CORPORATE GOVERNANCE CHARACTERISTICS OF FIRMS REPORTING INTERNAL CONTROL DEFICIENCIES

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Abstract

From a sample of firms reporting internal control deficiencies (ICD), I compare corporate governance structures to industry, exchange, and size – matched firms. I examine market reactions to reports of ICDs in 8-K filings. Additionally, I examine shifts in corporate governance characteristics since the Sarbanes-Oxley Act of 2002 (SOX). Results indicate that weaker boards, larger audit committees, less independent nominating committees, and high growth companies are associated with ICDs. Market reaction is negative to ICD disclosures when they are associated with controls over revenue. Firms have made changes post-SOX including reduced non-audit services, more frequent audit committee meetings, formation of nominating and governance committees, creation of internal audit functions, and implementation of corporate governance policies.

Keywords: Corporate governance, internal control deficiencies, SOX Section 404

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1. Introduction

The collapse of Enron in November of 2001 and numerous subsequent accounting scandals shattered investor confidence and precipitated heightened scrutiny over firms' financial disclosures. Internal control failures were identified in many of the high profile accounting scandals including Enron and Worldcom. The numerous accounting scandals ultimately led to the passage of the Sarbanes-Oxley Act of 2002 (SOX). SOX was implemented to restore user confidence by improving the accuracy and completeness of information disclosed in financial statements and increasing compliance with securities laws. SOX contains several provisions related to internal controls and internal control disclosure including audit committee qualifications, CEO and CFO quarterly and annual certifications of internal control over financial reporting, and annual management reports on internal control over financial reporting.

In response to SOX, firm managers have been increasingly discovering and reporting deficiencies concerning internal control over financial reporting. Specifically, this increase can be attributed to the CEO and CFO quarterly and annual certifications regarding internal controls under SOX Section 302, effective August 29, 2002, and the internal control testing and documentation work done in conjunction with the SOX Section 404 internal control report required to be filed with financial statements by accelerated filers for fiscal years subsequent to November 15, 2004.[2] Internal control deficiencies reported in public SEC filings include, in increasing order of severity: internal control deficiencies, significant deficiencies (also known as reportable conditions) and material weaknesses. Additional disclosures of internal control problems will be included in upcoming SOX Section 404 internal control reports. Investors, regulators and firm managers are likely to be interested in market reactions to disclosures of internal control problems and corporate governance characteristics associated

[2] Accelerated filers are publicly traded firms with equity float in excess of $75 million.

with internal control problems. Regulators and investors also are likely to be interested in corporate governance changes in response to SOX.

I address three research questions. First, I examine whether the market reacts to when firms initially provide information about potential internal control deficiencies. Subsequent to SEC Financial Reporting Release #31 (1988), the first public release of internal control deficiency information generally occurred with the filing of SEC Form 8-K. In three-day windows around SEC Form 8-K filings, I find that the market reacts negatively to internal control deficiencies when the deficiency is related to revenue. Second, I examine governance changes subsequent to SOX. Results on governance changes subsequent to SOX indicate that non-audit services provided by auditors decreased; audit committees meet more frequently; firm boards formed nominating and governance committees and established corporate governance policies; and the internal audit function presence increased. Third, I examine whether better corporate governance is associated with fewer internal control deficiencies. I examine corporate governance structures and firm characteristics of a sample of firms reporting internal control deficiencies, significant deficiencies (reportable conditions) and material weaknesses from January 2003 through August 2004 compared to an industry, exchange, and size-matched sample to assess whether the companies with internal control deficiencies have different corporate governance structures and firm characteristics. Results indicate that firms reporting internal control problems have boards of directors composed of greater affiliate members, fewer outside members, fewer members serving on other boards of directors, and fewer retired members compared to matched firms. Evidence also indicates that audit committees with more members, nominating committees with less independence and high growth companies are associated with internal control deficiencies.

This paper contributes to the literature on internal controls and corporate governance by examining corporate governance characteristics in a broad sample of companies reporting internal control deficiencies. The extant literature in this area reports a positive association between the level of internal control quality and good corporate governance (Krishnan 2005, Zhang et al 2007; Goh 2009, Hoitash et al. 2009) as well as a positive association between the remediation of internal control problems and improvements in corporate governance (Li et al. 2010). I further extend this extant literature by comparing corporate governance characteristics in periods post-SOX to pre-SOX and by examining additional corporate governance characteristics including board, shareholder, and other outside monitoring.

Section 2 discusses regulations and prior research related to internal controls. Section 3 develops the empirical model and test variables and provides empirical results for the market reaction to disclosures of internal control deficiencies. Section 4 develops the empirical model and determinants for post-SOX governance changes and the link between governance and internal controls. Section 5 discusses sample selection procedures, descriptive statistics and univariate results for post-SOX governance changes and the link between governance and internal control. Section 6 provides interpretations and concluding remarks.

2. Internal control regulations and disclosure requirements

2.1 Pre-SOX regulations

The regulatory standards for evaluating internal controls and communicating internal control deficiencies have evolved over time. In 1985, the Committee of Sponsoring Organizations (COSO) of the Treadway Commission was formed to study the causal factors that can lead to fraudulent financial reporting and to develop recommendations. In 1992, COSO published the COSO Internal Control Integrated Framework that was incorporated into Statement on Auditing Standards (SAS) No. 78 "Consideration of Internal Control in a Financial Statement Audit" (American Institute of Certified Public Accountants [AICPA] 1995). The COSO Internal Control Integrated Framework defines internal control as a "process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: (i) reliability of financial reporting, (ii) effectiveness and efficiency of operations, and (iii) compliance with applicable laws and regulations."[3] COSO identifies five components of internal control across the following categories: control activities, risk assessment, information and communication, monitoring and the control environment.

Internal control deficiencies are grouped into three categories in increasing order of severity: control deficiencies, significant deficiencies (also known as reportable conditions) and material

[3] Note that corporate internal audit departments do not necessarily address all three categories of internal control. For example, WorldCom's internal audit department was charged with performing operational audits and was not charged with examining the reliability of financial reporting.

weaknesses. A control deficiency "exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis" (Public Company Accounting Oversight Board [PCAOB] 2004). A significant deficiency (reportable condition) is a "control deficiency, or combination of control deficiencies, that adversely affects the company's ability to initiate, authorize, record, process, or report external financial data reliably in accordance with generally accepted accounting principles such that there is more than a remote likelihood that a misstatement of the company's annual or interim financial statements that is more than inconsequential will not be prevented or detected" (PCAOB 2004). A material weakness is "a significant deficiency, or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected" (PCAOB 2004).

The types of internal control deficiencies and the number of agencies to whom they must be reported have increased over time. SAS No. 20 (AICPA 1978), "Required Communications of Material Weaknesses in Internal Accounting Control," required auditors to communicate material weaknesses in internal controls to management and the board of directors. SAS No. 60 (AICPA 1988), "Communication of Internal Control Structure Related Matters Noted in an Audit," replaced SAS 20 and requires the auditor to report all reportable conditions (and could distinguish those that were also material weaknesses) to the audit committee of the board of directors. SEC Financial Reporting Release #31 (SEC 1988) "Disclosure Amendments to Regulation S-K, Form 8-K and Schedule 14A Regarding Changes in Accountants and Potential Opinion Shopping Situations" requires firms to disclose on SEC Form 8-K whether any "reportable events" existed in the previous two years. The SEC describes reportable events as "where the accountant has advised the registrant that it questions the accuracy or reliability of the registrants: (a) financial statements, (b) management's representations, (c) internal controls[4] or (d) prior audits."

2.2 SOX and subsequent regulations

Section 302 of SOX, effective August 29, 2002, requires all annual and quarterly SEC reports to include certifications by the principal officers including assurances of (i) internal control over financial reporting, (ii) disclosure controls and procedures and (iii) disclosure to audit committee and external auditors of significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting and any fraud that involves management or employees who have a significant role in the internal control over financial reporting. SOX Section 906 requires all annual and quarterly SEC reports to be accompanied by a written statement by the CEO and CFO certifying that the periodic report "fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act of 1934 and that information contained in the periodic report fairly presents, in all material respects, the financial condition and results of operations of issuer." False certification is a crime punishable by fines up to $5 million and imprisonment for up to 20 years. In addition to the SOX Section 302 and 906 certifications, the SEC amended Regulation S-K to add Item 307 related to the issue of SOX Section 302 "disclosure controls and procedures" (SEC 2003). Item 307 states the registrant's obligations to evaluate disclosure controls and procedures and report on changes in internal controls.[5]

The SEC adopted the final rules for SOX Section 404, "Management Assessment of Internal Controls" on June 5, 2003. SOX Section 404, effective for publicly traded accelerated filers with fiscal year-ends subsequent to November 15, 2004, requires an annual management report on internal controls over financial reporting to be filed with the annual report. The management report must be

[4] Reports of material weaknesses and significant deficiencies but not deficiencies are required to be disclosed under reportable events.

