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Clawback Provisions: How Sharp Are the Claws? An Analysis of the Deterrence Effectiveness of Voluntary Clawback Provisions

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To the Graduate Council:

I am submitting herewith a dissertation written by Allison Kristina Beck entitled "Clawback Provisions: How Sharp Are the Claws? An Analysis of the Deterrence Effectiveness of Voluntary Clawback Provisions." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

Bruce K. Behn, Major Professor

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(Original signatures are on file with official student records.)

Clawback Provisions: How Sharp Are the Claws?
An Analysis of the Deterrence Effectiveness of Voluntary Clawback Provisions

A Dissertation Presented for
the Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Allison Kristina Beck
May 2012

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DEDICATION

With gratitude, I dedicate this dissertation to my parents, Paul and Donna Beck, to my grandmother, Lilian Beck, to my brother, Byron Beck, to my sister, Stephanie Beck, and to my other relatives and friends who have provided support and encouragement throughout my years in the PhD program.

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ABSTRACT

This paper investigates the effectiveness of voluntary clawback provisions as a deterrent for earnings management behavior. The Dodd-Frank (DF) Bill signed into law July 21, 2010 mandates that the SEC adopt a rule requiring all U.S.-listed companies to implement clawback provisions that recapture excess compensation received by executives on the basis of a faulty financial statement filing with the SEC that later must be restated. Implicitly, the DF regulation assumes that clawbacks will successfully constrain financial misreporting and that a “one-size-fits-all” approach is best. In contrast with prior research that has investigated factors associated with a firm’s decision to adopt a clawback provision and/or various capital market consequences associated with clawback adoptions, I develop a stringency metric for analyzing clawback structures. I analyze the financial reporting consequences associated with clawback structure and mediating effects of antecedent corporate governance quality. Results indicate that, for both weak-governance and strong-governance firms adopting clawback provisions, increased clawback stringency is generally associated with lower levels of earnings management. However, the deterrent effect of clawback stringency is often attenuated for the strong-governance firms. None of the identified adopting firms had duality of the CEO and Chairman positions, thus, confirming that clawback adoptions may be conceptualized as a component of strong governance. This observation, coupled with the documented success of the clawbacks in deterring earnings management, provides support for the need for regulation.

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I. Introduction

In the wake of numerous financial restatements that occurred during the late 1990's and early 2000's, several hundred firms elected to implement clawback provisions—formal arrangements that permit the recovery of executive compensation in the event of a later determination that the compensation was based on inaccurate financial information. Typically presented as clauses in executive compensation contracts, clawback provisions explicitly communicate adverse consequences to managers for engaging in financial misreporting behavior. The structural features of the arrangements vary considerably across firms, with some clawbacks being triggered automatically in the event of a restatement and others being triggered only at the board's discretion. Among other features, the breadth of coverage of executives and the amounts of compensation recovered also vary widely. Perhaps more important than the recovery of compensation, however, is the potential of clawbacks to deter earnings management. This study investigates the effectiveness of voluntary clawback arrangements as a deterrent for earnings management,¹ taking into account cross-sectional variation in clawback structures.

Over the past decade, regulators have placed heightened emphasis on clawback provisions. Section 304 of the Sarbanes-Oxley Act of 2002 (SOX) implemented the first statutory clawback requirement, permitting the Securities and Exchange Commission (SEC) to initiate firm recoveries from CEOs and CFOs

¹ For purposes of this paper, earnings management is defined using several proxies that have been

after financial restatements involving misconduct. More recently, financial institutions receiving Troubled Asset Relief Program (TARP) and Emergency Economic Stabilization Act (EESA) assistance were required to adopt clawback provisions. However, unlike SOX clawbacks, TARP and EESA clawbacks automatically recover compensation from all executives that is based on any misstatement of financial or operating information. Recently, the Dodd-Frank Bill (DF), signed into law on July 21, 2010, now mandates, (in Section 954), that the SEC require all companies listed with national securities exchanges or national securities associations in the U.S. to have clawback provisions that require the recapture of compensation. Although the SEC has not yet adopted a final rule concerning executive compensation recoveries, the DF Bill imposes a rigid clawback structure with an automatic trigger in the event of a financial restatement due to material noncompliance with financial reporting requirements and recovery of excess compensation associated with the misstatement.

The implementation of clawbacks has stimulated recent academic research. Several recent studies (Addy, Chu, and Yoder (ACY) (2011), Brown, et al. (2011), Chen et al. (2011), and Dehaan et al. (2012), and Gao et al. (2010)) have attempted to explain the decision to adopt clawbacks based on firm characteristics such as governance and prior restatements. Davis-Friday et al. (2011) examine the effects of voluntary and mandatory clawback adoptions on firms' earnings response coefficients, and Chen et al. (2011) and Gao et al. (2010) examine market reactions to clawbacks. Chan et al. (2011) and Dehaan et al. (2012) examine the effects of

voluntary clawback adoptions on earnings response coefficients and audit fees, while Dehaan et al. (2012) also investigate the impacts of clawback adoptions on analysts' forecast dispersion and firms' ability to meet or beat analysts' forecasts. Gao et al. (2010) also investigate changes in bid-ask spreads surrounding clawback adoptions. Finally, Chen et al. (2011) demonstrate analytically that clawbacks can load too much risk on managers and they show empirically that clawback adoptions are associated with a reduction in discretionary accruals and an increase in pay-to-performance sensitivity.

Another recent study by Chan et al. (2011) finds reductions in audit report lag, firms' future incidence of restatements, and reports on material weaknesses in internal control by auditors associated with clawback adoptions. However, these metrics hinge on an auditor's performance and observed reductions in the metrics do not necessarily imply that there have been improvements in financial reporting quality.

Overall, the above studies explore various consequences associated with clawback adoptions, but none of the studies consider the possibility for cross-sectional variation in the structures of clawbacks, apart from the Dehaan et al. (2012) study that controls for whether provisions are fraud-based or performance-based.² However, their classification scheme only distinguishes among clawback provisions based on whether personal engagement in fraud or misconduct is necessary to trigger a clawback or whether a clawback can extract recoveries

² Fraud-based clawbacks are only triggered where an executive has committed or misconduct, causing a misstatement. Performance-based clawbacks can recover compensation from all executives in any instance of a financial misstatement.

irrespective of personal culpability. Dehaan et al. (2012) do not consider whether a board is obligated to pursue a recovery or can do so at its own will, nor do they consider specific triggering events, amounts of clawbacks, materiality thresholds, or executive coverage that may be imposed by boards. However, such structural variation in clawback parameters can impact the potential effectiveness of clawbacks. Although the study at hand also investigates financial reporting consequences of clawbacks, an important distinguishing feature is the development of a stringency measure that is based on a detailed consideration of clawback structural features when analyzing the effects of clawbacks. An additional key distinction between my study and others is the consideration of governance as a potential mediator of clawback effectiveness. None of the aforementioned studies control for governance when estimating the effects of clawbacks, nor do they consider the possibility for governance to strengthen or attenuate the deterrence effectiveness of clawbacks.

Many previous studies have found that governance is associated with enhanced earnings quality and or earnings response coefficients (Beasley (1996), Uzun et al. (2004), Klein (2002), Bédard et al. (2004), Dechow et al. (1996), and Carcello and Nagy (2004)). Therefore, since clawback provisions can be viewed as a component of governance, clawbacks would be expected to reduce earnings management activity, as they help to foster an environment in which financial misreporting is discouraged. Meanwhile, it would be surprising if their effectiveness did not depend on the efficacy of the other governance structures already in place.

The perceived credibility of clawbacks may be enhanced in the presence of strong pre-existing governance and diminished in the presence of weak governance.

A factor distinguishing clawbacks from other governance components, however, is that clawbacks transfer a component of financial reporting risk from the firm to the manager, thus, forcing managers to more directly bear the risks associated with their actions. Levine and Smith (LS) (2010) demonstrate analytically that, in some cases, the imposition of clawback compensation risk on managers may diminish managerial effort and actually be detrimental to shareholders.

In the present study, I fill a gap in the literature by: 1) developing a novel measure, “stringency” to characterize the structures of clawback provisions and summarize their ex ante deterrence potential, 2) analyzing the impact of clawback stringency, conditional on antecedent corporate governance quality, on firms’ subsequent financial reporting behavior, specifically their income-increasing earnings management activity, after controlling for economic incentives to manage earnings, 3) examining how antecedent corporate governance quality impacts the effectiveness of clawback stringency, and 4) investigating whether there is a systematic relation between corporate governance quality and clawback structure. The aforementioned prior studies examine the determinants and capital market perceptions of the adoption decision, but do not examine the determinants or consequences of the specific structural features of clawbacks. Thus, a substantial

contribution of my study is the new stringency measure that I develop to characterize the structural features of clawbacks when estimating their effects.

The results generally indicate that increased clawback stringency is generally associated with lower earnings management for both low and high-governance firms, consistent with H1. However, an important finding in several of the analyses is that the deterrent effect of clawback stringency is attenuated for firms with high antecedent corporate governance quality, consistent with H2. Although these results provide support for the potential deterrence benefits of DF, they also indicate that DF clawbacks cannot be expected to exert a uniform deterrent effect.

Additional results indicate that a firm's decision to implement a particular clawback structure is not random, but depends on firm characteristics. Specifically, capital intensity is negatively associated with clawback stringency and industry-average R&D-to-sales is positively associated with stringency. Apart from these factors, however, conditional on clawback adoption, the stringency decision appears to be largely idiosyncratic and not systematically related to a firm's antecedent corporate governance quality. Key findings are that none of the clawback firms had duality of the CEO and Chairman positions in the year of clawback adoption or the year prior, and none of the 186 adopting firms that had prerequisite data available for the stringency determinants model had experienced recent³ frauds or restatements. Importantly, these results strongly indicate that only firms with

³ A recent fraud is defined as a fraud that resulted in an issuance of an Accounting and Auditing Enforcement Release, (AAER), by the SEC during or after 1998 and prior to 2007. Recent restatements are defined as SEC financial restatements that were listed in the Government Accounting Office (GAO) databases, which contain restatement announcements made between 1999 and 2005, inclusive.

strong governance adopted clawbacks, therefore supporting a need for regulation such as that proposed by DF, since the firms that, perhaps, need the clawbacks most, are not adopting voluntarily.⁴

A final contribution of the study at hand is the potential to find that alternative clawback structures are more effective than the “one-size-fits-all” proposed DF structure. The structures of voluntary clawback provisions are rich with variation, with some being even more stringent than the proposed DF structure. Among the 286 voluntary clawback firms identified, 65 firms implemented clawbacks that were at least as stringent as that proposed by DF, and 34 firms adopted even more stringent clawbacks. The SEC is currently seeking public commentary and plans to issue a final rule during 2012. (SEC, 2011). Therefore, I believe that the insights of my proposed research can be useful to the SEC as it deliberates over a final rule to implement the requirements of Dodd-Frank and also to members of Congress as they contemplate a repeal of DF after the 2012 election.

The remainder of this paper is organized as follows. Section II contains background information about clawbacks and their characteristics. Section III presents a discussion of prior literature and research hypothesis development. Section IV presents the methodology and empirical estimation models. Section V

⁴ Prior to DF, firms could elect whether or not to adopt clawback provisions unless they received TARP or EESA funds. DF clawbacks apply to all executives of U.S.-listed companies, and similar to TARP/EESA clawbacks, they are automatically triggered by a financial restatement. However, DF clawbacks are more restrictive than TARP/EESA clawbacks, as they apply only to financial misstatements that culminate in a restated SEC filing.

describes the sample selection and measurement of variables. Section VI discusses the results from the empirical analyses and Section VII presents the conclusions.

II. Clawback Characteristics and Regulatory Background

Defining Features of Clawback Provisions

An example of a clawback provision adopted voluntarily by The Gap, Inc. on February 14, 2007 is excerpted from The Gap, Inc.'s 2008 10-Q filing with the SEC and presented below:

Recoupment Policy. On February 14, 2007, the Board of Directors ("Board") adopted a recoupment policy as described in this paragraph... To the extent permitted by governing law, in all appropriate cases as determined by the Board, require reimbursement and/or cancellation of any bonus or other incentive compensation, including stock-based compensation, awarded to an executive officer or other member of the Company's executive leadership team where all of the following factors are present: (a) the award was predicated upon the achievement of certain financial results that were subsequently the subject of a restatement, (b) in the Board's view, the executive engaged in fraud or intentional misconduct that was a substantial contributing cause to the need for the restatement, and (c) a lower award would have been made to the executive based upon the restated financial results. In each such instance, the Company will seek to recover the individual executive's entire annual bonus or award for the relevant period, plus a reasonable rate of interest. [Exhibit 10 – Material Contracts section of The Gap, Inc.'s December 9, 2008 Form 10-Q filing with the SEC]

Several features of The Gap, Inc. clawback are noteworthy. First, the policy grants discretion to The Gap, Inc.'s board to determine whether or not it will pursue a clawback. In contrast with the proposed DF clawback structure and the provisions of other firms, the clawback is not self-executing, but is initiated at the election of the board. The wording "in all appropriate cases as determined by the Board" provides leeway for the board of The Gap, Inc. to forego the opportunity to recover

compensation under the provision. The Gap, Inc.'s provision is only triggered if there is a financial restatement and the board concludes that an executive personally and intentionally engaged in wrongful acts contributing to the misstatement. Thus, in addition to giving the board overall discretion to impose a clawback as it deems appropriate, The Gap, Inc. also embeds discretion in its policy by calling upon the board to make judgments about individuals' conduct and the extent of their personal involvement in a misstatement. The Gap, Inc. clawback policy applies to all executive officers and provides for the recovery of the entire bonus or incentive compensation granted to the executives during the period of a misstatement, plus interest. Some firms only cover a sub-set of executives in their clawback policies and only recover excess bonus or incentive compensation. Thus, The Gap, Inc. takes a more stringent (and punitive) stance along these lines.

