FAILED REMEDIATION OF MATERIAL WEAKNESSES: THE ROLE OF INCENTIVES AND REMEDIATION ACTIONS

By

Andrew John Imdieke

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Business Administration – Doctor of Philosophy

2016

ABSTRACT

FAILED REMEDIATION OF MATERIAL WEAKNESSES:
THE ROLE OF INCENTIVES AND REMEDIATION ACTIONS

By

Andrew John Imdieke

Prior research provides evidence of many economic benefits associated with the remediation of material weaknesses. However there is anecdotal evidence suggesting that not all remediation efforts adequately strengthen internal controls. I define a failed remediation as a case where a remediated company-year is subsequently restated. I examine whether incentives to disclose remediation and whether the timing of remediation disclosure and extent of remediation actions employed are associated with the likelihood of a failed remediation. I find that 18.5% of remediated company-years fail to adequately strengthening controls. Also, constituent based incentives to restore financial reporting credibility and capital market pressures to disclose remediation in the form of financial distress are associated with the likelihood of a failed remediation. Further, remediation failures are less likely for companies that disclose remediation in the subsequent annual filing as opposed to an earlier date and are less likely for companies that take a holistic approach to strengthening controls. These results indicate that incentives play a role in whether disclosed remediation adequately improves underlying control problems and that remediation disclosures provide information that is useful in assessing the likelihood of a failed remediation.

ACKNOWLEDGEMENTS

Though this dissertation bears my name and is my work, success in completing it and the Ph.D. program has not been a solo endeavor. There are a number of people who have been instrumental to getting me to this point throughout my life, but especially over the past five years. First and foremost, I want to thank my dissertation chair Professor Chris Hogan, for providing support and guidance throughout the Ph.D. program and also for letting me make and learn from some of my own mistakes along the way. She challenged me to think harder and not accept the status quo, while at the same time keeping me calm and reminding me not to sweat the small stuff. I am forever grateful for her influence in shaping me into the academic I am today. I am very fortunate and thankful to have also have Professors Kathy Petroni and Marilyn Johnson serving on my dissertation committee. I am especially grateful to Kathy for her direct and efficient feedback that pushed me to more clearly define my research question, design, and interpretation of results. I am especially grateful to Marilyn for her enthusiasm about my topic and research in general as well as her direction in pursuing fruitful extensions to the initial topic. I am also thankful to Professor Cynthia Devers for serving on my committee and providing feedback and a thoughtful outside perspective that greatly benefited this dissertation. Their comments and guidance throughout the dissertation process have been invaluable. Finally, I thank the Accounting Doctoral Scholars Program for financial support without which my entrance into a Ph.D. program may not have been possible.

I want to thank five special people who have had a major impact on my academic career. Professors Lynne Hendrix and Herbert Martin were instrumental in developing my passion for accounting during my undergraduate years at Hope College. I can only dream that I may leave as much of a lasting impact on my future students that they have left on me. I am also thankful

for Professor Tony Muiderman's influence during my time with the George F. Baker Scholar program at Hope College and for his continually well placed guidance at each of the crossroads of my career. I am grateful for Professor Andrew Acito's support and reassurance during the Ph.D. program and for demonstrating much patience in working with an inexperienced doctoral student. Finally, I want to thank Professor Charlie Bokemeier for being a great teaching mentor and friend at Michigan State and also for reminding me about the importance of putting family first.

The accounting Ph.D. students at Michigan State are a remarkable group whose diversity is its strength. I am grateful for such a collegial and supportive group that opened my eyes to many different ways of thinking. I especially want to thank my office and car-pool mate of three years, Professor Amy Swaney, for her guidance during the first few years of the program. I am also thankful to Professor Joe Schroeder for taking me under his wing and providing guidance that helped me become successful as an auditing Ph.D. student. Finally, I want to thank my Ph.D. cohort of Professor Susanna Gallani, Miles Romney, and K. Philip Wang. I would not have made it through the program without their support and friendship.

My interest in pursuing a Ph.D. is rooted in a family history of academics. I am thankful to my grandfather, Professor Lawrence Wright for his wisdom and encouragement in pursuing a Ph.D. and for letting me sit in his office chair as a young boy while he was serving as Dean at UW-Stout. I also thank my mother, Professor Sandra Imdieke for her support and guidance at various steps of the Ph.D. program and especially for her ability to understand the various challenges I have faced during the program. My father, Al Imdieke is responsible for much of the business acumen I may have developed over time and I am thankful for the skills I have learned as a result of witnessing his entrepreneurial spirit and management in owning and

running a large dairy farm. My brother, Ben Imdieke and I have developed an even stronger connection over the past three years as he has also pursued a Juris Doctor degree at the University of Michigan. I am grateful that we were able to provide each other with support and encouragement while pursuing our dreams. Finally I want to thank my father and mother-in-law Eric and Tami Cowen for their nearby support during the Ph.D. program and especially for their help the past five years with taking care of our boys.

Most of all I want to thank my wonderful wife Laura and our boys, Joseph, Jacob, and Matthew. Laura has been continually supportive, first in 2009 when we decided I should pursue an M.B.A. at Michigan State and also in 2011 when we decided I should leave practice and pursue my dream of becoming a professor. She helped support us financially throughout the program and has been my strength at the times of the highest stress. I also thank her for keeping me true to myself. Joey has grown up during the Ph. D program and Jake and Matthew were born during the Ph. D program. I am thankful for their love and for continually giving me the perspective of what truly matters. Above all I thank God for blessing me with this opportunity made possible by loving family, true friends, and collegial colleagues. I look forward to a long and prosperous career in the years to come.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

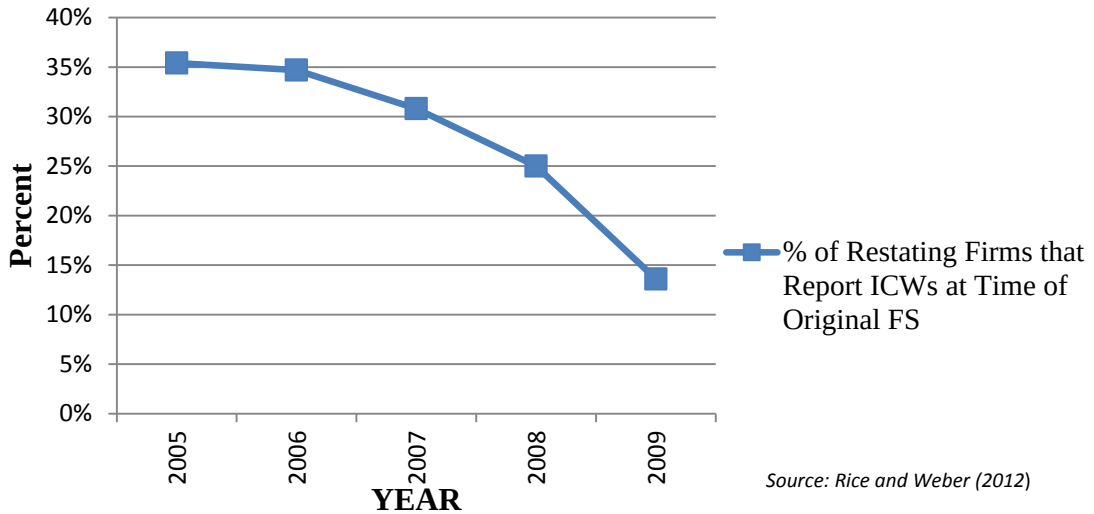
Effective internal controls over financial reporting improve the quality of accounting information and reduce the possibility of mismanagement, error, and fraud (DeFond and Zhang 2014; Kinney, 2001; Kinney, Maher, and Wright 1990). Accordingly, Sections 302 and 404 of the Sarbanes-Oxley Act require publicly-traded companies to disclose material weaknesses in internal controls over financial reporting (SOX 2002). Given the importance of effective internal controls, a considerable body of accounting research has analyzed antecedents and consequences of material weakness disclosures and remediation, but surprisingly little research has examined the nature of remediation efforts and their ability to adequately strengthen internal controls. [1] Just as it is important to distinguish companies with material weaknesses in internal controls from those with effective controls, it is also important for stakeholders to understand that not all remediation efforts may adequately strengthen internal controls over financial reporting.

I identify instances where companies disclose remediation of a material weakness but the remediation efforts fail to adequately strengthen controls so as to prevent a subsequent material misstatement. Remediation failures are revealed through a subsequent restatement of a remediated company-year. I examine whether incentives to disclose remediation are associated with the likelihood of a remediation failure. Additionally, I examine whether the timing of remediation disclosure and the extent to which companies take a holistic approach to remediation, evidenced by companies employing remediation actions from multiple categories of internal investments, external investments, and improvements to procedural or review controls, provide useful information in assessing the likelihood of remediation failure.

[1] Material Weakness Disclosures: Acito et al 2015; Rice et al 2015; Rice and Weber 2012; Bedard and Graham 2011; Dhaliwal et al 2011; Feng et al 2009; Beneish et al 2008; Hammersley et al 2008; Hogan and Wilkins 2008; Ashbaugh-Skaife et al 2007; Doyle et al 2007 . Remediation of Material Weaknesses: Bauer 2015; Feng et al 2015; Schroeder and Shepardson 2015; Cheng et al 2013; Bedard et al 2012; Hammersley et al 2012; Johnstone et al 2011; Munsif et al 2011; Chan et al 2009.

In recent years, regulators have questioned whether companies are disclosing all existing material weaknesses (Croteau 2013; Hanson 2013). Further, Public Company Accounting Oversight Board (PCAOB) inspectors report failures to adequately test internal controls in 17% of inspected engagements (DeFond and Lennox 2015). Academic research raises this concern as well. For example, Rice and Weber (2012) find that the proportion of companies acknowledging existing material weaknesses has declined over time and suggest that detection and disclosure incentives play a role in whether existing material weaknesses are reported. Figure 1 illustrates these trends showing that the percentage of restating companies that report internal control weaknesses at the time of the original financial statement issuance has decreased from 35% in 2004 to less than 15% in 2009. If companies are not disclosing all existing material weaknesses, then it is reasonable to assume that they may also be misrepresenting that remediation has occurred. However, it is not obvious that the same incentives that motivate management to avoid reporting an existing material weakness would also be associated with a failed remediation because a failed remediation indicates that a material weakness was previously reported.

FIGURE 1
% of Restating Firms that Report Internal Control Weaknesses Within Originally Issued Financial Statements



Source: Rice and Weber (2012)

One reason why a remediation failure may occur is that management faces various incentives to disclose remediation and therefore may misrepresent that controls are effective. First, companies will be motivated to restore any loss of financial reporting credibility that accompanied the disclosure of a material weakness. This motivation may be magnified in situations where constituents demand a higher level of financial reporting credibility. For example, prior research suggests companies with strong institutional shareholder presence have been found to disclose remediation more promptly (Mitra, Hossain, and Marks 2012), suggesting these companies are likely subject to intense pressure to remediate material weaknesses. However, sudden threats to credibility may induce management to act reactively and intensely, sometimes by means that are not credible (Ashforth and Gibbs 1990). As a result, management may misrepresent that the material weakness is remediated in an attempt to restore credibility of financial reporting.

Second, poor performance and the need to raise financing are indicators of financial distress and result in capital market pressures that may motivate management to misrepresent that controls are effective. Rice and Weber (2012) provide evidence that capital market pressures play a role in whether existing material weaknesses are reported, indicating that some managers may choose not to disclose existing material weaknesses. For example, companies intending to raise financing have an incentive to disclose that controls are effective (Rice and Weber 2012) and companies in financial distress have greater incentives to mislead (Lys and Watts 1994) in order to satisfy current and prospective debtholders. Thus, certain capital market pressures may also induce management to misrepresent that remediation has occurred.

Alternatively, it is possible that management and auditors are simply not very effective at identifying when the disclosed remediation has satisfactorily fixed the underlying control weakness. To conclude that a material weakness has been remediated, the company must both

strengthen *and* test any changes in controls to ensure they are operating effectively.[2] However, the process of testing newly implemented controls may not be sufficiently rigorous.[3] As anecdotal evidence, since 2011, each of the six largest accounting firms have been cited by PCAOB inspection reports for failing to properly test the remediation of previously disclosed material weaknesses. For example, the 2011 inspection of Ernst & Young notes that the accounting "firm determined that certain control deficiencies were remediated before year end, but the remedial actions the firm cited consisted of future actions, and the firm did not perform procedures to determine whether these actions had occurred".

Management may disclose remediation, and auditors may opine on a remediation disclosure believing that the appropriate actions have been taken, when in fact the actions taken are not sufficient for eliminating the material weakness. Therefore, it is important to understand how the timing of remediation disclosure and extent of remediation actions employed affect the likelihood of remediation failure.

I begin the analyses by identifying company-years that disclose a material weakness between 2004 and 2013 but show evidence of remediating the material weakness via a subsequent unqualified opinion on internal controls. To measure a failed remediation, I identify which of these companies subsequently reveal that the remediated company-year (or any of three years subsequent to the remediated company-year) is misstated as well as the reason for the restatement.[4] My findings suggest that up to 18.5% of remediated company-years fail to adequately strengthen internal controls. To classify the timing of remediation disclosure and

[2] A typical remediation disclosure appears in a quarterly or annual SEC filing and includes a description of the material weakness, a discussion of the extent and nature of actions taken to remediate, and a conclusion about whether controls are operating effectively.

[3] Management's internal understanding about the nature and severity of existing deficiencies may be limited resulting in a lower likelihood that the remediation employed is comprehensive and sufficient (Croteau, 2015).

[4] There appears to be heightened control risk and testing following remediation that should detect that the ICW still exists for a period of years past remediation disclosure. Thus, I extend the definition of a failed remediation to include whether any of three years past the remediation are subsequently misstated. Further justification for extending the definition of a failed remediation past the remediated company-year is provided in Chapter 3.

extent and nature of remediation actions, I hand-collect remediation disclosures and code the remediation actions from SEC filings.

To determine whether incentives to disclose remediation are associated with the likelihood of a failed remediation, I use principal components analysis to identify factors representing incentives to restore financial reporting credibility as well as capital market pressures to disclose remediation and include the resulting factors in my analysis. I control for the audit environment as well as underlying challenges of remediating certain material weaknesses such as severity and count of the material weaknesses and the complexity of the company's operations. Based on a logistic regression estimated on 1,606 remediated company-years I find a positive association between both constituent based incentives to improve financial reporting credibility as well as financial distress indicators and the likelihood of a failed remediation. These results suggest that managers are more likely to misrepresent that controls are effective when incentives and pressures to disclose remediation are high.

To determine whether the timing of remediation disclosure and the nature and extent of remediation actions influence the likelihood of a failed remediation, I re-estimate the logistic regression model using a matched sample and include hand-collected variables that capture the timing of the remediation disclosure and nature, and extent of remediation actions. Within a one to one matched sample of 528 (264 of both failed and successful) remediated company-years, I find that companies disclosing remediation in a subsequent annual SEC filing (i.e. 10-K) are 10.3% less likely to fail in their remediation efforts compared to companies that disclose remediation either concurrently with the material weakness or in an earlier quarterly filing (i.e. 10-Q). This suggests that allowing for adequate time to test the effectiveness of implemented control improvements decreases the likelihood that the remediation attempts will fail.

Additionally, I find evidence that the extent of remediation actions affects the likelihood of remediation failure. Within a matched sample, remediation actions are 15.8% less likely to fail when management takes a holistic approach to improving internal controls as evidenced by companies employing remediation actions from multiple categories of internal investments, external investments, or improvements of procedural or review controls. These results provide some evidence that managers should consider changes to multiple facets of the control environment to successfully remediate material weaknesses.

This study contributes to the literature in at least three ways. First, this study adds to prior evidence about the effectiveness of SOX 404 because it is the first to consider that a disclosed remediation may not always be successful at adequately strengthening controls. Second, this study provides evidence about whether incentives to remediate and whether disclosures related to material weakness remediation provide information that is useful in assessing the likelihood that the remediation will be successful. Third, this study contributes to the literature on the effectiveness of the timing of remediation disclosures and the extent and nature of remediation actions. There is little guidance offered by regulators, practitioners, or academics regarding when, how much, and how to remediate material weaknesses. Therefore, this study can help regulators, practitioners, auditors, and stakeholders gain a better understanding of how to improve remediation practices.

CHAPTER 2: LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

I begin this chapter by discussing the regulatory background of internal control over financial reporting including a description of the Sarbanes-Oxley Act of 2002 Section 404 process, a description of early internal control weakness disclosures and their classification, and a discussion of SEC guidance. I follow by discussing the impacts of internal control weakness disclosures and remediations including consequences of material weakness disclosures and benefits associated with the material weakness remediation. I then discuss and predict the role that incentives to disclose remediation may play in the likelihood of a failed remediation. Finally, I discuss and predict how the timing of remediation disclosure and extent of remediation actions employed may impact the likelihood of a failed remediation.

2.1. Regulatory Background of Internal Controls over Financial Reporting

Effective internal controls over financial reporting (ICFR) have long been shown to improve the quality of accounting information and reduce the possibility of mismanagement, error, and fraud (DeFond and Zhang 2014; Kinney 2001; Kinney et al. 1990, COSO 1992, COSO 1987). However, prior to the implementation of the Sarbanes-Oxley Act of 2002 (SOX), the Foreign Corrupt Practices Act of 1977 (FCPA) was the only statutory regulation to address internal control; requiring public company management only to maintain records to protect assets and ensure GAAP-based financial reporting to the extent that any systems of internal accounting were cost-effective. The only required public disclosure of significant internal control deficiencies was in the company's 8-K when disclosing a change in auditors (Ge and McVay 2005; SEC 1988). However, the FCPA did not require management or the auditor to issue a public report on the effectiveness of internal control.

A key caveat of the FCPA was that any system of internal accounting should be cost-effective. Kinney et al. (1990) suggested that the term "cost-effective" was ambiguous and likely weakened the potential impact of the rule. These concerns were found to have merit via revelation of a series of high profile accounting scandals in the early 2000's at companies such as Enron, WorldCom, Tyco, and Arthur Andersen. As a result of these scandals, SOX was passed and though it did not change any requirements regarding the maintenance of ICFR, it did significantly change disclosure requirements for ICFR. Sections 302 and 404 of SOX established requirements of management regarding certification of the effectiveness of disclosure controls and also to document, evaluate, and report on the effectiveness of ICFR, respectively.

Section 302 of SOX, effective August 29, 2002 mandates that a company's CEO and CFO certify at least quarterly in an SEC disclosure (e.g. 10-Q, 10-K) that they have evaluated and provided their conclusions about the effectiveness of the company's internal controls (SEC 2002). Though SOX 302 does not require independent audits of ICFR, the auditor, when conducting the financial statement audit, might become aware of internal control problems and require management to acknowledge any known material weakness (MW) in its SOX 302 certification. Therefore, any identification of a deficiency in internal control would prevent management from reporting that internal controls are effective. Likewise, management is also required to disclose whether the company significantly changed its internal controls. Thus, if a company discloses ineffective controls, then they would also have to disclose any actions that were taken to remediate the MW as those actions represent a significant change in their internal controls.

Arguably the most significant provision of SOX is Section 404, which requires public companies *and* their external auditors to report on the effectiveness of companies' ICFR and to disclose the presence of any internal control weaknesses (ICWs), thus both management and the

external auditor have responsibility under this regulation.[5,6] One difference between Section 302 and Section 404 is that the external auditor's assessment and opinion regarding the client's ICFR is only required annually as opposed to management's assessment and certification which is also required quarterly. SEC regulations require that annual reports filed with the SEC contain management's assessment of the effectiveness of ICFR as of the fiscal year-end and these assessments are required to be audited by the auditor of its financial statements.

PCAOB Auditing Standard No. 2 (AS2), effective for fiscal years ending after November 14th, 2004 for larger companies, provides guidance for the independent audit to support the auditor's opinion on management's report and adds a requirement that the auditor express a separate opinion about internal control effectiveness based on their own review of the company's internal controls.

After being met with much criticism for its perceived lack of cost-benefit, AS2 was replaced by Auditing Standard No. 5 (AS5) effective for fiscal years ending after November 14th, 2007. One major difference between AS5 and AS2 is that AS5 directs auditors toward a top-down, risk based approach, focusing auditors on the areas of highest risk and eliminating unnecessary procedures (Cox 2007). Thus auditors were given more flexibility in tailoring their audit procedures to the size and complexity of the audited company. Though AS5 was seen as a welcome change to AS2 for its time and cost savings, recent literature has begun to question whether all existing MWs are being detected. Rice and Weber (2012) find that the proportion of

[5] The external audit is applicable only for accelerated filers as non-accelerated filers have been permanently exempted from Section 404(b) through the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank, 2010).

[6] Prior studies have defined ICWs as any significant deficiency or any material weakness disclosed under Section 404 or Section 302 of SOX as well as any other control weaknesses or subset of these categories. I use the term ICW to describe control issues examined by these studies. Section 302 of the Sarbanes-Oxley Act required management to evaluate and report on the effectiveness of ICFR; however, the external auditor was not required to report on ICFR (SOX 2002). Since Section 302 material weakness disclosures allow greater management discretion, they are excluded from analysis in this paper. Thus, all observations in my study examine material weaknesses in internal control.

companies disclosing existing ICWs in a timely fashion has decreased from approximately 34% in 2004 to less than 15% in 2009 while Acito et al. (2015) suggest that this decline may be related to predictable, yet undisclosed ICWs. Thus, there is question as to whether all existing ICWs are being detected and disclosed.