[5] For the evaluation of disclosure controls and procedures, SEC Item 307 requires the registrant to "disclose the conclusions of the registrant's principal executive officer or officers and principal financial officers, or persons performing similar functions, about the effectiveness of the registrant's disclosure controls and procedures (as defined in 240.13a-14(c) and 240.15d-14(c)) based on their evaluation of these controls and procedures as of a date within 90 days of the filing date of the quarterly or annual report that includes the disclosure required by this paragraph." For changes in internal controls, SEC Item 307 requires the registrant to "disclose whether or not there were significant changes in the registrant's internal controls or in other factors that could significantly affect these controls subsequent to the date of their evaluation, including any corrective actions with regard to significant deficiencies and weaknesses" (SEC 2003).

accompanied by an auditor attestation report by the registered public accounting firm that audited the company's financial statements (KPMG 2004). The SEC amended Regulation S-K to add Item 308 "Internal Control over Financial Reporting". SEC Item 308 requires the management's annual report on internal control over financial reporting to include "management's assessment of the effectiveness of the internal control over financial reporting as of the end of the most recent fiscal year, including a statement as to whether or not internal control over financial reporting is effective. This discussion must include disclosure of any material weakness in the registrant's internal control over financial reporting identified by management."

Prior to the passage of SOX, the only required public disclosures of internal control problems were significant deficiencies (reportable conditions) and material weaknesses in SEC Form 8-K "change of auditor" disclosures. Subsequent to SOX, registrants are required, under SEC Item 307, to disclose conclusions regarding the effectiveness of the firm's disclosure controls and procedures and corrective actions taken regarding material weaknesses and significant deficiencies. All material weaknesses must be identified in the forthcoming SOX Section 404 internal control reports. There has been a surge of disclosures of internal control problems in public SEC filings since the passage of SOX. As summarized in Panel A of Table 2, the most common problems reported are (i) financial systems and procedures that include financial close processes, account reconciliations and inventory processes; (ii) personnel issues that include poor segregation of duties, inadequate staffing, and training and supervision problems; (iii) documentation issues; (iv) revenue recognition issues; and (v) other issues including information technology problems. Given the additional requirements under SOX, firms are spending a significant amount of time assessing and evaluating their internal controls and auditors are involved in testing internal controls. Firms are spending well in excess of $1 million per $1 billion in revenues in conjunction with the internal control requirements associated with SOX Section 404 compliance (Compliance Week 2004). It thus seems likely that new internal control problems are discovered in conjunction with the compliance efforts associated with the SOX sections 302 and 404 requirements. The increase in disclosures of internal control problems also may be due to a desire of firm management to display increased transparency in its public statements.

Other key elements of SOX include establishment of an independent Public Company Accounting Oversight Board (PCAOB), [6] establishment of new responsibilities for audit committees, [7] disclosure requirements, certain prohibited non-audit services from the audit firm, [8] auditor independence rules, prohibition on loans to executive officers and directors, mandatory audit partner rotation every five years, requirement of auditors to report to audit committees, and prohibition on audit of issuer if CEO, controller, CFO, or chief accounting officer was employed by auditor and participated in audit of issuer within prior year.

2.3 Prior research on market reaction to disclosures of internal control deficiencies

Pre-SOX research related to market reaction to disclosures of internal control problems examine reportable events disclosed in SEC Form 8-K filings. Whisenant et al. (2003) examine market reaction to disclosures of reportable events in SEC Form 8-K disclosures of auditor switches in a sample period from 1993 – 1996. Using an event study examining abnormal returns, Whisenant et al. find that the market reacts negatively to disclosures of reportable events, disagreements and auditor resignations in Form 8-K auditor switch filings. However, when isolating the reportable event to internal control reportable events, they do not find a significant negative reaction. Krishnan (2002) finds a significant negative market reaction to reportable events disclosed in Form 8-K filings of auditor changes when the auditor exhibit letter is not filed

[6] The new independent PCAOB is overseen by the SEC. PCAOB has the authority to establish new auditing standards (formerly done by the Accounting Standards Board under the American Institute of Certified Public Accountants). Annual inspections by the PCAOB replace former CPA-firm performed peer reviews.

[7] The audit committee members must be independent (defined as not receiving, other than for service on the board, any fees from the firm, and as not being an affiliated person of the issuer or any subsidiary). The firm must disclose whether at least one audit committee member is a financial expert. The audit committee is directly responsible for hiring the audit firm, approving fees paid to the audit firm and pre-approving of services to be provided by the audit firm.

[8] Non-audit services prohibited include: bookkeeping; financial information systems design and implementation; appraisal or valuation services, fairness opinions, or contribution-in-kind reports; actuarial services; internal audit outsourcing services; management functions or human resources; broker or dealer, investment adviser, or investment banking services; and legal services and expert services unrelated to the audit.

concurrently with the initial Form 8-K filing but does not find a significant reaction when the auditor exhibit letter is concurrently filed with the initial Form 8-K filing. Other studies of market reaction to auditor changes, but not isolated to reportable events, include examination of voluntary auditor changes (Johnson and Lys 1990), auditor resignations (Defond et al. 1997, Wells and Loudder 1997, Shu 2000), auditor-firm disagreements (Smith and Nichols 1982, Defond and Jiambalvo 1993, Dhaliwal et al. 1993), changes from a Big 8 to non-Big 8 audit firm (Smith and Nichols 1982), nondisclosure of successor auditor on SEC Form 8-K (Smith 1988), auditor resignation conveying private information and the relation of litigation risk to Form 8-K market reaction (Shu 2000), and examination of market reaction to continuing audit clients of audit firms resigning (Beneish et al. 2001). These studies find a negative market reaction to disclosures of auditor resignations, auditor-firm disagreements, changes from a Big 8 to a non-Big 8 audit firm, and non disclosure of successor auditor. Johnson and Lys (1990) do not find a significant market reaction to disclosures of voluntary auditor changes. Shu (2000) finds the magnitude of market reaction to SEC Form 8-K auditor resignations varies cross-sectionally with litigation risk. Beneish et al. (2001) find significant abnormal returns for poorly performing clients of audit firms in the same industry as firms from which the auditor resigned.

Post-SOX studies do find a negative market reaction to the isolated disclosures of internal control problems (Gupta and Nayar 2007, Hammersley et al. 2008, Ye and Krishnan 2008). This study further examines whether the market reacts negatively to the reporting of internal control problems on the SEC Form 8-K in the post-SOX time period.

2.4 Prior research on the link between governance and internal control deficiencies

Prior research related to the link between governance and internal controls examines the association of selected corporate governance characteristics with internal control quality and substitutes between internal and external control mechanisms within a control system.

Krishnan (2005) examines the association between audit committee quality and internal control quality using SEC Form 8-K disclosures of changes in auditors to identify firms with internal control deficiencies. She compares these firms to a matched sample based on industry and exchange who also report a change in auditors on Form 8-K with no internal control deficiencies. Krishnan finds that independent audit committees and audit committees with financial expertise are significantly less likely to be associated with both material weakness and reportable condition internal control disclosures. She also finds that auditor resignations are positively associated with internal control problems. This paper extends Krishnan's research by (i) examining a period both prior to and after the passage of SOX; (ii) examining firms reporting internal control problems on other SEC filings than the Form 8-K; (iii) using a broader set of firm characteristics; and (iv) testing for market reaction to the release of information about the internal control deficiency.

Jensen and Payne (2003) examine whether internal and external mechanisms are substitutes for each other within a firm's control system. Specifically, they examine a sample of municipal cities to test whether cities substitute accounting staff expertise and an internal audit function with external controls. The proxy for external controls is the hiring of auditors with greater industry experience. They find evidence that managers who hire personnel with low levels of accounting experience and who do not hire internal auditors tend to hire external auditors with higher levels of expertise. Abernethy and Chua (1996) examine the role of the accounting control system as interacted with other control systems. They examine substitutes and complements of accounting controls, governance structure and management culture using a study of a large Australian hospital that underwent changes in its governance structure, culture and accounting control system. They find that accounting control systems are not a dominant force in the control function but that they supplement other elements of the control system. Both of these studies provide evidence that there are substitutes and complements within firms' internal control systems.

3. Market reaction to disclosure of internal control deficiencies: empirical model and results

I propose that disclosures of internal control deficiencies contain negative information. The potential for negative market reaction to control deficiency disclosures arises because the presence of internal control problems in a firm can affect the reliability of its financial reporting, the efficiency and effectiveness of its operations and its compliance with laws and regulations. To examine whether the market reacts negatively to internal control deficiency disclosures, I use an event study to examine the cumulative abnormal return over a three-day period surrounding the announcement date for a subsample of the firms who reported an internal control deficiency on SEC Form 8-K. SEC Form 8-K

discloses unscheduled material events and corporate changes. SEC Accounting Series Release No. 165 (1974) requires registrants to report the following information related to auditor changes on SEC Form 8-K: the date of auditor change, any disagreements with the auditor for a period of up to two years prior to the change, information about adverse, and qualified or qualified opinions for the previous two years. Auditors must also provide a letter to the SEC verifying the company's assertions regarding the auditor change. As discussed in Section 2.1, SEC Financial Reporting Release No. 31 (1988) requires mandatory disclosure of reportable events, including when the auditor has advised the firm that it questions the accuracy and reliability of the firm's internal controls, on Form 8-K auditor changes.