Clawback provisions may appear in a firm's corporate charter or bylaws, but are typically presented as clauses in executive employment contracts like the one quoted above. Since the potential effects of clawback provisions depend on their features - that can vary widely - it is useful to identify the key characteristics of clawbacks. Based on my review of clawback descriptions provided in annual reports and proxy statement filings with the SEC, I have identified seven major characteristics: (1) triggering conditions, (2) clawback amounts, (3) pay types covered, (4) individuals covered, (5) the duration of the period from which compensation may be recaptured, (6) the allowance for a reverse clawback, and (7) the extent to which board or compensation committee discretion is present in the

initiation. Table 1, which appears in the Appendix, summarizes the major features of clawback provisions. (All tables are presented in the Appendix.)

<Insert Table 1 about here.>

The triggering conditions are arguably the most important structural feature because they specify when a clawback can occur and the remaining characteristics are only applicable in the event that a clawback takes place. The triggering conditions for clawbacks may be classified as: (1) events, (2) behaviors, and (3) personal responsibility requirements, and the latter two conditions may be regarded as “sub-triggers”. Typical triggering events are financial restatements, financial misstatements (i.e. misstatements that are below the SEC materiality threshold requiring a restatement), or the use of inaccurate operating metrics in the calculation of awards. Clawbacks under DF are triggered by a financial restatement, but boards can apply more stringent triggers that expand the scope of misstated information or lessen the materiality threshold that will trigger a clawback.

In addition to having triggering events, clawback policies may also incorporate two types of sub-triggers that restrict the conditions under which a clawback may be imposed—behavioral triggers and personal responsibility requirements. Behavioral triggers restrict the application of clawbacks to instances in which a specific behavior was present in one or more executives. A triggering behavior may be either an intentional bad behavior, (i.e. fraud or misconduct), or an unintentional one such as simple negligence.

Personal responsibility requirements may further restrict the application of clawbacks. Some provisions (such as The Gap, Inc.'s) only subject an individual to a clawback if s/he is personally responsible for or directly involved in a triggering event through his or her own conduct. In the absence of a personal responsibility requirement, a behavior committed by one executive can trigger a clawback for all executives. Behavioral triggers and personal responsibility requirements add layers of discretion to the triggering conditions. In contrast, DF imposes neither a behavioral trigger nor a personal responsibility requirement and provides for automatic recovery after a financial restatement, thus, implicitly removing board discretion from the triggering conditions and obligating boards to pursue recoveries.

Voluntary clawback provisions are not uniform in the amounts of pay that they seek to recover. Recoveries range from *excess* bonus or excess incentive pay to the entirety of the combined bonus and incentive pay, plus interest. DF recovers excess pay of both types, but firms can specify a larger, more stringent recovery amount. Most clawback provisions cover all types of bonus or incentive pay, consistent with DF.⁵ The most stringent voluntary agreements include all participants in the bonus/incentive compensation programs, (similar to DF), whereas some voluntary agreements only make recoveries from a sub-set of executives such as the CEO and/or CFO.

⁵ For instance, the provisions may potentially cover only a sub-set of pay, such as the cash bonus but not options or equity-based compensation. However, in an earlier preliminary sample of 70 voluntarily adopting firms, I found that 68 firms cover all pay types.

The duration of the period from which a clawback arrangement can extract compensation also differs substantially across firms. The length of this period is commonly referred to as a “look-back” period.⁶ While some firms specify a period such as three years (the same as the DF requirement), many firms do not explicitly state a period or attempt to claim indefinitely long periods.⁷ Longer periods make a policy more stringent. Finally, most clawback provisions are asymmetric, only allowing for a recovery to be made by the firm from the executive.⁸

Overall, many voluntary clawback structures embed substantial discretion, allowing boards or compensation committees to determine whether or not they will seek recoveries, the individuals from whom they will seek recoveries, and the amounts of any recoveries. While discretion permits tailoring of clawback outcomes to individual circumstances, it can also serve to reduce the likelihood that clawbacks will be actually enforced by providing “wobble room” for boards and compensation committees to prevent the initiation of a clawback or reduce its severity. Less independent boards with members who could be directly impacted by clawbacks might have incentives to abuse this discretion, especially in cases where there is a duality of the CEO and board chairperson positions.

⁶ The look-back period is the length of time a company will look backwards in time from a specified date, such as the date that a company determines that it will be necessary to prepare a restatement, for purposes of computing the recovery amount. Some firms instead state the recovery period as a given number of years from which compensation will be subject to recoupment *after* related financial statements are filed with the SEC.

⁷ In the event that legal action is taken to initiate a compensation recovery, it is possible that the statute of limitations in a particular state may not permit the actual application of a limitless look-back period.

⁸ However, a small percentage of firms actually provide for a reverse clawback—the executive can recover from the firm if it is later determined that he/she would have been entitled to a larger amount of bonus or incentive compensation had the amount been calculated correctly.

Two conclusions emerge from this discussion of clawback structure. First, the ability of clawbacks to deter financial misreporting is likely to depend on their structure (i.e., underlying provisions). Second, as clawback provisions vary substantially among firms, it is important to control for their structure when analyzing ex post financial reporting consequences associated with their implementation.

III. Theory and Hypotheses

Clawbacks and Deterrence Theory

To the extent that financial misstatements are intentional, the insights of deterrence theory can be applied to this setting. Gibbs (1975) argues that successful deterrents have three components: certainty, severity, and celerity. Certainty can be defined as a joint probability of detection and receipt of punishment. Severity captures the magnitude of a punishment and celerity is the quickness with which a punishment is received. According to deterrence theory, the most successful deterrents are high in all three of these attributes. In theory, clawback provisions raise the level of each of these three attributes. The presence of a legally binding agreement improves a firm's ability to recover from an executive under law, increasing the certainty of punishment relative to a no-clawback scenario. The legally binding agreement can also increase the amount (severity) of the punishment that might be recovered under law and may reduce the legal deliberation time, increasing the quickness (celerity) of the punishment. Therefore,

deterrence theory would suggest that properly designed clawbacks should serve as a deterrent from aggressive financial reporting, reducing earnings management activity. However, all clawback provisions are not equal. Many clawback provisions afford an opportunity for the board to forego the opportunity to recover compensation, while others are more stringent, being triggered automatically after a restatement and requiring that executives forfeit all compensation associated with the restatement, (consistent with the proposed Dodd-Frank requirements). I have developed a stringency measure to summarize the ex ante deterrence potential of clawbacks. A detailed discussion of my stringency metric is deferred to Section V. *Ceteris paribus*, deterrence theory unambiguously suggests that the implementation of a more stringent clawback provision should be at least weakly associated with a lower level of income-increasing earnings management. However, to the extent that a firm's antecedent corporate governance impacts the credibility of a clawback, there may be differences in the effect size of stringency, based on governance. Allowing for this possibility, I estimate the effects of stringency conditional on the quality of a firm's pre-existing governance. Deterrence theory would support the following hypothesis:

H1: For firms of both low and high corporate governance quality, increased clawback stringency will be associated with lower levels of income-increasing earnings management activity.

Optimal Contracting Theory and Clawback Provisions

Despite the potential deterrence of earnings management benefits provided by clawbacks, the theoretical literature suggests that the use of clawback provisions

may not always be optimal in contracting and that their optimality depends on underlying firm characteristics. Levine and Smith (LS) (2010) analytically model the usage of performance clawback provisions in a two-period setting in which a manager exerts an effort in the first period that culminates in a stochastic signal during the first period and a cash flow realization in the second period. The first-period signal and the second-period cash flow imperfectly convey manager effort, and the agent has the ability to distort the signal. LS (2010) demonstrate that the optimality of a clawback versus no-clawback contract depends on the levels of the following characteristics of the principal-agent environment: (1) the degree of noise in cash flow realizations, (2) the ease of earnings management activity, and (3) the magnitude of agent impatience. Specifically, LS (2010) find that when levels of these attributes are high, a no-clawback contract is optimal. Important implications of these findings are that clawback provisions are not unilaterally optimal for all firms and that the optimality of a clawback provision may depend on characteristics of a firm's operating environment. These contracting factors may counteract the deterrent effect, thus, possibly resulting in a rejection of H1. Accordingly, I examine another related factor that might influence the effectiveness of clawback provisions—the quality of a firm's pre-existing corporate governance.

Interdependence Between Clawback Stringency and Corporate Governance

Prior research indicates that well-governed firms tend to engage in less earnings management activity. For example, Beasley (1996) and Uzun et al. (2004),

using matched-pair designs, both document a negative association between the percentage of outside directors on a board and the likelihood of accounting fraud, and Klein (2002) finds a negative relation between the percentage of outside directors and abnormal accruals. Similarly, Bédard et al. (2004) find that abnormal accruals are lower for firms with wholly independent audit committees. Dechow et al. (1996) and Carcello and Nagy (2004) document positive associations between fraud and earnings manipulations, respectively, and duality of the CEO and board chair positions. Thus, some empirical evidence indicates that financial reporting quality is positively associated with corporate governance quality.

A firm's ex ante level of earnings management will determine the maximum potential improvement in financial reporting quality that can be made from adding a clawback. Thus, firms with strong governance are likely to experience, at best, only a modest reduction in their earnings management activity from adding a stringent clawback provision. Consistent with this expectation, economic theory of diminishing marginal returns would also suggest that the marginal benefit of adding a clawback provision—an additional corporate governance feature—or increasing the stringency of a clawback provision should diminish with a firm's pre-existing corporate governance quality. Therefore, *ceteris paribus*, clawback stringency should have a smaller marginal impact on income-increasing earnings management for firms with strong governance relative to firms with weak governance. Thus, my second hypothesis based on bounded improvement is:

H2: The impact of clawback stringency on firms' levels of income-increasing earnings management will be attenuated as antecedent corporate governance quality increases.

Antecedent Corporate Governance Quality and Clawback Credibility

However, a factor that could counteract H2 is that if firms with weak governance tend to implement clawbacks that lack stringency, then clawbacks may not alter management's incentives to manipulate earnings (as predicted by H1 and H2.) (I investigate this possibility in H3.)

Furthermore, even if weakly governed firms were to implement stringent clawback provisions, there could be uncertainty about the actual willingness of weak boards to enforce the clawback provisions ex post. A common characteristic of many firms with weak governance is that the CEO also serves as Board Chairperson. Under such circumstances, I conjecture that it would be more difficult for a weak Board to enforce the clawback. In either of these situations, the adoption of clawbacks may not lead to a reduction in earnings management incentives at firms having weak governance. Meanwhile, managers of firms with strong governance would be expected to engage in little or no earnings management before clawback adoption. Thus, clawbacks may have little impact on the earnings management of well-governed firms, and therefore, the effect of stringency, (if one exists), may not differ across antecedent governance quality levels.

Association between Clawback Stringency and Corporate Governance

Clawbacks might not have a significant deterrent effect if weakly governed firms implement soft clawbacks, which would be evidenced if a significant positive

association exists between clawback stringency and corporate governance quality. To the extent that clawback stringency is correlated with corporate governance or other firm attributes, that can also significantly influence a firm's earnings management, a standard OLS regression could produce biased estimates of the effects of stringency, incorrectly associating with clawbacks a reduction in earnings management activity that is really driven by concurrent firm characteristics or decisions. Therefore, if there is a systematic relation between firm attributes and stringency, it will be important to control for self-selection when attempting to estimate the effects of stringency.

Several papers strongly suggest that clawback adoptions are related to various governance and firm characteristics. ACY (2011) examine a sample of clawback adoptions between 2006 and 2008 and provide empirical evidence that clawback adoptions are more prevalent in the presence of: (1) stronger independent monitoring over management as measured by an index of management influence, (2) interlocks in directorships with firms who have already adopted a clawback provision, (3) past firm restatements, and (4) a duality of the roles of CEO and board chair, but less prevalent where there is (5) increased information risk in the accounting system.⁹ Surprisingly, they find no evidence that either materiality of the bonus relative to a firm's net income or any employed measure of accounting conservatism affects a firm's likelihood of adoption.