There is extensive guidance for management and auditors on how to evaluate ICFR to determine whether any ICWs exist.[7] For example, the SEC released a set of answers to frequently asked questions regarding management's report on ICFR in October, 2004 in response to the passage of Auditing Standard No. 2 (AS2) (SEC 2004). Shortly after AS2 was superseded by Auditing Standard No. 5 (AS5) in 2007, the SEC released a document outlining guidance regarding management's report on ICFR, organized around two broad principles (SEC 2007). The first principle is that management should evaluate whether it has implemented controls that adequately address the risk that a material misstatement of the financial statements would not be prevented or detected in a timely manner. This principle suggests that management should focus only on those controls that are needed to adequately address the risk of a material misstatement of its financial statements rather than focusing on all controls. The second principle is that management's evaluation of evidence about the operation of its controls should be based on its assessment of risk. This principle suggests that management should focus the nature and extent of its procedures to identify any existing MWs within the areas of highest financial reporting risks.

2.1.1. The SOX 404 Process

ICWs must exist and be detected in order to be disclosed [Ashbaugh-Skaife et al. 2007]. Lin, Pizzini, Vargus, and Bardhan (2011) provide a three step sequence of the Section 404 process in any given year. Figure 2 summarizes the sequence. In step 1, the company must document their

[7] e.g. The Sarbanes-Oxley Act of 2002 (SOX, 2002), Auditing Standards #2 and #5 (PCAOB, 2004; PCAOB, 2007)

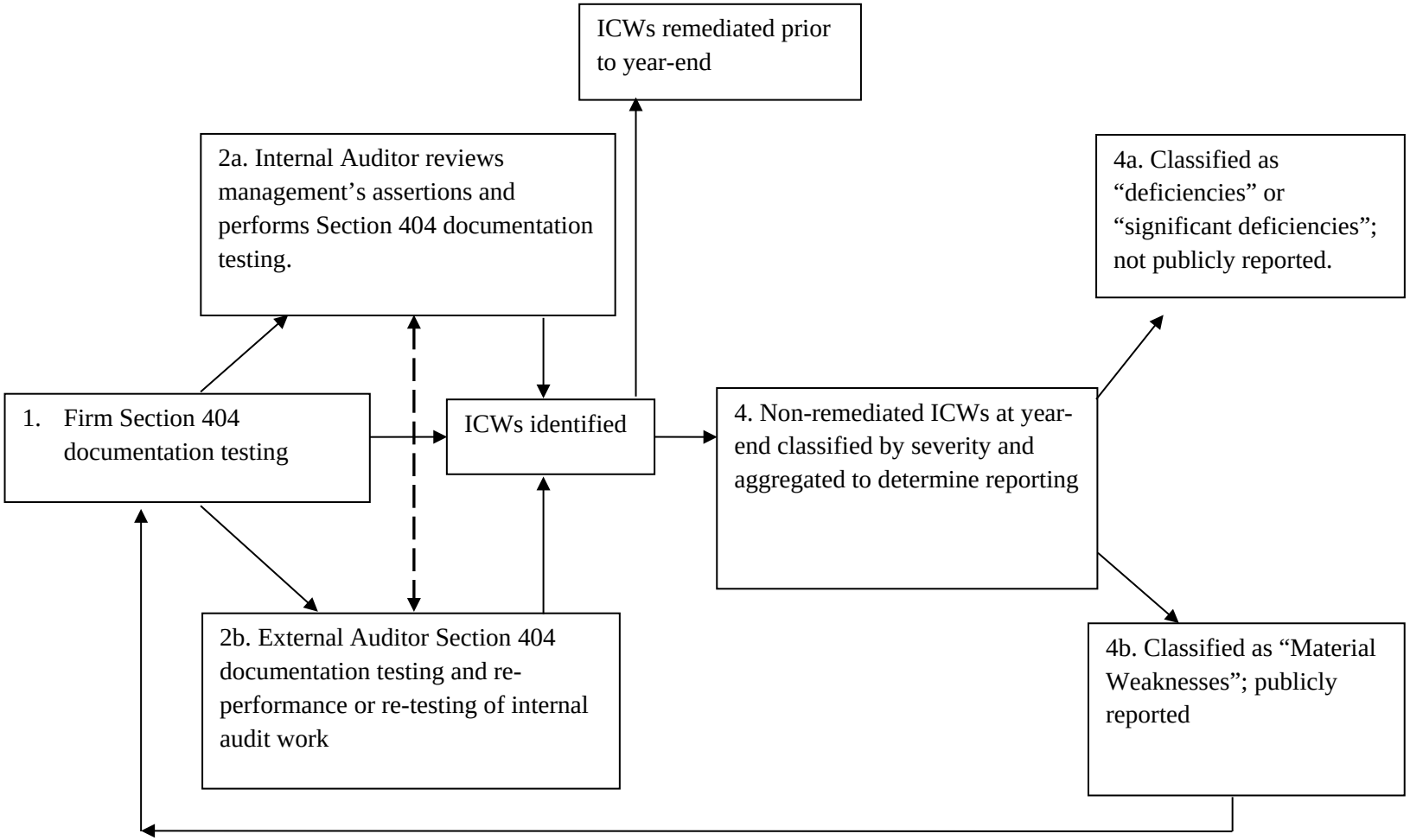
ICFR and perform testing to support management's evaluation of internal controls. Step 2 represents the external auditor's documentation and testing, including any re-performance of, or reliance on work performed by management or the internal audit function. As ICWs are identified throughout the year, the company has the opportunity to remediate any ICWs before year end. Any remaining ICWs at year end that have not been remediated, and the resulting controls tested for effectiveness, must be evaluated by management and classified by severity. As part of the remediation process any deficiencies or gaps identified should be reviewed with management, and in some cases the audit committee, and plans must be identified to correct the deficiency. Follow up reviews should also be conducted to ensure management's plans are being carried out. The PCAOB and SEC direct external auditors and managers to evaluate the severity of each control deficiency to determine whether the deficiencies, individually, or collectively, constitute a MW or a significant deficiency[8] as of the date of management's assessment [AS5, PCAOB 2007, SEC 2007]. This process should be repeated after ICWs are detected until they are deemed to be remediated however management's and the auditor's awareness of an ICW requires the identification of an existing control deficiency as well as the appropriate classification of its severity.

2.1.2. Classification of Internal Control Deficiencies as Significant Deficiencies or Material Weaknesses

The evaluation of a control deficiency considers two dimensions when classifying between a significant deficiency and MW; the likelihood of a misstatement and the significance of that potential misstatement (SAS No. 112). The original definition of a MW called for its reporting if there was more than a remote chance that a material error could result from the deficiency.

[8] A significant deficiency is defined by the SEC as a deficiency, or a combination of deficiencies in internal control over financial reporting that is less severe than a material weakness yet important enough to merit attention by those responsible for oversight of a registrant's financial reporting (SEC 2007).

FIGURE 2
Sequence of SOX Section 404 Compliance Process



Adapted from Lin et al. 2011

However, this definition was changed in 2007 in "that it distinguishes that a reasonable possibility exists, rather than 'more than a remote likelihood' as stated in SAS No. 112 that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis" (SAS No. 115).

The language surrounding the MW definition is comparable to that in Financial Accounting Standards Board (FASB) No. 5 (SFAS 5), Accounting for Contingencies which uses the terms 'probable', 'reasonably possible', and 'remote' as decision factors as to whether a contingent liability must be recorded and/or disclosed. However, these terms involve considerable judgment. Prior literature on SFAS 5 expresses concerns about the subjectivity involved in the interpretation of 'probable', 'reasonably possible', and 'remote', thus comparability of contingency disclosures across companies may be low (Amer, Hackenbrack, and Nelson 1995; Hackenbrack and Nelson 1996). Similarly, the categorization of a control deficiency as a MW versus a significant deficiency is subjective as it depends on assessing both the likelihood (more than a reasonable possibility) and the significance (materiality) of a misstatement (Ge and McVay 2005). This level of subjectivity has led to concerns as academic research has shown that management underestimates the severity of deficiencies compared to auditors (Bedard and Graham 2011) and that the proportion of existing ICWs reported on a timely basis has steadily decreased in recent years (Rice and Weber 2012). This same subjectivity is used in determining whether an ICW has been remediated, thus it is possible that remediation decisions are also not comparable across companies.

2.1.3. Guidance on the Remediation of Material Weaknesses

Though guidance on determining whether ICWs exist is extensive, recommendations related to the remediation of MWs are much less prescriptive. Interestingly, the aforementioned

SEC's frequently asked question guidance from 2004 never references remediation while the 2007 guidance only suggests that management should disclose any plans or actions already taken to remediate any MWs. The PCAOB provides limited guidance on remediation, including Auditing Standard 4 (AS4) which gives companies the option to retain the auditor to review and report on management's assertion that a MW no longer exists (PCAOB, 2006B). Interestingly, they also provide staff guidance for audit firms concerning the remediation process for deficiencies identified by the PCAOB. In this guidance, the PCAOB suggests that staff apply five criteria to assess a firm's remediation efforts, including: change, relevance, design, implementation, execution, and effectiveness (PCAOB 2013: PCAOB 2006A). However, the PCAOB also acknowledges that they generally avoid prescribing specific remediation approaches because the nature, extent, and formality of remediation practices may vary depending on "the size of the firm and nature and complexity of its practice" (PCAOB 2013).

Similarly, some guidance comes from the Committee of Sponsoring Organizations of the Treadway Commission (COSO) Internal Control Integrated Framework which suggests "that the level of remedial action may vary depending on the significance of the impact to the organization, but should be applied consistently across the organization" (COSO, 2013; Chapter 5). SOX Section 404's only requirement regarding remediation is that companies must disclose significant changes in their ICFR, including remediation actions.

Because guidance surrounding remediation is less prescriptive than guidance for detecting ICWs and because of the high level of judgment and subjectivity involved in determining remediation, it is likely that management could succumb to pressure to conclude controls are effective via remediation disclosure even if controls have not been adequately strengthened. Management exercises significant judgment in concluding that deficiencies are remediated (COSO 2013) and may misrepresent that controls are effective by taking advantage of the subjectivity and

judgment involved in the remediation process. For example, management could either take minimal actions to 'fix' the MW or could rush the testing process of newly implemented controls and prematurely conclude that remediation has occurred. As there are cases where management fails to identify, properly evaluate, or disclose ICWs (Rice and Weber 2012; Bedard and Graham 2011), it is reasonable to assume that management may also fail to reach an appropriate conclusion related to remediation.

2.2. Prior Literature on Internal Control Weakness Disclosures and Remediation

2.2.1. Prior Literature on Internal Control Weakness Disclosures

Shortly after the implementation of SOX, the rate of MW disclosure was relatively high. In some of the first research examining ICW disclosures, Ge and McVay (2005) found 261 companies disclosing MWs between August, 2002 and November, 2004. Their findings indicate that MWs tend to be related to a lack of segregation of duties, inappropriate account reconciliation, and deficiencies in both revenue-recognition policies and the period-end reporting process. Overall, Ge and McVay (2005) suggest that MWs are usually related to companies allocating insufficient resources for accounting controls or lacking the necessary resources for accounting controls.

Though Ge and McVay (2005) provided some of the earliest evidence on types of companies that have MWs, Ashbaugh-Skaife et al. (2007) and Doyle et al. (2007) established determinants models predicting the likelihood of an ICW. Generally, both of these studies agree that companies with ICWs tend to be smaller, younger, more complex, growing rapidly or undergoing restructuring, and show some signs of financial weakness. Further, the companies facing more severe, entity-level ICWs are smaller companies that may not have the resources to allocate to internal controls whereas companies that have complex or rapidly changing operations

are more likely to have account-specific ICWs even though they tend to be healthier financially (Doyle et al. 2007) . Overall however, determinants of ICWs vary based on company circumstances and the reason for the ICW. Additionally, management's and auditor's judgments can also be influenced by incentives to detect and disclose ICWs.

2.2.2. Prior Literature on the Remediation of Material Weaknesses

Much of prior literature examining the remediation of material weaknesses has focused on the characteristics of companies that remediate, especially in the context of how quickly the company remediates. For example, Mitra et al. (2012) find that companies with strong corporate governance are more effective at eliciting prompt remediation. The challenges of remediation can vary based on the internal control environment, including the severity of the MW. Prior literature has found that more severe as well as more pervasive weaknesses both are less likely to be remediated and take more time to remediate (Goh 2009; Hammersley et al. 2012; Bedard et al. 2012). Additionally, remediation of ICWs is less timely for complex companies including those with more operating segments (Chan, Kleinman, and Lee 2009; Johnstone et al. 2011) and those with foreign operations (Goh 2009).

Prior literature examining individual remediation actions is scarce. Fargher and Gramling (2005) in an early examination of remediation actions found five main methods of remediation including the implementation of policies and procedures, training programs, board procedures personnel changes, and improvements specific to international operations. Hammersley et al (2012) classify remediation actions into operational categories including 1) changing personnel, 2) changing control systems, and 3) other whereas Lynch (2015) breaks remediation actions into whether the company makes an internal or external investment to remediate. However, no studies

to my knowledge have examined cases where remediation may have failed at adequately strengthening controls.

2.2.3. Consequences of ICW Disclosure

The disclosure of an ICW has been documented to have numerous consequences to a company including a negative impact on financial reporting quality, adverse capital market consequences, and other costs to the company.

The existence of an ICW is associated with reduced financial reporting quality including restatements (Ashbaugh-Skaife, Collins, and Kinney 2007), lower accruals quality (Ashbaugh-Skaife, Collins, Kinney, and LaFond 2008; Doyle, Ge, and McVay 2007), earnings management (Chan, Farrell, and Lee 2008), and less accurate management forecasts (Feng, Li, and McVay 2009). Additionally, disclosure of an ICW has adverse capital market consequences including an increased cost of equity capital (Ashbaugh-Skaife, Collins, Kinney, and LaFond 2009), increased cost of debt and credit rating downgrades (Dhaliwal, Hogan, Trezevant, and Wilkins 2011), and negative market reactions (Beneish, Billings, and Hodder 2008; Hammersley, Myers, and Shakespeare 2008). Also, companies disclosing ICWs subsequently undergo governance changes including auditor changes (Ettredge, Heintz, Li, and Scholz 2011), turnover of members of the boards of directors, audit committees, and top management (Johnstone, Li, and Rupley 2011; Li, Sun, and Ettredge 2010). Disclosures of ICWs also have other costs to the company including increased audit fees (Beneish et al. 2008; Hogan and Wilkins 2008). Conversely, if an ICW is disclosed, there are strong incentives to disclose that remediation has occurred.

2.2.4. Benefits of Remediation

A substantial focus of prior literature examining remediation has been on the economic benefits of remediation which have likely stemmed from the previously discussed consequences of

disclosing an ICW. For example, ICW remediation has been shown, on average, to have a positive impact on financial reporting quality including improvements in accrual quality (Ashbaugh-Skaife et al. 2008), inventory management (Feng, Li, McVay, and Skaife 2015), investment efficiency (Cheng, Dhaliwal, and Zhang 2013), greater levels of future tax avoidance (Bauer 2015), and an eventual decrease in audit fees (Hammersley, Myers, and Zhou 2012; Hoag and Hollingsworth 2011; Munsif, Raghunandan, Rama, and Singhvi 2011; Hoitash, Hoitash, and Bedard 2008).

Conversely, companies that do not remediate experience greater increases in audit fees and cost of debt capital, decreases in credit ratings, and are more likely to have a subsequent going concern opinion, auditor resignation, or a missed filing deadline (Hammersley et al. 2012). These economic benefits alone should motivate managers to remediate ICWs as quickly as is possible. However there are also other incentives to disclose that an ICW has been remediated that may cause managers to misrepresent that controls are effective.

2.3. Motivation for Examining Disclosures of Material Weakness Remediation

The definition of a MW implies that "there is a reasonable possibility that a material misstatement will not be prevented or detected" (PCAOB, 2007). The definition of the word remediate comes from the stem 'remedy' which, as a verb is defined by Merriam-Webster Dictionary as "a way of solving or correcting a problem". Thus, when management discloses that a problem (e.g. MW) has been remediated (e.g. solved) they are, in essence, signaling that there is no longer a reasonable possibility of a material misstatement going undetected.

It is likely that a MW will be disclosed without ever leading to a future restatement. Rather, a MW disclosure is meant to serve as a warning to stakeholders that a material misstatement is reasonably possible. Thus, MW disclosures may happen without a subsequent

restatement, but if all MWs are detected, restatement announcements should not occur without an underlying MW. However, Figure 3 provides evidence that not all MWs are detected as the rate of restatements has been above that of material weakness disclosures. Since 2006, the rate of restatement announcements has exceeded the rate of MW disclosures and the gap has been widening since 2008. Thus it appears that the incidence of ineffective controls being deemed effective has been increasing at least since 2008.

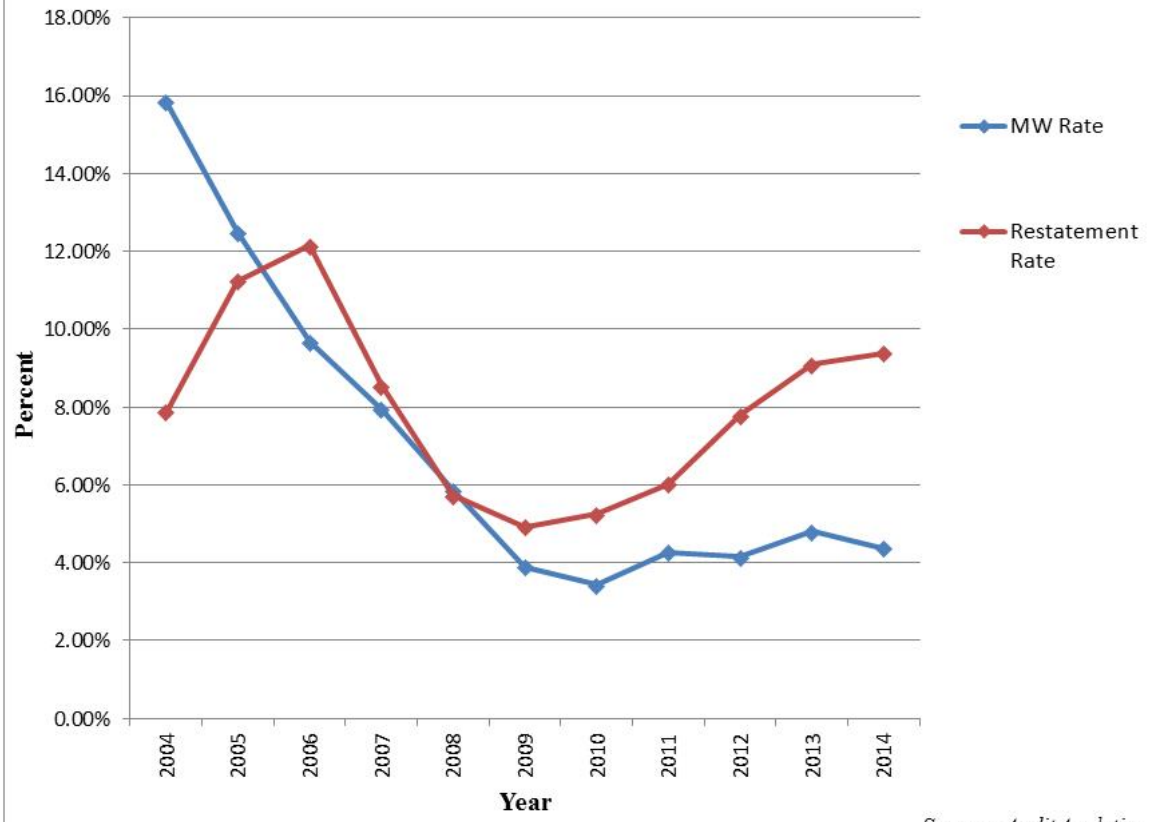
Rice, Weber, and Wu (2015) provide three possibilities for why ineffective controls may be claimed to be effective, including where management is unaware that control weaknesses exist, where management misjudges the severity of a deficiency (Bedard and Graham 2011), or where management is aware of the weakness, but deliberately chooses not to disclose it (Rice and Weber 2012). I am interested in a fourth possibility where management acknowledges that a control weakness exists, but subsequently misrepresents that controls are effective by disclosing that remediation has occurred. Thus, management of companies disclosing remediation has already overcome the incentives that prevent companies from reporting existing ICWs.

Additionally if the second of the two broad principles suggested by the SEC or management's report on ICFR suggests that management should align the nature and extent of its evaluation procedures with the areas of highest financial reporting risks, it seems reasonable that management and auditors should be spending considerable time evaluating the status of a previously discovered MW. As a result, remediation failures represent an even more salient case of ineffective controls being deemed effective.

A concurrent working paper by Christensen, Neuman, and Rice (2016) provides evidence that 'false remediators' exist and pay higher audit fees even in the year of remediation announcement but they are not punished by the market until the restatement is announced.