Following Whisenant et al. (2003), I regress cumulative abnormal returns on a material weakness internal control reportable event variable, an auditor disagreement variable and an auditor resignation variable. Consistent with results in Whisenant et al., I predict the auditor disagreement variable and the auditor resignation variable will be negatively related to cumulative abnormal returns. Although Whisenant et al. do not do not find significant results for disclosures of internal control reportable events, I predict this variable will be negatively related to cumulative abnormal returns in my post-SOX sample period given potential heightened investor scrutiny. As Beasley et al. (2000) find fraud is related to revenue recognition, I include a variable indicating whether the internal control deficiency is due to revenue recognition problems. I predict this variable will be negatively related to cumulative abnormal returns as poor internal controls may facilitate the occurrence of fraud.

Eighty-two firms reported internal control deficiencies on specifically on SEC Form 8-K between January 1, 2003 and August 31 2004. In my examination of market reaction to internal control deficiency disclosures, I excluded twenty thinly traded firms[9] and twenty-nine firms that filed other SEC documents on the same day to isolate the reaction to the reported deficiency. The resulting subsample of thirty firms reporting and internal control deficiency on SEC Form 8-K includes twenty-two firms with auditor switch disclosures and eight firms with other material event disclosures. The three-day cumulative abnormal return (CAR) is centered on the date the Form 8-K is filed on Edgar (if the filing is after 4:00 EST, day 0 is the following day), or the press release date for reports of internal control deficiencies from Lexis-Nexus, if earlier, and the preceding and subsequent days. The abnormal return is calculated as the difference between the S&P 500 return and the firm return.

I examine the relationship between the cumulative returns and the content of the SEC Form 8-K disclosures. Specifically, I predict:

H1: The three-day cumulative abnormal returns surrounding SEC Form 8-Ks announcements of internal control deficiencies are negatively associated with the type and nature of internal control deficiency, existence of firm-auditor disagreements and whether the auditor resigned.

To test H1, I estimate:

$$CAR = \beta_0 + \beta_1 MW + \beta_2 MWREV + \beta_3 DISAGREE + \beta_4 RESIG + \varepsilon$$

where:

CAR = Cumulative abnormal return across day -1, day 0, and day 1

MW = One if disclosure of material weakness of internal controls, zero otherwise

MWREV = One if material weakness in internal control related to revenue recognition, zero otherwise

DISAGREE = One if disclosure of disagreement between auditor and firm, zero otherwise

RESIG = One if auditor initiated auditor change, zero otherwise

Table 2 reports regression results for the market reaction sample. Results indicate that the market does not react to the disclosure of a material weakness in internal controls. However, when the material weakness is related to revenue recognition, there is a significant negative reaction at the one percent significance level. This contributes to the study by Whisenant et al. (2003) on market reaction to disclosures of reportable events. They find that disclosures of reportable events had significant negative information content to investors, however they did not find a significant negative reaction when isolating the type of reportable event to an internal control deficiency disclosure. I do not find a significant market reaction to auditor resignations or disclosed disagreements with the auditors. This lack of results may be attributed to the inclusion of only two disagreements and eight audit resignations in the market reaction sample.

[9] Thinly traded firms are those with less than 10,000 trades in any of the three days centered on the date the SEC Form 8-K was filed, or press release date, if earlier.

4. Post-SOX governance changes and the link between governance and internal control: empirical model and determinants

4.1 Framework for evaluating corporate governance changes subsequent to SOX

SOX contains certain mandatory governance changes including independent audit committees, disclosure whether at least one member of the audit committee is a financial expert, prohibited non-audit services, and prohibition on loans to executive officers.[10] Li, Pincus and Rego (2004) examine the association of market reaction to events surrounding SOX with auditor non-audit services provided and audit committee independence. They find results consistent with SOX being more costly, measured as negative market reaction to event dates resolving uncertainties about SOX provisions and enforcement dates, for firms with higher percentages of auditor non-audit services provided and for firms with less independent audit committees. As certain corporate governance characteristics appear to matter to investors, it is likely that firms will make voluntary corporate governance changes in addition to mandated changes subsequent to SOX. I examine both mandatory and voluntary corporate governance changes subsequent to SOX:

H2: Firms have made both mandatory and voluntary corporate governance changes subsequent to SOX.

To test whether corporate governance characteristics are statistically different subsequent to SOX, I perform difference-in-means t-tests for corporate governance and firm characteristic variables in a period post-SOX compared to a period pre-SOX. The corporate governance and firm characteristic variables are discussed in Section 4.3. I predict that governance variables related to mandatory SOX requirements will be significantly different post-SOX. I do not predict significant changes in firm characteristic variables post-SOX.

4.2 Framework for evaluating internal control

The COSO Internal Control Integrated Framework identifies five components of internal control: control activities, risk assessment, information and communication, monitoring and the control environment. I examine firms' internal control quality as a function of two of these components, monitoring and the control environment, at a firm-specific level. To evaluate a firm's monitoring and control environment, I examine corporate governance characteristics and firm characteristics:

[10] In addition to SOX, the NYSE and Nasdaq issued corporate governance standards, approved by the SEC on November 4, 2003, that are effective for listed firms in 2004. These standards require the majority of a listed firm's board of directors be independent; audit committee members must satisfy enhanced SEC independence standards; independent directors must meet in regular executive sessions outside of the presence of management; and listed companies must adopt and disclose a code of business conduct and ethics applicable to all directors, officers and employees. In addition, NYSE listed firms are required to: maintain compensation and nominating/corporate governance committees composed entirely of independent directors; adopt and disclose corporate governance guidelines; and maintain an internal audit function. Nasdaq listed firms are required to: determine executive compensation and director nominations either by a majority of the independent directors or by committees composed solely of independent directors; review all related party transactions on an ongoing basis and have such transactions approved by the audit committee or other committee of independent directors commencing January 15, 2004; and publicly disclose receipt of a "going concern" qualification of an audit opinion in an SEC filing within seven days of receipt.

Internal control = *f* [*Corporate governance variables* (auditor monitoring, board monitoring, committee monitoring, shareholder monitoring, and other outside monitoring), *Firm characteristics* (managerial incentives, managerial competence, company performance, ex ante red flags, and other control environment factors)]

As shown in Figure 2, two theories on the design of governance features are "efficiency" and "rent extraction." Under the efficiency theory, shareholders choose governance structures to maximize long-run firm value. Certain governance features are complements and some are substitutes to internal controls. Under the efficiency theory, a governance feature that is a complement to internal controls will have a positive association with internal controls and a governance feature that is a substitute to internal controls will have a negative association with internal controls. Under the rent extraction theory, some governance features may induce opportunism by firm managers and board of director members and therefore may have a negative association with internal controls. For example, high board member remuneration is considered a "good" governance feature under the efficiency theory because remuneration provides board members incentives to monitor firm managers. Under the efficiency theory, if board remuneration is a substitute (compliment) for internal controls, there will be a negative (positive) relation between board remuneration and good internal controls. However, under the rent extraction theory, high board member remuneration directly reduces shareholder value and will be negatively related to internal controls. Without examining long-run firm performance, it is not possible to disentangle whether efficiency or rent extraction dominates firm's governance structures. Thus, I test for associations between corporate governance proxies and internal control deficiencies but do not make directional predictions.

Auditors, boards of directors, board committees, and shareholders play a role in monitoring firms. I explore the extent to which this monitoring is related to firms' internal controls. I also examine whether certain firm characteristics are associated with internal controls:

H3: Corporate governance and firm characteristics are associated with internal control deficiencies.

To test whether corporate governance and firm characteristics for firms reporting an internal control deficiency are statistically different from exchange, industry, and size-matched firms, I perform difference-in-means t-tests.

4.3 Corporate governance test variables

Much of the extant research related to corporate governance examines conflicts of interest between shareholders and firm management. To reduce the agency costs associated with this conflict, there exist a number of external and internal disciplining mechanisms. Disciplining mechanisms include board of directors, insider ownership, large and institutional shareholders and incentive compensation contracts (Farinha 2003). Following is a discussion of internal and external monitoring proxies potentially associated with internal controls. Further discussion of variable calculations is included in Table 2.

4.3.1 Auditor monitoring

Auditors with more expertise and fewer conflicts of interest provide better monitoring of firm's internal control processes and financial reporting. However, DeFond and Jiambalvo (1991) do not find significant differences in error detection between Big 8 and non-Big 8 firms. Audit firms have been under significant public scrutiny regarding whether their independence is hindered through non-audit services provided. Additionally, SOX mandates limitations on non-audit services provided. I proxy for the effectiveness of auditor monitoring with two measures: (i) BIG4, equal to one if the firm auditor is a Big 4 firm and zero otherwise, and (ii) %AUD_FEE, the proportion of audit and audit-related fees to total fees paid to the audit firm.

4.3.2 Board of director monitoring

A firm's board of directors assist in solving agency problems as they provide a solution to the contracting problem between diffuse shareholders and management (Hermalin and Weisbach 2001). Boards serve both an advisory function and a monitoring function. The effectiveness of board monitoring is influenced by the board member's influence, competence, incentives and level of involvement as discussed below.

