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Section 404 Material Weaknesses: Using Communication Strategies to Predict Bankruptcy, Mergers, or SEC Reporting Problems within the Computer Industry

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The problems relating to the collapse of Enron, the bankruptcy of WorldCom, and the incidence of other business failures exposed manipulations of financial reporting, distortions in economic performance in the accounting for and disclosure of transactions, and lapses in corporate governance. These problems resulted in Congress establishing requirements for corporate governance through its passage of the Sarbanes-Oxley Act (SarbOx) in 2002, which requires firms to disclose material weaknesses in internal controls for financial reporting, directs management to disclose its assessment of those internal controls, and mandates that each company's independent auditor assess the management report and the company's systems of internal control.

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How have firms responded to material weaknesses disclosed in their financial statements due to these reporting requirements? By analyzing firms with material weaknesses in internal controls for financial reporting, can researchers determine whether firms possess similar characteristics or problems? Do internal control weaknesses indicate potential risk exposures or fraud symptoms? If firms do report internal control weaknesses, do any trends exist in these companies' future bankruptcies, mergers, or SEC reporting problems?

In this study, we investigate how firms in one industry, computers, communicate material weaknesses identified in Section 404 reports. We use Benoit's (1995) image restoration typology to determine communication strategies firms use to respond to these internal control problems. Benoit's typology communication strategies include corrective action, denial, evasion of responsibility, or reducing the problem through image bolstering, minimizing the problem, or stating the situation is different from others. This typology provides a framework to examine companies' reactions to their internal weaknesses and provides information concerning how these companies communicate their responses to the public. In addition, the responses offer insight into management strategies to improve their internal controls and prevent fraudulent reporting activity within their organization as well as whether their actions offer any predictive information relating to bankruptcies, mergers, or other SEC reporting problems.

Ashbaugh-Skaife *et al.* (2007) and Doyle *et al.* (2007) find that firms in financial distress (poor financial health) are more likely to report material weaknesses than firms with positive financial performance. Both studies also indicate that the disclosure of material weaknesses is positively associated with recent merger and acquisition or restructuring activities. Ashbaugh-Skaife *et al.* also find that firms with material weaknesses have more prior SEC enforcement actions than firms that do not report material weaknesses. We extend these studies by

investigating whether computer firms that use less transparent communication strategies to respond to material weaknesses are more likely to merge with other companies, declare bankruptcy, or experience significant regulatory problems than all firms in the computer industry or material weakness computer firms who disclose corrective actions.

Other studies have analyzed the effects of internal control weaknesses on credit ratings. Moody's (bond rating company) distinguishes between transaction level (account-specific) material weaknesses and company-level weaknesses in determining the effects of these material weaknesses on credit ratings. Moody's maintains that account-specific material weaknesses are auditable, but those material weaknesses that relate to company level controls are more difficult to audit around and can lead to questions about management's ability to prepare accurate financial statements and its capacity to control the business. Doyle *et al.* (2007) find that financially weak firms are more likely to display these company level (control environment) material weaknesses. We extend this research and analyze computer firms that have control environment material weaknesses to determine if they are more likely to merge with other companies or experience serious financial or regulatory problems than firms with other types of material weaknesses.

We study the computer industry for several reasons. First, studies by Ge and McVay (2005) and Bryan and Lilien (2005) indicate that firms in the computer industry disclose more material weaknesses than firms in other industries. Second, Lenard and Alam (2009), Rezaee and Jain (2005), and Beasley *et al.* (2000) cite numerous studies that find that the computer-related industries have a prevalence of fraudulent financial statements. According to Beasley *et al.* (2000, page 441), "Auditors should consider the industry context as they evaluate the risk of financial fraud…" In addition, the computer industry leads all industries in fraudulent activity

(COSO, 1999) and in its Statement on Accounting Standards (SAS) No. 99, the AICPA recognized that fraud risk increases with new technology, the driving force of the computer industry (AICPA, 2002). Third, because the computer industry is highly competitive, firms must adapt their structure and strategies to meet the demands of the industry; firms that are unable to adapt will decline and will eventually be excluded from the market (Duysters and Hagedoorn, 2001). Finally, by studying a single industry, we can avoid differences in products and markets and consider firm-specific factors in our analysis.

As expected, our results show that the majority of companies use corrective action as a communication strategy when addressing material weaknesses, which indicates that management is serious about taking measures to prevent future material weaknesses. However, several firms use other strategies that include denial; evasion of responsibility; or reducing the problem through image bolstering, minimizing the weakness, or stating their situation is different from other companies. If management uses similar strategies in other reporting disclosures within the financial report, users may have concerns about the accuracy of the company's financial results and whether management is reporting its economic reality. These other communication strategies could provide "red flags" for users of the financial statements. When companies use communication strategies other than corrective action, those strategies could reflect a lack of transparency in reporting.

Nearly 40% of the computer firms in our material weakness sample have experienced a merger, bankruptcy/reorganization, or significant regulatory noncompliance event since they first reported a material weakness in their SEC disclosures. Analysis of firms that use non-corrective action communication strategies reveals that 49% of these firms have experienced one or more of these events since we formed our initial sample. An analysis of the characteristics of companies

reporting material weaknesses reveals that market risk and the use of a non-corrective action communication strategy are factors that are associated with mergers, bankruptcy, and noncompliance with SEC regulations. Thus, the existence of non-corrective action communication strategies appears to indicate that the firm may potentially become a merger/acquisition target or face financial or regulatory problems.

In addition, our results indicate that firms with control environment material weaknesses are more likely to use a non-corrective action strategy. Control environment material weaknesses reflect the tone of the organization and may provide predictive qualities of more serious difficulties facing the firm.

The remainder of the paper is organized as follows. In section two, we summarize prior research relating to the disclosure of internal controls and develop our research questions. The third section describes sample selection and data collection. The fourth section provides results of our analyses. The final section summarizes our findings and discusses their implications as well as the limitations of this study.

BACKGROUND

This section discusses background related to SarbOx and internal controls as well as details of Benoit's (1995) image restoration typology, the framework we use to analyze the communication strategies firms use to disclose their material weaknesses.

Sarbanes Oxley and Internal Controls

The Public Company Accounting Reform and Investor Protection Act of 2002, SarbOx, requires Section 404 reports and management's disclosure of its assessment of internal controls

for financial reporting as well as the corresponding opinion by the firm's auditor.[1] Section 302 requires that company officers certify that: 1) they review financial reports, 2) the reports are not materially untruthful or misleading, 3) the reports fairly reflect in all material respects the financial position of the company, and 4) they have responsibility for establishing, maintaining, and reporting on the effectiveness of internal controls.

