the

average exercise price of the options. The average percent moneyness of the options equals the per-option realizable value divided by the estimated average exercise price.

I define a dummy variable *RAverse*, which equals 1 if the manager exhibits the risk-aversion behaviors at least once in the recent three years prior to the event date, and 0 otherwise.

Appendix 3 Variable definitions

Variable Name	Variable Definition
$R_{p,t}$	The equally weighted portfolio return at date t .
$R_{m,t}$	The value-weight return on all NYSE, AMEX, and NASDAQ stocks at date t .
$R_{f,t}$	The one month Treasury bill rate at date t .
SMB_t	The size factor, computed as the average return on the three small portfolios minus the average return on the three big portfolios at date t .
HML_t	The book-to-market factor, computed as the average return on the two value portfolios minus the average return on the two growth portfolios at date t .
UMD_t	The momentum factor, computed as the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios at date t .
D_EVENT	A dummy variable that equals 1 for the event period (-1, +1) centering on Nov 15, 2011, and 0 for all other dates.
$RESTATE$	A dummy variable that equals 1 if the company has disclosed earnings restatements in the recent three fiscal years prior to the event date, and 0 otherwise.
$ICW404$	A dummy variable that equals 1 if the company has reported material internal control weaknesses by its auditor in the recent three fiscal years prior to the event date, and 0 otherwise.
DD_AQ	The standard deviation of the residuals from a regression that regresses total current accruals on lagged, current and future cash flows. My definition follows Francis et al. (2005). Please refer to Appendix 2 for computation details.
F_AQ	The standard deviation of the residuals from a regression that regresses total current accruals on PPE, change in revenues, lagged, current and future cash flows. My definition follows Francis et al. (2005). Please refer to Appendix 2 for computation details.
R_CFO	The abnormal cash flow from operations. It is calculated as the actual CFO minus the normal level of CFO estimated using the Dechow et al. (1998) model. Please refer to Appendix 2 for computation details.
R_PROD	The abnormal discretionary expenses. It is calculated as the actual production cost minus the normal level of production cost estimated using the Dechow et al. (1998) model. Please refer to Appendix 2 for computation details.
R_DExp	The abnormal discretionary expenses. It is calculated as the actual discretionary expenses minus the normal level of discretionary expenses estimated using the Dechow et al. (1998) model. Please refer to Appendix 2 for computation details.
$REM1$	A aggregate measure of real earnings management. It is computed as $R_DExp*(-1) + R_PROD$. The higher the amount of this aggregate measure, the more likely the firm engaged in real earnings management. Please refer to Appendix 2 for computation details.
$REM2$	A aggregate measure of real earnings management. It is computed as $R_CFO*(-1) + R_DExp*(-1)$. The higher the amount of this aggregate measure, the more likely the firm engaged in real earnings management. Please refer to Appendix 2 for computation details.

<i>RAverse</i>	A dummy variable that equals 1 if the manager exhibited the risk-averse exercise behavior at least once in the recent three fiscal years prior to the event date, and 0 otherwise. Please refer to Appendix 2 for computation details.
<i>MV</i>	The log value of market value of common shares outstanding, computed as stock price times total shares outstanding at the end of the quarter immediately before the event date.
<i>BM</i>	The book-to-market ratio, measured as the book value of equity divided by the market value of equity.
<i>Agg_RESTATE</i>	An aggregate measure of the likelihood of future restatement, calculated as the first factor generated from a principal component analysis of four variables used in testing H1: <i>RESTATE</i> , <i>ICW404</i> , <i>DD_AQ</i> and <i>F_AQ</i> .
<i>Agg_REM</i>	An aggregate measure of the likelihood of real earnings management, calculated as the first factor generated from a principal component analysis of two variables used in testing H2: <i>REM1</i> and <i>REM2</i> .