Board influence

CEOs and insiders may use their power to act in ways that conflict with shareholder interests. Outside board members may serve as a monitor to align management actions with shareholder interests. I proxy for board influence using the following measures:

(i) CEO_CHAIR, one if the CEO is not the board chairperson, zero otherwise;

(ii) CEO_FOUNDER, one if the CEO is the founder of the firm, zero otherwise;

(iii) CEOPOWER, the total of one point for chair of the board and one point for each committee on which the CEO serves, similar to Ashbaugh et al. (2006);

(iv) CEO_TENURE, the number of years the CEO has been in the CEO position at the firm;

(v) %BRD_INSIDE, the proportion of inside director membership on board;

(vi) %BRD_AFFIL, the proportion of affiliate director membership on board[11];

(vii) %BRD_OUTSIDE, the proportion of outside director membership on board;

(viii) %INSIDE_OWN, the proportion of inside director ownership in firm common stock;

(ix) %AFFIL_OWN, the proportion of affiliate director ownership in firm common stock; and

(x) %OUTSIDE_OWN, the proportion of outside director ownership in firm common stock.

Board competence

Board size generally ranges between six directors and 24 directors (Yermack 1996). The average size of U.S. boards is approximately ten members. In determining the size of a board, there are tradeoffs between the incremental information new directors bring and the incremental cost of new directors (Lehn, Pator and Zhao 2009). The incremental benefit from the addition of new directors consists of both advisory and monitoring services. In an advisory function, large boards have an advantage with the collective information the board possesses about factors that affect firm value. In a monitoring function, boards reduce collusion between firm top managers. The incremental cost of the addition of new directors consists of coordination costs and free rider problems. With a large board, the average influence of a board member varies inversely with size and, with less influence, board members have reduced incentives to bear the private costs of investing in information and actively monitoring the firm's managers.

The longer a board member serves on a board, the more information he or she learns about the firm and its industry. Thus, as board tenure increases, a member can better advise and monitor firm management. Board members who sit on other boards may possess additional industry or SEC knowledge gained from interaction with other board members. However, if board members are members of several boards, they may not spend the optimal amount of time monitoring and advising. Older board members and retired board members may not have up-to-date experience with current regulations; however, they may have extensive industry experience and provide better advisory services.

I proxy for board competence using the following measures:

(i) BRD_SIZE, the number of directors on board;

(ii) BRD_TENURE, the average number of years members served on board,

(iii) similar to Klein (1998), %BRD_EXPERT, the proportion of affiliate and outside board members serving on one or more boards;

(iv) similar to Ashbaugh et al. (2006), %BRD_BUSY, the proportion of total board members sitting on four or more boards;

(v) %BRD_OLD, the proportion of total directors age sixty and older; and

(vi) %BRD_RETIRED, the proportion of total directors not employed.

Board incentives

I proxy for board incentives using the following measures: (i) BRD_FEES, the annual cash compensation directors receive for board service and (ii) BRD_PENSION, one if director receives a pension, zero otherwise**.** Under the efficiency theory, board remuneration can motivate board members to monitor management. Under the rent extraction theory, board remuneration extracts firm value.

Board involvement

Board members may be more familiar with issues facing a firm and thus better monitor management when the board meets frequently and when member attendance at meetings is high. I proxy for board involvement using the following measures:

[11] I define affiliate directors consistent with Nasdaq rules as those directors who: (i) at any time during the past three years were employed by the company or by any parent or subsidiary of the company; (ii) accepted any payments from the Company or any parent or subsidiary of the Company in excess of $60,000 during the past three fiscal years, other than for board service remuneration or investments in company securities; (iii) are partners in, controlling shareholders or executive officers of, any organization to which the Company made or received payments for property or services in any of the past three fiscal years (other than those arising solely from investments in the Company's securities) that exceed five percent of the recipient's revenues, or $200,000, whichever is greater; or (iv) directors on interlocking boards.

(i) BRD_MEET, number of annual board meetings and (ii) BRD_ATTEND, annual percent of board attendance at meetings.

4.3.3 Committee Monitoring

Audit Committee

Audit committees, if independent, competent and effective, can aid in ensuring a reliable audit process. Klein (2002) finds a negative relationship between auditor independence and earnings management. Klein also finds a negative relationship between the presence of a financial expert on the audit committee and firm restatements. Krishnan (2005) finds a negative association between the incidence of internal control problems and independent audit committees and audit committees with financial experts. I proxy for audit committee monitoring using the following measures: (i) %AUD_INDEP, proportion of audit committee that is independent; (ii) AUD_MEET, number of audit committee meetings; (iii) FIN_EXPERT, one if presence of a financial expert on audit committee, zero otherwise; (iv) ACSIZE, number of members on the audit committee; and (v) AUD_BLOCK, one if presence of blockholder on audit committee, zero otherwise.

Compensation, Nominating and Governance Committees

The presence, composition and effectiveness of compensation and nominating committees may help in assuring firm compensation practices are aligned with shareholder interests and directors best aligned with shareholder interests are nominated to the board of directors. The presence of a governance committee, a corporate governance policy and/or code of ethics may heighten the awareness of director responsibilities. I proxy for compensation committee monitoring using the following measures:

(i) COMP_EXIST, one if existence of compensation committee, zero otherwise

(ii) %COMP_INDEP, proportion of compensation committee that is independent and

(iii) COMP_MEET, number of compensation committee meetings.

I proxy for nominating committee monitoring using the following measures:

(i) NOM_EXIST, one if existence of nominating committee, zero otherwise;

(ii) %NOM_INDEP, proportion of nominating committee that is independent; and

(iii) NOM_MEET, number of nominating committee meetings. I proxy for corporate governance committee monitoring using the following measures:

(i) GOV_EXIST, one if existence of corporate governance committee, zero otherwise,

(ii) %GOV_INDEP, proportion of corporate governance committee that is independent,

(iii) GOV_MEET, number of corporate governance committee meetings and (iv) GOV_POLICY.

Finance Committee

Competent and effective finance committees can aid in assuring firm finance practices are aligned with shareholder interests. There is a trade-off between having members with more in depth knowledge of the company (inside directors) and potential conflicts of interest. Klein (1998) finds a positive association between the percentage of inside directors on a board's finance committee and firm performance. I proxy for finance committee monitoring using the following measures:

(i) FIN_EXIST, one if existence of finance committee, zero otherwise;

(ii) FIN%_INDEP, proportion of finance committee that is independent; and

(iii) FIN_MEET, number of finance committee meetings.

4.3.4 Shareholder Monitoring

Independent institutional owners and blockholders have a vested interest in the success of the firm. Jensen (1993) posits large outside ownership can influence firms to act in shareholders' best interests. I proxy for shareholder monitoring using the following measures: (i) BLOCK, number of non-employee and non-director shareholders holding more than 5% of common stock; and (ii) %INST, proportion of institutional holding of common stock.

4.3.5 Other Outside Monitoring

Analysts are another external monitor who may influence firms to act in the best interest of shareholders. I proxy for analyst monitoring using ANALYST, the average number of analysts following firm. Firms with outstanding debt are further monitored by creditors. I proxy for creditor monitoring using CREDIT_DUM, one if the firm has a Standard and Poors credit rating, zero otherwise.

4.4 Firm characteristic test variables

4.4.1 Managerial incentives

Trade-offs exist in levels of executive compensation. High levels of compensation may attract and retain effective executives and provide them incentives to increase firm value. However, if this remuneration is excessive, it can extract firm value. Executive

compensation packages are also influenced by the board of directors and compensation committees. Erickson, Hanlon and Maydew (2006) find the percent of total executive compensation that is stock-based is associated with the probability of accounting of accounting fraud. I proxy for managerial incentives using the following measures:

(i) BONUS_DUM, one if existence of firm bonus plan, zero otherwise;

(ii) CEO_TOTCOMP, CEO total compensation (salary, bonus, restricted stock, other annual compensation and intrinsic value of current year grants);

(iii) EXEC_TOTCOMP, average executive total compensation, excluding CEO (salary, bonus, restricted stock, other annual compensation and intrinsic value of current year grants);

(iv) CEO_GRANT%, percent of intrinsic value of CEO period option grants to total compensation;

(v) CEO_OUTMONEY, one if current period grants are "out-of-the-money," zero otherwise;

(vi) EXEC_GRANT%, average top executive, excluding the CEO, percent of intrinsic value of period option grants to total compensation;

(vii) EXEC_OUTMONEY, one if current period grants are "out-of-the-money," zero otherwise;

(viii) CEO_EXER, value of CEO "in-the-money" exercisable options;

(ix) CEO_UNEXER, value of CEO "in-the-money" unexercisable options;

(x) EXEC_EXER, average value of top executive, excluding CEO, "in-the-money" exercisable options;

(xi) EXEC_UNEXER, average value of top executive, excluding CEO, "in-the-money" unexercisable options; and

(xii) EXEC_LOAN, number of executives with firm loans. I expect internal control deficiencies will be positively related to CEO_GRANT%, EXEC_GRANT% and EXEC_LOAN. I do not have sign predictions for the remaining compensation variables due to conflicting incentives for firm success versus rent extraction.