With the enactment of SarbOx, the U.S. Congress acknowledged major issues relating to the quality of earnings, transparency of financial reporting, and investor confidence in financial reporting and directed the SEC to study a principles-based accounting system (United States Congress 2002, Sarbanes Oxley Act Section 108). A major objective of SarbOx is to protect investors by improving the accuracy and the reliability of corporate disclosures that increase the transparency of reporting. DeZoort and Stanley (2006, 288) define transparency: "For financial reports to be transparent, they must clearly explain the substance of a transaction in a way that reasonably informed users can understand and use in decision-making." Hughes, Louwers, and Reynolds (2008, 126) support such transparency, not only in corporate policies and practices, but an even broader "ethical transparency."

Mark Olson, PCAOB Chairman at the time of this study, indicates, "The internal control reporting requirements of the Sarbanes Oxley Act are a key reason why the reliability and accuracy of financial reporting has improved over the past few years. The renewed confidence in financial reporting is critical for the health of our markets" (PCAOB, 2007, page 1).

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[1] Section 404 (Enhanced Financial Disclosures, Management Assessment of Internal Control) became effective for accelerated filers for fiscal years ending after November 15, 2004. Non-accelerated filers began including a management report on internal control over financial reporting in annual reports filed for the fiscal year ending on or after December 15, 2007 and an auditors report in internal control over financial reporting for a fiscal year ending on or after June 15, 2010. (SEC, 2009)

SarbOx requirements relating to financial reporting and internal control analysis emphasize management responsibility for preparing financial reports, which include management's report on the assessment of its internal control structure and procedures. Congress' passage of this act not only heightens management's responsibility, but also strengthens corporate governance in an effort to prevent financial reporting that masks future business failures and to enhance the transparency of economic results reflected in the financial statements. In response to SarbOx legislation, the Auditing Standards Board (ASB) released new Statements on Auditing Standards (SAS) numbers 109 and 110 to address auditors' responsibility to understand clients' control environment, including material risk misstatement and the procedures in response to those risks.

SarbOx's requirement to report material weaknesses in internal control has generated academic interest, resulting in several different research streams regarding firm reporting and compliance. One area of research measures stock price/market reactions to the disclosure of internal control weaknesses (Hammersley *et al.*, 2008; Beneish *et al.*, 2008; and De Franco *et al.*, 2005). Other studies examine the characteristics of firms that disclose internal control weaknesses under Section 404 of the Sarbanes-Oxley Act (Doyle *et al.*, 2007; Ashbaugh-Skaife *et al.*, 2007; Ge and McVay, 2005; and Bryan and Lilien, 2005).

Many researchers (DeBerry and Meritt, 2006; Hansen and Klamm, 2004; Dunn, 2003; Albrecht, 2003; Apostolou *et al.*, 2000) have identified weak internal controls as indicators of potential financial statement fraud. Apostolou and Crumbley (2007, 249) summarize key fraud surveys, noting that a KPMG survey lists many internal control weaknesses as root causes of financial misconduct and add that the surveys conducted by PricewaterhouseCoopers showed that most frauds are conducted in an environment that lacks adequate internal controls.

Ineffective internal controls can result in serious problems for the company. The integrity of accounting data in financial reports may be compromised or fraudulent transactions could occur if these weak internal controls are not addressed. Therefore, weaknesses in internal controls can negatively affect a firm's image and pose a potential crisis for companies that possess these deficiencies.

While other studies have analyzed types of firms that disclose material weaknesses and stock price reactions to these weaknesses, this paper contributes to the literature by analyzing company responses to their material weaknesses using communication theory. Crumbley *et al.* (2007) note that management has the ability to override many internal controls within a company and also acknowledge that financial fraud is more likely to occur when management has a poor attitude regarding internal controls. Identifying the communication strategies that management uses to address material weaknesses provides insight into management's attitude toward the process and how they respond to internal control problems.

Benoit's Image Restoration Typology

Image management is essential to corporations and other organizations. If a firm is perceived by its stakeholders to be responsible for a negative event it performed, ordered, encouraged, facilitated, or permitted to occur, the firm's image will be tarnished and needs to be restored. Benoit's theory of image restoration (1995) provides a framework in which to study firms' responses to negative events and how these responses restore the firm's image. This typology provides a useful framework for analyzing a firm's communication strategies in response to internal control weaknesses. Non-corrective action responses to these weaknesses could lead to negative reactions by users of the financial statements.

Benoit's theory of image restoration (1995) has two key assumptions: 1) communication is a goal-directed activity and 2) maintaining a positive reputation is one of the central goals of communication. Management presents the messages (responses) that are instrumental in obtaining the firm's goals. The firm must believe that it is capable of carrying out its response, that the response likely facilitates accomplishment of its goal, and that the response will not result in unreasonable costs. When the firm believes that negatively perceived events (such as disclosure of material weaknesses) threaten its reputation, management may offer explanations, defenses, justifications, rationalizations, apologies, or excuses for its behavior. If the financial statement users accept the explanation (response), the firm can restore its image (reputation).

Benoit's (1995) five categories of image restoration include denial, evasion of responsibility, reducing the offensive act, taking corrective action, and mortification. The five categories include fourteen unique strategies, shown in Table 1 (see Table 1).

Researchers have used Benoit's (1995) typology to study organizational responses to crisis; and these communication strategies provide a framework to understand and analyze how a company responds to stakeholders when a material weakness within its internal control system exists. Significant internal control weaknesses are factors that can identify a pre-crisis situation which could lead to fraudulent activity or other severe business risks. Depending upon the nature and depth of the internal control weaknesses, firms use different communication strategies in explaining these weaknesses to their stakeholders.

Seeger *et al.* (2003, 109) have studied pre-crisis communication, and note that "missed warnings, failed interpretations, and/or failure to act on warnings" are characteristics of the pre-crisis period. Ineffective management of these warning signs can result in a movement from the pre-crisis to crisis stage, in which the company experiences losses for shareholders and other

stakeholders. Though material weaknesses in and of themselves are not crisis situations, failure by management to address and correct these material weaknesses can potentially predict other serious financial and strategic problems for the company.

When companies discover material weaknesses in internal controls for financial reporting, management should correct the material weakness or explain why correction is not necessary. An objective of SarbOx and its internal control analysis is to prevent misstated financial statements or financial statements that are not transparent in their financial results. The communication strategies that firms use in their SEC reports provide insight into how management reports the weaknesses and its potential correction strategies.