⁹ They measure information risk in the accounting system by changes in "long-term non-cash net operating assets" consistent with the definitions employed by Dechow, Ge, Larson, and Sloan (2007) and Richardson, Sloan, Soliman, and Tuna (2005). They gather data on duality of the CEO and Chairman positions from proxy statements in 2007 for non-adopters, and the year of clawback adoption for firms adopting clawbacks.

In a concurrent study, Brown et al. (2011) find that firm size, past history with restatement, mergers & acquisitions bonuses, and goodwill impairments all increase the likelihood of voluntary adoption and that CEO influence diminishes it. Although not the primary emphasis of their capital market reaction study, Gao et al. (2011) also present evidence that greater CEO influence (measured by turnover and tenure) reduces the likelihood of a clawback adoption and that past history with restatement encourages adoption.

Overall, these studies suggest that the adoption of clawback provisions, like other governance components, results from a self-selection process. I now examine determinants of clawback stringency and investigate the extent to which adopting firms self-select into clawback structures based on governance or other firm characteristics. Specifically, I test for associations between corporate governance or other firm characteristics and clawback stringency, conditional on clawback adoption. The possibility of idiosyncratic clawback structures notwithstanding, I strongly expect a positive relation between clawback stringency and governance quality¹⁰ since clawback provisions can be regarded as a component of a firm's corporate governance and there are several studies that find that stronger corporate governance is associated with an increased likelihood of clawback

¹⁰ The choice of clawback structure could be an idiosyncratic board decision that is based on the personal preferences of board members for a principles-based versus rules-based approach. Thus, board style or philosophy of management could be driving the structures of clawbacks. Two other factors also could cause the structures of clawback provisions to be idiosyncratic. First, boards have to decide whether to use in-house legal attorneys or else use outside legal counsel to assist them in drafting clawback provisions. Second, some boards employ compensation advisors/consultants from external consulting firms. If firms tend to utilize their own in-house legal counsel and/or do not employ outside compensation consultants, there may be more variation in clawback structure due to idiosyncratic influences.

adoption. I conjecture that the same factors that influence governance and/or the adoption of clawbacks are likely to influence their structural features. Therefore, I present the following hypothesis:

H3: There is a positive association between clawback stringency and corporate governance quality.

IV. Methodology and Empirical Estimation Models

This section explains the measures of earnings management, models, and econometric methods, used to test the hypotheses developed in Section III.

Measures of Earnings Management

I perform regression analysis to assess whether clawbacks are associated with reduced earnings management activity. As several measures of earnings management have been employed in the literature, for robustness, I use five separate metrics to proxy for earnings management: (1) abnormal accruals, (2) propensity to avoid a loss, (3) propensity to avoid an earnings decline, (4) discretionary revenues, and (5) percent total accruals. Levels of the various measures of earnings management are computed with respect to various windows following clawback adoption.

Abnormal accruals are the most commonly employed metric for earnings management in the accounting literature. I estimate abnormal accruals for all firms in Compustat, by fiscal year and 2-digit SIC code, using a typical accruals model employed in the literature—the Modified Jones Model as modified by Dechow et al. (1995). Similar to McNichols (2002) and Francis et al. (2005), I include sales

revenue growth and property, plant, and equipment (PPE) in the model. I also incorporate the Ball and Shivakumar (2006) nonlinear adjustment. I require a minimum of 20 observations in each 2-digit SIC code group and exclude banks and insurance companies (firms with 2-digit SIC Codes between 60 and 64, inclusive).

Due to the inherent noisiness of accruals, I also employ two benchmark-beating measures of earnings management: the avoidance of a loss and the avoidance of an earnings decline.¹¹ Missing benchmarks can have important consequences for firms, for example, adverse capital market reactions. (Dechow et al. 2003). (Burgstahler and Dichev (1997) and Phillips et al. (2003) find that firms actively engage in earnings management to avoid having to report earnings declines and losses. Burgstahler and Dichev 1997 document important discontinuities in earnings and earnings change distributions and Phillips et al. (2003) reports that firms reporting a small profit are more likely to have larger discretionary accruals, suggestive of earnings management.

As a sensitivity test, I employ two recently developed measures of earnings management: (1) discretionary revenue, following the Stubben (2011) model, and (2) percent total accruals, following Hafzalla et al. (2010). Stubben (2011) defends the use of discretionary revenue as a proxy for earnings management on the basis that (1) revenue is an important account where extensive manipulations have been found to occur, as cited in SEC enforcement actions, (2) discretionary revenue is less noisy than traditional aggregate accruals measures, (3) discretionary revenue

¹¹ In the interest of maximizing an already modest sample size, I avoid the use of metrics such as meeting versus beating analyst forecasts that require analyst following. However, a future extension of the analyses will include such metrics.

models outperform traditional accruals models in a simulation designed to detect earnings management attributable to both revenue and expense manipulations, especially for growth firms, and (4) discretionary revenue models are able to successfully delineate manipulations in a sample of SEC enforcement actions while traditional accruals models were unsuccessful. I estimate discretionary revenue for all firms in Compustat with available data by 3-digit SIC code, subject to data availability. Otherwise, I use 2-digit or 1-digit SIC code, respectively. Percent total accruals provide a relative comparison of the extent to which firm's earnings are attributable to accruals (non-cash items). Hafzalla et al. (2010) define percent total accruals as the quantity of net income less the sum of net dividends and distributions to and from equity-holders and the increase in the cash balance, scaled by the absolute value of net income. Using this metric, they rank firms into deciles and they demonstrate sizeable hedge returns, indicating an even more extreme accruals anomaly than that first documented by Sloan (1996). Although these latter two measures have not been tested extensively in the literature yet, I use them for robustness tests.

Control Variables – Other Determinants of Financial Reporting Quality

In the regressions that estimate the effects of clawback stringency, I control for the levels of seven classes of factors identified in previous literature to be associated with earnings management, as applicable. The first six: “(1) firm characteristics, (2) financial reporting practices, (3) governance and controls, (4) auditors, (5) equity market incentives, and (6) external factors” are identified in a

review of earnings management literature by Dechow et al. (2010). The final factor, (7) executive compensation practices, is based on previous literature, (Shrieves and Gao 2002; Bergstresser and Philippon 2004), which indicates that a firm's executive compensation practices can be a determinant of earnings management. Control variables are discussed below and detailed definitions are provided in Table 2. Depending on the measure of earnings management estimated, there are slight modifications to the set of control variables applied.

<Insert Table 2 about here.>

Firm Attributes

Multiple studies (e.g., Kinney and McDaniel 1989; Dechow et al. 2010; Beneish 1999; Sweeney 1994; DeFond and Jiambalvo 1994; Dichev and Skinner 2002) document negative associations between either a firm's leverage or a firm's proximity to debt covenants and earnings quality. Due to empirical difficulties in estimating a firm's proximity to debt covenants, I control for leverage. Based on previous literature, I expect the coefficient on the leverage variable to load positively. I separately control for whether or not a firm is a financial firm or utility firm. Finally, I control for net operating cash flow scaled by lagged total assets. By controlling for the natural logarithm of a firm's return on assets in the abnormal accruals regressions and by removing firms experiencing a loss from the percent total accruals regression, I remove firms with negative net income from the two

analyses.¹² I exclude control variables that are mechanically functions of sales revenue or net income from the regressions that explain discretionary revenue, loss avoidance, percent total accruals, or earnings decline avoidance, but in the remaining regressions, I control for sales growth, the percentage change in sales revenue. Similarly, I exclude scaled net operating cash flow from the percent total accruals regression since net operating cash flow is a component of the dependent variable. In the loss avoidance and earnings decline avoidance regressions, I control for abnormal accruals since firms can manipulate accruals to avoid missing benchmarks.

Financial Reporting Practices

Previous studies link financial reporting quality to firms' accounting method choices or accounting principles. Since I focus on overall financial reporting quality and all sample firms apply U.S. GAAP, I do not attempt to control for specific financial reporting practices.

Auditor Attributes

Various studies document that having a Big 4 auditor is associated with higher financial reporting quality. Thus, I control for whether or not a firm employs a Big 4 auditor and predict a negative coefficient.¹³

¹² Firms experiencing a net loss may be fundamentally different from the other firms in that their executives are either not successful at managing earnings or they reside in a more volatile industry, in which case, a measure of their earnings management would be more noisy. I do not expect clawbacks to necessarily have a marginal impact on the financial reporting behavior of loss firms.

¹³ Although I find very limited variation, as nearly all firms employ a Big 4 auditor, the inclusion or exclusion of the variable does not affect the results, with the exception of the loss avoidance model. I include the variable since prior literature suggests that it should be present.

Equity Market Incentives

Dechow et al. (1996) document a negative association between demand for external financing and earnings quality. Therefore, I control for ex ante demand for external financing using the Dechow et. al. (1996) Ex-Ante Measure of Demand for External Financing and I expect a positive coefficient loading, as I explain earnings management. Alternatively, I control for equity market incentives with a dummy variable set equal to one if a firm either experienced a percentage change in long-term debt is greater than or equal to 20% or a change in common shares outstanding greater than or equal to 10%, and otherwise set equal to zero.

External Factors

Some of the most commonly studied external factors found to be associated with levels of earnings management are firm capital requirements, tax regulations, and SOX. I do not expect any of these three factors to play an important role in my study, and therefore do not control for them.¹⁴

Governance and Controls

Based on the previous discussion about governance and financial reporting, I control for governance using an overall index similar to that of ACY (2011),¹⁵ and expect a negative coefficient loading on the index. In instances where I interact

¹⁴ Since I will be excluding from my sample all firms that had to mandatorily adopt TARP/EESA clawbacks, I do not expect to have many financial firms in the sample. Since I will be comparing earnings management for firms at different points in time, based upon their clawback adoption dates, any new tax regulations should not have a systematic effect on firms during the sample period of my analysis. As expected, I find that the vast majority of clawback provisions in my sample (all but 3) were adopted in the post-SOX period and far enough after the implementation of SOX that SOX should not be a confounding variable. All of the firms except for the three adopted in 2005 or later.

¹⁵ This construction of this index is discussed in detail in Table 3.

governance quality with other variables, I split this index at the population median¹⁶ to develop a dichotomous measure of high/low governance quality. Since clawbacks may be implemented in conjunction with other corporate regime changes that can impact financial reporting, I control for executive turnover through use of an indicator variable. I do not predict a sign for the coefficient on this indicator variable, as turnover could either enhance or harm earnings quality.

Executive Compensation Practices

I control for the proportion of total CEO¹⁷ compensation that is non-salary-based and the magnitude of a CEO's incentive compensation scaled by net income or a firm's decile rank for this ratio compared to all other firms in Compustat with available data, as a proxy for the importance of incentive compensation to the firm. I expect positive coefficients for these variables based on prior literature suggesting a positive association between incentive compensation and earnings management.

Testing Hypothesis 1 and Hypothesis 2- Estimating the Effect of Stringency and the Mediating Effects of Antecedent Corporate Governance Quality

Before investigating the extent to which governance or other firm characteristics are systematically associated with stringency, (which I later examine), I test H1 and H2 with the following OLS regression equation:

¹⁶ I split this index at the population median for all firms in Compustat with available governance data. Given that I find that none of the firms adopting clawbacks had CEO and Chairman duality in the year of or prior to clawback adoption, I conclude that the adopting firms had strong overall governance and do not want to force them into high and low governance categories based on a comparison amongst one another.

¹⁷ I control for CEO compensation because CFO compensation data is not available for all firm years contained in the sample.

Equation 1.0 (Test of H1 and H2 Applying OLS)

$$E.M. = \beta_0 + \beta_1 \text{STRINGENCY} + \beta_2 \text{STRINGENCY} * \text{HIGHGOV} + \beta_3 \text{GOV_INDEX} + \gamma'(\text{CONTROLS}^{18}) + \varepsilon$$

The test variable, *STRINGENCY*, is equal to a firm's clawback stringency score. The computation of the stringency measure is explained in Table 4. Clawback attributes that increase the certainty or magnitude of a compensation recovery increase the stringency score. Based on deterrence theory, H1 predicts a negative coefficient for β_1 . H2 predicts a positive coefficient for β_2 that is smaller than the absolute value of β_1 . The "interaction" in the model is not a pure interaction, as the "interaction term" uses a dichotomous version of the governance index, whereas the base variable used to control for governance is the continuous version of the governance index¹⁹. For brevity, I list the control variables in Table 2 and again in the regression results tables. If clawback firms appear more than once in a given regression sample, I cluster standard errors.

¹⁸ Control variables are defined in Table 2.

¹⁹ This is necessary to avoid severe multicollinearity problems. I attempt to estimate the model with a dichotomous version of the governance in the interaction term along with a dichotomous base and another version with the continuous governance index value in the interaction term and the continuous governance index as a base. Both of these specifications produced severe multicollinearity that made all coefficients in the models insignificant, with p-values close to 1.0. The only way to estimate the model with reliable coefficients was to use the "quasi interaction term" specification listed above in Equation 1.0. I refer to this term as an interaction, even though it is not technically an interaction in a pure sense of the term.