Otherwise studies to date examining the remediation of ICWs do not appear to consider

FIGURE 3
Material Weakness Discloures and Restatement Announcement Rates



this fourth possibility as they assume that management's conclusion that the ICW has been remediated is appropriate, despite anecdotal evidence to the contrary. For example, AirTran Holdings, Inc. disclosed MWs in 2005 and 2006 in which management noted that "inadequate staffing resulted in certain adjustments to revenue" and that a similar ICW also existed related to accounting for fuel expense but also noted that both ICWs had been remediated. However, AirTran filed a restatement of its financial statements in August, 2007 which covered the 'remediated' period "because of errors related to certain passenger revenues" and "for an adjustment to decrease fuel expense for approximately $2.4 million". A misstatement of historical financial statements previously disclosed as being remediated represents a salient case of an

instance where ineffective controls are claimed to be effective. Thus, I define AirTran's remediation attempt as a failed remediation.[9]

Prior literature on ICFR focuses heavily on the economic consequences to a company with an ICW disclosure and examines the determinants of ICW existence, detection, and disclosure. Similarly, prior literature on ICFR also examines the economic benefits of the remediation of ICWs. However, the aim of SOX Section 404 is not to improve the economic standing of the company. Rather, the aim of SOX is to protect investors from misleading financial information. More recently, regulators and academics have brought into question whether all existing ICWs are being detected and/or disclosed (Acito et al 2016; Croteau 2013; Rice and Weber 2012; Rice et al 2015). If management and auditors are not disclosing all existing ICWs even with the aid of extensive guidance from the SEC on how to evaluate ICFR, then it is likely that the same problem is occurring within the remediation process. However, prior literature has not focused on remediation efforts that ultimately fail. Thus, when and why remediation efforts are not adequately strengthening internal controls is an open empirical question.

2.4. Hypothesis Development

2.4.1. Incentives to Disclose Remediation

Disclosures of ICWs appear to represent a loss of financial reporting credibility as they are associated with reduced financial reporting quality, adverse capital market consequences, governance changes, and increased audit fees, whereas remediation is associated with improvements in many of these categories. Therefore, I use the disclosure of an ICW as an event that negatively impacts financial reporting credibility and the disclosure of remediation of an ICW as an event that can restore financial reporting credibility.

[9] See Appendix D for a timeline representation of Air Tran Holding's failed remediation.

Organizational behavior studies propose that managers attempting to restore credibility are often induced to take means that are themselves not credible (Ashforth and Gibbs 1990).[10] Restoring credibility is accomplished by acting decisively and visibly to remedy what may have damaged credibility (Suchman 1995 p.598, *c.f.*, Perrow 1984; 1981). For example, companies disclosing a financial statement restatement often times have significant director turnover (Feldmann, Read, and Abdolmohammadi 2009; Wilson 2008; Desai, Hogan, and Wilkins 2006; Srinivasan 2005). However companies should refrain from panic because the stress of a sudden threat to credibility often impairs critical thinking resulting in actions to restore credibility being intense and reactive as management attempts to counter the threat (Ashforth and Gibbs 1990). Thus, companies with the strongest incentives to restore financial reporting credibility may end up with a clumsy or opportunistic attempt at remediation, failing to adequately strengthen controls.

Prior research indicates that companies have little incentive to disclose ICWs and every incentive to disclose remediation of ICWs. Additionally, organizational behavior literature suggests that these companies with the highest incentives to restore credibility may be the very companies that fail to act credibly. However, companies facing the most unexpected threat to financial reporting credibility are also those that would typically have stronger governance systems already in place. Prior literature suggests that companies with stronger governance are less likely to have ICWs (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007) and tend to remediate ICWs more promptly to send "a strong signal to the market that the (company) is committed to and competent in ensuring credible financial reporting" (Goh 2009). Thus, it is also possible that management of companies with the greatest need to restore financial reporting credibility would

[10] There is a large body of research on organizational legitimacy (e.g. see Scott 2013; Suchman 1995), based on institutional theory. Credibility is often linked to organizational legitimacy to the extent that "the term legitimacy involves the existence of a credible collective account...explaining what the organization is doing" (Suchman 1995 p575 *c.f.* Jepperson, 1991). Therefore, throughout the paper I discuss restoration of credibility similarly to how organizational behavior literature discusses the process of restoring organizational legitimacy. See also Cash, Clark, Alcock, Dickson, Eckley, and Jager 2002.

take the greatest care to ensure that controls are adequately strengthened. Thus I state my first hypothesis in null form:

> H1a: Ceteris paribus, incentives to restore financial reporting credibility are not associated with the likelihood of a failed remediation.

Companies that disclose an ICW also face capital market based pressures to disclose that the ICW has been remediated. Companies in poor financial health are more likely to disclose ICWs (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007) because they may lack the necessary resources to develop an adequate internal control system and thus, may lack the necessary resources to strengthen their control system when ICWs are present. Additionally, resource constraints can negatively affect the capacity to restore credibility (Ashforth and Gibbs 1990). Further, Rice and Weber (2012) provide evidence that companies facing the capital market pressure of raising external funds were less likely to disclose existing ICWs which corroborates evidence that managers of companies in financial distress have greater incentives to mislead (Lys and Watts 1994). Therefore, I expect companies with capital market pressures to disclose remediation are more likely to misrepresent that remediation has occurred and state my next hypothesis in alternative form:

> H1b: Ceteris paribus, capital market pressures to remediate are positively associated with the likelihood of a failed remediation.

2.4.2. The Timing of Remediation Disclosure

The timing of the remediation disclosure and the extent and nature of remediation actions may be informative about the likelihood that disclosed remediation fails. ICWs are diverse with ranges of severity, complexity, and required resources to remediate. Further, remediation of ICWs may not be management's priority. As noted by Goh (2009), management often is self-interested

and may not be willing to invest the amount of time and resources that are necessary to remediate deficiencies because these investments divert resources from the core business. Therefore management faces choices as to the timing of remediation disclosure and the extent and nature of remediation actions employed. Next, I develop hypotheses related to how these factors may impact the likelihood of a failed remediation.

The timing of an ICW remediation disclosure should vary with the risk and severity of the underlying affected control of the ICW because ICWs can vary in the amount of time needed to ensure that any newly implemented control is working effectively.[11] AS4's guidance of how to test and evaluate whether an ICW continues to exist allows management to assert that an ICW no longer exists as of any date so long as sufficient evidence is available to support the assertion. However, the standard also suggests that the assertion "may need to be after the completion of one or more period-end financial reporting processes" (PCAOB 2006B #29).[12] Sufficient evidence for certain controls such as daily or continuous controls may be available at any time. "For example, a transaction-based, daily reconciliation would generally permit the auditor to obtain sufficient evidence as to its operating effectiveness in a shorter period of time than a pervasive, entity-level control" (PCAOB 2006B, #33). Regardless of the severity of the ICW, it is reasonable to expect that increased time between ICW disclosure and remediation disclosure to allow for proper testing of changes to the control environment should be negatively associated with the likelihood of a failed remediation.

[11] Many companies acknowledge planned remediation actions or remediation actions already completed starting as early as concurrently with the initial ICW filing. However they often also report that controls remain ineffective until new processes can be appropriately tested. I define the timing of remediation disclosure to be the first period in which the company indicates that internal controls are operating effectively subsequent to having disclosed an ICW.

[12] The PCAOB enacted Auditing Standard No. 4 (AS4), to allow companies the opportunity to retain the auditor to review and report on management's assertion that an ICW no longer exists (PCAOB 2006B; SEC 2006; Steinwurtzel, Tsaganos, and Finkelstein, 2006). Comment letters from both Ernst & Young and PriceWaterhouseCoopers expressed substantial doubt about whether companies would actually engage the auditor to report on remediation instead of following the requirement for management to periodically report material changes in internal control.

Consistent with the notion that a sudden threat to credibility often induces management to panic, thus acting reactively and intensely (Ashforth and Gibbs 1990), many remediation disclosures occur soon after the ICW disclosure either in a quarterly SEC filing, or even concurrently with the disclosure of the ICW as opposed to being disclosed in the subsequent annual report. Thus, I measure the timing of the disclosure that remediation is complete by indicating whether the filing occurs in the subsequent annual report.[13] I expect that remediation disclosed in a subsequent annual SEC filing (i.e. 10-K) is more likely to be successful compared to remediation disclosed within the concurrent annual filing or the quarterly filing and offer the following hypothesis in alternative form:

H2: Ceteris paribus, remediation disclosed in a subsequent annual filing is negatively associated with the likelihood of a failed remediation.

2.4.3. The Nature and Extent of Remediation Actions

Remediation actions are important signals that management desires to, and is taking steps to improve. However, it is unlikely that all remediation actions are created equal. Actions to restore credibility should be both decisive and visible. One example of visible remediation is a change in a CFO which was found to moderate the increase in audit fees associated with misstatements (Feldmann et al. 2009). Another example of visible remediation is an external investment in controls such as hiring consultants. Lynch (2015) finds that among tax-related ICWs, remediation involving external and internal investments increases tax avoidance.

Using prior literature as a guide (Fargher and Gramling 2005; Hammersley et al 2012), I classify remediation actions into three categories that represent where the investment is taking

[13] It is important to acknowledge that annual SEC filings are audited whereas quarterly filings are not necessarily audited. Without the threat of an audit, it seems likely that unaudited remediation disclosures would be more likely to fail. However, it is difficult to separate the effects of the presence of an audit from the time to remediate, especially because some of the companies in my sample are not subject to the audit of ICFR. Thus, a limitation of this test is that my measure of timing of remediation disclosure is also picking up the effect of an audit of ICFR. To partially overcome this limitation, I control for the presence of an audit of ICFR as well as other characteristics of the audit.

place. These categories include external investments, internal investments, and implementation of procedural and/or review controls.[14] External investments include actions such as hiring or retaining external consultants. External consultants can provide an additional level of review of controls and can also provide expertise regarding how to avoid future ICWs.

Internal investments are actions that mainly include personnel changes within the business, including adding, retaining, terminating, or training staff. Also included is the implementation of new internal control systems. The hiring of staff and executives demonstrates a commitment to improving the overall control system by increasing technical proficiency, specialty, and segregation of duties. Hiring new executives or terminating prior executives can de-couple the organization from the previously disclosed ICW that may have compromised the credibility of financial reporting (Feldmann et al. 2009).

Procedure and review controls include remediation actions that improve internal control systems including enhancing review procedures, enhancing controls, and enhancing communication across the organization. These actions indicate an attitude of improving controls, but more importantly represent actions meant to strengthen existing controls.

Auditing Standard 5 (AS5) established a framework for evaluating internal controls more efficiently through a top-down, risk based approach (PCAOB 2007). This approach has often been referred to as emphasizing a holistic view of risk (e.g. Ho 2009; Dodwell 2008). To the extent that managers are examining their organization's governance, risk management, and compliance framework at a holistic level, it should follow that remediation decisions should also be made with a holistic view. "It is important to adopt an integrated approach instead of a silo-based approach toward governance, risk management, and compliance... facilitating management

[14] Examples of remediation actions and categories are provided in Appendix C.

to adopt a holistic instead of piecemeal approach toward compliance" (Ho 2009 p.6). An integrated approach would indicate that companies employing remediation actions that only affect one silo of a company's control system are less likely to adequately strengthen controls. For example managers that only focus on making internal investments such as hiring additional staff without implementing improved procedures and review processes would be less likely to be successful than managers employing remediation actions in multiple categories. Therefore, I make the following prediction in the alternative form.

H3: Ceteris paribus, a holistic approach to remediation is negatively associated with the likelihood of a failed remediation.

CHAPTER 3: RESEARCH DESIGN AND SAMPLE SELECTION

Chapter 3 discusses the research design and sample selection. I begin by presenting the empirical model used to test H1a and H1b which predict either no or a positive association between incentives to disclose remediation and the likelihood of a failed remediation, respectively. I discuss the dependent variable, measures for incentives to disclose remediation, and control measures in detail. Next I present the empirical model used to test H2 and H3 which both predict a negative association between the likelihood of a failed remediation and the timing of the remediation disclosure and extent of remediation actions employed, respectively. I follow with a discussion of the sample used in this dissertation.

3.1. Research Design Testing H1a and H1b

My research questions focus on whether (1) incentives to restore financial reporting credibility and capital market based pressures to disclose remediation, (2) the timing of remediation disclosure, and (3) the extent, and nature of remediation actions are associated with the likelihood of a failed remediation. I use a logistic regression model on the full sample of remediated years to test question (1). I use both an unconditional and a conditional logistic regression to test questions (2) and (3).

In the model predicting a failed remediation, I include incentives to restore financial reporting credibility and capital market pressures to disclose remediation. Consistent with prior literature (Schroeder and Hogan 2013; Bedard, Hoitash, Hoitash, and Westerman 2012), I use principal components analysis (PCA) to obtain summary measures for the two constructs. I retain factors with an eigenvalue greater than one, resulting in two factors for incentives to restore financial reporting credibility and one factor for capital market pressures. Table 1 in Appendix A provides the variables and definitions used to compute the factor scores while the details of the

PCA are presented in Appendix B and Table 2.[15] The PCA for incentives to restore financial reporting credibility includes institutional ownership, size as measured by the natural log of the market capitalization of equity, whether the company has had a recent restatement, and whether the company operates in a litigious industry. The PCA for capital market pressures to remediate includes whether the company has an operating loss, leverage, and an ex-post measure of the need to raise external funds. The logistic regression model is as follows:

$$Prob(FAILED\_REMED_t=1) = F(\beta_0 + \beta_1 CONSTITUENT\_INCENT + \beta_2 LITIG\_AVOID\_INCEN + B_3 FIN\_DISTRESS + \beta_4\text{-}\beta_{16} CONTROLS + Industry\ Fixed\ Effects + Year\ Fixed\ Effects) \quad (1)$$

3.1.1. Measure of a Failed Remediation (Dependent Variable)

The dependent variable, $FAILED\_REMED_t$, is an indicator variable equal to one for remediated company-years that are subsequently determined to be misstated. I define a failed remediation as having occurred if the remediated company-year, or any of three years subsequent to the remediated company-year are found to be misstated. For example, if a company discloses remediation is completed in 2005, I define the remediation as having failed if any of years 2005 through 2008 are subsequently misstated.[16] I extend the definition of a failed remediation three years past the remediated year because companies that have just disclosed remediation will likely continue to rely on the employed actions into the future and assume that the new controls are effective. Additionally, there may be a lag between the existence of an ICW and when a material misstatement arises as a result of the ICW. Finally, findings in Munsif et al. (2011) indicate that

[15] Variable definitions are either as of year *t* which represents the remediated company-year, or year *t-1* which represents the year of the ICW disclosure. Variables defined in year *t-1* represent the existing environment when remediation decisions are being made as opposed to year *t* representing the environment after remediation is claimed to have occurred. I am interested in capturing the environment when remediation decisions are made and therefore many control variables are defined in year *t-1*.

[16] A limitation of the definition of a successfully remediated company-year is that a failed remediation company-year is unobservable until the year is determined to be misstated. Thus, some successfully remediated company-years may later be revealed to have failed. In my sample the average delay between the remediated company-year and the restatement filing is 2.3 years or 28 months with a maximum difference of approximately 6.8 years.

audit fees remain abnormally high after remediation occurs. Thus, there appears to be heightened control risk and testing following remediation that should detect that the ICW still exists.

3.1.2. Measures of Incentives to Disclose Remediation

CONSTITUENT_INCENT is one of two factors that result from the PCA for variables capturing incentives to restore financial reporting credibility and loads significantly on institutional ownership *(INST_OWN)* and size *(Ln_MARKETCAP)*. Restoring credibility can be especially challenging in large organizations that answer to a number of constituents with frequently conflicting expectations and perceptions (Ashforth and Gibbs 1990). Companies attracting institutional investor constituents appear to have high credibility because these companies tend to have a lower cost of capital, higher liquidity, and higher disclosure quality (Bushee 2004; Bushee and Noe 2000). However, the disclosure of an ICW threatens the perceived quality of that company's disclosures and thus its credibility. Bushee and Noe (2000) provide evidence that certain institutional investors will decrease their holdings when disclosure quality decreases.[17] Though prior literature has shown institutional investors to be effective in eliciting prompt remediation (Mitra et al. 2012) the pressure placed on management to remediate may cause managers to misrepresent that controls are effective. Therefore managers of large companies and of companies with high institutional ownership are highly incentivized to restore financial reporting credibility. Alternatively, managers of large companies usually have stronger corporate governance mechanisms in place which may help ensure that remediation actions are thoroughly implemented before a conclusion that controls are effective is reached.

[17] In untabulated tests I find some evidence that the effect is strongest for companies that have the highest decile of quasi-indexed investors, consistent with Bushee and Noe (2000) who find that quasi-indexed investors are most likely to divest when disclosure quality decreases. Results for the top decile percentage of transient (dedicated) ownership are not significant (marginally significant).

LITIG_AVOID_INCENT is the second factor and captures incentives to avoid litigation such as a prior restatement *(PRIOR_RESTATE)* or operating in a litigious industry *(LITIGATION)*. Financial statement restatements have been likened to a product recall (Reilly 2007) and are associated with a decline in credibility (Feldmann et al. 2009; Arthaud-Day, Certo, Dalton, and Dalton 2006). Restatements are also accompanied by an increased likelihood of litigation (Palmrose and Scholz 2004) therefore these companies should be highly incentivized to restore financial reporting credibility and may do so prematurely. Alternatively, these companies may not be able to sustain further losses in credibility via a future restatement or expose themselves to future litigation by prematurely concluding remediation is completed.

FIN_DISTRESS is the factor that results from a separate PCA of capital market pressures and includes measures of financial performance *(LOSS)*, financial distress *(LEVERAGE)*, and an ex-post measure of the need to raise additional financing *(ΔXFIN)*. Additionally, resource constraints can negatively affect the capacity to restore credibility (Ashforth and Gibbs 1990), yet these companies are highly incentivized to disclose remediation to satisfy current and prospective debtholders.

The coefficients of interest for H1 are β_1 through β_3. A positive coefficient on β_1 or β_2 (β_3) would be consistent with incentives to restore financial reporting credibility (capital market pressures) increasing the likelihood that management misrepresents effective controls through a remediation disclosure.

3.1.3. Control Variables

I include control variables to capture the audit environment and to capture underlying challenges of remediating ICWs that may affect the likelihood of a failed remediation. If an ICW is not deemed by the auditor to be fully remediated, then the auditor will continue to disclose the

ICW. A large body of research provides evidence that larger audit firms provide higher quality audits; however, recent research has shown that Big 4 auditors are less likely to detect ICWs prior to restatements (Rice and Weber 2012). If auditors have lately been unsuccessful in detecting ICWs then it is possible that they also are not successful in their conclusions regarding the effectiveness of the remediation. Therefore, I include an indicator for auditor (*BIG4)* but do not predict its sign. Rice and Weber (2012) find that companies with a recent auditor change are more likely to disclose existing ICWs as it is easier for new auditors to blame predecessors for the existence of the ICW. Additionally auditors may be reluctant to continue issuing adverse internal control opinions to the same client in order to avoid an increased chance of dismissal (Newton, Persellin, Wang, and Wilkins 2015; Ettredge et al. 2011). However, it is unclear whether these would also translate to the likelihood of a failed remediation. On one hand, the newly engaged auditor may have a heightened risk assessment on a new client. Alternatively, the newly engaged auditor may lack the familiarity with the client necessary to be certain that the ICW is remediated. Therefore, I include an indicator variable capturing whether the company changed auditors from *t-2* to *t (AUD_CHANGE)* but do not predict its sign.

To the extent that audit fees capture audit effort, I expect that audit fees are negatively associated with the likelihood of a failed remediation. Non-audit services provided by the audit company also have the potential to affect internal control reporting positively through knowledge spillover effects or negatively by compromising auditor independence, Thus I do not predict the sign of the coefficient on non-audit fees. Consistent with Rice and Weber (2012), I define *Ln_AUDFEES (Ln_NONAUDFEES)* as the natural log of the quotient of total audit (non-audit) fees in year *t* scaled by the square root of total assets in year *t.*

I include an indicator of whether the company's ICFR is audited (*AUD_ICFR)* which is equal to one when the report on internal controls originates from the auditor and equal to zero

when the control report originates from management.[18] The SOX requirement for an audit of ICFR only applies to accelerated filers.[19] Knowledge of impending control audits might cause managers to seek to discover and remediate more ICWs than they would absent the threat of an audit (Kinney and Shepherdson 2011). However, there may be a selection bias inherent in the non-accelerated filers that disclose an ICW as there is little incentive for companies to disclose an ICW absent the threat of an audit. Therefore, non-accelerated filers that actually disclose an ICW may also be more likely to delay disclosure of remediation until their confidence level is high that remediation has adequately strengthened controls. I do not make a prediction regarding the effect of an audit of ICFR (*AUD_ICFR*) on the likelihood of a failed remediation.

The challenges of remediation can vary based on the internal control environment, including the severity of the ICW and complexity of the company. Moody's classifies the severity of ICWs in two categories of either 'A' or 'B'(Doss and Jonas 2004). Category 'A' weaknesses are related to controls over specific account balances or transaction-level processes whereas Category 'B" weaknesses are related to macro-level controls such as an ineffective control environment, weak financial reporting processes, ineffective personnel or whether a company has three or more category 'A' weaknesses. I set *SEVERE* equal to one if a company discloses a category 'B' ICW or if the company discloses three or more category 'A' ICWs. I define *#WEAK* as the number of ICWs disclosed by the company in the year before remediation is disclosed. Because more severe as well as more pervasive weaknesses are less likely to be remediated and

[18] For company-years with both an auditor report and management report, I keep only the observation with the auditor report.

[19] The requirement for management to evaluate their internal control over financial reporting (ICFR) to determine whether any ICWs exist is established under SOX Section 404. SOX Section 404(b) also requires the external auditors to annually assess and provide an opinion regarding the client's ICFR, thus both management and the external auditor have responsibility under this regulation. The external audit is applicable only for accelerated filers, however, as non-accelerated filers have been permanently exempted from Section 404(b) through the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank, 2010).

take more time to remediate (Goh 2009; Hammersley et al. 2012; Bedard et al. 2012), I expect that *SEVERE* and *#WEAK* are both positively related to the likelihood of a failed remediation.