RESEARCH QUESTIONS

Because management is responsible for internal control structures and procedures for financial reporting, we expect management to use corrective action as the primary communication strategy. That is, the firm will address the source of the problem and explain how changes will eliminate or correct the material weaknesses. These actions include any measures already taken or planned that eradicate the material weakness. This would indicate management accepts responsibility to eliminate material weaknesses that could indicate a potential financial crisis.

Studies by Ashbaugh-Skaife *et al.* (2007) and Doyle *et al.* (2007) investigate characteristics of firms that disclose material weaknesses. Results of both studies indicate that poor financial health is significantly related to the disclosure of material weaknesses. Financial health is quantified in the literature by financial performance measures such as ROA and ROE (Ge and McVay, 2005) and financial distress measures (Altman, 1968; Shumway, 2001; and Zmijewski, 1984). Ashbaugh-Skaife *et al.* find that merger and acquisition activity is positively

related to the existence of these material weaknesses and firms with internal control deficiencies have been involved in SEC enforcement actions significantly more frequently than firms without deficiencies.

When we analyze responses of firms facing merger, bankruptcy, or serious regulatory compliance issues, we expect that these firms will respond to material weaknesses differently than other firms because they may not be in a financial position to devote sufficient resources to their internal control process or their financial or regulatory problems may not allow them time to appropriately address internal control issues. According to Chen and Sennetti (2005), financial distress may encourage management to take more aggressive positions regarding accounting reporting practices. We hypothesize that this may lead to responses to material weaknesses other than corrective action. This discussion leads to our first series of research questions.

RQ1a: What image restoration strategies do firms use to address Section 404 material weaknesses? and 1b: What types of image restoration strategies do firms with serious financial or regulatory problems use to respond to Section 404 material weaknesses?

Several studies have investigated characteristics of firms that disclose material weaknesses, including Doyle *et al.*, 2007; Ashbaugh-Skaife *et al.*, 2007; Ge and McVay, 2005; and Bryan and Lilien, 2005. Firm size is a determinant of good internal control (Ashbaugh-Skaife *et al.* 2007; Doyle *et al.* 2007; Ge and McVay 2005; and Bryan and Lilien 2005). Large firms are more likely to have better reporting processes in place and tend to have more employees and greater resources to spend on their internal control processes, whereas small firms may lack sufficient resources to implement effective internal controls. Rapid-growth firms may outgrow their internal controls or they may dedicate a large portion of their resources to support

growth rather than internal control processes (Ashbaugh-Skaife *et al.* 2007; Doyle *et al.* 2007).

Previous research also indicates that poorly performing (less profitable) firms may not be able to invest in the proper internal control processes or they may be so concerned about improving their financial performance that they do not allocate sufficient resources and time to their internal controls (Ge and McVay 2005; Ashbaugh-Skaife *et al.* 2007; Bryan and Lilien 2005). Ashbaugh-Skaife *et al.* and Doyle *et al.* (2007) also use measures of financial distress to proxy firm performance or financial health and find that financial distress and the disclosure of material weaknesses are significantly positively related. The age of the firm may also be associated with the existence of material weaknesses as younger firms may not have the appropriate procedures in place to effectively manage their internal control processes leading to a higher likelihood of having material weaknesses (Ge and McVay 2005 and Doyle *et al.* 2007). Bryan and Lilien (2005) find that firms with higher market risk (beta) are more likely to have material weaknesses than firms with lower betas.

Few studies have investigated the characteristics of firms that respond to material weaknesses with strategies other than corrective action. Erickson *et al.* (2010) find that computer firms that use non-corrective action strategies are smaller, less profitable, and grow more slowly than the computer industry as a whole. Small, poorly performing (less profitable) firms may not have the financial resources to invest in proper internal control processes or are so concerned about improving their financial performance that they do not devote sufficient resources and time into their internal controls. This could lead to a takeover, failure, or regulatory compliance issues. Fich (2008) asserts that financial and accounting data can be manipulated to cover up poor financial health and that the effectiveness of management

responses to distress depends on the firm's governance structure. Thus, the second series of research questions is:

RQ2a: Are firms that have material weaknesses in internal controls relating to financial reporting more likely to experience financial or regulatory difficulties or a takeover than other firms in the computer industry?, and 2b: What firm characteristics, including the use of response strategies other than corrective action are associated with financial or regulatory difficulties or a takeover by another firm?

Another stream of research addresses the control environment of companies with material weaknesses. Doyle *et al.* (2007) and Bryan and Lilien (2005) indicate that Moody's bond rating agency considers material weaknesses related to company level controls to be not conducive to an effective control environment. Control environment material weaknesses reflect the tone of the organization and may indicate management's inability to control the firm and establish effective control structures and procedures for financial reporting (Verschoor, 2007). Additionally, the existence of control environment material weaknesses may even lead stakeholders to question management's ability to control the business. Doyle *et al.* (2007) find that firms with company level weaknesses (including control environment weaknesses) are smaller, less profitable, and younger than firms with less serious types of transaction level weaknesses. Firms with more complex, company level material weaknesses seem to lack resources or experience to maintain effective internal control systems. Because of these characteristics, firms with control environment material weaknesses may more likely experience serious financial and regulatory problems than firms with other types of weaknesses.

Apostolou *et al.* (2000) consider management's lack of concern over internal controls to be a characteristic that provides an opportunity for fraud to exist. Dunn (2003) studies the

relationship between management's control philosophy and fraudulent financial reporting and finds that a poor control philosophy is a contributing factor in the decision to issue false financial statements. The existence of poor control structures is positively related to fraudulent financial reporting.

The COSO guidelines, *Internal Control over Financial Reporting: Guidance for Smaller Public Companies,* (COSO, 2006) emphasize the committee's earlier guidance on internal control and focus seven of their 20 principals on the control environment. According to the guidelines, "The control environment is the foundation upon which all other components of internal control are based and sets the tone of the organization" (Verschoor, 2007, page 22). Therefore, auditors should be particularly concerned with companies that exhibit control environment material weaknesses because the lack of attention to the foundation and the tone of the organization may signal potential future problems. This leads to our third set of research questions:

RQ3a: Are firms with more significant control environment weaknesses more likely to experience serious financial and regulatory problems than firms with less serious internal control weaknesses? and 3b: Are firms that exhibit control environment material weaknesses more likely to use non-corrective action communication strategies?