4.4.2 Managerial competence

CFOs perform optimally if they have adequate financial training and experience. If the CFO is not one of the top executives, it may be an indication of the firm's attitude toward the importance of financial reporting. I proxy for managerial competence using the following measures:

(i) CFO_EXPER, one if the CFO has prior experience as a CFO, zero otherwise;

(ii) CFO_CPA, one if the CFO has prior experience as a CPA, zero otherwise; and

(iii) CFO_TOPEXEC, one if top executives do not include the CFO, zero otherwise. I expect internal control deficiencies will be positively related to EXEC_CFO and negatively related to CFO_EXPER and CFO_CPA.

4.4.3 Ex ante red flags

It is plausible that a firm that has been sued by its shareholders, investigated by the SEC or has previously restated earnings has suboptimal internal controls. I proxy for ex ante red flags of potential internal control problems using the following measures:

(i) LITIG, one if the existence of previous shareholder litigation, zero otherwise;

(ii) AAER, one if existence of previous SEC investigation of firm from SEC Accounting and Auditing Enforcement Releases (AAER), zero otherwise; and

(iii) RESTMT, one if prior restatement of financial statements, zero otherwise. I expect internal control deficiencies to be positively related to all of the above proxies.

4.4.4 Company performance

High growth firms may not have the funds or management resources to invest in optimal internal control mechanisms. However, Kinney and McDaniel (1989) find that firms restating previously reported quarterly earnings have lower growth relative to firms in their industry. These corrections may result from poor internal controls. I proxy for firm growth using the following measures:

(i) GROWTH_1, one-year sales growth;

(ii) GROWTH_3, three-year sales growth; and

(iii) MB, market to book ratio.

I predict these variables will be positively related to internal control deficiencies due to constricted resources in high growth firms.

Frequent access to capital markets may provide incentives for earnings management (Frankel et al 1995) and poor internal controls may provide an environment where earnings management takes place. Following Dechow et al. (1995) and Bowen et al. (2008), I measure a firm's ex ante demand for financing and access to capital markets, $D_{CAPITAL}$, equal to one if prior year free cash flow, less average free cashflow from the three preceding years, scaled by current assets is less than -.5 or zero otherwise. I predict a positive association between $D_{CAPITAL}$ and internal control deficiencies. A firm under financial distress may not have sufficient resources to allocate to maintaining optimal internal controls. I proxy for financial distress using the following measures: (i)

LOSS, net income less than zero; (ii) ALTZ, Altman Z equal to one if prediction of bankruptcy, zero otherwise. The Altman Z bankruptcy prediction scores are described in Table 2. I predict these proxies will be positively associated with internal control deficiencies. Other firm characteristics included are: (i) ROA, return on assets; (ii) LEV, leverage; and (iii) CR_RATING, firm long-term Standard and Poor's credit rating where a lower score indicates a better rating (Compustat #280). Ashbaugh et al. (2006) find that firm credit ratings are positively associated certain proxies for good governance including firm board independence, board stock ownership and board expertise. I expect internal control deficiencies will be positively related to LEV and CR_RATING and negatively related to ROA.

4.4.5 Other control environment factors

Beneish (1999) finds a positive association between fraud, a potential result of poor internal controls, and the number of years a firm is publicly traded. This may be due to increased opportunity. However, older firms are also likely have more developed control systems compared to younger firms, to I expect AGE, the number of years firm publicly traded from CRSP database, will be negatively associated with internal control deficiencies. I expect firms with an internal audit function will have a negative association with internal control deficiencies because these firms are more likely to actively assess and address internal control issues. I proxy for internal audit, INTAUD, as one if the presence of an internal audit function is indicated in the firm proxy statement, zero otherwise.

The NYSE has the most stringent set of listing and governance requirements for publicly traded firms. NYSE-listed firms must meet certain minimum market capitalization, operating cash flows and earnings requirements and must provide shareholders with certain voting rights. AMEX-listed firms are generally small to mid-capitalization stocks that may not meet the NYSE qualifications. The Nasdaq is an electronic exchange that includes many technology firms. The Nasdaq has listing and governance requirements that are similar but less stringent than the NYSE.[12] Over the counter (OTC) listed firms include firms that do not meet the listing requirements of any of the major exchanges. Many OTC firms are penny stocks and are considered risky. NYSE and Nasdaq listed firms may have made governance changes related to the new exchange governance requirements prior to the 2004 effective date. I proxy for firm exchange (Compustat zlist variable) as follows: NYSE, equal to one if firm is listed on the NYSE exchange, zero otherwise and NASDAQ, one if firm is listed on the Nasdaq exchange and zero otherwise. I expect internal control deficiencies will be negatively related to NYSE and NASDAQ due to existing and proposed governance requirements for these listed firms.

5. Sample and descriptive statistics

5.1 Sample selection

The sample consists of publicly traded companies that reported internal control deficiencies between January 1, 2003 and August 31, 2004 identified using a key-word search on 10-K Wizard (i.e., material weakness(es), reportable condition(s), significant deficiency(ies), and control deficiency(ies)). The pre-post SOX study sample includes seventy-five randomly selected firms from the sample of firms reporting internal control deficiencies between January 1, 2003 and August 31, 2004. The corporate governance matched firm study includes a subset of thirty of these firms. The control sample was generated from matching by exchange, industry, and asset size to the internal control deficiency sample. Industry matching was based on three-digit SIC codes (two digits if no matching three-digit company). A second 10-K wizard search was performed to assess whether any of the control sample firms reported an internal control deficiency. If the control firm reported a control deficiency, the next closest match firm was selected based on exchange, industry and size. Test variables were obtained from Compustat, I/B/E/S and hand collected from SEC Form Def 14A proxy statements. Information was obtained from the most recent year-end prior to the reporting of an internal control deficiency and from the firm fiscal year-end in 2001 (pre-SOX data).

[12] See footnote 10 for NYSE and Nasdaq governance requirements effective in 2004.

5.2 Distribution of internal control deficiencies by time, nature and severity.

Panel A of Table 3 lists the nature of disclosed internal control deficiencies.[13] The most common deficiency reported was financial systems and procedures (46%) followed by personnel issues (24%). Four percent of reported internal control problems were related to revenue recognition and five percent were related to documentation issues. Panel B of Table 3 lists the severity of internal control problems reported. Fifty-four percent of the internal control problems reported were material weaknesses, followed by significant deficiencies (44%) and control deficiencies (2%). The machinery and equipment industry has the highest concentration of internal control deficiencies (fourteen firms representing 19% of the sample) followed by the business services industry (thirteen firms representing 18% of the sample) and the financial service industry (eight firms representing 11% of the sample).

5.3 Has corporate governance changed post-SOX?

Variable definitions are summarized in Table 2. Corporate governance and firm characteristic descriptive statistics for pre and post-SOX variables for the internal control deficiency test sample are included in Table 5. Predicted post-SOX changes are for the governance variables related to mandatory SOX requirements: %AUD_INDEP, %AUD_FEE, and EXEC_LOAN. Following is a discussion of the governance variables related to mandatory SOX requirements. Due to non-audit service restrictions implemented in SOX, audit fees as a percent of total fees paid to the audit firm have increased from 64% (median 66%) pre-SOX to 79% (median 85%) post-SOX as expected. Results are significant at the 1% level. The percent of audit committee member independence did not increase significantly (mean 92.4% pre-SOX compared to 93.8% post-SOX). This is most likely because the NYSE and Nasdaq adopted many of the Blue Ribbon Committee recommendations prior to SOX, in December 1999, including a requirement for firm boards of directors to maintain audit committees with at least three independent directors (Klein 2003). Loans to executives decreased, but not significantly subsequent to SOX. This may be due to the presence of existing loans; under SOX, only new loans to executives or directors are disallowed.

Other non-SOX mandated changes post-SOX are discussed as follows. Mean (median) audit fees have significantly increased subsequent to SOX as expected due to increased audit work in conjunction with SOX Section 404 internal control reporting from $347,818 (median $241,900) pre-SOX to $975,143 (median $505,782) post-SOX. Results are significant at the 1% level. There were no significant results for board monitoring variables. Average fees paid to board members increased from $15,988 (median $14,875) pre-SOX to $19,476 (median $19,000) post-SOX and board meetings increased from 7.2 (median 6) pre-SOX to 8.3 (median 7) post-SOX. There were also no significant results for shareholder monitoring and other outside monitoring variables.

Following are significant results for committee monitoring. The number of audit committee meetings increased significantly (at the 1% level, one-tailed) from 4 meetings pre-SOX (median 4) to 7 meetings (median 6) post-SOX. The existence of a nominating committee increased from 29.7% pre-SOX to 60.8% post-SOX (results significant at the 1% level). The existence of a governance committee increased from 12.3% pre-SOX to 47.9% post-SOX (results significant at the 1% level). The existence of a corporate governance policy increased from 0% pre-SOX to 44.4% post-SOX (results significant at the 1% level). The increases for existence of nominating and governance committees and governance policies are expected due to NYSE and Nasdaq exchange listing governance requirements (effective in 2004 but proposed and published by the SEC on March 25, 2003) (Klein 2003). The existence of a finance committee decreased from 14.9% pre-SOX to 4.1% post-SOX (results significant at the 5% level). This decrease may be attributed to a reallocation of board resources or a relabeling of committee names.