Remediation of ICWs is less timely for complex companies including those with more operating segments (Chan, Kleinman, and Lee 2009; Johnstone et al. 2011) and those with foreign operations (Goh 2009). Therefore I control for total assets (*Ln_ASSETS),* the number of reported business segments (*SEGMENTS), FOREIGN_SALES*, restructurings (*RESTRUCTURE)* and merger and acquisition activity *(MACQ).* Finally, I include the decile of sales growth *(GROWTH)* from years t-3 to t-1 as companies with extreme sales growth may indicate a rapidly changing control environment. Because companies with higher complexity are also more likely to have complex ICWs, I expect that companies with complex operations will be more likely to have a remediation failure.[20]

3.2. Research Design Testing H2 and H3

To test H2 and H3, I use a matched sample of failed remediation company-years and successfully remediated company years and modify equation (1) as follows:

$$Prob(FAILED\_REMED_t=1) = F(\alpha_0 + \alpha_1 - \alpha_3 INCENTIVES_+ \alpha_4 ANN\_FILE + \alpha_5 HOLISTIC + \alpha_6 - \alpha_{18} CONTROLS + Industry\ Fixed\ Effects + Year\ Fixed\ Effects) \quad (2)$$

3.2.1. Measure of the Timing of Remediation Disclosure

I define the timing of remediation disclosure to be the first period in which management indicates that internal controls are operating effectively. I create a variable *ANN_FILE* by assigning a value of 1 if management discloses that remediation is complete in their first annual filing subsequent to the ICW disclosure and 0 otherwise.

[20] I include industry (Fama-French) and year fixed effects and robust standard errors clustered at the company-level in all model specifications except for conditional analysis in Table 7 column 2.

3.2.2. Measure of the Extent of Remediation Actions Employed

Prior literature examining remediation actions has been limited, but has found a high degree of variability within the types of actions taken (e.g. Lynch 2015; Hammersley et al. 2012; Fargher and Gramling 2005). During hand collection of the remediation disclosures, I noted nine common categories of remediation actions that I define and provide examples of in Appendices A and C, respectively. I use prior research (Lynch 2015; Hammersley et al. 2012) to classify remediation actions into three summary categories in an attempt to disentangle the remediation action from the required investment. *EXTERNAL_INVESTMENT* is equal to one when management engages a third party consultant. *INTERNAL_INVESTMENT* is equal to one when management reorganizes the accounting department structure or when the company adds, retains, or terminates staff as well as when management employs training or implements a new internal control system. Finally, *PROCEDURES_REVIEWS* is equal to one when management discloses that they have enhanced their existing control structure or enhanced review procedures of existing controls. I set *HOLISTIC* equal to one for management that discloses remediation actions in more than one of these three remediation categories.

In Model 2 the coefficients of interest for H2 and H3 are α_4 and α_5 respectively. A negative coefficient on *ANN_FILE* would be consistent with H2 and indicates that remediation disclosure in the annual filing allows time for newly implemented controls to operate and be tested and therefore less likely to fail than remediation disclosed in an earlier quarter. A negative coefficient on *HOLISTIC* would be consistent with H3 and indicate that managers implementing remediation actions across multiple categories of the control environment are less likely to fail. Control variables are the same as those in Model 1.

3.3. Sample Selection

Table 3, panels A through C details sample selection procedures for the observations used in the primary analysis of determinants of a failed remediation of a MW. First, I identify all remediated company-years by using the Audit Analytics SOX 404 Internal Controls Database to identify companies that disclose a MW between 2004 and 2013, but show evidence of remediating the MW via a subsequent unqualified opinion on internal controls.[21] Panel A presents the sample selection of remediated company-years where the first unqualified opinion on internal controls is defined as the remediated company-year. There are 5,527 MW company-years after matching Audit Analytics to Compustat. After eliminating 3,572 MW company-years with either consecutive annual MW filings or that are no longer on Compustat after disclosing the MW, the remaining sample includes 1,955 remediated company-years. Further elimination of observations missing Compustat data to construct the primary model reduces the final sample of remediated company-years to 1,606.

Panel B of Table 3 presents the sample selection of misstated years and failed remediation company-years. I use the Audit Analytics Non-Reliance Restatement Database to gather all restatement announcements from 2004 through March, 2015 and use the restatement period beginning and ending dates to determine which of the remediated company-years contain material misstatements. Of 2,359 restatement filings matched from Audit Analytics to Compustat, 360 contain misstated years that concur with or soon follow remediation of a MW. Elimination of observations with missing Compustat data to construct my primary model reduces the final sample of failed remediation company-years to 297. Thus, of the 1,606 remediated company-years

[21] I only use originally-issued internal control opinions to avoid any revisions that may be prompted by subsequent issuance of accounting restatements.

identified in Panel A, 297 (18.49%) were subsequently found to be misstated.[22] Panel C details failed remediation by fiscal year as a percentage of remediated years. The majority of remediation failures occur between 2008 through 2010. Though the trend appears to be declining, it is possible that 2011 through 2013 will continue to increase as further restatements are filed.

Examining the timing of remediation disclosure and the extent and nature of remediation actions requires hand collection from disclosures related to internal controls over financial reporting included in companies' quarterly and annual filings. I collect this information for the 297 failed remediation company-years and for a matched sample of successfully remediated company-years.[23] The failed and successful remediation company-years are matched on industry, year, total assets, and MW severity.[24] Prior research suggests that companies with severe MWs or multiple types of control problems have been shown to be less likely and slower to remediate (Bedard et al. 2012; Hammersley et al. 2012; Goh 2009). Therefore, it seems likely that companies with more severe MWs would employ a different remediation strategy than companies with less severe MWs. Requiring that an industry-, year-, size-, and severity-matched control

[22] In untabulated robustness tests, I remove 15 failed remediation company-years that include a technical misstatement. Technical misstatements are restatements that reflect clarifications of accounting standards through SEC guidance and arguably do not reflect errors that would have been detected with additional audit effort (Boland, Bronson, and Hogan 2015) and likely do not relate to the remediation effort that occurred. These include restatements related to accounting for leases announced between February 2005 and December 2006, restatements related to stock-option compensation announced between December 2004 and December 2006, and restatements related to debt announced between June 2006 and December 2007. Inferences remain the same after eliminating these observations, however the p-value improves slightly.

[23] Per Stuart, Shinn, Cram, and Karan, (2013) choice based and matched samples are frequently used to economize when data collection is costly, especially when outcomes of one sort are rare and few would be obtained under random selection. The research design of these non-random samples provides for efficient collection of fewer data points. In my study, this is appropriate if a factor such as industry or total assets is likely to have a large effect on the likelihood of the timing, extent, and nature of remediation disclosure but is not itself of primary research interest. Thus, the use of a matched sample design allows me to focus power on estimating parameters for the timing, extent, and nature of remediation disclosure while applying control for other variables that are not the focus of the study.

[24] Specifically, within year, two-digit SIC code, and ICW severity (i.e. whether the ICW is category A or category B based on Doss and Jonas 2004), I consider all match companies with total assets within 50%-150% of the failed remediation company-year and identify the matched company as the one with the closest amount of total assets. I perform this match without replacement.

company be available for each sample company reduces my final matched sample to 264 of both treatment and control remediated company-years.

CHAPTER 4: MAIN RESULTS

In Chapter 4, I begin by providing descriptive statistics comparing failed remediations and successful remediations for the variables of interest and control variables. I then provide a descriptive discussion of the nature of remediation actions employed. The discussion of univariate tests of differences is followed by the main empirical results testing H1 through H3.

4.1. Descriptive Statistics

4.1.1. Incentives to Disclose Remediation and Control Variables

Table 4, Panel A presents descriptive statistics comparing the variables used in Model 1 across the failed remediation and successfully remediated company-years for the full sample. Descriptive statistics are shown for both the full and matched sample. Of the three factors created to measure incentives to disclose remediation only constituent incentives *(CONSTITUENT_INCENT)* are significantly larger for failed remediations (t=5.67). These results are driven by both underlying measures of institutional ownership and by size. Though *FIN_DISTRESS* is not significantly different between the two categories, companies with higher leverage are more likely to fail at remediation, but unexpectedly, companies with a loss in the remediated year are less likely to fail at remediation. Also unexpectedly, *LITIG_AVOID_INCENT* is not significantly different between the two categories.

As expected, remediation failures are more likely for larger *(Ln_ASSETS),* more complex *(SEGMENTS)* companies, and companies with faster sales growth *(GROWTH).* Remediation failures are less likely for companies that have recently had a change in auditor *(AUD_CHANGE).* Consistent with univariate findings with respect to remediation failures being more common in larger companies, remediation failure is also more likely for companies with a Big 4 auditor

(BIG4) and companies subject to an audit of ICFR *(AUD_ICFR)*. Because these comparisons do not control for the other included factors, I base my inferences on multivariate regression results discussed later.

4.1.2. Timing of Remediation Disclosure and Extent, and Nature of Remediation Actions

Table 4, Panel B presents comparative descriptive statistics for the matched sample. Univariate tests of differences suggest a relatively accurate match on those characteristics defining the difficulty of remediation. In Table 4 Panel C, I use univariate tests to also compare differences between control observations selected for the matched sample and remaining unselected control observations. I find that selected observations tend to be from companies with more assets and more severe MWs. Also, matched control observations are more likely to have recently undergone a restructuring. However, there is no significant difference between the incentive measures to disclose remediation. To alleviate matched sample concerns, I present both pooled and paired t-statistics noting no differences in inferences between the two t-tests thus there is little difference in evaluating the population as an independent versus a dependent sample. Therefore I utilize this sub-sample to test H2 and H3.

Table 4 Panel D presents descriptive statistics for the variables capturing the timing of remediation disclosure and extent of remediation action employed as well as the nature of remediation actions in a matched sample. As expected, failed remediation company-years are less likely to conclude that remediation is complete in a subsequent annual filing as only 59.1% of failed remediation company-years disclose remediation in the annual filing compared to 70.8% of successfully remediated company-years (paired t=-2.52). This indicates that on average, companies that are successful in their remediation efforts are more likely to leave time to test the effectiveness of newly implemented controls before disclosing remediation is complete. Also as

expected, failed remediation company-years are less likely to employ a holistic approach as only 53.4% of failed remediation company-years employ more than one category of remediation compared to 67.0% of successfully remediated company-years (paired t=-3.18).

Though I do not formally hypothesize the effect of the nature of certain types of remediation actions on the likelihood of remediation failure, descriptive results for the nature of remediation actions can be informative for financial statement users simply as a means to understand what managers are doing to remediate MWs. The most common type of remediation is an investment in procedures and reviews of controls. Failed remediation company-years employ this tactic less than the control company-years at 73.5% versus 82.2% (paired t=-2.37). Companies with failed (successful) remediation make an internal investment 58.3% (65.9%) of the time (paired t=-1.72). Interestingly, making an external investment does not appear to decrease the likelihood of a failed remediation as there is not a statistical difference between companies with failed and successful remediations (26.9% and 32.6%, respectively).

Analysis of individual remediation actions indicates that of the common remediation actions identified, successful remediation attempts are more likely to use training programs (30.7% versus 22.3%), implement new control systems (14.0% versus 7.2%), enhance review controls (40.2% versus 24.6%) and enhance the underlying control system (76.9% versus 69.7%). However, there is not a statistically significant difference between companies that focus on adjusting staffing levels, hiring consultants, or improving communication.

Most companies appear to employ remediation actions across multiple remediation categories as evidenced by *HOLISTIC* averaging 60.2% for the matched sample. However, there are also instances where a company only employs one category of action. Of these, the only statistical difference is between companies that only employ an internal investment. Failed remediation company-years are more likely when only an internal investment is employed in that

8.7% of failing and 4.2% of successful remediated company-years only employ internal investments. Thus it appears that companies only making staffing changes to remediate are more likely to fail at adequately strengthening internal controls. These simple univariate comparisons, however do not take into account all possibilities of the mix of remediation actions, nor do they control for other associated factors. Therefore, care must be taken in generalizing these descriptive results outside of the sample. Pearson correlations between the independent variables are provided for both the full and the matched sample in Table 5, Panels A and B, respectively. Correlations are largely as expected.

4.2. Multivariate Regression Results

4.2.1. Incentives to Disclose Remediation and Controls

Table 6 presents primary regression results from tests of H1. I provide the predicted sign where predictions have been made, coefficient estimates, standard errors, and estimated marginal effects for each variable. Marginal effects are calculated as averages of the individual marginal effects evaluated at every observation in the sample (Bartus 2005).[25] Note that consistent with prior research, models involving restatements do not have good predictive ability in that the pseudo R^2 and area under the ROC curve are low (11.4% and 68.5%, respectively). However, the Hosmer and Lemeshow (2013) goodness of fit test does not suggest that the model is poorly specified (p=.56).[26]

The coefficient on *CONSTITUENT_INCENT* is positive and significant (p=.013) indicating that larger companies with a higher percentage of institutional ownership are more likely to have a failed remediation. This result indicates that these companies may be prematurely

[25] The standard errors of the marginal effects imply identical inferences to those from the associated coefficient estimates, however I do not include them for sake of brevity.
[26] Higher p-values for the Hosmer and Lemeshow goodness-of-fit test represent an inability to reject the null hypothesis that the model is of poor fit (Hosmer and Lemeshow 2013).

disclosing remediation as a result of higher pressure to restore any loss of financial reporting credibility

I do not find a significant result on litigation avoidance incentives to disclose remediation ($p=0.37$). Because companies with high litigation risk and prior restatements face greater external scrutiny, it is possible that management in these companies will be more inclined to ensure that remediation is successfully implemented to prevent future financial restatements which further threaten financial reporting credibility (Feldmann et al. 2009; Arthaud-Day et al. 2006). For example, Rice and Weber (2012) find that companies with a prior restatement are more likely to disclose existing ICWs potentially because there is already an expectation of an ICW, thus companies with an ICW may actually be incentivized to have greater assurance that the ICW is remediated and will not cause a future restatement.

The coefficient on *FIN_DISTRESS* is positive and significant ($p<0.01$) indicating that consistent with H1b, companies with certain greater capital market pressures to disclose remediation are more likely to have a failed remediation. Taken together, the results on H1a and H1b indicate that some incentives to misrepresent that controls are effective are increasing the likelihood of a failed remediation.

Of control variables without a predicted sign, the coefficients on *BIG4* and *AUD_ICFR* are both positive and significant ($p=0.03$ and 0.02, respectively), indicating that clients of the largest firms and companies that are subject to an audit of ICFR are more likely to have a failed remediation. The result on *BIG4* is consistent with Rice and Weber (2012) who find that Big4 auditors are less likely to disclose existing ICWs. Similarly, the result on *AUD_ICFR* indicates that companies subject to an audit of internal controls are more likely to have a failed remediation. These results are somewhat surprising, but may be consistent with anecdotal evidence and criticisms from the PCAOB that auditors are not detecting all existing ICWs which may also carry

over to auditors not correctly assessing when remediation adequately strengthens internal controls.[27] Additionally, the result on *AUD_ICFR* may be indicative that those companies disclosing ICWs absent the threat of an audit are the same companies that are more likely to be diligent in the remediation process. [28,29]

The signs on the coefficients for other control variables in the model, when significant, are as expected. The estimated coefficient on *LN_AUDFEES* is negative (p=.07) consistent with greater audit effort reducing the likelihood of a failed remediation. Of the control variables that may affect the difficulty of remediating, only *SEGMENTS* and *GROWTH* are statistically significant indicating that companies with more operating segments and with faster sales growth are more likely to have a failed remediation. However, marginal effects on each of these variables are quite small (estimated marginal effect <0.01), thus the economic effect seems immaterial. Surprisingly, measures of severity of the MW and the number of MWs are not statistiablecally significant in the model. These results combined with the lack of statistical significance on many of the control variables that have been shown to affect the difficulty of remediating lead me to infer that regardless of the severity or complexity of the underlying MW, the commitment of management to remediation rather than the difficulty of remediation is affecting the likelihood of a failed remediation.

4.2.2. Timing of Remediation Disclosure and Extent and Nature of Remediation Actions

Table 7 presents the results of estimating Model 2 on a matched sample of failed and successfully remediated company-years to test H2 and H3. Column 1 presents results for an unconditional logistic regression. Unconditional results from Model 2 have slightly more power

[27] See Chapter 5 for further analysis of *BIG4* versus non-*BIG4* and *AUD_ICFR* versus non-*AUD_ICFR* results.
[28] e.g. PCAOB (2013); PCAOB (2015); Each of the six largest accounting firms have been cited at least once by PCAOB inspection reports for failing to properly test the remediation of previously disclosed material weaknesses
[29] e.g. Croteau 2013; Hanson 2013; McKenna 2014

than Model 1 with a pseudo R^2 of 17.8% and an area under the ROC curve of 71.0% which represents acceptable discriminatory power (Hosmer and Lemeshow 2013). I also include results in column 2 using a conditional logistic regression where I identify my matched pairs as strata (Stuart et al. 2013).[30] First, coefficients on *CONSTITUENT_INCENT* and *FIN_DISTRESS* remain positive and significant, though both are now only marginally significant which is reasonable given the use of the matching process. Thus, tests of H1a and H1b are robust to a matched sample of similar MWs, a measure of size, industry, and year.

Consistent with H2, the coefficient on *ANN_FILE* is negative and significant ($p<0.01$), with estimated marginal effects indicating that within the matched sample, companies that disclose remediation in their subsequent annual filing are 10.3% less likely to fail in their remediation attempts ($p<0.01$). Consistent with H3, the coefficient on *HOLISTIC* is also negative and significant ($p<0.01$), with estimated marginal effects indicating that companies within the matched sample that take a holistic approach to remediation are 15.8% less likely to have a remediation failure. Taken together, the results on H2 and H3 indicate that both the timing of remediation disclosure and the extent of remediation actions provide important information regarding the likelihood of a failed remediation.

Results on control variables from the unconditional logistic regression in column 1 are consistent with Model 1 results presented in Table 6 with the exception that the coefficients on *Ln_AUDFEES,* and *AUD_ICFR,* are no longer significant and the coefficient on *FOREIGN_SALES* becomes marginally significant.

[30] Stuart et al (2013) and Cram, Karan, and Stuart (2009) find that results of matched sample studies in auditing research can provide different results when using unconditional analysis as opposed to conditional analysis. A choice-based, matched sample must be analyzed using conditional analysis techniques. I provide both the unconditional and conditional analysis to show that results are qualitatively consistent across methods.

CHAPTER 5: SUPPLEMENTAL ANALYSES

In Chapter 5, I perform several additional analyses to provide enhanced perspectives about the main findings reported in Chapter 4. I begin by providing a discussion of the main model results including the seven different incentive variables replacing the three factor scores used in the main analysis. I then examine additional specifications of my model to further rule out concerns that my dependent variables may not be adequately capturing failed remediations. I conclude by re-estimating the main models including those company years where the company either does or does not employ a Big 4 auditor *(BIG4)* and including company years where the company either is or is not subjected to an audit of ICFR *(AUD_ICFR).*

5.1. Model Including Detailed Incentive Controls as Opposed to Factor Scores

In the main analysis I collapse seven variables that have been used in prior literature to measure incentives to disclose remediation and capital market pressures into three principle component factor scores to capture constituent based incentives to restore financial reporting credibility (*CONSTITUENT_INCENT),* incentives to avoid litigation *(LITIG_AVOID_INCENT)* and financial distress which is a capital market pressure to disclose remediation *(FIN_DISTRESS).* However, this approach does not allow the reader to understand how each of the seven variables individually impacts the likelihood of a failed remediation. Table 8 reproduces the results presented in Table 6 and Table 7 replacing the factor scores with the seven individual variables that comprise the factor scores as discussed in Appendix B. This analysis indicates that the positive results on *CONSTITUENT_INCENT* for both the full and the matched sample are driven by the degree of institutional ownership within a company as *INST_OWN* is positive and significant ($p<0.01$) whereas company size *(Ln_MARKETCAP)* is not significant. Similarly, the

results on *FIN_DISTRESS* are driven by *LEVERAGE* in the full and matched sample as evidenced by its positive and significant coefficient (p<.01). Neither *PREV_RESTATE* nor LITIGATION which construct *LITIG_AVOID_INCENT* is significant in the analysis. Matched sample results on *ANN_FILE* and *HOLISTIC* are consistent with the main analysis. Many of the control variables are consistent with the results in the main model with the exception of *AUD_ICFR,* which is no longer significant in the full and matched models, and *Ln_NONAUDFEES,* which is no longer significant in the matched model. Overall, there is not a large difference between the explanatory and discriminatory power between the two models, however I use the principal components analysis to reduce dimensionality and increase variation of the raw measures.

5.2. Model with Restricted Measurement of *FAILED_REMED*

Though I argue that the remediation of any MW should be accompanied by an increased control risk environment three years after remediation, a limitation of my study is that I cannot be certain that the restatement announcement is directly related to the MW that was previously disclosed to be remediated. Similarly, a limitation of my study is that I cannot always directly link the restatement reason to the reason for the underlying MW. For example, many ICW disclosures may refer to segregation of duties control weaknesses which could affect multiple facets of the financial reporting environment. Thus, a restatement of any financial statement account could be related to this ICW disclosure. Therefore, I re-estimate my analyses on a sample where I only keep failed remediation years requiring that the remediated year is misstated as opposed to also extending three years beyond the remediation year and on a sample where I only keep observations where the reason for the restatement determinedly matches the remediated MW. Compared to the main analysis presented in Table 6, requiring the remediated year to be restated and requiring a specific match between the MW reason and restatement reason reduces my total

sample from 1,606 to 1,474 and 1,418 remediated company-years, respectively and reduces my sample of failed remediation years from 297 to 165 and 109 failed remediation company-years, respectively.