SAMPLE SELECTION AND DATA COLLECTION

We identified firms all in the computer industry[2] that reported material weaknesses in internal control in their 2004 and 2005 SEC filings from two sources: 1) Compliance Week, which collects internal control disclosures from all SEC filings and 2) EDGAR, the online

[2] SIC codes 3570-3579 (computer software and hardware), 3670-3679 (electronic components and accessories) and 7370-7379 (electronics) (Ge and McVay, 2005).

database of SEC filings searching the keywords "material weakness" and "internal control." After we identified the firms, we obtained the 10-K and 10-Q reports to determine specific material weaknesses and responses for each firm. These reports reflect the first time an internal control weakness was reported under Section 404 because accelerated filers began reporting for years ending after November 2004 (2005 annual report).[3] Some firms reported no material weaknesses during this year but did indicate a correction for a material weakness stated in their voluntary Section 404 reporting for the previous year.[4] In those instances, we collected the data for 2004 rather than 2005.

This study uses a critical analysis method of studying communication strategies used to repair tarnished images by carefully examining the language used by firms to communicate material weaknesses in internal controls and whether the company plans to correct the weakness in the future. An examination of the text of these communications provides insight into how companies use communication strategies to report these weaknesses. Two researchers independently classified management's responses to identified material weaknesses based on Benoit's (1995) description of image restoration strategies. Any classification discrepancies were discussed between the researchers and a consensus was reached as to the proper classification.[5] We also used a similar process to classify the computer firms' material weaknesses and actions

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[3] Accelerated filers are companies with market capitalizations of at least $75 million, who have filed at least one annual report under Section 13(a) or 15(d) of the Exchange Act, and who are not eligible to file quarterly or annual reports on Forms 10-QSB or 10-KSB (SEC, 2004)

[4] Twenty-two of the 133 material weakness firms in our sample were non-accelerated filers that voluntarily complied with SOX 404. We included the non-accelerated filers in our sample because even though they were not required to report material weaknesses under Section 404, they chose to do so and therefore are material weakness firms. We ran all statistical analyses with and without the non-accelerated filers and there were no differences in results. For the remainder of the paper, the non-accelerated filers are included in the analysis.

[5] In most cases, the material weaknesses were numbered in the report and management's response was identified by either a corresponding number or letter or by title of the weakness. When there was a question concerning the classification, the authors reviewed the firms' responses and came to a consensus on the proper classification.

in response to these weaknesses within the COSO *Internal Control Framework* (1992), one of the models most commonly adopted by companies and recommended by PCAOB's Auditing Standard No. 5, to determine material weaknesses classified as control environment weaknesses.[6]

The resulting sample includes 133 companies in the computer industry that disclosed a total of 344 material weaknesses during the sample period. Some material weaknesses evoked more than one response, resulting in a total of 363 responses. We found 33 instances of control environment material weaknesses from the 133 companies in the sample. In 2005, 862 firms existed in the computer industry, 503 of which were accelerated filers. Industry data in subsequent sections is based on the accelerated filers in the industry.

We gathered data on firm characteristics expected to relate to financial or regulatory difficulties or a takeover. In addition to variables included in previous studies, we anticipate that leverage and liquidity are also related to the existence of material weaknesses. Firm debt levels and the existence of material weaknesses may be positively related because increased leverage may indicate that a firm is more focused on managing its debt levels than on maintaining effective internal controls. According to Lenard and Alam (2009) firms with high debt levels may be in violation of loan agreements and may have difficulty raising external capital, events which may lead to the existence of material weaknesses. Internal liquidity serves to meet unanticipated short-term obligations and the higher level of liquidity a firm possess, the greater its cushion against financial losses. We expect that liquidity and the existence of material weaknesses are negatively related. Thus, we anticipate that firm size (market capitalization),

[6] The authors classified all material weaknesses from sample firms into the COSO framework (control environment, risk assessment, control activities, information and communication, and monitoring), but for purposes of this study, only the control environment weaknesses are relevant. The complete classification is available from the authors upon request.

profitability (ROA), firm age, and liquidity (current assets/current liabilities) will be negatively related to the probability of a firm experiencing financial and regulatory difficulties. Growth (5 year average annual growth rate in assets), market risk (beta), and leverage (debt/assets) are expected to be positively related to financial or regulatory problems. We use these variables in the statistical analyses to respond to our research questions.

To determine if our model is sensitive to specification, we also conduct each analysis using a model developed by Zmijewski (1984) that uses measures of firm performance, leverage, and liquidity to measure financial distress. Zmijewski's model for financial distress (X) is:

$X = - 4.3 - 4.5 X_1 + 5.7 X_2 - .004 X_3$

where:

X_1 = net income/total assets (performance)
X_2 = total debt/total assets (leverage)
X_3 = current assets/current liabilities (liquidity)

Zmijewski's model is widely used by accounting researchers (Carcello *et al.* 1995, Chen and Wei, 1993).

RESULTS

The first objectives of this study are to determine which communication strategies companies use to address material weaknesses that affect their images and to compare the strategies of firms facing merger, bankruptcy, or serious regulatory compliance issues with those of other material weakness firms. Because Sarbanes-Oxley mandates that the management of public companies take responsibility for internal control structures, we expect management to use the corrective action communication strategy most frequently. These actions include any measures already taken or planned that eradicate the material weakness. Use of this strategy

would appear to indicate management's acceptance of its responsibility to eliminate material weaknesses before more serious problems develop. We also anticipate that firms facing merger, bankruptcy, or noncompliance will use non-corrective action strategies more frequently than other material weakness firms because the non-corrective action is a potential indicator of other problems or lack of resources.

Panel A of Table 2 contains a summary of image restoration strategies used by all 133 material weakness firms. We find that management uses corrective action most frequently (314 times or 87% of the time). However, one of the most interesting observations is that management uses image restoration communication strategies other than or in addition to corrective action. Ninety-eight companies use only corrective actions and 35 companies use other strategies in addition to corrective actions. Of these 35 firms, only 4 firms did not state a corrective action for any of their material weaknesses and only used other strategies. When we analyze the responses, we do not find any relationship between the use of corrective versus non-corrective action strategy and the number of material weaknesses disclosed by a firm nor do we find any association between the response strategy and the severity of the material weakness. Therefore, the responses are a function of the company and its management.

Panel B of Table 2 contains a comparison of image restoration strategies used by firms facing merger, bankruptcy, or compliance issues to other material weakness firms. Results indicate that the firms with financial or regulatory issues do use non-corrective action strategies slightly more often than other material weakness firms. Both groups use corrective action strategies most frequently to respond to material weaknesses in internal control. The 53 firms facing financial and regulatory problems make up 40% of the sample and use non-corrective action strategies 24 times, which is 49% of the total non-corrective action strategies used. On the

other hand, other material weakness firms make up 60% of the sample and use non-corrective action strategies 25 times (51% of the total). The significance of the use of non-corrective action strategies is tested in research questions two and three (see Table 2).