Testing Hypothesis 3 – Predicting Clawback Stringency and Examining the Relation Between Corporate Governance Quality and Clawback Stringency

In H3 I investigate one particular avenue through which corporate governance quality might impact clawback effectiveness. I examine how corporate governance quality influences firm selection of clawback stringency. I test for a structural association between corporate governance and clawback stringency, among firms that adopt clawbacks, using a model that incorporates many of the potential determinants of clawback adoption investigated by ACY (2011), Brown et al. (2011), and Gao et al. (2010), with slight modification.²⁰

I estimate the following ordered probit choice model to predict stringency:

Equation 2.0

$$\text{Probit (STRINGENCY)} = \beta_0 + \beta_1 \text{GOVERNANCE_INDEX_LAG1} + \beta_2 \text{CEO_CHAIR_DUALITY_LAG1} + \beta_3 \text{CEO_TURNOVER_LAG1} + \beta_4 \text{GOODWILL_IMPAIR} + \beta_5 \text{LN_ASSET_LAG1} + \beta_6 \text{CAPITAL_INTENSITY} + \beta_7 \text{INDUSTRY_AVG_RDTOSALE} +$$

²⁰ I add a few additional predictor variables and slightly modify their variable definitions to suit my sample period. Variable definitions are provided in Table 3. In untabulated analyses, similar to ACY (2011), I control for both ease of earnings management and noise in the accounting system. They are measured using the median level of abnormal accruals during the period from 4 years prior to the current fiscal year, leading up to 2 years prior to the current fiscal year, and the standard deviation of abnormal accruals during the past 5 fiscal years prior to the current one, respectively. Due to multicollinearity issues, I also run a specification omitting the ease of earnings management variable, since ease of earnings management is not significant and has a larger p-value. However, noise is not significant in either regression and ease of earnings management is not significant in the specification including both. I investigate whether information risk is a determinant of stringency. ACY (2011) measure information risk in the accounting system by changes in “long-term non-cash net operating assets” consistent with the definitions employed by Dechow, Ge, Larson, and Sloan (2007) and Richardson, Sloan, Soliman, and Tuna (2005). They gather data on duality of the CEO and Chairman positions from proxy statements in 2007 for non-adopters, and the year of clawback adoption for firms adopting clawbacks. I find no evidence that information risk significantly influences stringency. Finally, I find no evidence that a dummy for financial institutions has a significant impact on stringency.

$$\beta_8 FINANCE + \beta_9 UTIL_FIRM + \beta_{10} CEOCOMP_MIX + \beta_{11} CEOCOMP_MIX \times DEC_INCENTIVE_MAGNITUDE_NI + \beta_{12} ADOPTION_SPEED + \varepsilon$$

Table 3 provides definitions for the predictor variables. Table 4 explains the computation of the stringency measure. The predictor variables in this model may be grouped into five categories: (1) governance, (2) financial reporting, (3) financial, (4) compensation, and (5) other. The predictor variables and their anticipated signs are discussed below.

Governance Predictors

I control for a firm's overall corporate governance quality using an index similar to the ACY (2011) index. I expect this index to load positively. I also separately control for duality of the CEO and board chairman positions. In addition, I control for CEO²¹ turnover, as I anticipate that clawback adoptions will be more stringent in the presence of a corporate regime change characterized by top executive turnover since management resistance to clawback adoption may be mitigated in such instances.

Financial Reporting Predictors

Similar to ACY (2011), subject to data availability, I control for noise in the accounting system. Clawbacks accompanies by greater risk in the accounting system would inflict a larger incremental compensation risk on the manager. Based on the finding of LS (2010) that the optimality of clawback provisions depends on noise in

²¹ I control only for CEO turnover due to limitations on data availability with respect to CFO turnover.

the accounting system, I use the standard deviation of and median of abnormal accruals during the five years leading up to the earliest clawback adoption as a proxy for this attribute. However, I ultimately remove the noise variable due to lack of significance. In addition, I control for presence of a recent financial restatement and for past history with fraud I expect positive coefficients for both of these variables, as both could motivate boards to take remedial action. However, both variables drop out due to lack of incidence of either recent fraud or recent history of restatement.

Financial Predictors

Similar to Brown et al. (2011), firm asset size and goodwill impairments are included as predictors. Debt issuance and equity issuance are controlled for using the variable *FINANCE*, which is set equal to 1 if a firm's percentage change in long-term debt is greater than or equal to 20% or its percentage change in common shares outstanding is greater than or equal to 10%. Both of these variables are expected to have positive coefficients.

Executive Compensation Predictors

I control for the importance of bonus/incentive compensation to the executive using the percentage of total CEO compensation that is non-salary and the importance of bonus/incentive-based compensation to the firm, based on the ratio of the CEO's non-salary-based compensation to net income. I interact the latter measure of the importance of non-salary-based compensation to the firm with the governance index. (Due to multicollinearity with the first compensation variable, I

omit the base variable capturing the importance of non-salary-based compensation to the firm.) These performance-based compensation measures are expected to load positively.

Other Firm Characteristic Predictors

A separate indicator variable is used to identify firms that are utility firms. Although, I investigate whether financial firms are associated with increased stringency, I find that a financial firm dummy is insignificant and remove it. Table 3 provides more detailed definitions for each of the variables.

Berry et al. (2006) investigate various firm characteristics that can serve as determinants of governance. Berry et al. (2006) argue that monitoring may pose more challenges for firms whose assets bases are comprised more heavily of intangible assets. They proxy for asset intangibility with two measures: capital intensity and industry average R&D-to-sales. Therefore, I include both of these measures as potential determinants of clawback stringency. Following Berry et al. (2006), I also measure capital intensity as net fixed assets divided by total assets and I compute industry R&D-to-sales as the average ratio of research and development expense to sales for each 2-digit SIC Code. On one hand, clawbacks might be a critical component of governance at firms where monitoring is more difficult. On the other hand, I expect that at firms where monitoring is more difficult, overall governance will be weaker, and therefore, such firms would be less likely to adopt a stringent clawback, an additional component of governance. Finally, I control for adoption speed, a firm's quickness to adopt a clawback provision, and

expect it to load positively. I expect that a firm's quickness to adopt may be related to its underlying motivation for implementing a clawback provision, which should drive a firm's choice of clawback structure. I define the adoption speed as the year of clawback adoption subtracted from 2010 (the year that the DF Bill was passed). The characteristics of firm' clawback provisions are summarized in Table 5.

<Insert Tables 3, 4, and 5 about here.>

Econometric Approaches for Self-Selection

If there is a systematic association between clawback stringency and corporate governance, supporting H3 (or significant associations between clawback stringency and other firm characteristics), it will be necessary to apply econometric remedies that address selection bias when estimating the marginal effects of stringency on earnings management. Attributes such as governance might not only influence a firm's stringency decision, but might also influence a firm's subsequent response to clawback stringency, thereby making it difficult to isolate the effect of the stringency on earnings management. In this situation, an OLS regression could incorrectly attributing to clawbacks reductions in earnings management activity that are really due to concurrent firm characteristics or decisions, thus, potentially overstating the extent to which clawbacks constrain earnings management.

A firm's decision to implement a given level of clawback stringency is analogous to a subject's election to receive a particular level of treatment in a multi-

level experiment. Firms that voluntarily choose high levels of stringency may be fundamentally different from firms that choose low levels of stringency.

In the study at hand, it is of interest to ascertain whether voluntary clawbacks effectively mitigate earnings management behavior (a response variable). Specifically, this study attempts to estimate the “treatment effects” of clawback stringency on firms’ financial reporting behavior, with a firm’s response to “treatment” measured by a firm’s level of earnings management activity, meanwhile controlling for the effects of other covariates known to also influence earnings management behavior. Unfortunately, however, given that clawbacks are not implemented in a controlled experimental environment, this poses some challenges when estimating their causal effects. Specifically, when estimating the effect of clawback stringency on firms’ earnings management behavior, one must make a counterfactual assumption about how the firms’ levels of earnings management would have been during the same period, absent the particular level of stringency. Since it is impossible to observe this, it becomes necessary to find a proxy for the counterfactual outcome. (Tucker, 2011) One way to develop a proxy for the counterfactual outcome would be to examine the earnings management behavior of similar firms that implemented different levels of stringency or did not adopt clawbacks. In this study, however, I restrict the focus to analyzing the differential effects of stringency among firms that actually adopted clawback provisions.

The test of H3 investigates whether, after conditioning on clawback adoption, firms self-select into clawback structures. As an additional test for self-selection,

where possible, I apply an econometric technique –Two Stage Heckman (1979) estimation – to estimate the effects of clawback stringency and evaluate the extent to which self-selection may be present. The Heckman model estimates the average treatment effect (ATE) of clawback stringency (dose) on earnings management behavior for each governance-level group.²²

The Two-Stage Heckman approach utilizes a first stage selection model to predict stringency that is identical to Equation 2.0. The first stage selection model is used to estimate an inverse Mills ratio that is subsequently inserted as a control variable in the second stage equation that explains earnings management.²³ The inverse Mills ratio attempts to control for remaining, unobservable common covariates that could commonly influence both clawback structure and subsequent earnings management behavior. A statistically significant inverse Mills ratio would indicate that there is selection bias, while an insignificant inverse Mills ratio would mitigate concerns about selection bias. A limitation of the Heckman approach, however, is that it requires strict distributional assumptions: linearity of the outcome regression, a probit selection model in the first stage, and bivariate normal distributions for unobservable factors in both stages. (Tucker, 2011).

Under the Heckman (1979) approach, after estimating the inverse-Mills ratio from the selection equation, I test H1 and H2 with the following regression equation:

²² In untabulated analyses, I find that when applying the Two-Stage Heckman Model to the abnormal accruals, percent total accruals, and discretionary revenue analyses, the inverse Mills ratio is insignificant, when only adopting firms are considered and also when both adopting and non-adopting firms are included in the regressions. Thus, I conclude that selection bias does not appear to be significant.

²³ Each clawback-adopting firm is allowed to enter the sample once and appears during the fiscal year of its clawback adoption.

Equation 3.0 (Test of H1 and H2 Using Heckman Two-Stage Approach)

$$E.M. = \beta_0 + \beta_1 STRINGENCY + \beta_2 STRINGENCY * HIGHGOV + \beta_3 GOV_INDEX + \gamma'(CONTROLS) + \rho\sigma(IMR) + \varepsilon$$

To satisfy the exclusion restriction of the instrumental variables approach required by the Heckman technique, I exclude several variables from the second stage equation that are included in the selection equation, (e.g., adoption speed, industry average R&D-to sales, and capital intensity). The latter two factors are significantly associated with clawback stringency, but not significant in explaining earnings management in any of the regressions in which they would be included. (Industry average R&D-to sales would be excluded as a control variable in the loss avoidance and earnings decline avoidance regressions, as it is, mechanically, a function of net income.) Therefore, capital intensity can serve as an instrument in all of the regressions and, in some of the regressions, industry average R&D-to sales can operate as an instrument as well. Surprisingly, adoption speed does not appear to significantly influence clawback stringency, indicating that it would not function as a strong instrument. Again, as in the OLS estimation, H1 predicts that β_1 and $(\beta_1 + \beta_2)$ in Equation 3.0 will both be negative. However, H2 predicts that β_2 will be positive and smaller than the absolute value of β_1 . As mentioned previously in the discussion of Equation 1.0, to avoid severe multicollinearity, the “interaction” in the model is not a pure interaction, since the continuous governance index is used as a base in the model, but a dichotomous version of the governance index is applied in the interaction term.

V. Sample Selection and Measurement of Variables

Sample Selection – Identification of Voluntary Adopters

I conducted comprehensive keyword searches on LexisNexis²⁴ to identify firms that announced an adoption of a clawback provision prior to July 21, 2010, the date on which the DF legislation was passed. These announcements appear in the Exhibit 10 – Material Contracts section of 8-K, 10-K, 10-Q documents for provisions that are drafted into employment agreements and also appear in proxy statement filings with the SEC. As an alternative to making a clawback provision a part of an employment contract, firms may modify their corporate charters and bylaws to include the provisions. Thus, I also searched corporate charters and bylaws for adoptions of the provisions. As a completeness check, I have compared my sample of voluntary adopters to those contained in a Corporate Library document, to aid in the identification of voluntary adopters. I performed keyword searches to identify firms that adopted clawback provisions prior to July 21, 2010 when Dodd-Frank became effective²⁵. Given the interest in identifying voluntary adopters of clawbacks, I remove firms from my sample who state that their reason for adoption was to

²⁴ Search terms are available from the author upon request.

²⁵ As a sensitivity test, I examine results if I remove firms from my sample that implemented clawbacks between June 1, 2010 and July 21, 2010, as there is a possibility that firms adopted clawback provisions just before the passage of DF in anticipation of the regulation. I find 5 firms that meet this criterion. The coefficients on the stringency variable are unchanged. However, the coefficients on the “interaction terms” for high governance and stringency in the abnormal accruals and discretionary revenue regression go from being significant to statistically insignificant. However, the power of the tests is reduced after removing these observations. The five firms had a mean stringency of 9.6 in comparison to a mean stringency of 9.27 for the other firms. Overall, it does not appear that the firms adopted substantially different clawback arrangements in the different periods. Given that the SEC has still not yet adopted a final rule concerning DF clawback structures, the parameters in DF may not withstand the final rule, and thus, all firms that adopted even after DF have been forced to speculate concerning the final rule. Managers adopting just prior to the passage of DF should have faced the same general incentives associated with clawbacks as the managers of firms adopting clawbacks earlier.

comply with TARP or EESA requirements since those were forced adoptions. I identified 286 voluntary adoptions.