Table 9 provides the full sample analysis, comparable to that in Table 6. Column 1 provides results when requiring the remediated year to be restated. I find that there continues to be a positive coefficient on *CONSTITUENT_INCENT* and *FIN_DISTRESS*, though p-values increased slightly (p=0.08 and p=0.08, respectively). Interestingly, *AVOID_LITIG_INCENT* is positive and significant in this model (β_2=0.22, p=0.07) indicating that incentives to avoid litigation are also positively associated with the likelihood of a remediation failure when the remediated year is misstated. For control variables, *BIG4* and *AUD_ICFR* remain positive and significant, however *Ln_AUDFEES*, *SEGMENTS*, and *GROWTH* are no longer significant. Interestingly, the coefficient on *#WEAK* is positive and significant indicating that the likelihood of a failed remediation is increasing in the number of MWs remediated when requiring the remediated year to be misstated.

Table 9, column 2 provides results when requiring a specific match between the MW reason and the restatement reason. I find results similar to the main analyses where both *CONSTITUENT_INCENT* and *FIN_DISTRESS* are positive and significant. However, the significance level is stronger with p<0.01 and p=0.02, respectively. Results on control variables are similar to the main analysis with the exception that the natural log of audit fees *(Ln_AUDFEES)* is negative and significant for the MW and restatement match test in column 2. For control variables, *AUD_ICFR* and *Ln_AUDFEES* remain significant, however *BIG4*, *SEGMENTS*, and *GROWTH* are no longer significant. Similar to the results in column 1 the coefficient on *#WEAK* is positive and significant indicating that the likelihood of a failed

remediation is increasing in the number of MWs remediated when requiring a specific match between the MW and restatement reason.

Table 10 provides matched sample analysis comparable to that presented in Table 7. Because I no longer have a complete set of matched pairs, I only present matched sample results using an unconditional logistic regression. Requiring a specific match between the MW reason and restatement reason reduces my total sample from 528 to 416 and 359 remediated company-years, respectively and reduces my sample of failed remediation years from 264 to 152 and 95 failed remediation company-years, respectively. Inferences for the variables of interest are qualitatively similar to those presented in the main tests. For control variables, contrary to prior results *BIG4* is now negative and significant in column 1 indicating that for the matched sample requiring the remediated year to be misstated, failed remediation are less likely for Big 4 audited clients. Also, the coefficient on *Ln_ASSETS* is now positive and significant. However, *FOREIGN_SALES* and *GROWTH* are no longer significant. No control variables are significant in column 2. This may be the result of decreased sample size.

Overall, and as expected, requiring a more closely matched restatement to a MW provides stronger evidence of a link between incentives to disclose remediation and a failed remediation, though control variables do not load as strongly as the main tests. However, evidence in the main analyses suggests that these results hold to a more broadly defined sample of failed remediation years.

5.3. Analysis Partitioning Companies with and without a Big 4 Auditor

The auditing literature generally concludes that audits by Big 4 auditors are of higher quality (DeFond and Zhang 2014). Therefore it is interesting that I find that companies with Big 4 auditors are more likely to encounter a remediation failure. This result is consistent with

surprising evidence by Rice and Weber (2012) who find that companies with Big 4 auditors are less likely to disclose existing ICWs. They also suggest that "larger auditors may be better able to audit around control weaknesses and avoid the misstatements that would lead to inclusion in (their) sample" (Rice and Weber 2012 p.815). However, this would not likely be the case in my sample because the auditors have already disclosed MWs, and thus have not effectively audited around the MW if a future misstatement is revealed. Therefore I analyze whether my results are consistent between companies with or without Big 4 auditors.

Table 11 provides full sample analysis where *BIG4*=1 (column1) and where *BIG4*=0 (column 2). Partitioning the main analysis presented in Table 6, splits the sample from 1,606 total remediated company-years to 888 (718) remediated company years and 199 (98) failed remediation company-years where *BIG4=1* (*BIG4=0)*. Interestingly, constituent incentives to restore financial reporting credibility in companies with a Big 4 auditor are still positively associated with the likelihood of a failed remediation. However the coefficient on *CONSTITUENT_INCENT* is not significant when companies do not have a Big 4 auditor. On the other hand, the coefficient on *FIN_DISTRESS* is not significant when companies have a Big 4 auditor, but companies in financial distress using a non-Big 4 auditor are still positively associated with the likelihood of a failed remediation. Also of interest is that different control variables are significant for Big 4 versus non-Big 4 auditor clients. Auditor changes and non-audit fees are both negatively associated with the likelihood of a failed remediation for Big 4 clients whereas audit fees are negatively associated with failed remediation and companies with an audit of ICFR or those with more operating segments are both positively associated with a failed remediation for non-Big 4 clients. Taken together, these results may indicate that clients of Big 4 and non-Big 4 auditors are influenced by a different set of pressures when making remediation decisions.

Table 12 provides matched sample analysis compared to that presented in Table 7. Similar to the analysis performed in Section 5.2, the set of matched pairs is broken up in this analysis because I do not match on whether the company has a Big 4 auditor. Therefore, I only present matched sample results using an unconditional logistic regression. Partitioning the main matched sample analysis presented in Table 7, splits the sample from 528 total remediated company-years to 318 (210) remediated company years and 173 (91) failed remediation company-years where *BIG4=1* (*BIG4=0)*. Though the coefficients on *CONSTITUENT_INCENT* and *FIN_DISTRESS* are not significant for clients of non-Big 4 clients, inferences on the timing of remediation disclosure and extent of remediation actions are qualitatively similar to the main tests. Overall, these results provide some evidence that there is a difference between the pressures that may lead to remediation failure when comparing clients of Big 4 versus non-Big 4 auditors, but there does not appear to be a difference in what timing and actions are more likely to be successful.

5.4. Analysis Partitioning Companies with and without an Audit of Internal Control Over Financial Reporting

Another interesting finding in this paper is that companies with an audit of ICFR are positively associated with the likelihood of a failed remediation. These results are somewhat surprising, but may be consistent with anecdotal evidence and criticisms from the PCAOB that auditors are not detecting all existing ICWs which may also carry over to auditors not correctly assessing when remediation adequately strengthens internal controls. Additionally, the result on *AUD_ICFR* may be indicative that those companies disclosing ICWs absent the threat of an audit are the same companies that are more likely to be diligent in the remediation process. Therefore I analyze whether my results are consistent between companies with or without an audit of ICFR.

Table 13 provides full sample analysis where *AUD_ICFR=1* (column1) and where *AUD_ICFR*=0 (column 2). Partitioning the main analysis presented in Table 6, splits the sample from 1,606 total remediated company-years to 1,157 (449) remediated company years and 249 (48) failed remediation company-years where *AUD_ICFR=1* (*AUD_ICFR=0)*. Constituent incentives to restore financial reporting credibility in companies with an audit of ICFR are still positively associated with the likelihood of a failed remediation however it is no longer significant for companies without an audit of ICFR. *FIN_DISTRESS* remains significant for both companies with and without an audit of ICFR. Of control variables for companies with an audit of ICFR, companies with a recent auditor change are negatively associated with the likelihood of a failed remediation whereas companies whereas companies with more assets and with a recent merger or acquisition are positively associated with the likelihood of a failed remediation. No control variables are significantly associated with the likelihood of a failed remediation for companies without an audit of ICFR. This may be due to low model power and sample size for clients with an audit of ICFR.

Table 14 provides matched sample analysis, however there are not enough observations for clients without an audit of ICRF to estimate a significant model. Thus, I only provide matched sample analysis for companies with an audit of ICFR. Again, the set of matched pairs is broken up in this analysis because I do not match on whether the company has a Big 4 auditor. Therefore, I only present matched sample results using an unconditional logistic regression. Partitioning the main matched sample analysis presented in Table 7, splits the sample from 528 total remediated company-years to 412 (116) remediated company years and 220 (44) failed remediation company-years where *AUD_ICFR=1* (*AUD_ICFR=0)*. Though the coefficient on *CONSTITUENT_INCENT* is not significant for companies with an audit of ICFR, inferences on the timing of remediation disclosure and extent of remediation actions are qualitatively similar to the main tests. Overall,

these results again provide some evidence that there does not appear to be a difference in what timing and actions are more likely to be successful.

CHAPTER 6: CONCLUDING REMARKS

I examine whether incentives to disclose remediation and whether the timing of remediation disclosure and extent of remediation are associated with the likelihood of a failed remediation. I find that companies facing high incentives to restore financial reporting credibility and high capital market pressures to remediate are more likely to fail at adequately strengthening internal controls. Additionally, matched sample analysis indicates that remediation failures are 10.3% less likely for companies that disclose remediation in the subsequent annual SEC filing as opposed to an earlier date and are 15.8% less likely for companies that appear to take a holistic approach to improving internal controls as evidenced by employment of multiple categories of remediation actions. Results on the timing of remediation disclosure and the extent of remediation actions employed are robust to a number of specifications suggesting that the decision of when to disclose remediation and what to do to remediate are common important factors impacting the likelihood of remediation success. Finally, I provide some descriptive evidence of types of remediation actions that, on average, are associated with remediation failure.

The results suggest, 1)that companies with high incentives to disclose remediation are more likely to misrepresent that remediation has occurred and 2)that the timing of remediation disclosure and the extent of remediation actions affect the likelihood of a failed remediation. Overall, the results indicate that material weakness remediation disclosures provide information that is useful in assessing the likelihood of remediation failure.

The results have implications for regulators, auditors, practitioners and stakeholders, as well as for the literature examining the remediation of MWs. Auditors, managers, and financial statement users should realize that not all remediation actions and disclosures are created equal towards adequately improving internal controls. Because of the subjectivity involved in the

remediation process and lack of penalties associated with a failed remediation, it is possible that remediation disclosures do not adequately protect the investor from a future restatement. Future studies exploring costs and benefits of remediation should consider the possibility that remediation failures in the analysis may be understating (overstating) some of the perceived benefits (costs) of remediation and that prompt remediation of an MW is not always necessarily the best outcome.

APPENDICES

APPENDIX A

VARIABLE DEFINITIONS AND DATA SOURCES

TABLE 1
Variable Definitions and Data Sources

Variable	Definition and Data Source
Dependent Variable	
FAILED_REMED	Coded 1 if a company discloses remediation in year t, but has subsequently announced that any of year *t* through year *t+3* are misstated, 0 otherwise.
Independent Variables	
Incentives to Restore Financial Reporting Credibility	
CONSTITUENT_INCENT	A factor score derived from a principal-component factor analysis of standardized measures of *INST_OWN*, *Ln_MARKETCAP*, *PRIOR_RESTATE*, and *LITIGATION*.
LITIG_AVOID_INCENT	A factor score derived from a principal-component factor analysis of standardized measures of *INST_OWN*, *Ln_MARKETCAP*, *PRIOR_RESTATE*, and *LITIGATION*.
Capital Market Pressures to Disclose Remediation	
FIN_DISTRESS	A factor score derived from a principal-component factor analysis of standardized measures of *LOSS, ΔXFIN,* and *LEVERAGE*.

TABLE 1 (cont'd)

Variables Included in Principal Components Analysis	
INST_OWN	Percentage of common shares owned by institutional shareholders in year *t-1*. (Thompson Reuters Institutional Holdings).
Ln_MARKETCAP	Natural log of market capitalization (PRCC_F*CSHO) at the end of year *t-1*. (Compustat).
PRIOR_RESTATE	Coded 1 if a company filed a restatement in year *t-2*, 0 otherwise. (Audit Analytics Non-Reliance Restatements).
LITIGATION	Coded 1 if a company operates in a litigious industry (four digit SICs 2833-2836; 3570-3577; 3600-3674; 5200-6951; 7370), 0 otherwise (Compustat).
LOSS	Coded 1 if a company reports negative earnings (IB<0) in year *t-1*, 0 otherwise. (Compustat).
ΔXFIN	Sum of additional cash raised in year *t* from issuance of long-term debt (DLTIS) + common stock (SSTK) - purchase of preferred stock (PRSTKC) - dividends (DV) - long-term debt reduction (DLTR) + current debt changes (DLCCH) all scaled by total assets (AT).
LEVERAGE	Company leverage in year *t-1* measured as long-term debt (Compustat DLTT+DLC) divided by total assets (Compustat AT).

TABLE 1 (cont'd)

Control Variables	
BIG4	Coded 1 if the company is audited by a Big4 auditor in year *t*, 0 otherwise (Audit Analytics).
AUD_CHANGE	Coded 1 if the company changed auditors from year *t-2* to *t-1*, 0 otherwise (Audit Analytics Auditor Changes).
Ln_AUDFEES	Natural log of the quotient of total audit fees in year *t* (Audit Analytics Audit Fees) scaled by the square root of total assets (AT) in year *t*.
Ln_NONAUDFEES	Natural log of the quotient of total non-audit fees in year *t* (Audit Analytics Audit Fees) scaled by the square root of total assets (AT) in year *t*.
AUD_ICFR	Coded 1 if the company's internal control over financial reporting (i.e. Type "A" accelerated filer) is audited in year *t-1*, 0 otherwise (Audit Analytics Sox 404 Internal Controls).

TABLE 1 (cont'd)

SEVERE	Coded 1 if a company discloses a Category B material weakness as defined by Moody's (Doss and Jonas 2004) including weaknesses related to macro-level controls such as an ineffective control environment, weak overall financial reporting processes, or ineffective personnel (Audit Analytics Taxonomy of Material Weaknesses Codes 6,7,9,11-13, 18,19,21,22,26,42,44,48,50-54,58,60,62,64-67,69,70,76,77,82-87). Also, this is Coded 1 if a company discloses 3 or more material weaknesses of any kind, 0 otherwise. (Sox 404 Internal Controls).
#WEAK	The number of material weaknesses disclosed by the company in year *t-1*. (Audit Analytics Sox 404 Internal Controls).
Ln_ASSETS	Natural log of total assets in year *t-1*. (Compustat).
SEGMENTS	Number of reported business segments in year *t-1*. (Compustat Segments).
FOREIGN_SALES	Coded 1 if a company reports foreign transactions in year *t-1*, 0 otherwise. (Compustat data item FCA is non zero).
RESTRUCTURE	Coded 1 if a company was involved in a restructuring in year *t-1* ,0 otherwise. (Coded 1 if Compustat RCA, RCEPS, RCP, or RCD is non zero).

TABLE 1 (cont'd)

MACQ	Coded 1 if a company is involved in a merger or acquisition in year *t-1*, 0 otherwise (Compustat AFNT #1).
GROWTH	The decile of sales growth within a company's industry from year *t-3* to year *t-1* (Compustat REVT).
Remediation Timing, and Extent and Nature of Remediation Actions	
ANN_FILE	Coded 1 if the company discloses that remediation is completed in their annual filing following the disclosure of a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
HOLISTIC	Coded 1 if the company discloses two or more of EXTERNAL_INVESTMENT, INTERNAL_INVESTMENT, or PROCEDURES_REVIEWS. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
ONLY_EXT_INVESTMENT	Represents a case where only an EXTERNAL_INVESTMENT is made by the company to remediate a material weakness. Coded 1 if either ENGAGE_CONSULTANT=1 and all other remediation categories =0, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)

TABLE 1 (cont'd)

ONLY_INT_INVESTMENT	Represents a case where only an INTERNAL_INVESTMENT is made by the company to remediate a material weakness. Coded 1 if any of REORG=1, ADD=1, TERM=1, TRAIN=1, or IMPLEMENT_SYSTEM=1 and all other remediation categories=0, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
ONLY_PROCEDURE_REVIEW	Represents a case where a company only discloses PROCEDURES_REVIEWS to remediate a material weakness. Coded 1 if any of ENHANCE_REVIEW=1, ENHANCE_CONTROL=1, or COMMUNICATION=1 and all other remediation categories=0, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
EXTERNAL_INVESTMENT	Coded 1 if the company discloses an external investment made by the company to remediate a material weakness via hiring or retention of a consultant ENGAGE_CONSULTANT=1, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
INTERNAL_INVESTMENT	Represents an internal investment made by the company to remediate a material weakness. Coded 1 if any of REORG=1, ADD=1, TERM=1, TRAIN=1, or IMPLEMENT_SYSTEM=1, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)

TABLE 1 (cont'd)

PROCEDURES_REVIEWS	Represent disclosure of an improvement to either review controls or control processes. Coded 1 if any of ENHANCE_REVIEW=1, ENHANCE_CONTROL=1, or COMMUNICATION=1, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
ENGAGE_CONSULTANT	Coded 1 if the company discloses hiring or retention of third party professional service companies to remediate a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
REORG	Coded 1 if the company discloses a reorganization of the accounting function or an organizational restructuring to remediate a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
ADD	Coded 1 if the company discloses hiring or retention of personnel to remediate a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
TERM	Coded 1 if the company discloses termination of certain employees to remediate a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
TRAIN	Coded 1 if the company discloses additional training of personnel to remediate a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)

TABLE 1 (cont'd)

IMPLEMENT_SYSTEM	Coded 1 if the company discloses the implementation of new or improved systems of controls to remediate a material weakness (e.g. implementation of new software or hardware), 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
ENHANCE_REVIEW	Coded 1 if the company discloses enhancement of review processes to remediate a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
ENHANCE_CONTROL	Coded 1 if the company discloses enhancements to control processes to remediate a material weakness (e.g. improved reconciliation procedures, improved processes, or improved documentation of procedures), 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
COMMUNICATION	Coded 1 if the company discloses improvements in communication and awareness of controls and processes to remediate a material weakness, 0 otherwise. (Hand collected from remediation disclosures in 10-Q's or 10-K's)
Variables Used in Supplemental Analyses	
TRANSIENT_OWN	Coded 1 if the percentage of common shares owned by transient institutional shareholders in year *t-1*is in the top decile, 0 otherwise. (Thompson Reuters Institutional Holdings).

TABLE 1 (cont'd)

QUASI_INDEX_OWN	Coded 1 if the percentage of common shares owned by transient institutional shareholders in year *t-1*is in the top decile, 0 otherwise. (Thompson Reuters Institutional Holdings).
DEDICATED_OWN	Coded 1 if the percentage of common shares owned by transient institutional shareholders in year *t-1*is in the top decile, 0 otherwise. (Thompson Reuters Institutional Holdings).
CONSTITUENT_INCENT_OWN_DECILE	A factor score derived from a principal-component factor analysis of standardized measures of either the top decile of either transient, quasi-indexed, or dedicated ownership by institutions as well as *Ln_MARKETCAP*, *PRIOR_RESTATE*, and *LITIGATION*.
LITIG_AVOID_INCENT_OWN_DECILE	A factor score derived from a principal-component factor analysis of standardized measures of either the top decile of either transient, quasi-indexed, or dedicated ownership by institutions, as well as *Ln_MARKETCAP*, *PRIOR_RESTATE*, and *LITIGATION*.

APPENDIX B

PRINCIPAL COMPONENTS ANALYSIS

Principal Components Analysis

I use principal component analysis (PCA) to reduce the dimensionality of the raw measures used to capture constructs related to incentives to restore financial reporting credibility and capital market pressures to disclose remediation. I use all 1,606 remediated company-years to conduct the factor analysis as detailed in the sample selection (see Table 1, Panel A). I separately perform PCA for each group of variables under the two incentive categories with orthogonal varimax rotation. I retain factors under each incentive classification if the eigenvalues are greater than 1 and present factor loadings below in Table 2 of this appendix. I identify two factors that explain 34.28% and 25.41%, respectively totaling a cumulative variance explained of 59.69% of the total variation in the four variables I use to measure incentives to restore financial reporting credibility.

The first factor, which I label as *CONSTITUENT_INCENT* loads positively on the degree of institutional ownership (*INST_OWN*) and the market value of equity (*Ln_MARKETCAP).* The second factor, which I label *LITIG_AVOID_INCENT*, loads positively on whether the company has a recent restatement (*PRIOR_RESTATE*) and whether the company operates in a litigious industry *(LITIGATION)*.

I identify one factor that explains 51.18% of the total variation in the three variables I use to measure capital market pressures to disclose remediation, so I call this factor *FIN_DISTRESS.* This factor loads positively on whether the company suffered an operating loss in the year prior to remediation *(LOSS),* whether the company raised additional funds in the year of remediation *(*Δ*XFIN),* and the amount of leverage that the company has *(LEVERAGE)*.

Table 2
Factor Loadings

	Incentives to Restore Financial Reporting Credibility		**Capital Market Pressures**
Variables	***CONSTITUENT_INCENT***	***LITIG_AVOID_INCENT***	***FIN_DISTRESS***
INST_OWN	**0.8056**	0.0277	
Ln_MARKETCAP	**0.8024**	0.0638	
PRIOR_RESTATE	0.2112	**0.5501**	
LITIGATION	-0.1461	**0.8494**	
LOSS			**0.5275**
ΔXFIN			**0.8046**
LEVERAGE			**0.7809**
Observations	1606	1606	1606
Eigenvalue	1.371	1.016	1.535
Variance Explained	34.28%	25.41%	51.18%
Cumulative Variance Explained:		59.69%	51.18%

The above table provides the rotated factor pattern when I use orthogonal varimax rotation of principal component factor analysis. Variable definitions can be found in Appendix A. Factor loadings greater than 0.40 are highlighted. These factors are used to construct the variables used in regression analysis in Tables 4 and 5. An oblique promax rotation derives the same factors.