Following is a discussion of significant results for firm characteristics. The value of executive grants as a percent of total compensation decreased from 16.5% (median 1.6%) pre-SOX to 9.9% (median 0%) post-SOX. Results are significant at the 10% level, two-tailed. This variable is affected both by number of grants issued and the company's stock price. The value of executive exercisable options decreased from a mean $984,631 (median $90,305) pre-SOX to $225,891 (median $26,923) post-SOX. Results are significant at the 5% level, two-tailed. The number of firms reporting prior restatements of financial statements increased from 4.1% pre-SOX to 13.7% post-SOX. Results are significant at the 5% level, two-tailed. The presence of an internal audit function increased from 29.0% pre-SOX to 44.9% post-SOX. Results are significant at the 10% level, two-tailed.

[13] Note that many firms reported multiple types of deficiencies and multiple levels of severity of deficiencies.

This increase is most likely attributable to the internal control reporting requirements under SOX.

5.4 Are corporate governance and firm characteristics associated with internal control deficiencies?

Untabulated statistics for internal control deficiency firms compared to index, industry and size-matched firms indicate that firms with boards of directors composed of greater affiliate members, fewer outside members, fewer members presiding on more than four boards of directors, and fewer retired members are associated with internal control deficiencies. Firms with internal control deficiencies had a mean 18.6% of affiliate board members on their boards compared to 8.8% in matched firms. Results are significant at the 5% level, two-tailed. Firms with internal control deficiencies had a mean 58.2% of outside board members on their boards compared to 67.5% in matched firms. Results are significant at the 10% level, two-tailed. It appears that while inside board membership is similar between firms with internal control deficiencies and matched firms, the former have boards composed of more affiliate members. Affiliate members may have conflicts of interest between monitoring the firm and extracting consultation fees or other benefits from the firm. Interestingly, the matched firms had a significantly greater percentage of board members holding directorships on four or more boards (mean 20.8%) compared to internal control deficiency firms (mean 12.2%) and matched firms had a significantly greater percentage of retired board members (mean 21.8%) compared to internal control deficiency firms (mean 13.3). Both results are significant at the 10% level, two-tailed. These results may be attributable to the significant experience and expertise these board members have that can be useful in providing guidance to firm managers.

Results indicate that internal control deficiency firms' audit committee sizes are larger than matched firms. Mean audit committee size for internal control deficiency firms was 3.59 compared to 3.17 for matched firms. One explanation for this may be that the audit committee serves as a substitute to the internal control function; i.e., the committee requires more resources when there are internal control problems at the firm. Results are significant at the 10% level, two-tailed. I find evidence that nominating committees that are less independent are associated with internal control deficiencies. Nominating committee independence at internal control deficiency firms is 91.1% compared to 100% at matched firms (results significant at 10%, two-tailed). This result is not surprising as it is presumed that independent members have fewer conflicts of interest and are likely to nominate members to the board who are likely to perform in a manner consistent with increasing firm value, including optimal monitoring and advising. Results also indicate that high growth companies, as measured by the one-year sales growth, are associated with internal control deficiencies. One year sales growth for deficiency firms was 40.2% compared to 6.5% for matched firms. Results are significant at the 10%, one-tailed. This result is as expected due to resource constraints in high growth firms. However, results for three-year sales growth and market to book ratio are not significant.

6. Interpretation and Concluding Remarks

Firm managers have been increasingly disclosing internal control problems in their SEC filings. Results in this study indicate that the market reacts negatively to reports of internal control deficiencies when they are associated with controls over revenue. Based on the results for the pre-post SOX tests, it appears that firms have made changes post-SOX related to audit firm non-audit services provided, audit committee monitoring, and board committees. The percent of audit fees as a total of fees paid to the auditor for both audit and non-audit related services increased post-SOX. Audit committees meet more frequently subsequent to SOX. Many firms' boards formed nominating and corporate governance committees, implemented a corporate governance policy and formed an internal audit function post-SOX. It appears SOX was effective in improving corporate governance. Results indicate that firms with boards of directors composed of greater affiliate members, fewer outside members, fewer members presiding on more than four boards of directors, and fewer retired members are associated with internal control deficiencies. Results indicate that audit committees with more members and nominating committees that are less independent are associated with internal control deficiencies. Thus, it appears that corporate governance does play a role in the overall internal control quality of a firm, so it is reassuring that firms are improving corporate governance based on SOX provisions.

Further research may examine consequences to firms reporting internal control deficiencies including shareholder litigation, SEC investigations, restatements, bankruptcy, fraud and changes in corporate governance characteristics.

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Table 1. Market reaction to disclosure of material weaknesses in internal control

$$CAR = \beta_0 + \beta_1 MW + \beta_2 MWREV + \beta_3 DISAGREE + \beta_4 RESIG + \varepsilon$$

	Predicted Sign	Model 1	Model 2	
Intercept		-0.054**		-0.056**
		(-2.42)	(-2.29)	
MW	(-)	0.035	0.028	
		(1.31)	(0.97)	
MWREV	(-)	-0.131***	-0.121**	
		(-2.62)	(-2.28)	
DISAGREE	(-)		0.060	
			(1.13)	
RESIG	(-)		0.006	
			(0.21)	
(n=30)				
Adj. R^2		16.23%	25.88%	
F (p value)		3.81	2.18	
		(.03)	(.10)	

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level

where:

CAR = Cumulative abnormal return from day -1, day 0, and day1
MW = 1 if disclosure of material weakness of internal controls, 0 otherwise
MWREV = 1 if material weakness in internal control related to revenue recognition, 0 otherwise
DISAGREE = 1 if disclosure of disagreement between auditor and firm, 0 otherwise
RESIG = 1 if auditor initiated auditor change, 0 otherwise

Notes:
T-statistics are presented below the coefficients in parenthesis. Probabilities are two-tailed for non-directional predictions and one-tailed for directional predictions.

Table 2. **Variable Definitions**

Variable	Predicted Sign	Definition
Corporate Governance characteristics		
Auditor Monitoring		
BIG4	+/-	One if Big 4 auditor, zero otherwise
%AUD_FEE	+/-	The percentage of audit and audit-related fees to total fees paid by firm to auditor from Form Def 14A proxy statements
AUD_FEE	+/-	Total audit and audit related fees paid to audit firm
Board Monitoring		
-Board Influence		
CEO_CHAIR	+/-	One, if the CEO is separated from the board chair position, zero otherwise
CEO_FOUNDER	+/-	One, if the CEO is company founder, zero otherwise
CEOPOWER	+/-	Total of one point for chair and one point for each committee CEO sits on
CEO_TENURE	+/-	Number of years CEO in position at firm
%BRD_INSIDE	+/-	Proportion of inside director membership on board
%BRD_AFFIL	+/-	Proportion of affiliate director membership on board
%BRD_OUTSIDE	+/-	Proportion of outside director membership on board
%MGRDIR_OWN	+/-	Proportion of total manager and director ownership in firm common stock
%INSIDE_OWN	+/-	Proportion of inside director ownership in firm common stock
%AFFIL_OWN	+/-	Proportion of affiliate director ownership in firm common stock
%OUTSIDE_OWN	+/-	Proportion of outside director ownership in firm common stock
INTERLOCK	+/-	Interlocked directors measured as one when an inside director serves on non-inside director's board, zero otherwise
BRD_STAGGER	+/-	One if staggered board, zero otherwise
-Board Competence		
BRD_SIZE	+/-	Number of directors on board
BRD_TENURE	+/-	Average number of years members served on board
%BRD_EXPERT	+/-	Proportion of affiliate and outside board members serving on one or more boards
%BRD_BUSY	+/-	Proportion of total board members sitting on four or more boards
%BRD_OLD	+/-	Proportion of total directors age sixty and older
%BRD_RETIRED	+/-	Proportion of total directors not employed
-Board Incentives		
BRD_FEES	+/-	Annual fees directors receive
BRD_PENSION	+/-	One if director receives a pension, zero otherwise
-Board Engagement		
BRD_MEET	+/-	Number of annual board meetings
BRD_ATTEND	+/-	Annual percent of board attendance at meetings
Committee Monitoring		
-Audit Committee		
%AUD_INDEP	+/-	Proportion of audit committee that is independent
AUD_MEET	+/-	Number of audit committee meetings
FIN_EXPERT	+/-	One if presence of financial expert on audit committee, zero otherwise
ACSIZE	+/-	Number of members on audit committee
AUD3_DUMMY	+/-	One if audit committee is comprised of three or more members, zero otherwise
AUD_BLOCK	+/-	One if presence of blockholder on audit committee, zero otherwise