Variable Measurement – Corporate Governance Quality Levels

I measure corporate governance quality using an index similar to ACY (2011)²⁶. I refer to this index as *GOVERNANCE_INDEX* and use the aforementioned definition for the variable as defined for Equation 1.0. For purposes of interacting this measure with other variables, I split the *GOVERNANCE_INDEX* variable at the population median²⁷ for all firms in Compustat with available data for the index and characterize firms that are above the median as “high governance firms” and firms that are below the population median as “low governance firms”. This index can accommodate missing observations for governance variables because it scales the constructed governance score for each firm by the number of available governance elements. For robustness, I consider removing firms with missing governance information. However, I find that no firms are missing governance information that is needed to compute the governance index.

Variable Measurement – Clawback Stringency

The defining characteristics of clawback provisions were discussed earlier in the paper. At a high level, stringency may be defined in terms of three major

²⁶ I omit variables that require additional hand-collection (whether or not the company is a family business and whether or not the founder has remained active in the company). Variable definitions are provided in Table 3.

²⁷ As mentioned previously, the adopting firms have strong overall governance, as none had duality of the CEO and Chairman positions in either the fiscal year of or prior to clawback adoption. Thus, I characterize firms as having low or high governance based on their positioning in comparison with all other firms that have the prerequisite data available.

components: 1) the ease with which a clawback is triggered, 2) the amount of recovery provided for in the agreement, and 3) the extent of coverage of firm executives.²⁸ Stringency is increasing in all three of these major attributes.

A priori, I have no theoretical basis for assuming that any single clawback attribute is more important than another, and there is no previous literature indicating this either. Therefore, in constructing the stringency metric, I allow each incremental increase in an attribute that increases the certainty or severity of a compensation recovery to add one unit to a firm's overall composite stringency measure. This approach is comparable to that of Gompers et al. (2003) who assign firms corporate governance scores based on the inclusion of various governance components that serve to reduce shareholder rights. Analogous to Gompers et al. (2003) who allow the presence of any given feature of corporate governance to add one unit to a firm's overall corporate governance index score, I allow the presence of any incremental clawback feature that increases either the probability or magnitude of a clawback invocation to add one unit to a firm's composite stringency score and the absence of that particular attribute to add zero to the composite score. For instance, not imbedding a materiality threshold in a triggering restatement or a triggering misstatement adds one unit of stringency, compared to establishing the triggering event as a restatement or misstatement, respectively. Thus, each

²⁸ Based on an earlier preliminary sample of voluntary clawback adoptions, I find almost no variation in the pay types covered by the provisions, as nearly all firms covered all bonus or incentive pay in their policies. A large percentage of firms do not explicitly state a specific length for the recovery period, and only a small handful provide for a symmetric recovery. Therefore, I focus on the remaining characteristics of clawbacks in measuring their stringency. A few firms recover the entire bonus and incentive compensation, plus interest.

incremental increase in stringency is reflected as a one-unit increase in the composite stringency measure. However, it could be argued that the components of the triggering conditions are more important than the remaining attributes because they determine whether or not a clawback will occur, and if a clawback does not take place, the other attributes have no effect. Therefore, as a sensitivity test, I construct a second stringency measure in which each incremental increase in the stringency of a triggering condition adds twice as much (two units) to the overall composite stringency score. In addition, I implement two other stringency measures—one that assigns equal weights to all categories that form the stringency score and one that assigns twice as much weight to the three triggering condition components as it does to the other two components. Table 4 summarizes the primary stringency measure and the first alternative measure, displaying each of the components whose scores are summed to form composite measures of stringency. Table 5 presents descriptive statistics for firms' stringency scores with the primary (single unit increase) measure applied.

VI. Empirical Results

Analysis of the Effects of Clawback Stringency and Corporate Governance on Earnings Management

As a starting point in the analysis, I estimate ordinary least-squares (OLS) regressions to examine the impact of clawback stringency on abnormal accruals, percent total accruals, and discretionary revenue for both low and high-governance

firms that adopted clawback provisions. I also estimate probit models to predict the likelihood of a firm narrowly avoiding a loss or narrowly avoiding an earnings decline. Table 6 describes the sample selection for the analyses that estimate the impact of stringency on various measures of earnings management. Descriptive statistics for the variables are presented in Tables 7 and 8. Table 9 presents the results of the regressions of abnormal accruals, percent total, accruals, and discretionary revenue on the governance, clawback stringency, and firm control variables. Table 10 presents the results for the loss avoidance regression and the earnings decline avoidance regression.

In the abnormal accruals (loss avoidance) regressions, I find significant negative coefficients (marginal effects) on *STRINGENCY_EQUALWEIGHT* and significant positive coefficients (marginal effects) on *HIGH_GOVxSTRINGENCY_EQUALWEIGHT* that are smaller than the absolute values of the corresponding coefficients on the *STRINGENCY_EQUALWEIGHT* variable. Although these results only hold after 2007 in the abnormal accruals regression and after 2008 in the loss avoidance regression, they support both H1 and H2. In an untabulated analysis, I find that the mean governance index level for initial adopters of clawbacks steadily decreased from 2005 through 2008, with the initial adopters having much stronger governance than the later adopters. Although there were very modest increases in the mean governance index value from 2008 to 2009 and again from 2009 to 2010, the mean levels during 2009 and 2010 were still considerably lower than the mean values in 2005, 2006, and 2007. Thus, it is not surprising that

firms that adopted clawbacks later would have greater room for improvement in their earnings quality.

In the percent total accruals regression, which includes all clawback with prerequisite data available in the fiscal year of adoption, I find a statistically insignificant coefficient for *STRINGENCY_EQUALWEIGHT*, but a significant negative coefficient for *LOW_GOVxSTRINGENCY_EQUALWEIGHT*, indicating that increased stringency is associated with lower earnings management only for the low-governance firms, but not for the high-governance firms. This result supports H2. In the discretionary revenue regression, both the low and high-governance firms experienced greater reductions in earnings management associated with heightened clawback stringency. However, there was no significant difference between the effects of stringency on the two groups. Increased stringency does not appear to exert a significant impact on the earnings decline avoidance behavior of firms with either low or high governance.

Overall, I generally find evidence that, for both the low-governance and high-governance firms, increased stringency is associated with a lower level of earnings management, and that the low-governance firms tend to experience a greater reduction in earnings management than the well-governed firms. In summary, three of the five earnings management analyses support H1 and three support H2. The one analysis that does not support either (earnings decline avoidance) requires a probit model that is less reliable with the small number of observations.

Consistent with expectation, in the abnormal accruals regression, *LN_ROA* and *DEC_INCENTIVE_MAGNITUDE_NI* have positive coefficients. However, only *LN_ROA* is significant. Surprisingly, *SC_OPER_CASHFLOW* has a significant negative coefficient. As expected, *BIG4_AUDITOR* and *GOV_INDEX* have negative coefficients. However, only *BIG4_AUDITOR* is significant. Contrary to expectation, *DEMAND*, *LEVERAGE*, and *CEOCOMP_MIX* variables all have negative coefficients, although none is significant. In the percent total accruals regression, all control variables have signs consistent with except for *FINANCE*, which had a negative sign, although not significant. Among the control variables whose signs follow expectation, only *GOV_INDEX* is significant. The discretionary revenue estimation produced the expected signs on control variables, with the exception of the *DEMAND* and *DEC_INCENTIVE_MAGNITUDE_NI* variables, which had negative coefficients, and the *BIG4_AUDITOR* variable, which had a positive coefficient, but none were significant.

In the loss avoidance regression, the marginal effects for *ABNORMAL_ACCRUALS*, *LEVERAGE*, *BIG4_AUDITOR*, and *SC_OPER_CASHFLOW* are significant and negative, while the marginal effect for *DEC_INCENTIVE_MAGNITUDE_NI* is positive and significant. The signs on the other control variables are not significant. Among them, however, *DEMAND* has a negative sign, unexpectedly, while the remaining variables have signs consistent with expectation. In the earnings decline avoidance regression, the signs on control variables mirror expectation with the exception of the negative marginal effect for *FINANCE*.

<Insert Tables 6, 7, 8, 9, and 10 about here.>

Robustness Tests

The preceding results for the abnormal accruals, percent total accruals, and discretionary revenue estimation models are robust to the Breusch-Pagan test for heteroskedasticity. In addition, all of the variables in the models have high tolerance and none have a variance inflation factor larger than 4.24, indicating that there is low multicollinearity.

Alternative Computations of Stringency

Many of the earlier empirical results are virtually unchanged when various alternative measures of clawback stringency are applied to the earnings management regressions. I compute three alternative additive measures of stringency. First, I compute stringency by adding two units to the score for each incremental increase in the severity of the triggering and adding one unit to the score for each increase in the severity of the amount of executive coverage. This approach is similar to the original computation, with the only difference being that each elevation in the strictness of the initiation, triggering events, or sub-triggers adds two units to the total stringency score. The computation of this measure is displayed in Table 4.

In addition, as a further robustness test, I compute two other variants of the stringency measure. First, I apply equal weights to all stringency attributes by taking a firm's stringency score for a given category, dividing it by the maximum possible points in that category, and then applying a weight of 0.2, since there are 5 general

categories. Finally, I compute stringency with twice as much weight (25%) applied to each of the three triggering condition components as compared to the weight that is applied (12.5%) to the executive coverage and clawback amount stringency components, respectively. Again, similar to the preceding measure, the weights are applied to the ratio of the stringency score for each category to the maximum potential stringency score for the category.

The results for H1 and H2 in the abnormal accruals regressions are fully robust to all of the alternative measures of clawback stringency, with the exception of a lack of significance for β_2 in the regression with the first alternative stringency measure, which does not support H2. The percent total accruals regressions that use the latter two alternative measures of clawback stringency (equal-weighted components and double-weighted triggering components) continue to support H2. (The previous percent total accruals results supported H2 but not H1.) However, in the regression with the first alternative measure (double points assigned to the triggering condition components), the coefficient on β_2 is positive and smaller than the absolute value of β_1 , although consistent with H2, is insignificant with a t-statistic of 1.91. Thus, both the abnormal accruals and the percent total accruals results are unchanged with (the latter) two of the three alternative stringency measures.

Meanwhile, the previous discretionary revenue regression results (supporting H1) are only robust to the first alternative stringency measure. (Earlier discretionary revenue regression did not support H2.) There is weak evidence

supporting H2 in the discretionary revenue regressions, as the positive sign on β_2 persists under all three alternative stringency computations and β_2 is always smaller in magnitude than the absolute value of β_1 , consistent with H2, but β_2 is never significant.

The loss avoidance regression results supporting H1 and H2 are only robust to the second alternative stringency measure, although the signs on the coefficients are consistent with H1 and H2 when using the first alternative measure of stringency. Earnings decline avoidance results do not withstand any of the alternative measures of stringency. However, coefficient estimates in both sets of probit regressions may be unstable due to the small number of observations.

Analysis of The Relation Between Corporate Governance Quality and Clawback Stringency

I estimate an ordered probit regression of clawback stringency on the firm variables, conditional on clawback adoptions. The sample selection is displayed in Table 10. Descriptive Statistics for the regression are presented in Table 11. Table 12 presents the results from the regression. Column 1 displays the coefficient estimates and Column 2 displays the marginal effects. This regression provides an indication of how the various firm characteristics are associated with clawback stringency. Consistent with H3, conditional upon clawback adoption, I find a positive marginal effect for corporate governance quality, when explaining stringency, as indicated by the marginal effect for *GOV_INDEX*, although not statistically significant.

The lack of significance is likely due to the much more limited variation in the governance index when conditioning on both firms that adopt clawbacks. In addition, the stringency decision itself may be more of an idiosyncratic board decision once it is a given that a firm adopts a clawback provision. The signs for the marginal effects on all control variables are consistent with expectation, with the exception of the following variables: *GOODWILL_IMPAIR_LAG1*, *FINANCE*, and *GOV_INDEX_LAG1xINCENTIVE_MAGNITUDE_NI*. These variables all have negative marginal effects. However, none is statistically significant. *CAPITAL_INTENSITY_LAG1* has a significant negative marginal effect and *INDUSTRY_AVERAGE_RDTOSALE_LAG1* has a significant positive marginal effect, but the signs on the other variables are statistically insignificant. Interestingly, none of the 189 firms that adopted clawbacks and had the prerequisite data available for the ordered probit stringency determinants model experienced restatements during 2000 through 2004 or frauds between 1995 and 2006 and none of the 286 identified voluntary adopters had CEO and chairman duality. Thus, those three variables dropped out of the model, and it appears that the adopting firms in the sample have a preventive motivation for adopting, rather than a corrective one. It also appears that the executives of firms where there is CEO and Chairman duality can successfully block the implementation of a clawback provision.