The following paragraphs provide examples of how firms use non-corrective action strategies and why the use of these other strategies could indicate that a firm may face problems in the future if they are not willing to take corrective action to remedy material weaknesses. These other strategies include evasion of responsibility, reducing the offensiveness, and denial.

The most prevalent non-corrective action strategy used by firms in our sample is scapegoating, an evasion of responsibility strategy where management states that the material weakness was a reasonable reaction to the provocation of another party. This commonly used strategy most likely indicates that management does not want to take all of the responsibility for failure to implement effective internal controls. Companies that use a scapegoating strategy most often place responsibility for material weaknesses on a lack of accounting personnel; on inadequately trained staff in foreign offices or in the U.S.; or on suppliers, freight carriers, and distributors. One company went so far as to allege that the SEC and its requirement to comply with costly SarbOx regulations was a cause of its internal control problems. Another company associated its troubles with a difficult accounting software conversion.

Seven instances exist of companies using good intentions, another evasion of responsibility strategy. Companies use this strategy of good intentions when they claim they would have liked to increase controls but a reduction in accounting staff, a budgeted reduction in costs, or resignation of key employees made it impossible.

Ten instances exist of companies reducing the offensiveness of the act, primarily by bolstering their image. Firms in this study attempt to build their images by attributing their

internal control deficiencies to growth or by pointing to their exemplary code of conduct. Another example of bolstering occurs when management emphasizes that new accounting employees and executives had the credentials of CPA and MBA, indicating those individuals are well-qualified to perform their duties, thereby reducing the likelihood of future internal control weaknesses.

Companies using denial strategies most commonly use a blame shifting strategy, whereby the company emphasizes that little to no control exists over the actions of third parties and that the other parties are entirely responsible for the company's problems. For example, one company fired a tax advisor for improper deferred tax calculations; another changed independent auditors indicating the problem was with the accounting firm and not with the internal controls themselves; another blamed the lack of controls over accounting data entry on their software provider.

SarbOx clearly places the responsibility for internal control on management. Therefore, both denial and evasion of responsibility strategies are inappropriate tactics for a company to use because management appears unwilling to take responsibility for establishing and maintaining disclosure controls over financial reporting as mandated by SarbOx. Although reducing the offensiveness of the act is a better strategy than denial or evasion of responsibility, companies should not minimize the effect of known material weaknesses on their financial statements because such weaknesses are indicators of potential problems and risks. Downplaying internal control weaknesses could indicate the company lacks vigilance in assessing pre-crisis conditions, thereby leading to a crisis fueled by such material weaknesses.

To address the second series of research questions, we analyzed SEC filings (10-K, 10-Q, and 8-K) for the 133 material weakness companies in our sample to determine how many of

these firms have experienced one or more of the following events: 1) merger with/been acquisition by other companies, 2) serious financial problems, such as bankruptcy or reorganization, or 3) delinquent in filing SEC reports (at least 9 months since the last timely 10-Q or 10-K) or other significant SEC reporting problems. Our analysis indicates that 17 of the 35 non-corrective action firms have experienced one or more of the events above. For example, eleven of the non-corrective action firms merged with other companies, one company became privately held, two firms filed bankruptcy proceedings, and three firms were not in compliance with listing standards. In addition, one firm requested withdrawal of registration of securities. These 17 non-corrective action firms experienced 21 occurrences of these events. They used evasion of responsibility strategies for 14 of these instances, reducing the offensiveness for four, and denial for three of these occurrences.

Of the 98 corrective action firms, 36 (37%) have experienced one or more of the events listed above. Included in this group of firms are sixteen firms that have merged with or been acquired by another firm; two firms that filed bankruptcy proceedings; 12 firms not in compliance with SEC or securities exchange requirements, and one firm facing delisting and charges of several fraudulent activities. Overall, approximately 40% of the computer firms in our total sample merged with another company, filed bankruptcy or reorganized, filed delinquent SEC reports, or do not comply with SEC or securities exchange regulations. This compares to a 25% rate for the computer industry.[7] This industry rate is significantly lower than the 49% rate for non-corrective action firms and the 40% rate for all firms reporting and responding to

[7] We used Compustat delisting codes (DLRSN) to identify the computer firms that have experienced merger (Code 1) or bankruptcy (Code 2), from the beginning of 2005 through October of 2007. We searched SEC documents and firm 10-K, 10-Q, and 8K reports from the beginning of 2005 through October of 2007 to determine firms with non-compliance problems.

material weakness. Difference in means tests between non-corrective action firm rates versus those of the industry and material weakness firm rates versus those of the industry indicate significance at the 0.01 level, with p values of 0.0008 and 0.0001, respectively.

This result has important implications for auditors, regulators, and other stakeholders. Firms that avoid taking responsibility for implementing effective internal controls over financial reporting appear more likely to experience mergers, bankruptcy, or non-compliance issues than companies that use corrective action strategies. Thus, firms that use communication strategies other than corrective actions appear to "flag" other potential problems or risks.

We conducted a univariate analysis to compare the characteristics of material weakness firms (firm size, profitability, age, growth, leverage, liquidity, market risk, and financial distress) that have issues in the categories listed above to the computer industry. Table 3, Panel A contains results of this analysis. Material weakness firms that have experienced merger, bankruptcy, or noncompliance are smaller, less profitable, more mature, and have lower market risk than the computer industry.[8] These firms also have a higher financial distress score, indicating a greater probability of financial distress.

We performed a similar analysis of non-corrective action firms that have experienced the problems listed above compared to the computer industry. Panel B of Table 3 contains these results. Several significant differences exist between these non-corrective action firms and the industry. The non-corrective action firms are smaller, less profitable, more mature, display slower asset growth, and have lower market risk than the industry. Non-corrective action firms

[8] The distributions of these variables are highly skewed, so the Wilcoxon/Mann-Equality of Medians Test was used to compare the medians of the group of firms in question to those of the computer industry.

also display lower liquidity levels and greater probability of financial distress than the computer industry (see Table 3).

We also used the following logistic regression model to determine the characteristics of material weakness firms that fit into the above-listed categories and to determine if the use of a non-corrective action strategy is related to the existence of serious financial or regulatory problems within firms:

$$PROB\ (DIFF) = f(B_0 + B_1 Size + B_2 Profitability + B_3 Age + B_4 Growth + B_5 Market\ Risk + B_6 Leverage + B_7 Liquidity + B_8 NCA)$$

where DIFF = 1 if the firm has merged, is in bankruptcy, is noncompliant, or is in one of the other categories listed above and 0 if the firm does not fit into any of these categories; and where NCA=1 if the firm uses non-corrective action strategies and 0 otherwise.