Table 2 (cntd.) **Variable**	**Predicted Sign**	**Definition**
-Compensation Committee		
COMP_EXIST	+/-	One if existence of compensation committee, zero otherwise
%COMP_INDEP	+/-	Proportion of compensation committee that is independent
COMP_MEET	+/-	Number of compensation committee meetings
-Nominating Committee		
NOM_EXIST	+/-	One if existence of nominating committee, zero otherwise
%NOM_INDEP	+/-	Proportion of nominating committee that is independent
NOM_MEET	+/-	Number of nominating committee meetings
-Corporate Governance Committee		
GOV_EXIST	+/-	One if existence of corporate governance committee, zero otherwise
%GOV_INDEP	+/-	Proportion of corporate governance committee that is independent
GOV_MEET	+/-	Number of corporate governance committee meetings
GOV_POLICY	+/-	One if existence of corporate governance policy or code of ethics, zero otherwise
-Finance Committee		
FIN_EXIST	+/-	One if existence of finance committee, zero otherwise
%FIN_INDEP	+/-	Proportion of finance committee that is independent
FIN_MEET	+/-	Number of finance committee meetings
Shareholder Monitoring		
BLOCK	+/-	Number of non-employee and non-director shareholders holding more than 5% of common stock
%INST	+/-	Proportion of institutional holding of common stock
Other Outside Monitoring		
ANALYST	+/-	Average number of analysts following firm
CREDIT_DUM	+/-	One if existence of credit rating, zero otherwise
Firm Characteristics		
Managerial incentives		
BONUS_DUM	+/-	One if existence of firm bonus plan, zero otherwise
CEO_GRANT	+/-	Intrinsic value of CEO period option grants
EXEC_GRANT	+/-	Average top executive, excluding the CEO, intrinsic value of period option grants
CEO_OUTMONEY	+/-	One if current period grants are out of the money, zero otherwise
EXEC_OUTMONEY	+/-	One if current period grants are out of the money, zero otherwise
CEO_TOTCOMP	+/-	CEO total compensation (salary, bonus, restricted stock, other annual compensation and intrinsic value of current year grants),
EXEC_TOTCOMP	+/-	Average executive total compensation, excluding CEO (salary, bonus, restricted stock, other annual compensation and intrinsic value of current year grants),
CEO_GRANT%,	+	CEO percent of intrinsic value of period option grants to total compensation
EXEC_GRANT%	+	Average top executive, excluding the CEO, percent of intrinsic value of period option grants to total compensation
CEO_EXER	+/-	Value of CEO in the money exercisable options
CEO_UNEXER	+/-	Value of CEO in the money unexercisable options
EXEC_EXER	+/-	Average value of top executive, excluding CEO, in the money exercisable options
EXEC_UNEXER	+/-	Average value of top executive, excluding CEO, in the money unexercisable options

Table 2 (cntd.) **Variable**	**Predicted Sign**	**Definition**
EXEC_LOAN	+	Number of executives with firm loans
Managerial Competence		
CFO_EXPER	-	One if CFO has prior experience as a CFO, zero otherwise
CFO_CPA	-	One if CFO has prior experience as a CPA, zero otherwise
CFO_TOPEXEC	+	One if top executive do not include the CFO, zero otherwise
Ex ante Red Flags		
LITIG	+	One if existence of previous shareholder litigation, zero otherwise
AAER	+	One if existence of previous SEC investigation of firm from SEC Accounting and Auditing Enforcement Releases (AAER), zero otherwise
RESTMT	+	One if prior restatement of financial statements from GAO restatement report or Compliance News listings, zero otherwise
Company Performance		
GROWTH_1	+	One-year sales growth [(Data #12 – Data #12 (t-1) / Data #12 (t-1)]
GROWTH_3	+	Three-year sales growth [(Data #12 – Data #12 (t-3) / Data #12 (t-3)]
MB	+	Market to book ratio ((Data #24X#25)/Data 216)
$D_{CAPITAL}$	+	Exante demand for financing and access to cap markets: equal to one if free cash flow is less than -.5 or 0 otherwise. [free cash flow = (cash flow from operations in prior year [Compustat #308(t-1)] less the average cash flow from operations in the three preceding years) /current assets in prior year [Compustat #4(t-1)]
LOSS	+	Net income less than zero (Compustat #172)
ALTZ	+	Altman Z (Altman 2000) equal to one if prediction of bankruptcy, zero otherwise. Altman Z is calculated as: 1.2X1 + 1.4X2 + 3.3X3 + .6X4 +1.0X5 where X1 = working capital (Compustat #179) /total assets (Compustat #6); X2= retained earnings (Compustat #36) / total assets; X3= earnings before interest and taxes (Compustat #170+ #15) / total assets; X4 = market value of equity (Compustat #24X#25) / book value of total liabilities (Compustat #181); X5= sales (Compustat #12) /total assets. A score of lower than 1.81 indicates bankruptcy prediction.
ROA	-	Return on assets [(net income before extraordinary items, Compustat #18/total assets #6)]
LEV	+	Leverage [(total debt Compustat #9 + #34 / total assets #6)]
CR_RATING	+	Firm long-term credit rating (Compustat #280); score of 2 is best rating, 90 is worst rating
Other Control Environment Factors		
SIZE	+/-	Firm size measured as the log of sales [log (Compustat #12)]
AGE	-	Number of years firm publicly traded from CRSP database
NYSE	-	One if firm listed on New York Stock Exchange (Compustat zlist variable), zero otherwise
NASDAQ	+	One if firm listed on NASDAQ exchange (Compustat zlist variable), zero otherwise
INTAUD	-	One if presence of internal audit function, zero otherwise. Measured by mention of presence of an internal audit function in the proxy statement.

Note: Predicted sign is related to the association between the variable and the existence of an internal control deficiency.

Table 3. Nature and Severity of Internal Control Deficiencies

Panel A: Categories of internal control deficiencies reported

	ICD Issues Reported	%
Financial systems and procedures	70	46
Personnel issues	36	24
Documentation issues	7	5
Revenue recognition issues	6	4
Other issues	22	14
Combination of significant deficiencies	11	7
Total	152	100

Panel B: Severity of internal control deficiency reported

	Severity Reported	%
Material weakness(es)	82	54
Significant deficiency(ies)	67	44
Internal control deficiency(ies)	3	2
Total	152	100

Notes:

Panel A: Financial systems and procedures include financial close process, account reconciliation or inventory processes; Personnel issues include poor segregation of duties, inadequate staffing, training and supervision problems; and Other issues include information technology problems and other miscellaneous problems. Firms may report multiple types of categories. A material weakness can be combination of significant deficiencies.

Panel B: Many firms report combinations of all types of severity of internal control deficiencies so a firm could report all three types of deficiencies and could report multiple instances of the same type of deficiency.

Table 4. Corporate Governance & Firm Characteristic Statistics
Internal Control Deficiency Firms Compared Post-SOX to Pre-SOX

Variable	Median	Mean	Standard Deviation	Difference in Means Test	
Auditor Monitoring					
BIG4					
Pre-SOX	1.00	0.84	0.37	0.84	t-stat
Post-SOX	1.00	0.78	0.42	0.404	p-value
%AUDFEE					
Pre-SOX	0.66	0.64	0.20	**4.72**	t-stat
Post-SOX	0.85	0.79	0.18	**0.000*** **	p-value
AUD_FEE					
Pre-SOX	241,900	347,818	437,474	**3.23**	t-stat
Post-SOX	505,782	975,143	1,566,238	**0.002*** **	p-value
Board Monitoring					
-Board Influence					
CEO_CHAIR					
Pre-SOX	0.00	0.36	0.48	0.18	t-stat
Post-SOX	0.00	0.38	0.49	0.861	p-value
CEO_FOUNDER					
Pre-SOX	0.00	0.18	0.39	0.00	t-stat
Post-SOX	0.00	0.18	0.39	1.000	p-value
CEOPOWER					
Pre-SOX	1.00	1.26	1.16	0.71	t-stat
Post-SOX	1.00	1.14	0.95	0.482	p-value
CEO_TENURE					
Pre-SOX	5.00	8.61	9.84	0.55	t-stat
Post-SOX	5.00	7.77	8.57	0.582	p-value
%BRD_INSIDE					
Pre-SOX	25.00	27.43	14.92	0.54	t-stat
Post-SOX	22.22	26.06	15.94	0.588	p-value
%BRD_AFFIL					
Pre-SOX	16.67	17.19	18.35	0.97	t-stat
Post-SOX	9.13	14.35	17.24	0.332	p-value
%BRD_OUTSIDE					
Pre-SOX	57.14	56.01	20.42	1.04	t-stat
Post-SOX	66.67	59.58	20.83	0.298	p-value
%MGRDIR_OWN					
Pre-SOX	14.70	19.83	18.09	0.39	t-stat
Post-SOX	12.43	18.70	17.41	0.700	p-value
%INSIDE_OWN					
Pre-SOX	5.25	10.86	14.81	0.10	t-stat
Post-SOX	5.40	10.61	15.58	0.918	p-value
%AFFIL_OWN					
Pre-SOX	0.00	3.43	10.28	0.51	t-stat
Post-SOX	0.00	2.70	6.97	0.614	p-value
%OUTSIDE_OWN					
Pre-SOX	0.00	3.35	6.71	0.72	t-stat
Post-SOX	0.00	2.62	5.56	0.476	p-value
INTERLOCK					
Pre-SOX	0.00	0.04	0.20	0.00	t-stat
Post-SOX	0.00	0.04	0.20	1.000	p-value