APPENDIX C

EXAMPLES OF REMEDIATION ACTIONS AND DISCLOSURES

Examples of Remediation Actions and Disclosures

EXTERNAL_INVESTMENT

ENGAGE_CONSULTANT: "We have engaged a third-party actuary that assisted us in the determination of IBNR as of June 30, 2008 which we used to adjust our IBNR reserve as of June 30, 2008."

–RadNet, Inc. 06/30/08

INTERNAL_INVESTMENT

REORG: "We reorganized and established clear roles, responsibilities and accountability to our financial reporting structure starting from management to staff; we reorganized the cash disbursement process by including staff from different departments to ensure adequate segregation of duties."

-Fushi Copperweld, Inc. 08/10/09

***ADD*:** "We have hired several new employees to further diversify accounting responsibilities, most notably the addition of a new Chief Financial Officer, but also including various senior and staff accountants."

-Perficient Inc. 03/05/07

TERM: "The Company made personnel changes, including the termination and demotion of certain staff that were responsible for the operation of certain internal controls that failed."

-Cott Corp. 02/29/12

TRAIN: "A detailed finance organization training plan on financial controls, policies and procedures, account reconciliations, GAAP and SEC disclosure checklists was implemented during the second quarter of 2006."

-Pomeroy IT Solutions, Inc. 03/21/07

***IMPLEMENT_SYSTEM*:** "Prior to December 25, 2010 we identified computerized system application enhancements that will ensure more timely and accurate reporting of transactions involving import duties. ...the computerized applications are expected to be fully implemented in the first quarter of our fiscal 2011, at which time we anticipate the controls will be effective for these processes."

-Dixie Group, Inc. 02/18/11

PROCEDURES_REVIEWS

***ENHANCE_REVIEW*:** "Implemented a process to timely review and monitor vendor contract obligations to ensure all royalty, maintenance and support arrangements are properly understood, documented and accurately recorded in the general ledger and financial statements."

-Sonus Networks, Inc. 11/09/07

ENHANCE_CONTROL:
"Established written policies and procedures along with control matrices to ensure that account reconciliation and amounts recorded... are substantiated by detailed and contemporaneous documentary support and that reconciling items are investigated, resolved and recorded in a timely manner."

-Princeton Review, Inc. 03/16/06

COMMUNICATION: "Management will communicate its endorsement and reinforce its commitment to maintaining sound and effective internal controls with all staff."

-Tri-Valley Corp. 03/30/09

APPENDIX D

EXAMPLE AND TIMELINE OF A FAILED REMEDIATION

Example and Timeline of a Failed Remediation- Air Tran Holdings, Inc.

10-K for FYE 12/31/05 filed 03/09/06
Description of Weakness
"As of December 31, 2005, the Company has determined that a material weakness exists relating to ***inadequate staffing and a lack of financial accounting expertise***. This deficiency ***resulted in certain adjustments to revenue,*** advertising expense, depreciation, and deferred compensation.

10-Q for FQE 06/30/06 filed 08/09/06
Description of Weakness
"Additionally, the Company identified an additional material weakness that existed as of December 31, 2005 related to our **accounting for fuel expense**."

10-Q for FQE 09/30/06 filed 11/01/06
Disclosed Actual Remediation Actions
"During the nine months ended September 30, 2006, we took the following steps to remediate this material weakness:

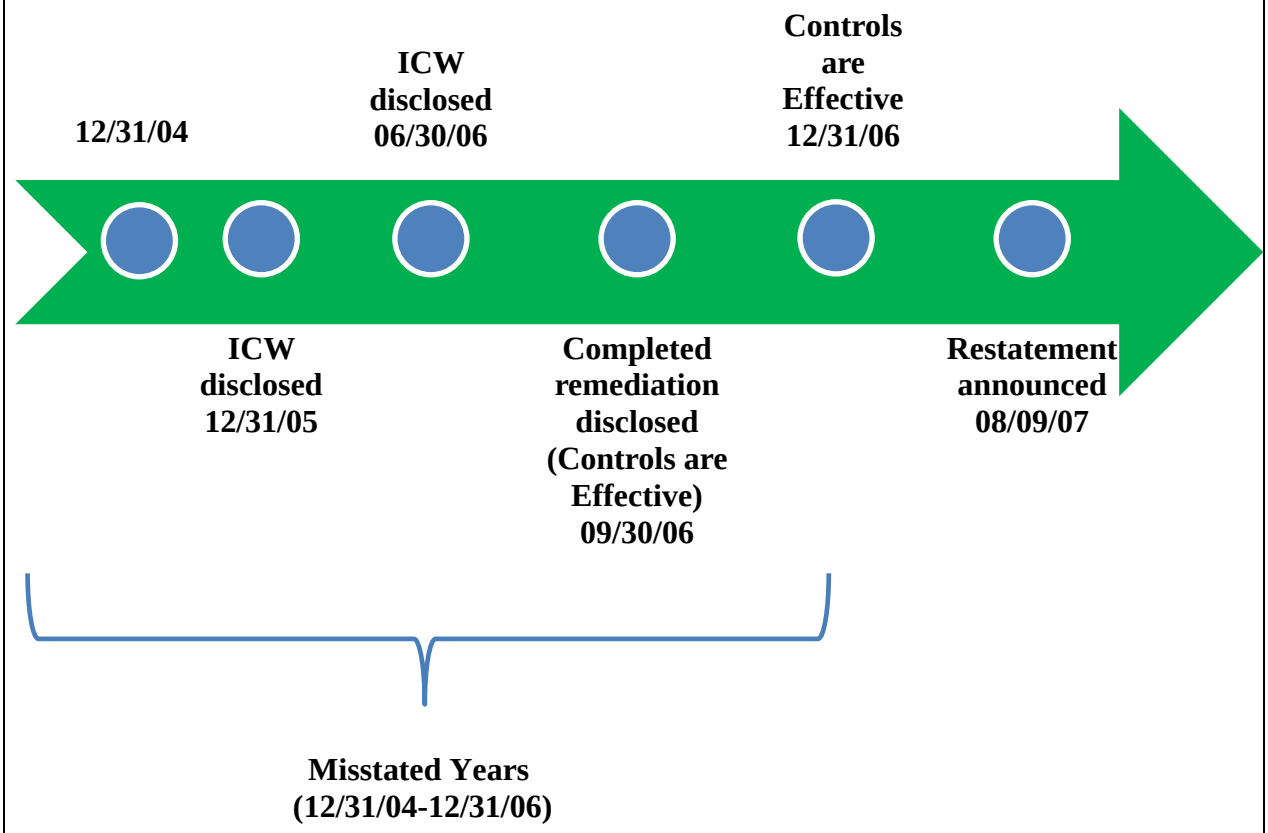
- **We filled open accounting positions**; we established and filled a Vice President and Chief Accounting Officer position for AirTran Airways; and, we began providing and **will continue to provide continuing professional education** for appropriate accounting and financial personnel.
- Specifically, the following controls were strengthened or implemented: **monthly review of our fuel expense analyses** monthly reconciliations of our prepaid fuel balances to vendor statements and the outstanding balances owed to or from our fuel suppliers are periodically confirmed.

After implementing and evaluating such additional controls and procedures, we concluded that, as of September 30, 2006, **we have remediated the material weaknesses** described above in the Company's internal controls over financial reporting."

8-K filed 08/09/07:
Restatement Effect
"AirTran Holdings, Inc. (the "Company") has adjusted its results for the second quarter 2007....As part of the normal quarterly review and reconciliation process, the **Company identified adjustments to the reported information for fuel expens**e and a gain on the sale of two aircraft. The **Company has recorded an adjustment to decrease fuel expense for approximately $2.4 million** and decrease the gain on the sale of the aircraft by approximately $1 million."

"On August 9, 2007, the Company **filed amendments ... with respect to the accounting for certain passenger revenues.** The financial statements and other financial information restated by those amendments include the Company's: **Consolidated financial statements as of December 31, 2005 and 2006 and for each of the three years in the period ended December 31, 2006"**

Figure 4
Air Tran Holdings, Inc.-Failed Remediation Timeline



APPENDIX E

TABLES

TABLE 3
Sample Selection

Panel A: MW Company-Years

	SOX 404 Reports	MW Company-Years
Total unique SOX 404 reports from Audit Analytics SOX 404 Internal Controls Database filed between 11/15/04 and 12/31/13	68,053	12,513
Less: Restated SOX 404 reports	(1,109)	(840)
Less: SOX 404 reports that can not be matched to Compustat	(18,148)	(6,146)
Total SOX 404 reports matched from Audit Analytics to Compustat	48,796	5,527
Less: Company-years with repeat MW filings (i.e. remediation was not disclosed) or remediated year not in Compustat		(3,572)
Total remediated company-years		1,955
Less: Observations with missing Compustat or Audit Analytics variables to construct primary model		(349)
Final sample of remediated company-years		1,606
Failed remediation company-years		297
% of remediated company-years		*18.49%*
Successfully remediated company-years		1,309
% of remediated company-years		*81.51%*

Panel B: Restatements Filed and Misstated years

	Restatements Filed	Misstated Years
Total restatement announcements from Audit Analytics Non-Reliance Restatements Database filed between 11/15/05 and 03/31/15	6,340	
Less: Restatement filings that can not be matched with Compustat	(3,981)	
Total restatements matched from Audit Analytics to Compustat	2,359	3,883
Less: Observations that are not matched to a remediated company-year	(1,999)	(3,523)
Failed remediation company-years	360	360
Less: Observations with missing Compustat or Audit Analytics variables to construct primary model	(63)	(63)
Total failed remediation company-years	297	297
% of total restatements filed and misstated years	*12.59%*	*7.65%*

Year	Failed Remediation Company-Years	Total Remediated Company-Years	
2005	26	198	13.13%
2006	32	192	16.67%
2007	25	168	14.88%
2008	46	264	17.42%
2009	60	218	27.52%
2010	51	163	31.29%
2011	31	127	24.41%
2012	17	145	11.72%
2013	9	131	6.87%
Total all years	297	1,606	18.49%

TABLE 4
Descriptive Statistics and Univariate Tests of Differences

Panel A: Incentives to Disclose Remediation and Control Variables for Full Sample

	FAILED_REMED=1 N=297			FAILED_REMED=0 N=1,309			
Variable	Mean	Median	Expected Relation	Mean	Median	t	Z
Incentives to restore financial reporting credibility							
CONSTITUENT_INCENT	0.294	-0.002	?	-0.067	-0.256	5.67 ***	5.41 ***
LITIG_AVOID_INCENT	-0.051	0.103	?	0.012	0.103	-0.97	0.19
Capital market pressures to disclose remediation							
FIN_DISTRESS	-0.005	-0.105	>	0.001	-0.080	-0.09	0.09
Variables included in principal components analysis							
INST_OWN	0.337	0.000	>	0.200	0.000	5.12 ***	5.08 ***
Ln_MARKETCAP	5.715	5.730	>	5.122	5.245	4.71 ***	5.05 ***
PREV_RESTATE	0.279	0.000	>	0.325	0.000	-1.54	-1.54
LITIGATION	0.380	0.000	>	0.389	0.000	-0.27	-0.27
LOSS	0.444	0.000	>	0.496	0.000	-1.60	-1.60
ΔXFIN	0.039	0.000	>	0.064	0.000	-1.24	0.62
LEVERAGE	0.358	0.187	>	0.276	0.158	2.18 **	1.18
Control variables							
BIG4	0.670	1.000	?	0.526	1.000	4.52 ***	4.49 ***
AUD_CHANGE	0.242	0.000	?	0.316	0.000	-2.48 **	-2.48 **
Ln_AUDFEES	10.632	10.734	<	10.597	10.761	0.58	0.69
Ln_NONAUDFEES	7.612	8.114	?	7.633	8.115	-0.15	-0.45
AUD_ICFR	0.838	1.000	?	0.694	1.000	5.05 ***	5.02 ***
SEVERE	0.788	1.000	>	0.780	1.000	0.30	0.30
#WEAK	1.768	1.000	>	1.754	1.000	0.16	-0.15
Ln_ASSETS	6.179	6.017	>	5.613	5.646	4.14 ***	4.27 ***
SEGMENTS	6.094	3.000	>	5.157	3.000	3.09 ***	3.31 ***
FOREIGN_SALES	0.320	0.000	>	0.309	0.000	0.38	0.38
RESTRUCTURE	0.269	0.000	>	0.256	0.000	0.48	0.48
MACQ	0.377	0.000	>	0.379	0.000	-0.06	-0.06
GROWTH	4.791	5.000	>	4.427	4.000	1.88 *	1.86 *

This table provides descriptive statistics comparing unsuccessful and successful remediations for the full sample of remediated company-years for tests of H1. The FAILED_REMED=1 sample includes remediated company-years that were subsequently revealed to be misstated. t-statistics are based on tests for differences in means and Z-statistics are based on Wilcoxon rank-sum tests for differences in medians. *, **, and *** represent two-tailed statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

TABLE 4 (cont'd)

Panel B: Incentives to Disclose Remediation and Control Variables for Matched Sample

	FAILED_REMED=1 N=264			FAILED_REMED=0 N=264					
Variable	**Mean**	**Median**	**Expected Relation**	**Mean**	**Median**	**Pooled-t**	**Pooled-Z**	**Paired Mean Difference**	**Paired-t**
Incentives to restore financial reporting credibility									
CONSTITUENT_INCENT	0.218	-0.065	?	0.028	-0.098	2.19 **	1.89 *	0.19	2.54 **
LITIG_AVOID_INCENT	-0.073	0.099	?	-0.020	0.110	-0.62	-0.13	-0.05	-0.62
Capital market pressures to disclose remediation									
FIN_DISTRESS	-0.037	-0.104	>	-0.079	-0.202	0.52	1.08	0.04	0.67
Variables included in principal components analysis									
INST_OWN	0.303	0.000	>	0.246	0.000	1.46	1.46	0.06	1.51
Ln_MARKETCAP	5.607	5.642	>	5.248	5.465	2.22 **	1.83 *	0.36	2.95 ***
PREV_RESTATE	0.280	0.000	>	0.295	0.000	-0.38	-0.38	-0.02	-0.40
LITIGATION	0.367	0.000	>	0.390	0.000	-0.54	-0.54	-0.02	-0.55
LOSS	0.455	0.000	>	0.466	0.000	-0.26	-0.26	-0.01	-0.29
ΔXFIN	0.044	0.001	>	0.035	-0.004	0.41	1.86 *	0.01	0.45
LEVERAGE	0.303	0.179	>	0.263	0.162	0.76	0.40	0.04	1.03
Control variables									
BIG4	0.655	1.000	?	0.549	1.000	2.50 **	2.49 **	0.11	2.75 ***
AUD_CHANGE	0.239	0.000	?	0.280	0.000	-1.09	-1.09	-0.04	-1.09
Ln_AUDFEES	10.654	10.752	<	10.606	10.773	0.59	0.80	0.05	0.63
Ln_NONAUDFEES	7.591	8.070	?	7.675	8.043	-0.45	-0.61	-0.08	-0.45
AUD_ICFR	0.833	1.000	?	0.727	1.000	2.96 ***	2.94 ***	0.11	3.58 ***
SEVERE	0.822	1.000	>	0.822	1.000	0.00	0.00	0.00	
#WEAK	1.795	1.000	>	1.852	1.000	-0.45	-0.45	-0.06	-0.49
Ln_ASSETS	5.951	5.897	>	5.948	5.995	0.02	0.03	0.00	0.31
SEGMENTS	5.977	3.000	>	5.364	3.000	1.49	1.38	0.61	1.51
FOREIGN_SALES	0.333	0.000	>	0.322	0.000	0.28	0.28	0.01	0.28
RESTRUCTURE	0.273	0.000	>	0.299	0.000	-0.67	-0.67	-0.03	-0.69
MACQ	0.398	0.000	>	0.375	0.000	0.54	0.54	0.02	0.57
GROWTH	4.920	5.000	>	4.545	5.000	1.48	1.43	0.38	1.52

This table provides descriptive statistics comparing unsuccessful and successful remediations for the matched sample of remediated company-years for tests of H2 and H3. The FAILED_REMED=1 sample includes remediated company-years that were subsequently revealed to be misstated. t-statistics are based on tests for differences in means and Z-statistics are based on Wilcoxon rank-sum tests for differences in medians. The pooled t-test is based on mean differences when treating the observations as independent samples whereas the paired t-test is based on dependent sample mean differences. *, **, and *** represent two-tailed statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

TABLE 4 (cont'd)

Panel C: Univariate Differences Between Matched Control Observations and Remaining Control Observations

Variable	Remaining Control *N=1,078* Mean	Matched *N=264* Mean	t-stat
Incentives to restore financial reporting credibility			
CONSTITUENT_INCENT	-0.060	0.028	-1.29
LITIG_AVOID_INCENT	0.023	-0.020	0.61
Capital market pressures to disclose remediation			
FIN_DISTRESS	0.028	-0.079	1.54
Control variables			
BIG4	0.529	0.549	-0.60
AUD_CHANGE	0.323	0.280	1.33
Ln_AUDFEES	10.591	10.606	-0.23
Ln_NONAUDFEES	7.628	7.675	-0.31
AUD_ICFR	0.691	0.727	-1.15
SEVERE	0.762	0.822	-2.10 **
#WEAK	1.724	1.852	-1.42
Ln_ASSETS	5.605	5.948	-2.28 **
SEGMENTS	5.164	5.364	-0.62
FOREIGN_SALES	0.302	0.322	-0.62
RESTRUCTURE	0.245	0.299	-1.82 *
MACQ	0.375	0.375	-0.01
GROWTH	4.378	4.546	-0.80

This table provides descriptive statistics comparing observations identified as matches that are used in matched sample tests with the remaining control observations. T-statistics are based on tests for differences in means. *, **, and *** represent two-tailed statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

TABLE 4 (cont'd)

Panel D: Timing of Remediation Disclosure and Extent and Nature of Remediation Actions for Successful vs. Failed Remediation Company-Years in the Matched Sample

	All Matched Observations					
	FAILED_REMED=1		*FAILED_REMED=0*			
	N=264		N=264			
Variable	Mean	Expected Relation	Mean	Pooled-t	Paired Mean Difference	Paired-t
Timing						
ANN_FILE	0.591	<	0.708	-2.84 ***	-0.10	-2.52 **
Extent						
HOLISTIC	0.534	<	0.670	-3.23 ***	-0.13	-3.18 ***
Nature						
ONLY_EXT_INVESTMENT	0.030	>	0.034	-0.25	0.00	0.00
ONLY_INT_INVESTMENT	0.087	>	0.042	2.13 **	0.05	2.21 **
ONLY_PROCEDURE_REVIEW	0.235	>	0.205	0.84	0.03	0.88
EXTERNAL_INVESTMENT	0.269	<	0.326	-1.43	-0.05	-1.10
INTERNAL_INVESTMENT	0.583	<	0.659	-1.80 *	-0.07	-1.72 *
PROCEDURES_REVIEWS	0.735	<	0.822	-2.42 **	-0.08	-2.37 **
ENGAGE_CONSULTANT	0.269	<	0.326	-1.43	-0.05	-1.10
REORG	0.125	<	0.170	-1.47	-0.05	-1.46
ADD	0.455	<	0.451	0.09	0.01	0.18
TERM	0.030	<	0.042	-0.70	-0.01	-0.45
TRAIN	0.223	<	0.307	-2.17 **	-0.08	-2.24 **
IMPLEMENT_SYSTEM	0.072	<	0.140	-2.55 **	-0.06	-2.56 **
ENHANCE_REVIEW	0.246	<	0.402	-3.86 ***	-0.16	-3.89 ***
ENHANCE_CONTROL	0.697	<	0.769	-1.85 *	-0.07	-1.94 *
COMMUNICATION	0.072	<	0.087	-0.64	-0.01	-0.47

This table provides descriptive statistics comparing unsuccessful and successful remediations for the matched sample of remediated company-years for hand collected variables from remediation disclosures. The FAILED_REMED=1 sample includes remediated company-years that were subsequently revealed to be misstated. t-statistics are based on tests for differences in means. The pooled t-test is based on mean differences when treating the observations as independent samples whereas the paired t-test is based on dependent sample mean differences. *, **, and *** represent two-tailed statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

TABLE 5
Correlation Matrix for Main Analysis

Panel A: Correlation Variables *FAILED_REMED* to *GROWTH* in the Sample Size=1,606

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	***FAILED_REMED***	**1.00**								
(2)	***CONSTITUENT_INCENT***	**0.14**	**1.00**							
(3)	***LITIG_AVOID_INCENT***	-0.02	0.00	**1.00**						
(4)	***FIN_DISTRESS***	0.00	**-0.26**	-0.02	**1.00**					
(5)	***BIG4***	**0.12**	**0.49**	0.03	**-0.19**	**1.00**				
(6)	***AUD_CHANGE***	*-0.06*	**-0.23**	-0.01	**0.10**	**-0.34**	**1.00**			
(7)	***Ln_AUDFEES***	0.01	**0.23**	**-0.16**	**0.11**	**0.32**	**-0.16**	**1.00**		
(8)	***Ln_NONAUDFEES***	0.00	**0.16**	0.03	*-0.05*	**0.19**	**-0.14**	**0.26**	**1.00**	
(9)	***AUD_ICFR***	**0.13**	**0.59**	**0.09**	**-0.27**	**0.46**	**-0.17**	**0.20**	**0.15**	**1.00**

TABLE 5 (cont'd)

Sample Size=1,606

Variables	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(10) ***SEVERE***	**1.00**							
(11) ***#WEAK***	**0.26**	**1.00**						
(12) ***Ln_ASSETS***	**-0.11**	*-0.05*	**1.00**					
(13) ***SEGMENTS***	*0.05*	0.03	**0.20**	**1.00**				
(14) ***FOREIGN_SALES***	**0.08**	0.03	**0.11**	**0.05**	**1.00**			
(15) ***RESTRUCTURE***	-0.01	-0.04	**0.17**	**0.08**	**0.17**	**1.00**		
(16) ***MACQ***	0.04	-0.03	0.02	**0.16**	**0.10**	**0.14**	**1.00**	
(17) ***GROWTH***	0.03	0.03	*-0.05*	0.02	0.02	**-0.13**	**0.20**	**1.00**

This Table provides Pearson correlation for variables used in the regression analysis for H1. Bold typeface indicates significance at the 1% level and italic typeface indicates significance at the 5% level. See Appendix A for variable definitions and measurements.