Table 12 also provides descriptive statistics comparing the low and high-stringency adopting firms. The means for most of the variables are quite similar. However, the main distinctions are that the high-stringency firms appear to have

stronger capital market incentives, as indicated by the variable *FINANCE*, and a greater proportion of the high-stringency firms are financial firms as compared to the low-stringency firms. On average, the high-stringency firms also have modestly higher goodwill impairments and capital intensity. However, the low-stringency firms have a higher mean governance index, percentage of CEO compensation that is incentive-based, CEO turnover, asset base, industry-average R&D-to-sales, firm age, and composition of utility firms. Overall, the two groups are quite similar.

<Insert Tables 11, 12, and 13 about here.>

Econometric Techniques for Self-Selection into Clawback Stringency

Although, conditional on clawback adoption, there is not a significant association between clawback stringency and firms' pre-existing corporate governance quality, there is some evidence that other firm characteristics are significant determinants of clawback stringency. Therefore, I apply the Heckman 2-Stage Approach where possible to investigate the extent to which selection bias is present. In the untabulated analyses, I find no evidence that any of the inverse Mills ratios are significant.²⁹ Thus, I conclude that any selection bias present does not appear to exert a significant impact on the coefficients in the earnings management regressions.

²⁹ I applied the Heckman approach to the abnormal accruals and percent total accruals estimations.

VII. Conclusion

In conclusion, this paper presents some evidence that increased clawback stringency is associated with a greater deterrent effect for both weakly governed and well-governed firms, supporting H1. However, this study demonstrates, that in several cases, the deterrent effect is attenuated for firms with stronger antecedent corporate governance, consistent with H2. Thus, an implicit finding is that the weakly governed firms appear to have implemented sufficiently credible clawbacks to actually realize a deterrent effect. Importantly, however, this study also demonstrates that clawbacks cannot be expected to produce a uniform deterrent effect, thus, DF clawbacks may not have the anticipated deterrent effect for firms of all (governance) types. Among firms that voluntarily adopt clawback provisions, the clawback stringency decision is not systematically related to the firm characteristics examined, other than capital intensity and industry average R&D-to sales, which have been demonstrated by Berry et al. (2006) to be antecedents of corporate governance. Although I do not find a significant positive association between clawback stringency and corporate governance quality, I do find strong evidence that the adopting firms are generally firms with superior governance, as none of the adopting firms had duality of the CEO and Board Chairman positions during the fiscal year of or prior to clawback adoption. This latter result, coupled with the documented deterrence effects of stringency, provides support for a need for regulation such as that proposed by DF. However, DF only sets a floor for the minimum stringency of clawbacks. Numerous firms in the sample (approximately

23% of firms) voluntarily implemented clawbacks at least as stringent as the proposed DF clawback, and approximately 12% of firms in the sample instituted more stringent clawbacks.

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APPENDIX

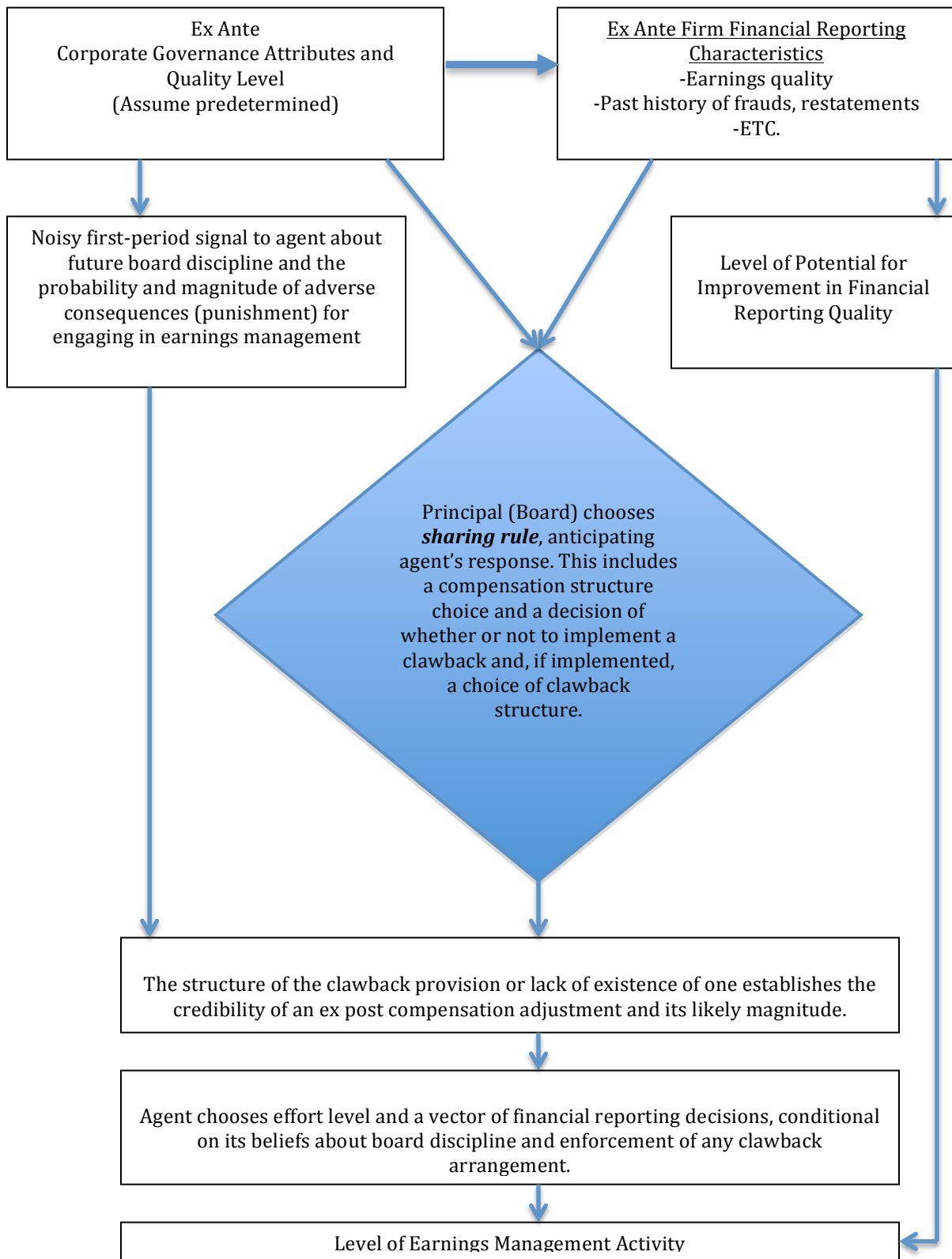


Figure 1: Conceptual Illustration of Clawbacks, Governance, and Financial Reporting

Table 1
Defining Features of Clawback Provisions

Triggering Conditions	
	<ul style="list-style-type: none"> • Initiation: whether a board is obligated to pursue a recovery versus can pursue one at its will • Events: use of inaccurate operating metrics, financial misstatement, financial restatement • Behaviors: misconduct (intentional “bad behavior”), negligence • Personal Responsibility: required or not required
Amount of Clawback	
	<ul style="list-style-type: none"> • Full bonus or incentive compensation • Excess bonus or incentive compensation • Excess plus some additional amount, subject to discretion
Executive Coverage	
	<ul style="list-style-type: none"> • All executives • Sub-set of executives: specific named individuals
Pay Type Coverage	
	<ul style="list-style-type: none"> • All pay types • Sub-set of pay types: i.e. cash bonus, or options only
Asymmetric or Symmetric Recovery	
	<ul style="list-style-type: none"> • Asymmetric Recovery: permits only the company to recover from the executive • Symmetric Recovery: also allows executive to recover from the company if it is later determined that the bonus or incentive compensation was under-paid.
Length of the Recovery Period	
	<ul style="list-style-type: none"> • Look-back Period: how far back a company looks back in time from a specified date, for purposes of computing the recovery amount • Forward-Looking Period: how far forward a company looks in time from a specified date, for purposes of computing the recovery amount

Table 2
Control Variables Used in the Estimation
Of the Effects of Clawback Stringency

Control Variable	Definition
<i>LEVERAGE</i>	Ratio of the sum of current assets and long-term debt divided by total assets
<i>FINANCE</i>	1 if a firm's percentage change in long-term debt is greater than or equal to 20% or its percentage change in common shares outstanding is greater than or equal to 10%.
<i>SALES GROWTH</i>	Percentage change in sales
<i>LN_ROA</i>	Natural logarithm of the ratio of net income to assets lagged to the end of the prior fiscal year.
<i>SC_OPER_CASH_FLOW</i>	Ratio of net operating cash flow scaled by total assets
<i>BIG4_AUDITOR</i>	1 if firm employed a Big 4 auditor, 0 otherwise
<i>DEMAND</i>	Dechow et. al. (1996) Ex-Ante Measure of Demand for External Financing. Computed as the change in the following: cash from operations in the period t-1, less average capital expenditures in periods t-4 to t-2, all divided by current assets in period t-2, where year t is the fiscal year of the first clawback adoption for the sample.
<i>GOVERNANCE_INDEX</i>	Follows definition above in Table 3.
<i>EXECUTIVE_TURNOVER</i>	1 if there was a change in CEO, 0 otherwise
<i>CEOCOMP_MIX</i>	The percentage of total CEO compensation that is non-salary-based
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	The decile rank of the dollar value of the CEO's total incentive compensation, scaled by net income, as compared to all other firms with available data in Compustat.
<i>FINANCIAL_FIRM</i>	1 if the firm is a financial institution, 0 otherwise. Financial institutions are firms that have a 2-digit Standard Industrial Classification (SIC) Code between 60 and 69, inclusive.
<i>UTIL_FIRM</i>	1 if the firm is a utility company, 0 otherwise. Companies that have a 2-digit SIC Code between 48 and 50, inclusive, are utility companies.

Table 3
Predictor Variables for the Stringency Selection Model

Variable	Definition
<i>GOV_INDEX_LAG1</i>	Similar to ACY (2011) governance index. An additive measure designed by ACY (2011) to capture the extent of independent monitoring over management. This index that is the sum of the following components: (1) .33 multiplied by the quartile rank proportion of independent directors, (2) cumulative voting, and (3) secret ballots, and subtracting (4) .33 multiplied by the quartile rank of inside ownership, (5) whether the CEO is also the Chair, (6) whether the company is listed as a family business, (7) whether there are dual classes of common equity, (8) whether there is supermajority voting, (9) whether a company has a provision that limits amendments to the bylaws, (10), whether a company has a provision that limits amendments to the charter, and (11) and whether there is unequal voting. Note: each of the above binary items adds or subtracts one unit from the index, as applicable, if the answer to the binary item is “yes”. I measure this index as of the fiscal year prior to clawback adoption.
<i>CEOCHAIR_DUALITY_LAG1</i>	1 if the CEO also chairs the board of directors, 0 otherwise, measured as of the fiscal year prior to clawback adoption.
<i>CEO_TURNOVER_LAG1</i>	This variable is equal to 1 if there was a change in CEO in the fiscal year prior to clawback adoption, 0 otherwise. Alternatively, I measure CEO turnover during the fiscal year of clawback adoption. CEO turnover is not significant in either specification.
<i>NOISE_LAG1</i>	Standard deviation of abnormal accruals in the five fiscal years leading up to, but not including, the fiscal year of clawback adoption. The abnormal accruals are measured following the Modified Jones Model as modified by Dechow et al. (1995). Similar to McNichols (2002) and Francis et al. (2005), I include revenue growth and property, plant, and equipment (PPE) in the model. I also incorporate the Ball and Shivakumar (2006) nonlinear adjustment.
<i>EM_EASE_LAG1</i>	Median abnormal accruals during the five fiscal years leading up to the fiscal year of clawback adoption
<i>RESTATEMENT_EVER</i>	Slight modification of the ACY (2011) definition: 1 if the firm had a restatement during the year 1999 through 2005 as identified by the GAO Reports, 0 otherwise.
<i>FRAUD_EVER</i>	1 if the firm had a publicly known accounting fraud during or after 1998 and prior to 2007, 0 otherwise. I add this to supplement ACY (2011).
<i>LN_ASSET_LAG1</i>	Natural logarithm of total assets, lagged from the end of the fiscal prior to the fiscal year of clawback adoption.