Panel A of Table 4 contains results of the logistic regression. These results indicate that material weakness firms that merged, experienced bankruptcy or reorganization, or experienced compliance issues have lower betas than all material weakness firms.[9] In addition, the use of a non-corrective action strategy is significantly associated with mergers, bankruptcy, and noncompliance with SEC regulations. These factors can assist auditors in (1) identifying firms with risk exposures and fraud symptoms; and (2) designing appropriate audit programs.

We conducted a logistic regression analysis using Zmijewski's (1984) model of financial distress, which contains measures of profitability, leverage, and liquidity, as predictors of financial distress.

$$PROB\ (DIFF) = f(B_0 + B_1 Size + B_2 Age + B_3 Growth + B_4 Market\ Risk + B_5 Distress + B_6 NCA)$$

[9] Results of all statistical analyses were similar when other measures for size, profitability, and growth were used. Alternative size variables were total assets and book value, while cash flow to total assets was used as a proxy for profitability. A three year asset growth rate as well as three and five year sales growth rates were used as measures of growth.

As results in Panel B of Table 4 indicate, firm beta and the use of a non-corrective action strategy are significantly related to the independent variable (see Table 4).[10,11]

Our third series of research questions examines 1) whether computer firms with more significant control environment weaknesses are more likely to experience serious financial and regulatory problems than firms with less serious internal control weaknesses and 2) whether the existence of control environment material weaknesses is associated with the use of a non-corrective action strategy. We classified material weaknesses and firm actions to rectify these weaknesses into the COSO framework and found that there were 21 material weakness firms with 33 instances of control environment weaknesses. Nine (43%) of these companies used non-corrective action communication strategies and seven (33%) of the firms merged or experienced a takeover since our initial analysis, compared to a 25% rate for the computer industry, a difference that is not statistically significant. Differences in means tests between control environment material weakness firm rates versus those of the industry do not indicate significance with a p value of 0.1590.

We conducted a univariate analysis to compare the characteristics of firms in our sample (firm size, profitability, age, growth, leverage, liquidity, market risk, and financial distress) with control environment material weaknesses to all material weakness firms and to the computer industry. Table 5 presents these results. Firms that exhibit control environment material weaknesses are smaller, less profitable, more mature, have a higher debt to asset ratio, and lower

[10] We used the decile rank of Zmijewski's (1984) score in the regression analysis because the values of the scores are highly skewed. We eliminated ROA, Debt to Assets, and Current Assets to Current Liabilities from the original model because they are contained in Zmijewski's score.

[11] We also ran all regressions with all model variables (including ROA, D/A, and CA/CL) and the decile ranking of Zmijewski's score (decile rankings are not correlated with other model variables) and with Altman's (1968) Z score as a measure of financial distress instead of Zmijewski's score. Results were identical and are available from authors upon request.

liquidity levels than the computer industry. Firms with control environment material weaknesses also display a significantly higher probability of financial distress than the industry. These results are consistent with Doyle *et al.* (2007) and may indicate that firms with control environment material weakness lack resources or experience to maintain effective internal control systems, leaving them more susceptible to mergers or other financial and regulatory problems (see Table 5).

We also used the following logistic regression model to determine the characteristics of firms with control environment material weaknesses and to determine if the use of a non-corrective action strategy is associated with control environment material weaknesses:

$$PROB\ (CEMW)=f(B_0 + B_1 Size + B_2 Profitability + B_3 Age + B_4 Growth + B_5 Market\ Risk + B_6 Leverage + B_7 Liquidity + B_8 NCA)$$

where CEMW = 1 if the firm has a control environment material weakness and 0 if the firm has another type of material weakness; and where NCA = 1 if the firm uses a non-corrective action strategy and 0 otherwise.

Table 6, Panel A contains the results of the logistic regression. We find that the existence of a control environment material weakness is significantly related to the use of a non-corrective action strategy.

We also estimated the model using Zmijewski's (1984) financial distress score using the following model:

$$PROB\ (CEMW)=f(B_0 + B_1 Size + B_2 Age + B_3 Growth + B_4 Market\ Risk + B_5 Financial\ Distress + B_6 NCA)$$

Panel B of Table 6 contains results when we substitute Zmijewski's (1984) distress score for performance, leverage, and liquidity variables. Again, the use of a non-corrective action strategy is influenced by the existence of control environment material weaknesses.

We also conducted a logistical regression analysis to determine if firms that indicate control environment material weaknesses are more likely to merge or experience financial or compliance problems than firms with other types of material weaknesses. Table 7, Panel A presents these results. The existence of a control environment material weakness does not influence merger or failure activity, though beta is a significant determinant. The use of non-corrective communication strategies continues to be strongly associated with merger and failure outcomes. Panel B of Table 7 includes results when Zmijewski's (1984) score is used. These results indicate that firm age and market risk are negatively related to merger and failure outcomes and the use of non-corrective action strategies are strongly, positively related to these outcomes.

Results of our statistical analyses reinforce the significance of firms using non-corrective action communication strategies. First, control environment material weaknesses appear to be an indicator of the use of non-corrective action strategies. In addition, the use of these strategies may indicate a future merger, bankruptcy, or noncompliance problem.

SUMMARY AND CONCLUSIONS

The signing of SarbOx into law represents far-reaching reforms in financial reporting practices. The SEC requires firms to perform an analysis of their internal controls relating to financial reporting and report any material weaknesses in their financial statements (SarbOx Section 404 requirements). This study provides substantial insights into the communication strategies that firms use in reporting their material internal control weaknesses. Using Benoit's (1995) image restoration typology, we analyzed how firms respond to internal control weaknesses.

One significant result of our study is that some firms use non-corrective action types of responses to internal control weaknesses, including denial, evasion of responsibility, and reducing the offensive act. This has implications for auditors and regulatory bodies as they continue to review the current financial reporting model and the implications of SarbOx reporting. When companies use communication strategies other than corrective action, those strategies could reflect reporting by management that lacks transparency. If management uses similar strategies in other reporting disclosures within the financial report, users may have concerns about the company's financial results and whether management is reporting economic reality.

Results of this study also indicate that the use of a non-corrective action communication strategy among material weakness firms in our sample is associated with mergers, bankruptcy, and noncompliance with SEC and exchange regulations. The rate of occurrence is nearly double for non-corrective action firms than the rate for the industry. Recognizing these non-corrective communication strategies can help auditors act proactively by identifying and investigating these potential risk exposures and fraud symptoms. Auditors can more effectively design appropriate audit programs to address these areas. Since the computer industry led all industries in fraudulent activity, (COSO, 1999) and 49% of non-corrective action companies resulted in mergers, bankruptcies or other problems, auditors could evaluate potential risk by reviewing the type of responses that firms provide for their reporting problems.