TABLE 5 (cont'd)

Panel B: Correlation Variables *FAILED_REMED* to *GROWTH* With Remediation Actions in the Matched Sample of Remediated Company-Years

Sample Size=528

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) ***FAILED_REMED***	**1.00**									
(2) ***CONSTITUENT_INCENT***	*0.10*	**1.00**								
(3) ***LITIG_AVOID_INCENT***	-0.03	*-0.08*	**1.00**							
(4) ***FIN_DISTRESS***	0.02	**-0.25**	-0.02	**1.00**						
(5) ***ANN_FILE***	**-0.12**	**0.14**	**-0.15**	-0.05	**1.00**					
(6) ***HOLISITIC***	**-0.14**	**0.17**	0.00	-0.06	**0.34**	**1.00**				
(7) ***BIG4***	**0.11**	**0.45**	0.00	**-0.17**	**0.12**	**0.12**	**1.00**			
(8) ***AUD_CHANGE***	-0.05	**-0.19**	0.05	**0.11**	-0.06	-0.03	**-0.30**	**1.00**		
(9) ***Ln_AUDFEES***	0.03	**0.27**	**-0.16**	0.07	**0.22**	**0.21**	**0.35**	**-0.24**	**1.00**	
(10) ***Ln_NONAUDFEES***	-0.02	**0.18**	0.01	-0.06	0.03	*0.08*	**0.19**	**-0.12**	**0.27**	**1.00**

TABLE 5 (cont'd)

Sample Size=528

Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(11) ***AUD_ICFR***	**1.00**								
(12) ***SEVERE***	0.00	**1.00**							
(13) ***#WEAK***	0.01	**0.24**	**1.00**						
(14) ***Ln_ASSETS***	**0.43**	-0.07	**-0.12**	**1.00**					
(15) ***SEGMENTS***	*0.09*	**0.11**	*0.09*	**0.14**	**1.00**				
(16) ***FOREIGN_SALES***	**0.11**	0.02	0.01	**0.15**	0.03	**1.00**			
(17) ***RESTRUCTURE***	**0.14**	0.02	-0.06	**0.14**	0.06	**0.17**	**1.00**		
(18) ***MACQ***	0.00	0.06	-0.07	-0.02	**0.14**	**0.14**	**0.16**	**1.00**	
(19) ***GROWTH***	0.04	0.04	-0.02	-0.04	-0.02	-0.04	**-0.18**	**0.13**	**1.00**

This Table provides Pearson correlation for variables used in the matched sample regression analysis for H2 and H3. Bold typeface indicates significance at the 1% level and italic typeface indicates significance at the 5% level. See Appendix A for variable definitions and measurements.

TABLE 6
Logit Model Estimating Failed Remediation

		Dependent Variable = *FAILED_REMED*		
Independent Variables	**Predicted Sign**	**Estimated Coefficients**	***Standard Error***	**Marginal Effect**
INTERCEPT		-2.366 **	*1.169*	
Incentives to restore financial reporting credibility				
CONSTITUENT_INCENT	*?*	0.253 **	*0.102*	0.035
LITIG_AVOID_INCENT	*?*	-0.088	*0.097*	-0.012
Capital market pressures to disclose remediation				
FIN_DISTRESS	+	0.195 ***	*0.072*	0.027
Control variables				
BIG4	*?*	0.348 **	*0.177*	0.049
AUD_CHANGE	*?*	-0.205	*0.172*	-0.029
Ln_AUDFEES	-	-0.140 *	*0.093*	-0.020
Ln_NONAUDFEES	*?*	-0.043	*0.034*	-0.006
AUD_ICFR	*?*	0.538 **	*0.256*	0.075
SEVERE	+	0.131	*0.181*	0.018
#WEAK	+	0.014	*0.055*	0.002
Ln_ASSETS	+	-0.030	*0.058*	-0.004
SEGMENTS	+	0.028 **	*0.015*	0.004
FOREIGN_SALES	+	-0.031	*0.165*	-0.004
RESTRUCTURE	+	-0.005	*0.189*	-0.001
MACQ	+	-0.167	*0.159*	-0.023
GROWTH	+	0.046 **	*0.027*	0.006
Year fixed effects?		Yes		
Industry fixed effects?		Yes		
Likelihood ratio $\chi 2$		117.0		
Model significance		<.0001		
Pseudo R-square		11.4%		
UNSUCCESSFUL=1 observations		297		
Total observations		1,606		
Area under ROC curve		68.5%		
Hosmer and Lemeshow goodness of fit p-value		0.56		

This table presents logistic regression results with *FAILED_REMED* as the dependent variable. Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY. Marginal effects are calculated using the Margeff command in STATA (Bartus 2005). The Hosmer and Lemeshow goodness of fit p-value is testing the null hypothesis that the model has appropriate fit. A p-value greater than 0.10 means I can not reject the null hypothesis, thus I do not have any evidence that the model is not well specified (Hosmer and Lemeshow 2013).

TABLE 7
Matched Sample Logit Model Estimating Failed Remediation

		Dependent Variable= *FAILED_REMED*				
		Unconditional Logit			Conditional Logit	
		1			2	
Independent Variables	**Predicted Sign**	**Estimated Coefficient**	***Standard Error***	**Marginal Effect**	**Estimated Coefficient**	***Standard Error***
INTERCEPT		1.839	*1.824*			
Incentives to restore financial reporting credibility						
CONSTITUENT_INCENT	*?*	0.227 *	*0.138*	0.049	0.222 *	*0.131*
LITIG_AVOID_INCENT	*?*	-0.133	*0.138*	-0.029	0.012	*0.103*
Capital market pressures to disclose remediation						
FIN_DISTRESS	+	0.182 *	*0.116*	0.039	0.132 *	*0.070*
Timing of remediation disclosure						
ANN_FILE	-	-0.475 **	*0.247*	-0.103	-0.745 ***	*0.237*
Extent of remediation disclosure						
HOLISTIC	-	-0.728 ***	*0.234*	-0.158	-0.641 ***	*0.228*
Control variables						
BIG4	*?*	0.649 **	*0.279*	0.140	0.515 **	*0.262*
AUD_CHANGE	*?*	-0.283	*0.257*	-0.061	-0.086	*0.239*
Ln_AUDFEES	-	-0.184	*0.152*	-0.040	-0.058	*0.145*
Ln_NONAUDFEES	*?*	-0.050	*0.050*	-0.011	-0.091 *	*0.051*
AUD_ICFR	*?*	0.429	*0.334*	0.093	1.083 ***	*0.343*
SEVERE	+	0.286	*0.285*	0.062	0.000	.
#WEAK	+	0.002	*0.070*	0.000	0.015	*0.074*
Ln_ASSETS	+	-0.172	*0.086*	-0.037	-0.489	*0.835*
SEGMENTS	+	0.029	*0.023*	0.006	0.029	*0.022*
FOREIGN_SALES	+	0.331 *	*0.245*	0.072	0.341	*0.217*
RESTRUCTURE	+	-0.293	*0.255*	-0.063	-0.302	*0.239*
MACQ	+	0.121	*0.220*	0.026	0.225	*0.224*
GROWTH	+	0.052 *	*0.036*	0.011	0.048	*0.035*
Year fixed effects?		Yes			No	
Industry fixed effects?		Yes			No	
Likelihood ratio $\chi 2$		75.5			53.1	
Model significance		<.0001			<.0001	
Pseudo R-square		17.8%			19.1%	
UNSUCCESSFUL=1 observations		264			264	
Total observations		528			528	
Area under ROC curve		71.0%			N/A	
Hosmer and Lemeshow goodness of fit p-value		0.72			N/A	

This table presents logistic regression results with FAILED_REMED as the dependent variable. Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY. Column 1 is estimated using unconditional logistic regression whereas column 2 is estimated using a conditional logistic regression for a choice-based fully matched sample strata by matched pair ID (Stuart et al 2013). The Hosmer and Lemeshow goodness of fit p-value is testing the null hypothesis that the model has appropriate fit. A p-value greater than 0.10 means I can not reject the null hypothesis, thus I do not have any evidence that the model is not well specified (Hosmer and Lemeshow 2013).

TABLE 8
Logit Model Estimating Failed Remediation without Principal Components

		Dependent Variable = *FAILED_REMED*			
		Full Sample		Matched Sample	
		1		2	
Independent Variables	**Predicted Sign**	**Estimated Coefficients**	***Standard Error***	**Estimated Coefficients**	***Standard Error***
INTERCEPT	*?*	-2.772 **	*1.133*	1.346	*1.776*
INST_OWN	*?*	0.582 ***	*0.173*	0.386 *	*0.266*
Ln_MARKETCAP	*?*	-0.016	*0.072*	0.048	*0.092*
PREV_RESTATE	*?*	-0.211	*0.158*	-0.110	*0.225*
LITIGATION	*?*	0.051	*0.229*	-0.288	*0.332*
LOSS	+	0.116	*0.170*	0.265	*0.236*
LEVERAGE	+	0.413 ***	*0.130*	0.282 *	*0.179*
XFIN	+	-0.249	*0.263*	-0.173	*0.440*
Timing and Extent					
ANN_FILE	-			-0.494 **	*0.249*
HOLISTIC	-			-0.704 ***	*0.237*
Control variables					
BIG4	*?*	0.335 *	*0.179*	0.619 **	*0.281*
AUD_CHANGE	*?*	-0.215	*0.173*	-0.312	*0.261*
Ln_AUDFEES	-	-0.136	*0.092*	-0.190	*0.153*
Ln_NONAUDFEES	*?*	-0.039 **	*0.035*	-0.049	*0.051*
AUD_ICFR	*?*	0.633	*0.263*	0.521	*0.361*
SEVERE	+	0.115	*0.184*	0.285	*0.291*
#WEAK	+	0.013	*0.056*	0.000	*0.071*
Ln_ASSETS	+	-0.006	*0.067*	-0.177	*0.091*
SEGMENTS	+	0.030 *	*0.016*	0.030	*0.023*
FOREIGN_SALES	+	0.005	*0.168*	0.348	*0.253*
RESTRUCTURE	+	-0.048	*0.192*	-0.347	*0.258*
MACQ	+	-0.175	*0.161*	0.082	*0.224*
GROWTH	+	0.056 **	*0.028*	0.061	*0.038*
Year fixed effects?		Yes		Yes	
Industry fixed effects?		Yes		Yes	
Likelihood ratio $\chi 2$		129.9		77.3	
Model significance		<.0001		0.001	
Pseudo R-square		12.6%		18.2%	
UNSUCCESSFUL=1 observations		297		264	
Total observations		1,606		528	
Area under ROC curve		69.8%		71.4%	
Hosmer and Lemeshow goodness of fit p-value		0.92		0.71	

This table presents logistic regression results with *FAILED_REMED* as the dependent variable. Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY. The Hosmer and Lemeshow goodness of fit p-value is testing the null hypothesis that the model has appropriate fit. A p-value greater than 0.10 means I can not reject the null hypothesis, thus I do not have any evidence that the model is not well specified (Hosmer and Lemeshow 2013).

TABLE 9
Logit Model Estimating Failed Remediation Requiring Misstatement of Remediated Year and MW and Restatement Reason Match

		Dependent Variable = *FAILED_REMED*			
		Remediation Year Misstated		MW and Restatement Match	
		1		2	
Independent Variables	**Predicted Sign**	**Estimated Coefficient**	***Standard Error***	**Estimated Coefficient**	***Standard Error***
INTERCEPT		-1.762	*1.391*	-1.998	*1.725*
Incentives to restore financial reporting credibility					
CONSTITUENT_INCENT	*?*	0.216 *	*0.123*	0.491 ***	*0.151*
LITIG_AVOID_INCENT	*?*	0.224 *	*0.123*	-0.140	*0.148*
Capital market pressures to disclose remediation					
FIN_DISTRESS	+	0.140 *	*0.099*	0.294 **	*0.127*
Control variables					
BIG4	*?*	0.456 **	*0.217*	0.000	*0.256*
AUD_CHANGE	*?*	-0.342	*0.213*	-0.240	*0.260*
Ln_AUDFEES	-	-0.175	*0.113*	-0.280 **	*0.136*
Ln_NONAUDFEES	*?*	-0.065	*0.042*	-0.083	*0.053*
AUD_ICFR	*?*	0.685 **	*0.316*	0.780 *	*0.424*
SEVERE	+	0.241	*0.236*	0.064	*0.281*
#WEAK	+	0.119 **	*0.060*	0.141 **	*0.069*
Ln_ASSETS	+	-0.062	*0.074*	0.083	*0.083*
SEGMENTS	+	0.025	*0.018*	0.028	*0.025*
FOREIGN_SALES	+	0.020	*0.201*	0.004	*0.244*
RESTRUCTURE	+	-0.165	*0.228*	0.000	*0.279*
MACQ	+	-0.199	*0.191*	0.009	*0.248*
GROWTH	+	0.039	*0.032*	-0.032	*0.043*
Year fixed effects?		Yes		Yes	
Industry fixed effects?		Yes		Yes	
Likelihood ratio $\chi 2$		70.7		91.0	
Model significance		<.0001		<.0001	
Pseudo R-square		10.1%		14.9%	
FAILED_REMED=1 observations		165		109	
Total observations		1,474		1,418	
Area under ROC curve		70.1%		75.0%	

This table presents logistic regression results with *FAILED_REMED* as the dependent variable and is broken out separately in column 1 for those with restatements that cover the remediated year and in column 2 for those MW remediations where the reason for the MW is directly related to the reason for the restatement. Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY.

TABLE 10
Matched Sample Logit Model Estimating Failed Remediation Requiring Misstatement of Remediated Year and MW and Restatement Reason Match

		Dependent Variable = *FAILED_REMED*			
		Remediation Year Misstated		MW and Restatement Match	
		1		2	
Independent Variables	**Predicted Sign**	**Estimated Coefficient**	***Standard Error***	**Estimated Coefficient**	***Standard Error***
INTERCEPT		2.313	*2.079*	2.040	*2.612*
Incentives to restore financial reporting credibility					
CONSTITUENT_INCENT	*?*	0.266 *	*0.163*	0.459 **	*0.206*
LITIG_AVOID_INCENT	*?*	0.180	*0.156*	-0.240	*0.207*
Capital market pressures to disclose remediation					
FIN_DISTRESS	+	0.214 *	*0.132*	0.399 ***	*0.159*
Timing of remediation disclosure					
ANN_FILE	-	-0.120 **	*0.297*	-0.948 ***	*0.352*
Extent of remediation disclosure					
HOLISTIC	-	-0.716 ***	*0.272*	-0.898 ***	*0.354*
Control variables					
BIG4	*?*	-0.120 **	*0.323*	0.109	*0.378*
AUD_CHANGE	*?*	-0.716	*0.301*	-0.393	*0.367*
Ln_AUDFEES	-	0.745	*0.174*	-0.286	*0.209*
Ln_NONAUDFEES	*?*	-0.483	*0.058*	-0.080	*0.071*
AUD_ICFR	*?*	-0.277	*0.394*	0.884	*0.591*
SEVERE	+	-0.051	*0.341*	0.283	*0.408*
#WEAK	+	0.394	*0.073*	0.106	*0.091*
Ln_ASSETS	+	0.384 *	*0.109*	0.063	*0.142*
SEGMENTS	+	0.061	*0.026*	0.005	*0.033*
FOREIGN_SALES	+	-0.191	*0.282*	0.523	*0.362*
RESTRUCTURE	+	0.032	*0.296*	-0.504	*0.373*
MACQ	+	0.335	*0.249*	0.258	*0.334*
GROWTH	+	-0.290	*0.041*	-0.013	*0.055*
Year fixed effects?		Yes		Yes	
Industry fixed effects?		Yes		Yes	
Likelihood ratio $\chi 2$		55.0		63.9	
Model significance		0.013		0.004	
Pseudo R-square		18.0%		23.8%	
FAILED_REMED=1 observations		152		95	
Total observations		416		359	
Area under ROC curve		71.8%		76.3%	

This table presents logistic regression results with *FAILED_REMED* as the dependent variable and is broken out separately in column 1 for those with restatements that cover the remediated year and in column 2 for those MW remediations where the reason for the MW is directly related to the reason for the restatement. Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY.

TABLE 11
Logit Model Estimating Failed Remediation- Big 4 versus Non Big 4

		Dependent Variable = *FAILED_REMED*			
		BIG4=1		BIG4=0	
		1		2	
Independent Variables	**Predicted Sign**	**Estimated Coefficient**	***Standard Error***	**Estimated Coefficient**	***Standard Error***
INTERCEPT		-3.079 *	*1.731*	-2.558	*2.019*
Incentives to restore financial reporting credibility					
CONSTITUENT_INCENT	*?*	0.340 ***	*0.118*	-0.109	*0.265*
LITIG_AVOID_INCENT	*?*	0.022	*0.124*	-0.259	*0.161*
Capital market pressures to disclose remediation					
FIN_DISTRESS	+	0.203	*0.179*	0.240 ***	*0.090*
Control variables					
AUD_CHANGE	*?*	-0.511 *	*0.282*	0.013	*0.249*
Ln_AUDFEES	-	0.029	*0.148*	-0.263 **	*0.137*
Ln_NONAUDFEES	*?*	-0.106 **	*0.048*	0.026	*0.054*
AUD_ICFR	*?*	0.430	*0.469*	0.787 **	*0.395*
SEVERE	+	-0.055	*0.224*	0.316	*0.361*
#WEAK	+	-0.028	*0.073*	0.036	*0.088*
Ln_ASSETS	+	-0.021	*0.068*	0.021	*0.115*
SEGMENTS	+	0.022	*0.018*	0.037 *	*0.027*
FOREIGN_SALES	+	0.226	*0.206*	-0.571	*0.363*
RESTRUCTURE	+	-0.010	*0.230*	-0.143	*0.349*
MACQ	+	-0.360	*0.201*	0.240	*0.267*
GROWTH	+	0.044	*0.038*	0.037	*0.041*
Year fixed effects?		Yes		Yes	
Industry fixed effects?		Yes		Yes	
Likelihood ratio $\chi 2$		74.4		74.6	
Model significance		<.0001		<.0001	
Pseudo R-square		12.3%		18.0%	
FAILED_REMED=1 observations		199		98	
Total observations		888		718	
Area under ROC curve		67.7%		74.5%	
Hosmer and Lemeshow goodness of fit p-value		0.52		0.56	

This table presents logistic regression results with *FAILED_REMED* as the dependent variable and is broken out between those companies with a Big 4 auditor (BIG4=1) and those without a Big 4 auditor (BIG4=0). Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY. The Hosmer and Lemeshow goodness of fit p-value is testing the null hypothesis that the model has appropriate fit. A p-value greater than 0.10 means I can not reject the null hypothesis, thus I do not have any evidence that the model is not well specified (Hosmer and Lemeshow 2013).

TABLE 12
Matched Sample Logit Model Estimating Failed Remediation- Big 4 versus Non Big 4

		Dependent Variable = *FAILED_REMED*			
		BIG4=1		**BIG4=0**	
		1		**2**	
Independent Variables	**Predicted Sign**	**Estimated Coefficient**	***Standard Error***	**Estimated Coefficient**	***Standard Error***
INTERCEPT		0.165	3.036	3.292	3.337
Incentives to restore financial reporting credibility					
CONSTITUENT_INCENT	*?*	0.361 **	0.179	-0.054	0.350
LITIG_AVOID_INCENT	*?*	0.137	0.193	-0.845	0.284
Capital market pressures to disclose remediation					
FIN_DISTRESS	+	0.552 **	0.326	0.108	0.148
Timing and Extent					
ANN_FILE	-	-0.649 **	0.349	-0.781 **	0.444
HOLISTIC	-	-0.491 *	0.316	-0.821 **	0.425
Control variables					
AUD_CHANGE	*?*	-0.888 **	0.418	0.349	0.458
Ln_AUDFEES	-	0.074	0.255	-0.328	0.262
Ln_NONAUDFEES	*?*	-0.134 **	0.074	0.046	0.097
SEVERE	+	0.278	0.388	0.135	0.567
#WEAK	+	-0.072	0.114	0.070	0.138
Ln_ASSETS	+	-0.206 *	0.129	-0.095	0.163
SEGMENTS	+	0.048 *	0.032	0.009	0.039
FOREIGN_SALES	+	0.790 ***	0.326	-0.557	0.499
RESTRUCTURE	+	-0.312	0.339	-0.790	0.541
MACQ	+	-0.017	0.305	0.264	0.434
GROWTH	+	0.080 *	0.054	0.064	0.072
Year fixed effects?		Yes		Yes	
Industry fixed effects?		Yes		Yes	
Likelihood ratio $\chi 2$		62.024		64.980	
Model significance		0.005		0.002	
Pseudo R-square		23.7%		35.7%	
FAILED_REMED=1 observations		173		91	
Total observations		318		210	
Area under ROC curve		74.5%		80.0%	

This table presents logistic regression results with *FAILED_REMED* as the dependent variable and is broken out between those companies with a Big 4 auditor (*BIG4=1*) and those without a Big 4 auditor (*BIG4=0)* . Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY.