Table 3 (continued)	
<i>GOODWILL_IMPAIR_LAG1</i>	Follows Brown et al. (2011): “An indicator variable that is equal to 1 if the firm has reported goodwill impairment loss following the M&A(s) during the period from fiscal year t-5 to t-1, and 0 otherwise”. This variable is evaluated as of the fiscal year prior to clawback adoption.
<i>CEOCOMP_MIX_LAG1</i>	Percentage of total CEO compensation that is non-salary, measured as of the fiscal year of clawback adoption.
<i>GOV_INDEXxINCENTIVE_MAGNITUDE_NI</i>	The ratio of the CEO’s total incentive compensation, scaled by net income for the current fiscal year interacted with a firm’s governance index score.
<i>FINANCIAL_FIRM</i>	1 if the firm is a financial institution, 0 otherwise. Financial institutions are firms that have a 2-digit Standard Industrial Classification (SIC) Code between 60 and 69, inclusive.
<i>UTIL_FIRM</i>	1 if the firm is a utility company, 0 otherwise. Companies that have a 2-digit SIC Code between 48 and 50, inclusive, are utility companies.
<i>FINANCE</i>	Equal to 1 if a firm’s percentage change in long-term debt is greater than or equal to 20% or its percentage change in common shares outstanding is greater than or equal to 10%.
<i>CAPITAL_INTENSITY_LAG1</i>	If adopter: Time in years between the year of adoption and 2010.
<i>IND_AVG_RDTOSALE_LAG1</i>	
<i>ADOPTION_SPEED</i>	If adopter: Time in years between the year of adoption and 2010.

Table 4
Clawback Stringency Measure (Alternative Scoring Schemes)

Category	Equal	Double
<u>Initiation</u>		
Automatic: Board/comp committee <i>must</i> initiate	2	4
Not Automatic: Board/comp committee <i>may</i> initiate	1	2
No Clawback Provision	0	0

<u>Triggering Events</u>		
Use of an Inaccurate Operating Metric	5	10
Financial Misstatement	4	8
Financial Misstatement w/ Materiality Threshold	3	6
Financial Restatement	2	4
Financial Restatement w/ Materiality Threshold	1	2
No Clawback Provision	0	0

<u>Sub-Triggers</u>		
No Behavioral Requirement	5	10
Negligence	4	8
Negligence w/ Personal Responsibility Required	3	6
Some type of intentional bad behavior required (i.e. misconduct)	2	4
Some type of intentional bad behavior w/ Personal Resp. Required	1	2
No Clawback Provision	0	0

<u>Amount of Clawback</u>		
Full Amount Automatic	3	3
At least the Excess and Possibly More, with Potential for Full	2	2
Only Excess Amount	1	1
No Clawback Provision	0	0

<u>Executive Coverage</u>		
All participants or all Executives ³⁰	2	2
Some Sub-set of Executives, i.e. CEO and/or CFO	1	1
No Clawback Provision	0	0

Potential Range for Above Index:
Range of Stringency Given Provision:

5-17 **8-29**
(13 potential levels)

³⁰ The coverage of “all executives” is defined by each respective company.

TABLE 5
DESCRIPTIVE STATISTICS FOR CLAWBACK
STRINGENCY COMPONENTS

Descriptive Statistics For Stringency (268 observations)							
Variable	Mean	St. Dev.	Min.	Median	Max.	Dodd-Frank	Most Stringent in Sample
<i>INITIATION</i>	1.075	0.263	1	1	2	2	2
<i>TRIGGERING_EVENTS</i>	1.974	0.832	1	2	5	2	5
<i>SUB_TRIGGERS</i>	2.455	1.747	1	1	5	5	5
<i>AMOUNTS</i>	1.944	0.735	1	2	3	1	1
<i>EXEC_COVERAGE</i>	1.836	0.371	1	2	2	2	2
TOTAL SCORE						12	15

TABLE 6
SAMPLE SELECTION FOR
EARNINGS MANAGEMENT MODELS

Panel A: Abnormal Accruals, Percent Total Accruals, and Discretionary Revenue Regressions (Firm observations)

	<u>Abnormal</u> <u>Accruals</u> <u>(1)</u>	<u>Percent</u> <u>Total</u> <u>Accruals</u> <u>(2)</u>	<u>Disc.</u> <u>Revenue</u> <u>(3)</u>
1. Voluntary Clawback Firms Identified	286	286	286
Minus: Observations prior to cut-off date	108	0	0
2. Voluntary Clawback Firms in Sample Window	178	286	286
Minus: Firms with missing Execucomp data	25	80	41
3. Data after deleting firms missing Execucomp values	153	206	245
Minus: Firms with missing data for the dependent variable	34	18	0
4. Data with the prerequisite data for the dependent variable	119	188	245
Minus: Firms with other missing financial Data	23	0	48
5. Data with dependent variable and all financial control variables	96	188	197
Minus: Firms with Missing Governance Data	0	3	0
6. Data with dependent variable, all financial control variables, and all governance data	96	185	197
Minus: Firms with insufficient detail to code stringency	3	9	8
7. Final Sample: firms for which all data is available, including stringency	93	176	189

(1) This regression allows each clawback-adopting firm to enter the regression once after fiscal year 2007.

(2) This regression includes all clawback adoptions for which prerequisite data are available

(3) This regression includes all clawback adoptions for which prerequisite data are available

Panel B: Loss Avoidance and Earnings Decline Avoidance Models (Firm-year observations)

	<u>Loss</u> <u>Avoidance</u> <u>(1)</u>	<u>Decline</u> <u>Avoidance</u> <u>(2)</u>
1. Voluntary Clawback Firms Identified	864	864
Minus: Observations prior to cut-off date	322	322
2. Voluntary Clawback Firms in Sample Window	542	542
Minus: Firms with missing Execucomp data	93	93
3. Data after deleting firms missing Execucomp values	449	449
Minus: Firms with missing data for the dependent variable	0	0
4. Data with the prerequisite data for the dependent variable	449	449
Minus: Firms with other missing financial Data	100	100
5. Data with dependent variable and all financial control variables	349	349
Minus: Firms with Missing Governance Data	17	0
6. Data with dependent variable, all financial control variables, and all governance data	332	349
Minus: Firms with insufficient detail to code stringency	0	17
7. Final Sample: firms for which all data is available, including stringency	332	332

(1) This regression includes all firm-year clawback observations after 2008 for which prerequisite data are available.

(2) This regression includes all firm-year clawback observations after 2008 for which prerequisite data are available.

Table 7
Descriptive Statistics for Earnings Management Models

Panel A: Abnormal Accruals Model (93 firm observations)

Variable	Mean	Std. Dev.	Min	Max
<i>ABNORMAL_ACCRUALS</i>	0.028	0.045	-0.101	0.151
<i>STRINGENCY_EQUALWEIGHT</i>	9.301	2.084	6	15
<i>DEMAND</i>	0.241	0.228	-0.298	1.159
<i>LEVERAGE</i>	0.637	0.180	0.233	1.136
<i>LN_ROA</i>	2.796	0.809	-5.142	-1.067
<i>SC_OPERCASHFLOW</i>	0.132	0.066	-0.002	0.379
<i>BIG4_AUDITOR</i>	0.968	0.178	0	1
<i>GOV_INDEX</i>	0.031	0.766	-2.32	0.99
<i>CEOCOMP_MIX</i>	0.836	0.100	0.425	0.971
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	6.720	2.213	2	10
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	14.065	6.000	6	24
<i>UTIL_FIRM</i>	0.129	0.337	0	1

Panel B: Percent Total Accruals Model (176 firm observations)

Variable	Mean	Std. Dev.	Min	Max
<i>PERCENT_TOTAL_ACCRUALS</i>	0.271	1.179	-5.525	5.483
<i>STRINGENCY_EQUALWEIGHT</i>	9.352	2.023	6	15
<i>FINANCE</i>	0.267	0.444	0	1
<i>GOV_INDEX</i>	0.130	0.729	-2.32	0.99
<i>BIG4_AUDITOR</i>	0.977	0.149	0	1
<i>SALES_GROWTH</i>	0.055	0.230	-0.369	2.387
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	6.324	2.398	2	10
<i>EXEC_TURNOVER</i>	0.080	0.271	0	1
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	4.511	4.959	0	15

Table 8
Descriptive Statistics for Earnings Management Models

Panel C: Discretionary Revenue Model (189 firm observations)

Variable	Mean	Std. Dev.	Min	Max
<i>SC_DISC_REVENUE</i>	-0.005	0.027	-0.144	0.082
<i>STRINGENCY_EQUALWEIGHT</i>	9.280	2.027	6	15
<i>BIG4_AUDITOR</i>	0.979	0.144	0	1
<i>DEMAND</i>	0.234	0.238	-0.587	1.159
<i>GOV_INDEX</i>	0.143	0.721	-2.32	0.99
<i>CEOCOMP_MIX</i>	0.831	0.112	0.352	1
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	5.582	2.834	1	10
<i>FINANCIAL_FIRM</i>	0.005	0.073	0	1
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	14.344	5.762	6	26

Panel D: Loss Avoidance Model (332 firm-year observations)

Variable	Mean	Std. Dev.	Min	Max
<i>LOSS_AVOID</i>	0.039	0.194	0	1
<i>STRINGENCY_EQUALWEIGHT</i>	9.301	2.058	6	15
<i>ABNORMAL_ACCRUALS</i>	0.006	0.070	-0.587	0.517
<i>LEVERAGE</i>	0.603	0.181	0.106	1.218
<i>SC_OPER_CASHFLOW</i>	0.118	0.078	-0.116	0.479
<i>BIG4_AUDITOR</i>	0.979	0.144	0	1
<i>GOV_INDEX</i>	0.385	0.632	-1.66	0.99
<i>CEOCOMP_MIX</i>	0.836	0.105	0.365	1
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	5.401	2.855	1	10
<i>FINANCE</i>	0.241	0.428	0	1
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	15.771	5.454	6	30

Panel E: Earnings Decline Avoidance (332 firm-year observations)

Variable	Mean	Std. Dev.	Min	Max
<i>DECLINE_AVOID</i>	0.145	0.352	0	1
<i>STRINGENCY_EQUALWEIGHT</i>	9.301	2.058	6	15
<i>ABNORMAL_ACCRUALS</i>	0.006	0.070	-0.587	0.517
<i>LEVERAGE</i>	0.603	0.181	0.106	1.218
<i>SC_OPER_CASHFLOW</i>	0.118	0.078	-0.116	0.479
<i>BIG4_AUDITOR</i>	0.979	0.144	0	1
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	0.385	0.632	-1.66	0.99
<i>CEOCOMP_MIX</i>	0.836	0.105	0.365	1
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	5.401	2.855	1	10
<i>FINANCE</i>	0.241	0.428	0	1
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	15.771	5.454	6	30

TABLE 9
OLS REGRESSIONS ESTIMATING THE IMPACT
OF CLAWBACK STRINGENCY ON EARNINGS MANAGEMENT
WITH ALL STRINGENCY COMPONENTS ADDING ONE UNIT

	Abnormal Accruals (Z-statistic) (1)	Percent Total Accruals (Z-statistic) (2)	Disc. Revenue (Z-statistic) (3)
<i>STRINGENCY_EQUALWEIGHT</i>	-0.005* (-2.30)	0.089 1.85	-0.002* (-2.30)
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	0.003* 2.08		0.001 0.91
<i>LOW_GOVxSTRINGENCY_EQUALWEIGHT</i>		-0.088* (-2.51)	
<i>DEMAND</i>	-0.011 (-0.54)		-0.008 (-0.99)
<i>FINANCE</i>		-0.337 (-1.67)	
<i>LEVERAGE</i>	-0.041 (-1.69)		
<i>LN_ROA</i>	0.04*** 5.37		
<i>SALES_GROWTH</i>		0.209 0.54	
<i>SC_OPER_CASHFLOW</i>	-0.34*** (-4.22)		
<i>BIG4_AUDITOR</i>	-0.047* (-2.15)	-0.289 (-0.48)	0.022 1.7
<i>GOV_INDEX</i>	-0.018 (-1.87)	-0.628** (-2.73)	-0.003 (-0.68)
<i>CEOCOMP_MIX</i>	-0.006 (-0.14)		0.022 1.19
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	0 0.14	0.001 0.04	-0.001 (-1.33)
<i>UTIL_FIRM</i>	-0.02 (-1.52)		
<i>FINANCIAL_FIRM</i>			-0.124*** (-4.74)

Table 9 (continued)

<i>EXEC_TURNOVER</i>		0.383	
		1.14	
<i>_INTERCEPT</i>	0.29***		-0.019
	5.41		(-0.95)
N	93	176	189
Adjusted-R ²	0.349	0.027	0.141
Adoptions Included	After		
	2007	All	All

* p<0.05; ** p<0.01;*** p<0.001

Variable Definitions:

(1) *ABNORMAL_ACCRUALS* = Abnormal accruals computed from the Modified Jones Model as modified by Dechow et al. (1995) with the McNichols (2002) and Francis et al. (2005) revenue growth and property, plant, and equipment (PPE) adjustments and the Ball and Shivakumar (2006) non-linear adjustment

(2) *PERCENT TOTAL ACCRUALS* = Net income less the sum of net dividends and distributions to and from equity-holders and the increase in the cash balance, scaled by the absolute value of net income

(3) *DISCRETIONARY REVENUE* = Stubben (2011) measure of discretionary revenue, scaled by lagged total assets from the prior fiscal year.

STRINGENCY_EQUALWEIGHT = A firm's stringency score.

HIGH_GOVxSTRINGENCY_EQUALWEIGHT = Dummy variable for high governance interacted with stringency.

LOW_GOVxSTRINGENCY_EQUALWEIGHT = Dummy variable for low governance

DEMAND = Dechow and Dichev (1996) measure of ex ante demand for external financing.