In addition, the use of non-corrective action strategies is related to the existence of control environment material weaknesses. Firms with control environment material weaknesses appear more likely to use non-corrective strategies. This could "flag" companies with other potential problems and emphasizes the importance of the control environment within a company.

We did find that the majority of firms indicate corrective action strategies to respond to their material weaknesses. Management responded to these identified material weaknesses in internal control by taking corrective actions such as hiring qualified accounting staff, revising policies and procedures, increasing the amount and level of staff training, and hiring outside consultants when necessary. In effect, management accepted responsibility for its internal control system and communicated their willingness to use various corrective actions that would avoid a potential crisis from a material weakness.

One of the limitations of this study is that we addressed only firms within the computer industry. Further research can determine whether other industries use similar responses in reporting their internal control weaknesses and whether the use of non-corrective action strategies is significantly related to merger, bankruptcy, or non-compliance issues in other industries.

Future studies could also address the types of responses that firms use in communicating other potential negative information to their stockholders; or whether any correlation exists with more defensive responses and earnings quality, fraud, earnings management, or restatements. Certain strategies may indicate to stockholders or auditors the existence of other potential problems that exist within the firm.

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TABLE 1
Benoit's Typology

Categories	Strategy	Description/example
Denial	1. Simple denial	1. Refuting outright that the organization had any part in the event
	2. Shifting the blame	2. Asserting that someone else is responsible
Evasion of responsibility	3. Scapegoating	3. Blaming the event on the provocation of another
	4. Defeasibility	4. Not knowing what to do; lacking knowledge to act properly
	5. Accident	5. Claiming the event was "accidental"
	6. Good intentions	6. Claiming the company had good intentions
Reducing the offensive act	7. Image bolstering	7. Using puffery to build image
	8. Minimization	8. Stating the crisis is not bad
	9. Differentiation	9. Indicating that this crisis is different from more offensive crises
	10. Transcendence	10. Asserting good acts far outweigh the damage of this one crisis
	11. Reducing the credibility	11. Maintaining the accuser lacks credibility
	12. Compensation	12. Paying the victim; making restitution to set things to where they were before the event
Taking corrective action	13. Corrective action	13. Taking measures to prevent event from reoccurring
Mortification	14. Mortification	14. Admitting guilt and apologizing

Source: Benoit 1995.

TABLE 2
Image Restoration Strategies by Typology and Firm

	Panel A: Summary of Image Restoration Strategies		**Panel B: Comparison of Firms with Financial and Compliance Issues to Other Material Weakness Firms**			
	All Material Weakness Firms n=133		**Firms with Financial and Compliance Issues n=53 (40% of firms)**		**Firms without Financial and Compliance Issues N=80 (60% of firms)**	
Typology	**Number of Times Used**	**Total for Category**	**Number of Times Used**	**Total for Category**	**Number of Times Used**	**Total for Category**
Denial:						
Denial	3		2		1	
Shifting the Blame	6	**9**	2	**4**	4	**5**
Evasion of Responsibility						
Scapegoating	21		10		11	
Defeasibility	2		0		2	
Good Intentions	7	**30**	5	**15**	2	**15**
Reducing the Offensiveness						
Bolstering Image	6		4		2	
Minimization	3		1		2	
Differentiation	1	**10**	0	**5**	1	**5**
Total Non-Corrective Action		**49**		**24**		**25**
Taking Corrective Action		**314**		**111**		**203**
TOTAL		**363**		**135**		**228**

TABLE 3
Characteristics of Material Weakness Firms and Non-Corrective Action Firms Experiencing Financial and Regulatory Difficulties versus the Computer Industry—2005

Panel A: Material Weakness Firms **Panel B: Non-Corrective Action Firms**

	Material Weakness Firms N=133		**Computer Industry* N=503**		**Wilcoxon Test Statistic (two-tailed p value)**		**Non-Corrective Action Firms N=35**		**Computer Industry* N=503**		**Wilcoxon Test Statistic (two-tailed p value)**
	Mean	**Median**	**Mean**	**Median**			**Mean**	**Median**	**Mean**	**Median**	
VARIABLE											
Size											
Market Cap	$589.23	$170.69	$4401.88	$525.06	0.0000***		$608.36	$173.03	$4401.88	$525.06	0.0025***
Profitability											
ROA	-11.81%	-4.56%	-1.82%	4.30%	0.0000***		-14.28%	-6.24%	-1.82%	4.30%	0.0019***
Firm Age (years)	16.06	13.00	11.33	8.12	0.0000***		17.94	12.00	11.33	8.12	0.0009***
Growth											
Asset growth	7.93%	-0.87%	7.63%	6.10%	0.1342		-5.93%	-2.80%	7.63%	6.10%	0.0119**
Market Risk											
Beta	0.99	1.04	1.19	1.16	0.0342**		0.77	0.86	1.19	1.16	0.0166**
Leverage											
Debt to Assets	48.87%	33.58%	39.45%	33.28%	0.7027		52.41%	37.18%	39.45%	33.28%	0.0897*
Liquidity											
CA/CL	3.3793	2.3900	4.8260	2.6930	0.1890		2.7324	2.2916	4.8260	2.6930	0.0556*
Financial Distress											
Zmijewski score	8.3052	-2.1975	-1.9990	-2.4960	0.0081***		20.6857	-1.7584	-1.9990	-2.4960	0.0182**

***Indicates significance at the 0.01 level, ** indicates significance at the 0.05 level, * indicates significance at the 0.10 level
All data were gathered from Compustat except Firm Age and Beta, which were gathered from CRSP. Market Capitalization (price x shares outstanding) is a dollar amount shown in millions. ROA (%) is return on assets, measured by dividing net income before extraordinary items by total assets and is used as a measure of firm profitability. Asset growth is calculated by finding the average annual growth rate in assets over 5 year period. Debt to assets (%) is total firm debt to total assets. CA/CAL is current assets divided by current liabilities. Beta is a measure of market risk and is calculated from CRSP data using monthly returns for 5 years. Firm age (in years) is number of years the firm has price data available on CRSP.