TABLE 13
Logit Model Estimating Failed Remediation- Audit of ICFR versus no Audit of ICFR

		Dependent Variable = *FAILED_REMED*			
		AUD_ICFR=1		AUD_ICFR=0	
		1		2	
Independent Variables	**Predicted Sign**	**Estimated Coefficient**	***Standard Error***	**Estimated Coefficient**	***Standard Error***
INTERCEPT		-1.167	*1.322*	-2.082	*3.465*
Incentives to restore financial reporting credibility					
CONSTITUENT_INCENT	*?*	0.249 **	*0.110*	0.592	*0.474*
LITIG_AVOID_INCENT	*?*	-0.087	*0.108*	-0.238	*0.219*
Capital market pressures to disclose remediation					
FIN_DISTRESS	+	0.235 **	*0.133*	0.244 **	*0.123*
Control variables					
BIG4	*?*	-0.260	*0.204*	0.000	*0.381*
AUD_CHANGE	-	-0.177 **	*0.105*	-0.169	*0.269*
Ln_AUDFEES	*?*	-0.037	*0.041*	-0.078	*0.075*
Ln_NONAUDFEES	*?*	0.127	*0.201*	-0.032	*0.534*
SEVERE	+	0.036	*0.059*	-0.266	*0.165*
#WEAK	+	-0.075	*0.065*	0.101	*0.143*
Ln_ASSETS	+	0.034 **	*0.017*	0.009	*0.044*
SEGMENTS	+	-0.008	*0.181*	-0.164	*0.528*
FOREIGN_SALES	+	0.074	*0.206*	-0.696	*0.634*
RESTRUCTURE	+	-0.263	*0.176*	0.380	*0.412*
MACQ	+	0.047 *	*0.031*	0.039	*0.059*
Year fixed effects?		Yes		Yes	
Industry fixed effects?		Yes		Yes	
Likelihood ratio $\chi 2$		74.6		48.1	
Model significance		<.001		0.044	
Pseudo R-square		9.7%		20.6%	
FAILED_REMED=1 observations		249		48	
Total observations		1,157		449	
Area under ROC curve		66.5%		68.5%	
Hosmer and Lemeshow goodness of fit p-value		0.17		0.87	

This table presents logistic regression results with *FAILED_REMED* as the dependent variable and is broken out between those with an audit of ICFR (AUD_ICFR=1) and those without an audit of ICFR (AUD_ICFR=0). Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY. The Hosmer and Lemeshow goodness of fit p-value is testing the null hypothesis that the model has appropriate fit. A p-value greater than 0.10 means I can not reject the null hypothesis, thus I do not have any evidence that the model is not well specified (Hosmer and Lemeshow 2013).

TABLE 14
Matched Sample Logit Model Estimating Failed Remediation-
Audit of ICFR versus no Audit of ICFR

		Dependent Variable = *FAILED_REMED*			
		AUD_ICFR=1		AUD_ICFR=0	
		1		2	
Independent Variables	**Predicted Sign**	**Estimated Coefficient**	***Standard Error***	**Estimated Coefficient**	***Standard Error***
INTERCEPT		2.823	2.145	5.017	5.294
Incentives to restore financial reporting credibility					
CONSTITUENT_INCENT	*?*	0.202	0.163	1.158 *	0.792
LITIG_AVOID_INCENT	*?*	-0.116	0.164	-0.453	0.440
Capital market pressures to disclose remediation					
FIN_DISTRESS	+	0.432 **	0.225	0.099	0.175
Timing and Extent					
ANN_FILE	-	-0.660 **	0.288	0.014	0.815
HOLISTIC	-	-0.845 ***	0.274	-0.850	0.931
Control variables					
BIG4	*?*	0.632 **	0.327	1.025	0.945
AUD_CHANGE	*?*	-0.583 **	0.308	1.009	0.801
Ln_AUDFEES	-	-0.178	0.173	-0.315	0.477
Ln_NONAUDFEES	*?*	-0.078	0.063	0.004	0.140
SEVERE	+	0.351	0.343	0.266	0.804
#WEAK	+	0.045	0.078	-0.465	0.361
Ln_ASSETS	+	-0.184	0.110	-0.274	0.220
SEGMENTS	+	0.025	0.025	0.021	0.089
FOREIGN_SALES	+	0.507 **	0.294	-0.215	0.913
RESTRUCTURE	+	-0.217	0.292	-1.552	1.143
MACQ	+	-0.031	0.254	0.798	0.826
GROWTH	+	0.066 *	*0.043*	0.072	0.103
Year fixed effects?		Yes		Yes	
Industry fixed effects?		Yes		Yes	
Likelihood ratio $\chi 2$		63.382		37.390	
Model significance		0.003		0.360	
Pseudo R-square		19.0%		37.5%	
FAILED_REMED=1 observations		220		44	
Total observations		412		116	
Area under ROC curve		71.9%		81.1%	

This table presents logistic regression results with *FAILED_REMED* as the dependent variable and is broken out between those with an audit of ICFR (*AUD_ICFR=1*) and those without an audit of ICFR (*AUD_ICFR=0)* . Variables are defined in appendix A. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests where predictions are present, and on two-tailed tests otherwise. Standard errors are clustered by GVKEY.

REFERENCES

REFERENCES

Acito, A., C. Hogan, and A. Imdieke. 2015. Integrated audits and financial reporting quality. *Working Paper*. Michigan State University.

Amer, T., K. Hackenbrack, and M. Nelson. 1995. Context-dependence of auditors' interpretations of SFAS No. 5 probability expressions. *Contemporary Accounting Research*. 12 (1), 25-39.

Arthaud-Day, M., S. Certo, C. Dalton, and D. Dalton. 2006. A changing of the guard: executive and director turnover following corporate financial restatements. *Academy of Management Journal*. 49 (6):1119-1136.

Ashbaugh-Skaife, H., D. W. Collins, and W.R. Kinney, Jr. 2007. The discovery and reporting of internal control deficiencies prior to SOX-mandated audits. *Journal of Accounting and Economics* 44: 166-192.

Ashbaugh-Skaife H., D. W. Collins, W. R. Kinney, Jr., and R. LaFond. 2008. The effect of SOX internal control deficiencies and their remediation on accrual quality. *The Accounting Review* 83 (1): 217–250.

Ashbaugh-Skaife, H., Collins, D., Kinney, W., LaFond, R., 2009. The effect of SOX internal control deficiencies on firm risk and cost of equity. *Journal of Accounting Research* 47 (1): pp. 1-43.

Ashforth, B.E., and B.W. Gibbs. 1990. The double-edge of organizational legitimation. *Organization Science* 1 (2): 177-194

Bartus, T. 2005. Estimation of Marginal Effects Using Margeff. *The Stata Journal* 5:309-329.

Bauer, A. 2015. Tax avoidance and the implications of weak internal controls. *Contemporary Accounting Research.* Forthcoming. doi: 10.1111/1911-3846.12151.

Bedard, J.C. and L. Graham. 2011. Detection and severity classifications of Sarbanes-Oxley Section 404 internal control deficiencies. *The Accounting Review* 86 (3): 825-855.

Bedard, J.C., R. Hoitash, U. Hoitash, and K. Westerman. 2012. Material weakness remediation and earnings quality: A detailed examination by type of control deficiency. *Auditing: A Journal of Practice & Theory* 31 (1):57-78

Beneish, M., Billings, M., Hodder, L., 2008. Internal control weaknesses and information uncertainty. *The Accounting Review*, 83(3), pp.665–703.

Boland, C., S. Bronson, and C. Hogan. 2015. Accelerated filing deadlines, internal controls, and financial statement quality: The case of originating misstatements. *Accounting Horizons,* 29 (3):551-575.

Bushee, B. 2004. Identifying and attracting the "right" investors: evidence on the behavior of institutional investors. *Journal of Applied Corporate Finance.* 16 (4):28-35

Bushee, B. and C. Noe. 2000. Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of Accounting Research* 38 (Supplement):171-202

Cash, D., W. Clark, F. Alcock, N. Dickson, N. Eckley, and J. Jäger. 2002. Salience, credibility, legitimacy and boundaries: Linking research, assessment, and decision making. *Working Paper RWP02-046* Harvard Business School. Available at http://ssrn.com/abstract_id=372280.

Chan, K., B. Farrell, and P. Lee. 2008. Earnings management of firms reporting material internal control weaknesses under Section 404 of the Sarbanes-Oxley Act. *Auditing: A Journal of Practice and Theory*. 27(2): 161-179.

Chan, K., G. Kleinman, and P. Lee, , 2009. The impact of Sarbanes-Oxley on internal control remediation. *International Journal of Accounting and Information Management*, 17(1), 53–65.

Cheng, M., D. Dhaliwal, and Y. Zhang. 2013. Does investment efficiency improve after the disclosure of material weaknesses in internal control over financial reporting? *Journal of Accounting and Economics* (56): 1-18.

Christensen, B., S. Neuman, and S. Rice. 2016. A wolf in sheep's clothing: When remediated controls aren't truly remediated. *Working Paper.* University of Missouri and Texas A&M University.

Committee of Sponsoring Organizations. 1987. Report of the National Commission on Fraudulent Financial Reporting. New York: American Institute of Certified Public Accountants.

Committee of Sponsoring Organizations of the Treadway Commission. 1992. Internal Control – Integrated Framework. New York: American Institute of Certified Public Accountants.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). 2013. Internal Control Integrated Framework.

Cram, D.P., V. Karan, and I. Stuart. 2009. Three threats to validity of choice-based and matched sample studies in accounting research. *Contemporary Accounting Research* 26(2):477-516.

Croteau, B.T., 2015. Remarks before the 2015 AICPA national conference on current SEC and PCAOB developments. (December 9), SEC.

Croteau, B.T., 2013. Remarks before the 2013 AICPA national conference on current SEC and PCAOB developments – audit policy and current auditing and internal control matters. (December 9), SEC.

DeFond, M. and C. Lennox. 2015. Do PCAOB inspections improve the quality of internal control audits? *Working Paper*. University of Southern California. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2574506

DeFond, M. and J. Zhang. 2014. A review of archival auditing research. *Journal of Accounting and Economics.*58: 275-326

Desai, H., C. Hogan, and M. Wilkins. 2006. The reputational penalty for aggressive accounting: Earnings restatements and management turnover. *The Accounting Review* 81 (1): 83-112.

Dhaliwal, D., Hogan, C., Trezevant, R., Wilkins, M., 2011. Internal control disclosures, monitoring, and the cost of debt. *The Accounting Review*, 86(4), pp.1131–1156.

Dodwell, W.J. 2008. Six years of the Sarbanes-Oxley Act. *The CPA Journal* 78 (8):38-43.

Dodd-Frank Wall Street reform and Consumer Protection Act. (2010) Public Law No. 111-203. Washington D.C. Government printing office. Available at: http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/html/PLAW-111publ203.htm

Doss, M., and G. Jonas. 2004. Section 404 reports on internal control: impact on ratings will depend on nature of material weaknesses reported. *Moody's Investors Service, Global Credit Research*. October.

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

Ettredge, M., Heintz, J., Li, C., Scholz, S., 2011. Auditor realignments accompanying implementation of SOX 404 ICFR reporting requirements. *Accounting Horizons*,25(1), pp.17–39.

Fargher, N. and A. Gramling. 2005. Toward improved internal controls. *The CPA Journal*. 75 (6) June, 2005. 26-30.

Feldmann, D.A., W.J. Read, and M. J. Abdolmohammadi. 2009. Financial restatements, audit fees, and the moderating effect of CFO turnover. *Auditing: A Journal of Practice & Theory* 28 (1): 205-223.

Feng, M., C. Li, and S. McVay. 2009. Internal control and management guidance. *Journal of Accounting and Economics*, 48(2-3), pp.190–209.

Feng, M., C. Li, S. McVay, and H. Skaife. 2015. Does ineffective internal control over financial reporting affects a firm's operations? Evidence from firms' inventory management. *The Accounting Review* 90 (2): 527-557.

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

Goh, B.W. 2009. Audit committees, boards of directors, and remediation of material weaknesses in internal control. *Contemporary Accounting Research* 26 (2):547-579.

Hackenbrack, K., and M.W. Nelson. 1996. Auditors' incentives and their application of financial accounting standards. *The Accounting Review*. 71 (1): 43-59.

Hammersley, J., L. Myers, and C. Shakespeare. 2008. Market reactions to the disclosure of internal control weaknesses and to the characteristics of those weaknesses under Section 302 of the Sarbanes Oxley Act of 2002. *Review of Accounting Studies*, 13(1), pp.141–165.

Hammersley, J.S., L.A. Myers, and J. Zhou. 2012. The failure to remediate previously disclosed material weaknesses in internal controls. *Auditing: A Journal of Practice & Theory* 31 (2) 73-111.

Hanson, J.D., 2013. PCAOB update for those on the front lines of financial reporting. (November 19), PCAOB. http://pcaobus.org/News/Speech/Pages/11192013_Hanson.aspx

Ho, A. 2009. Compliance management: A holistic approach. *ISACA Journal* 5:1-7.

Hoag, M. L. and C. W. Hollingsworth. 2011. An intertemporal analysis of audit fees and section 404 material weaknesses. *Auditing: A Journal of Practice & Theory* 30 (2): 173-200

Hogan, C., Wilkins, M., 2008. Evidence on the Audit Risk Model: Do Auditors Increase Audit Fees in the Presence of Internal Control Deficiencies? *Contemporary Accounting Research*, 25(1) pp.219–242.

Hoitash, R., U. Hoitash, and J.C. Bedard. 2008. Internal controls quality and audit pricing under the Sarbanes-Oxley Act. *Auditing: A Journal of Practice & Theory*. 27:105-126

Hosmer, D., Lemeshow, S., 2013. *Applied logistic regression*. New York: Wiley.

Jepperson, R. L. 1991. Institutions, institutional effects, and institutionalism. In W.W. Powell and P.J. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis*. 143-163. Chicago: University of Chicago Press.

Johnstone, K., C. Li, and K. H. Rupley. 2011. Changes in corporate governance associated with the revelation of internal control material weaknesses and their subsequent remediation. *Contemporary Accounting Research* 28 (1): 331-383

Kinney, W.R. 2001. Accounting scholarship: what is uniquely ours? *The Accounting Review*. 76 (275-284)

Kinney, W.R. M. Maher, and D. Wright. 1990. Assertions-based standards for integrated internal controls. *Accounting Horizons* 4 (1-8).

Kinney, W. R. and M. Shepardson. 2011. Do control effectiveness disclosures require SOX 404(b) internal control audits? A natural experiment with small U.S. public companies. *Journal of Accounting Research* 49 (2): 413-448.

Li, C., L. Sun, and M. Ettredge. 2010. Financial executive qualifications, financial executive turnover and adverse SOX 404 opinions. *Journal of Accounting and Economics* 50:93-110

Lin. S., M. Pizzini, and M. Vargus, and I.R. Bardhan. 2011. The role of the internal audit function in the disclosure of material weaknesses. *The Accounting Review* 86 (1): 287-323.

Lynch, D.2015. Investing in the corporate tax function: The effects of remediating material weaknesses in internal control on tax avoidance. Working Paper. University of Wisconsin-Madison

Lys, T., and R. Watts. Lawsuits against auditors. 1994. *Journal of Accounting Research* 32 (Supplement): 65-93.

McKenna, F. 2014. All the auditors are above average: Jay Hanson allergic to "Audit Failure". March 26. retheauditors.com

Mitra, S., M. Hossain, and B. Marks. 2012. Corporate ownership characteristics and timeliness of remediation of internal control weaknesses. *Managerial Auditing Journal.* 27(9):846-877

Munsif, V., K. Raghunandan, D.V. Rama, and M. Singhvi. 2011. Audit fees after remediation of internal control weaknesses. *Accounting Horizons* 25 (1): 87-105.

Newton, N., J. Persellin, D. Wang, and M. Wilkins. 2015. Internal control opinion shopping and audit market competition. Forthcoming in *The Accounting Review*. Available at SSRN: http://ssrn.com/abstract=2503660 or http://dx.doi.org/10.2139/ssrn.2503660.

Palmrose, Z.V. and S. Scholz. 2004. The circumstances and legal consequences of non-GAAP reporting: Evidence from restatements. *Contemporary Accounting Research* 21 (1): 139-190

Perrow, C. 1981. Normal accident at Three Mile Island. *Society* 18:17-26

Perrow, C. 1984. Normal accidents: Living with high-risk technologies. New York: Basic Books.

Public Company Accounting Oversight Board (PCAOB), 2004. Auditing Standard No. 2: An audit of internal control over financial reporting performed in conjunction with an audit of financial statements. PCAOB Release No. 2004-001. March 9. Available at: http://pcaobus.org/Rules/Rulemaking/Docket008/2004-03-09_Release_2004-001-all.pdf

Public Company Accounting Oversight Board (PCAOB), 2006A. The Process for board determinations regarding firms' efforts to address quality control criticisms in inspection reports. Release 104-2006-077. March 21, Washington DC.

Public Company Accounting Oversight Board (PCAOB), 2006B. Auditing Standard No. 4: Reporting on whether a previously reported material weakness continues to exist. Available at: http://pcaobus.org/Standards/Auditing/Pages/Auditing_Standard_4.aspx

Public Company Accounting Oversight Board (PCAOB), 2007. Auditing Standard No. 5: An audit of internal control over financial reporting that is integrated with an audit of financial statements. Available At http://www.pcaobus.org/Rules/Rules_of_the_Board/Auditing_Standard_5.pdf.

Public Company Accounting Oversight Board (PCAOB), 2013. Considerations for audits of internal control over financial reporting. October 24, Washington, D,C.

Public Company Accounting Oversight Board (PCAOB), 2015A. Information concerning the quality control remediation process under PCAOB rule 4009. May 21, Washington, D,C.

Public Company Accounting Oversight Board (PCAOB), 2015B. Current issues, trends, and open questions in audits of internal control over financial reporting. August 8, Chicago, Il.

Reilly, D. 2007. Restatements still bedevil firms- Overall total hits a record as big companies improve; backdating's messy wake. *Wall Street Journal* (February 12): C7.

Rice, S., and D. Weber, 2012. How effective is internal control reporting under SOX 404? determinants of the (non-)disclosure of existing material weaknesses. *Journal of Accounting Research*. 50 (3): 811-843.

Rice, S., D. Weber, and B. Wu. 2015. Does SOX 404 have teeth? Consequences of the failure to report existing internal control weaknesses. *The Accounting Review.* 90 (3) 1169-1200.

Sarbanes Oxley Act (SOX), 2002. Public Law No. 107-204. Washington, D.C. Available at: http://www.sec.gov/about/laws/soa2002.pdf

Schroeder, J. and C. Hogan. 2013. The impact of PCAOB AS5 and the economic recession on client portfolio characteristics of the big 4 audit firms. *Auditing: A Journal of Practice and Theory*. 32(4): 95-127.

Schroeder, J. and M. Shepardson. 2015. Do SOX 404 control audits and management assessments improve overall internal control system quality? *Working Paper* Indiana University.

Scott, W.R. 2013. Institutions and organizations: Ideas, interests, and identities, *4th edition*. Thousand Oaks, Ca. Sage Publications.

Securities and Exchange Commission (SEC), 2004. Management's Report on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports: Frequently Asked Questions. https://www.sec.gov/info/accountants/controlfaq1004.htm#P2_244

Securities and Exchange Commission (SEC), 2006. Comment letters dated January 20, 2006 from Ernst & Young LLP http://www.sec.gov/rules/pcaob/pcaob200501/eernstyoungllp6370.pdf and PriceWaterhouseCoopers LLP, http://www.sec.gov/rules/pcaob/pcaob200501/pricewater012006.pdf.

Securities and Exchange Commission (SEC), 2007. Commission Guidance Regarding Management's Report on Internal Control Over Financial Reporting Under Section 13(a) or 15(d) of the Securities Exchange Act of 1934. https://www.sec.gov/rules/interp/2007/33-8810.pdf

Srinivasan, S. 2005. Consequences of financial reporting failure for outside directors: Evidence from accounting restatements. *Journal of Accounting Research*. 43 (May):291-334.

Steinwurtzel, R.A., V.B. Tsaganos, and A.J. Finkelstein. 2006. Remediation- A timely development. *The Securities Reporter* 11 (1): 1-13.

Stuart, I., D.P. Cram,V. Karan, and Y. Shin. 2013. Review of choice-based, matched, and other stratified sample studies in auditing research. *Journal of Accounting Literature* 32: 88-113.

Suchman, M.C. 1995. Managing legitimacy: Strategic and institutional approaches. *Academy of Management Journal* 20:571-610

Wilson, W. 2008. An empirical analysis of the decline in the information content of earnings following restatements. *The Accounting Review*. 83 (2):519-548.