FINANCE = 1 if a firm had a change in long-term debt greater than or equal to 20% or a change in common shares outstanding greater than or equal to 10%.

LEVERAGE = (Total current assets plus long-term debt), scaled by total assets.

LN_ROA = natural logarithm of the ratio of net income to total end-of-fiscal year assets

SALES_GROWTH = Percentage change in sales revenue from the prior fiscal year

SC_OPER_CASHFLOW = Net cash flow from operations, scaled by lagged total assets.

BIG4_AUDITOR = 1 if the firm employed a Big 4 auditor during the fiscal year.

GOV_INDEX = Value of the governance index.

CEOCOMP_MIX = Percentage of a CEO's total SEC-reported compensation that was incentive-based.

DEC_INCENTIVE_MAGNITUDE_NI = The decile rank of the dollar value of the CEO's total incentive compensation, scaled by net income, as compared to all other firms with available data in Compustat.

UTIL_FIRM = 1 if a firm has a 2-digit SIC Code between 48 and 50, inclusive.

FINANCIAL_FIRM = 1 if a firm has a 2-digit SIC Code between 60 and 69, inclusive.

EXEC_TURNOVER = 1 if a firm experienced a change in CEO during the fiscal year.

Table 10
Loss Avoidance and Earnings Decline Avoidance Probit Regressions

	<u>Loss Avoidance</u>		<u>Earnings Decline Avoidance</u>	
	Coefficient (Z-statistic)	Marginal Effect (Z-statistic)	Coefficient (Z-statistic)	Marginal Effect (Z-statistic)
<i>STRINGENCY_EQUALWEIGHT</i>	-0.839* (-2.45)	-0.000* (-2.45)	-0.042 (-0.43)	-0.009 (-0.43)
<i>HIGH_GOVxSTRINGENCY_EQUALWEIGHT</i>	0.46* 2.49	0.000* 2.49	0.046 0.98	0.01 0.99
<i>ABNORMAL_ACCRUALS</i>	-11.480** (-3.07)	-0.000** (-3.07)	2.025 1.71	0.421 1.69
<i>LEVERAGE</i>	-7.797*** (-3.42)	-0.000*** (-3.42)	-0.619 (-1.24)	-0.129 (-1.23)
<i>SC_OPER_CASHFLOW</i>	-15.300** (-3.12)	-0.000** (-3.12)	1.409 1.24	0.293 1.21
<i>BIG4_AUDITOR</i>	-5.812*** (-3.73)	-0.113 (-1.01)		
<i>GOV_INDEX</i>	-2.088* (-2.17)	-0.000* (-2.17)	-0.21 (-0.70)	-0.044 (-0.70)
<i>CEOCOMP_MIX</i>	5.667* 2.08	0.000* 2.08	1.93 1.57	0.401 1.59
<i>DEC_INCENTIVE_MAGNITUDE_NI</i>	1.188*** 3.39	0.000*** 3.39	0.036 1.21	0.007 1.22
<i>FINANCE</i>	0.629 1.33	0 0.08	-0.635* (-2.45)	-0.108** (-2.93)
<i>_INTERCEPT</i>	-3.747 (-1.62)		-2.864* (-2.54)	
N	332		332	
Pseudo-R ²	0.697		0.063	

*p<0.1;** p<0.01,*** p<0.001

Definitions:

(1) *LOSS_AVOID* = 1 if a firm's net income scaled by the market value of equity, lagged one fiscal year, is greater than or equal to zero and less than 0.02

Table 10 (continued)

(2) *DECLINE_AVOID* = 1 if a firm's change in net income from the prior fiscal year scaled by its lagged market value of equity is greater than zero and less than or equal to 0.01.

STRINGENCY_EQUALWEIGHT = Stringency score.

HIGH_GOVxSTRINGENCY_EQUALWEIGHT = Dummy variable for high governance interacted with stringency.

ABNORMAL_ACCRUALS = Abnormal accruals computed from the Modified Jones Model as modified by Dechow et al. (1995) with the McNichols (2002) and Francis et al. (2005) revenue growth and property, plant, and equipment (PPE) adjustments and the Ball and Shivakumar (2006) non-linear adjustment

LEVERAGE = (Total current assets plus long-term debt), scaled by total assets.

SC_OPER_CASHFLOW = Net cash flow from operations, scaled by lagged total assets.

BIG4_AUDITOR = 1 if the firm employed a Big 4 auditor during the fiscal year.

GOV_INDEX = Value of the governance index. (This variable was omitted from the earnings decline regression due to lack of variation.)

CEOCOMP_MIX = Percentage of CEO compensation that is incentive-based. If net income is less than or equal to zero, this variable takes on a value of one.

DEC_INCENTIVE_MAGNITUDE_NI = The decile rank of the dollar value of the CEO's total incentive compensation, scaled by net income, as compared to all other firms with available data in Compustat.

FINANCE = 1 if a firm's percentage change in long-term debt is greater than or equal to 20% or its percentage change in common shares outstanding is greater than or equal to 10%.

Table 11
Sample Selection for Clawback Stringency Determinants Model

Panel A: Stringency Determinants Sample	Observations
1. Voluntary Clawback Firms Identified	286
Minus: Firms with missing Execucomp data	67
2. Data after deleting firms missing Execucomp values	219
Minus: Firms with missing financial Data	8
3. Data with all financial control variables	211
Minus: Firms with Missing Governance Data	8
4. Data with abnormal accruals, all financial control variables, and all governance data	203
Minus: Firms with insufficient detail to compute adoption speed	2
5. Data with abnormal accruals, all financial control variables, all governance data, and adoption speed	201
Minus: Firms with insufficient detail to code for stringency	12
6. Final Sample: firms for which all data is available, including stringency	189

Table 12
Descriptive Statistics for Clawback Stringency Determinants Model

Panel A: Clawback Stringency Determinants Model Sample (189 observations)

Variable	Mean	Std. Dev.	First Quartile	Median	Third Quartile
STRINGENCY_EQUALWEIGHT	9.339	2.056	8	9	11
GOV_INDEXxINCENTIVE_MAGNITUDE_NI	-0.001	0.037	-0.006	0.002	0.010
GOV_INDEX_LAG1	-0.149	0.802	-0.66	-0.33	0.33
CEOCOMP_MIX_LAG1	0.807	0.156	0.770	0.847	0.904
CEO_TURNOVER_LAG1	0.111	0.315	0	0	0
GOODWILL_IMPAIR_LAG1	0.349	0.478	0	0	1
LN_ASSET_LAG1	8.651	1.623	7.481	8.508	9.966
ADOPTION_SPEED	1.974	0.981	1	2	3
CAPITAL_INTENSITY_LAG1	0.270	0.227	0.089	0.202	0.402
IND_AVG_RDTOALE_LAG1	4.112	12.103	0.012	0.173	0.688
UTIL_FIRM	0.143	0.351	0	0	0
FINANCE	0.265	0.442	0	0	1

Panel B: Comparison of High-Stringency and Low-Stringency Adopting Firms

Variable	High-Stringency Adopters (76 firms)		Low-Stringency Adopters (113 firms)	
	Mean	St. Dev.	Mean	St. Dev.
STRINGENCY_EQUALWEIGHT	11.474	1.238	7.903	0.945
GOV_INDEX_LAG1	-0.235	0.810	-0.092	0.794
CEOCOMP_MIX_LAG1	0.789	0.179	0.819	0.138
CEO_TURNOVER_LAG1	0.079	0.271	0.133	0.341
LN_ASSET_LAG1	8.533	1.625	8.731	1.623
GOODWILL_IMPAIR_LAG1	0.355	0.482	0.345	0.478
ADOPTION_SPEED	1.947	0.908	1.991	1.031
CAPITAL_INTENSITY	0.281	0.235	0.263	0.222
IND_AVG_RDTOALE	3.538	10.677	4.498	13.007
FIRM_AGE	33.039	19.985	36.726	17.652
ROA_LAG1	0.059	0.104	0.046	0.080
FINANCIAL_FIRM	0.105	0.309	0.071	0.258
UTIL_FIRM	0.079	0.271	0.186	0.391
FINANCE	0.316	0.468	0.230	0.423
GOV_INDEXxINCENTIVE_MAGNITUDE_NI	0.004	0.025	-0.004	0.043

Table 13
Clawback Stringency Determinants Regression

Variable	Coefficient (Z-statistic)	Marginal Effect
STRINGENCY_EQUALWEIGHT		
GOV_INDEX_LAG1	-0.16 (-1.63)	0.014 1.51
CEOCOMP_MIX_LAG1	-0.492 (-0.92)	0.043 0.9
CEO_TURNOVER_LAG1	-0.168 (-0.70)	0.017 0.62
GOODWILL_IMPAIR_LAG1	0.093 0.6	-0.008 (-0.60)
LN_ASSET_LAG1	0.004 0.08	0 (-0.08)
ADOPTION_SPEED	-0.005 (-0.06)	0 0.06
CAPITAL_INTENSITY_LAG1	1.076** 2.86	-0.095* (-2.36)
IND_AVG_RDTO SALE_LAG1	-0.015* (-2.28)	0.001* 2.01
UTIL_FIRM	-0.525* (-2.04)	0.064 1.48
FINANCE	0.355 1.96	-0.027 (-1.95)
GOV_INDEX_xINCENTIVE_MAGNITUDE_ NI	3.287 1.55	-0.29 (-1.45)
_CUT1	-1.823*** (-3.44)	
_CUT2	-1.018* (-1.99)	
_CUT3	-0.313 (-0.61)	
_CUT4	0.186 0.36	
_CUT5	0.457 0.89	
_CUT6	0.885 1.72	

Table 13 (continued)

_CUT7	1.529**	
	2.93	
_CUT8	1.880***	
	3.52	
_CUT9	2.324***	
	4.09	
N	189	189
Pseudo-R2	0.029	

* p<0.05; ** p<0.01;*** p<0.001

Variable Definitions:

STRINGENCY_EQUALWEIGHT = Stringency score.

GOV_INDEX_LAG1 = Value of the governance index.

CEOCOMP_MIX_REV_LAG1 = Percentage of CEO compensation from the prior fiscal year that is incentive-based. If net income is less than or equal to zero, this variable takes on a value of one.

CEO_TURNOVER_LAG1 = 1 if the CEO turned over during the prior fiscal year.

GOODWILL_IMPAIR_LAG1 = 1 if there was a goodwill impairment during the fiscal year prior to clawback adoption.

LN_ASSET_LAG1 = Natural logarithm of total assets from the prior fiscal year-end.

ADOPTION_SPEED = Number of years passed between firm's clawback adoption and the earliest clawback provision adoption for all clawback firms.

CAPITAL_INTENSITY_LAG1 = net property, plant, and equipment, scaled by total assets, in the fiscal year prior to clawback adoption.

IND_AVG_RDTOSALE_LAG1 = industry average ratio of research and development expense to revenue in the fiscal year prior to clawback adoption.

UTIL_FIRM = 1 if a firm has a 2-digit SIC Code between 48 and 50, inclusive.

FINANCE = 1 if a firm's percentage change in long-term debt is greater than or equal to 20% or it's percentage change in common shares outstanding is greater than or equal to 10%.

GOV_INDEXxINCENTIVE_MAGNITUDE_NI = The dollar value of the CEO's total incentive (non-salary based) compensation, scaled by net income, interacted with a firm's governance index score.

VITA

Allison Kristina Beck was born in Tucson, Arizona on June 19, 1983, to the parents Paul and Donna Beck. Allison is the oldest of three siblings, Byron and Stephanie Beck. Allison moved with her parents to Champaign, Illinois at the age of two months, where she grew up and attended grade school. Allison graduated from University Laboratory High School in Urbana, Illinois in May, 2001. After that, she obtained a Bachelor of Science degree in Accountancy from the University of Illinois at Urbana-Champaign in December, 2004 and a Master of Accountancy degree from Auburn University in Auburn, Alabama in August of 2006. At the University of Illinois, Allison served as the president of the Business Council and was initiated into Beta Gamma Sigma.

In addition to her academic accounting background, Allison has also worked as an auditor. She was employed as an intern in the Assurance and Business Advisory Services practice of PricewaterhouseCoopers in Dallas, Texas during the spring semester of 2004. Allison also interned with Ernst & Young LLP in their Assurance practice during Summer 2005. Between graduating from Auburn University and entering the PhD program at the University of Tennessee in August of 2007, Allison worked with Ernst & Young LLP, full-time, in their Assurance practice in Dallas, Texas from September, 2006 through May, 2007. Allison successfully completed the Uniform CPA Examination in 2007 and plans to obtain licensure upon graduation from the PhD program.

In August of 2007, Allison entered the Accounting PhD program at the University of Tennessee. During the PhD program, Allison taught one section of Introductory Financial Accounting during Spring 2010. Allison also served as a research assistant for Bruce Behn and Terry Neal.

Allison has accepted a tenure-track assistant professor faculty position at Florida State University in Tallahassee, Florida and will move there after her May, 2012 graduation from the University of Tennessee Accounting PhD program.