TABLE 4
Logistic Regression Results

Logistic Regression of the Probability of a Material Weakness Firm Experiencing Merger, or Financial, or Non-compliance Problems

Panel A: Original Model

N=133	Dependent Variable = DIFF	
Independent Variables	**Coefficients**	**p-values**
Intercept	0.020	0.988
Market Cap (Ln)	0.101	0.656
ROA	0.151	0.930
Firm Age	-0.039	0.158
5-year Asset Growth	0.700	0.463
Firm Beta	-1.078	0.017**
Debt to Assets	0.847	0.301
CA/CL	0.389	0.286
Non-corrective action	1.374	0.013**

Panel B: Using Zmijewski's (1984) score

N=133	Dependent Variable = DIFF	
Independent Variables	**Coefficients**	**p-values**
Intercept	-0.138	0.918
Market Cap (Ln)	0.146	0.479
Firm Age	-0.041	0.123
5-year Asset Growth	1.208	0.180
Firm Beta	-0.975	0.022**
Distress (Zmijewski decile)[1]	0.028	0.759
Non-corrective action	1.268	0.020**

DIFF is an indicator variable that is equal to 1 if the firm has merged, is bankrupt, or is non-compliant with regulations and 0 otherwise. NCA is a binary variable that is equal to 1 if the firm uses a non-corrective action strategy and 0 otherwise. Market Capitalization, Return on Assets, Debt to Assets, Current Assets/Current Liabilities, and Asset Growth were obtained from Compustat. Firm age was obtained from Lexis Nexis and Beta was obtained from CRSP.

Zmijewski's score is calculated as: $X = - 4.3 - 4.5 X_1 + 5.7 X_2 - .004 X_3$
X_1 = net income/total assets (performance)
X_2 = total debt/total assets (leverage)
X_3 = current assets/current liabilities (liquidity)

[1]The decile value of Zmijewski's (1984) score is used in the regression analysis because the value of the scores are highly skewed.

** Indicates significance at the 0.05 level

TABLE 5
Characteristics of Control Environment Material Weakness Firms versus Computer Industry
2005

	Control Environment Material Weakness Firms N=21		**Computer Industry* N=503**		**Wilcoxon Test Statistic (two-tailed p value)**
	Mean	**Median**	**Mean**	**Median**	
VARIABLE					
Size					
Market Cap (in millions)	$576.72	$148.45	$4401.88	$525.06	0.0013***
Profitability					
ROA	-9.29%	-2.62%	-1.82%	4.30%	0.0023***
Firm Age (years)	15.67	14.00	11.33	8.12	0.0005***
Growth					
Asset growth (2000-2005)	6.86%	-0.36%	7.63%	6.10%	0.1485
Market Risk					
Beta	1.30	1.43	1.19	1.16	0.6017
Leverage					
Debt to Assets	48.41%	39.20%	38.45%	33.25%	0.0393**
Liquidity					
CA/CL	2.235	1.814	4.8260	2.6930	0.0103**
Financial Distress					
Zmijewski's score	-1.122	-1.969	-1.9990	-2.4960	0.0205**

*SIC Codes 3570-3579, 3670-3679, and 7370-7379
***Indicates significance at the 0.01 level
** Indicates significance at the 0.05 level

All data were gathered from Compustat except Firm Age and Beta, which were gathered from CRSP. Market Capitalization (price x shares outstanding) is a dollar amount shown in millions. ROA (%) is return on assets, measured by dividing net income before extraordinary items by total assets and is used as a measure of firm profitability. Asset growth is calculated by finding the average annual growth rate in assets over a 5 year period. Debt to assets (%) is total firm debt to total assets. Beta is a measure of market risk and is calculated from CRSP data using monthly returns for 5 years. Firm age (in years) is number of years the firm has price data available on CRSP.
The Wilcoxon Statistic tests the statistical significance of differences in the medians of the material weakness firms and the computer industry. Medians were used instead of means because data for most firm characteristics are skewed.

TABLE 6
Logistic Regression Results
Logistic Regression of the Probability of a Material Weakness Firm Experiencing a Control Environment Material Weakness

Panel A: Original with CA/CL

N=133	**Dependent Variable = NCA**	
Independent Variables	**Coefficients**	**p-values**
Intercept	-1.41	0.309
Market Cap (Ln)	-0.095	0.692
ROA	-1.029	0.552
Firm Age	0.023	0.346
5-year Asset Growth	-2.601	0.104
Firm Beta	0.218	0.585
Debt to Assets	0.064	0.934
CA/CL	-0.219	0.614
CEMW	1.299	0.038**

Panel B: With Zmijewski's (1984) Score

N=133	**Dependent Variable = NCA**	
Independent Variables	**Coefficients**	**p-values**
Intercept	-1.25	0.358
Market Cap (Ln)	-0.178	0.423
Firm Age	0.018	0.448
5-year Asset Growth	-2.766	0.076*
Firm Beta	0.184	0.633
Distress (Zmijewski decile)	0.107	0.276
CEMW	1.210	0.055*

CEMW is an indicator variable that is equal to 1 if the firm indicated a control environment material weakness and 0 otherwise. NCA is a binary variable that is equal to 1 if the firm uses a non-corrective action strategy and 0 otherwise. All other variables are as previously defined.

* Indicates significance at the 0.10 level
** Indicates significance at the 0.05 level

TABLE 7
Logistic Regression Results
Logistic Regression of the Probability of a Material Weakness Firm Experiencing a Merger of Non-Compliance problem (with CE)

Panel A: Original Model **Panel B: With Zmijewski's (1984) Score**

N=133	**Dependent Variable = DIFF**		**N=133**	**Dependent Variable =DIFF**	
Independent Variables	**Coefficients**	**p-values**	**Independent Variables**	**Coefficients**	**p-values**
Intercept	0.192	0.892	Intercept	-0.077	0.955
Market Cap (Ln)	0.097	0.671	Market Cap (Ln)	0.147	0.481
ROA	0.184	0.913	Firm Age	-0.045	0.094*
Firm Age	-0.044	0.121	5-year Asset Growth	1.298	0.133
5-year Asset Growth	0.757	0.408	Firm Beta	-0.978	0.023**
Firm Beta	-1.104	0.016**	Distress (Zmijewski decile)	0.043	0.644
Debt to Assets	0.927	0.281	Non-corrective action	1.458	0.012**
CA/CL	0.411	0.273	CEMW	-0.732	0.276
Non-corrective action	1.604	0.008***			
CEMW	-0.786	0.254			

DIFF is an indicator variable that is equal to 1 if the firm has merged, is bankrupt, or is non-compliant with regulations and 0 otherwise. NCA is a binary variable that is equal to 1 if the firm uses a non-corrective action strategy and 0 otherwise. CEMW is a binary variable that is equal to 1 if the firm indicated a control environment material weakness and 0 otherwise. All other variables are as previously defined.

* Indicates significance at the 0.10 level
** Indicates significance at the 0.05 level
*** Indicates significance at the 0.01 level

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