Table 4 (cntd.) Variable	Median	Mean	Standard Deviation	Difference in Means Test	
BRD_STAGGER					
Pre-SOX	1.00	0.53	0.53	0.16	t-stat
Post-SOX	1.00	0.51	0.50	0.874	p-value
-Board Competence					
BRD_SIZE					
Pre-SOX	7.00	7.52	3.96	0.68	t-stat
Post-SOX	7.00	7.15	2.50	0.499	p-value
BRD_TENURE					
Pre-SOX	5.85	7.41	4.67	0.26	t-stat
Post-SOX	6.31	7.61	4.44	0.796	p-value
%BRD_EXPERT					
Pre-SOX	40.00	42.38	30.58	0.12	t-stat
Post-SOX	41.43	42.96	29.51	0.907	p-value
%BRD_BUSY					
Pre-SOX	0.00	14.28	18.11	0.46	t-stat
Post-SOX	0.00	12.90	18.06	0.645	p-value
%BRD_OLD					
Pre-SOX	37.50	36.67	23.18	0.74	t-stat
Post-SOX	40.00	39.54	23.55	0.459	p-value
%BRD_RETIRED					
Pre-SOX	12.50	14.62	16.47	0.05	t-stat
Post-SOX	14.29	14.77	15.38	0.956	p-value
-Board Incentives					
BRD_FEES					
Pre-SOX	14,875.00	15,987.50	13,011.63	1.52	t-stat
Post-SOX	19,000.00	19,475.69	14,420.07	0.130	p-value
BRD_PENSION					
Pre-SOX	0.00	0.07	0.25	0.72	t-stat
Post-SOX	0.00	0.04	0.20	0.471	p-value
-Board Engagement					
BRD_MEET					
Pre-SOX	6.00	7.25	4.00	1.53	t-stat
Post-SOX	7.00	8.32	4.25	0.129	p-value
BRD_ATTEND					
Pre-SOX	75.00	73.29	17.64	0.32	t-stat
Post-SOX	75.00	74.22	15.51	0.751	p-value
Committee Monitoring					
-Audit Committee					
%AUD_INDEP					
Pre-SOX	100.00	92.38	22.36	0.37	t-stat
Post-SOX	100.00	93.76	22.38	0.709	p-value
AUD_MEET					
Pre-SOX	4.00	4.01	2.22	**5.73**	t-stat
Post-SOX	6.00	7.13	3.86	**0.000*****	p-value
FIN_EXPERT					
Pre-SOX	1.00	0.88	0.33	0.81	t-stat
Post-SOX	1.00	0.92	0.28	0.417	p-value
ACSIZE					
Pre-SOX	3.00	3.18	0.89	1.22	t-stat
Post-SOX	3.00	3.38	1.01	0.224	p-value

Table 4 (cntd.)

Variable	Median	Mean	Standard Deviation	Difference in Means Test	
AUD3_DUMMY					
Pre-SOX	1.00	0.93	0.26	0.00	t-stat
Post-SOX	1.00	0.93	0.26	1.000	p-value
AUD_BLOCK					
Pre-SOX	0.00	0.11	0.32	0.24	t-stat
Post-SOX	0.00	0.13	0.38	0.810	p-value
-Compensation Committee					
COMP_EXIST					
Pre-SOX	1.00	0.96	0.20	0.00	t-stat
Post-SOX	1.00	0.96	0.20	1.000	p-value
%COMP_INDEP					
Pre-SOX	100.00	93.96	20.90	0.23	t-stat
Post-SOX	100.00	94.69	15.19	0.8161	p-value
COMP_MEET					
Pre-SOX	2.00	2.75	1.82	1.63	t-stat
Post-SOX	3.00	3.45	3.00	0.104	p-value
-Nominating Committee					
NOM_EXIST					
Pre-SOX	0.00	0.30	0.49	**3.86**	t-stat
Post-SOX	1.00	0.61	0.49	**0.000*****	p-value
%NOM_INDEP					
Pre-SOX	100.00	83.02	20.73	0.69	t-stat
Post-SOX	100.00	87.30	19.48	0.494	p-value
NOM_MEET					
Pre-SOX	1.00	1.14	1.49	1.46	t-stat
Post-SOX	1.00	1.95	2.06	0.158	p-value
-Corporate Governance Committee					
GOV_EXIST					
Pre-SOX	0.00	0.12	0.33	**5.05**	t-stat
Post-SOX	0.00	0.48	0.50	**0.000*****	p-value
%GOV_INDEP					
Pre-SOX	100.00	83.33	40.82	0.63	t-stat
Post-SOX	100.00	94.44	13.61	0.541	p-value
GOV_MEET					
Pre-SOX	1.00	1.60	2.07	0.54	t-stat
Post-SOX	2.00	2.40	2.61	0.606	p-value
GOV_POLICY					
Pre-SOX	0.00	0.00	0.00	**7.54**	t-stat
Post-SOX	0.00	0.44	0.50	**0.000*****	p-value
-Finance Committee					
FIN_EXIST					
Pre-SOX	0.00	0.15	0.36	**2.27**	t-stat
Post-SOX	0.00	0.04	0.20	**0.025****	p-value
%FIN_INDEP					
Pre-SOX	100.00	88.89	19.25	0.64	t-stat
Post-SOX	85.71	75.24	31.34	0.555	p-value
FIN_MEET					
Pre-SOX	4.00	4.00	1.00	1.00	t-stat
Post-SOX	5.00	4.67	0.58	0.374	p-value

Table 4 (cntd.)

Variable	Median	Mean	Standard Deviation	Difference in Means Test	
Shareholder Monitoring					
BLOCK					
Pre-SOX	2.00	2.40	1.74	1.06	t-stat
Post-SOX	2.50	2.73	1.97	0.291	p-value
%INST					
Pre-SOX	24.30	25.20	19.36	0.93	t-stat
Post-SOX	27.50	28.27	20.79	0.354	p-value
Other Outside Monitoring					
ANALYST					
Pre-SOX	1.00	3.04	5.28	0.52	t-stat
Post-SOX	1.40	3.48	5.08	0.606	p-value
CREDIT_DUM					
Pre-SOX	0.00	0.19	0.39	0.20	t-stat
Post-SOX	0.00	0.20	0.40	0.838	p-value
Firm Characteristics					
Managerial incentives					
BONUS_DUM					
Pre-SOX	1.00	0.96	0.20	0.00	t-stat
Post-SOX	1.00	0.96	0.20	1.000	p-value
CEO_GRANT					
Pre-SOX	0.00	247,326	663,453	0.96	t-stat
Post-SOX	0.00	478,060	1,949,956	0.337	p-value
EXEC_GRANT					
Pre-SOX	4,445.25	193,701	488,826	1.36	t-stat
Post-SOX	0.00	102,025	302,099	0.175	p-value
CEO_OUTMONEY					
Pre-SOX	0.00	0.18	0.38	1.38	t-stat
Post-SOX	0.00	0.27	0.44	0.169	p-value
EXEC_OUTMONEY					
Pre-SOX	0.00	0.20	0.40	0.59	t-stat
Post-SOX	0.00	0.240	0.43	0.557	p-value
CEO_TOTCOMP					
Pre-SOX	566,097	886,845	960,907	1.33	t-stat
Post-SOX	585,849	1,297,144	2,477,716	0.186	p-value
EXEC_TOTCOMP					
Pre-SOX	294,924	504,296	523,965	0.50	t-stat
Post-SOX	314,250	463,191	484,028	0.621	p-value
CEO_GRANT%,					
Pre-SOX	0.00	0.11	0.21	0.13	t-stat
Post-SOX	0.00	0.10	0.23	0.899	p-value
EXEC_GRANT%					
Pre-SOX	0.02	0.16	0.26	**1.71**	t-stat
Post-SOX	0.00	0.10	0.20	**0.089***	
CEO_EXER					
Pre-SOX	117,000	4,632,891	17893,146	1.23	t-stat
Post-SOX	45,840	1,863,366	6,927,405	0.219	p-value
CEO_UNEXER					
Pre-SOX	0.00	1,130,764	3,355,114	0.89	t-stat
Post-SOX	0.00	643,308	3,245,175	0.373	p-value

Table 4 (cntd.)

Variable	Median	Mean	Standard Deviation	Difference in Means Test	
EXEC_EXER					
Pre-SOX	90,304.71	984,631	2,709,007	**2.34**	t-stat
Post-SOX	26,923.62	225,891	447,580	**0.020****	p-value
EXEC_UNEXER					
Pre-SOX	32,419.25	365,439	769,001	0.58	t-stat
Post-SOX	0.00	253,252	1,470,625	0.564	p-value
EXEC_LOAN					
Pre-SOX	0.00	0.82	1.25	0.96	t-stat
Post-SOX	0.00	0.63	1.13	0.338	p-value
Managerial Competence					
CFO_EXPER					
Pre-SOX	1.00	0.80	0.41	0.00	t-stat
Post-SOX	1.00	0.80	0.41	1.000	p-value
CFO_CPA					
Pre-SOX	1.00	0.37	0.49	0.00	t-stat
Post-SOX	1.00	0.37	0.49	1.000	p-value
CFO_TOPEXEC					
Pre-SOX	0.00	0.16	0.38	0.64	t-stat
Post-SOX	0.00	0.21	0.41	0.526	p-value
Ex ante Red Flags					
LITIG					
Pre-SOX	0.00	0.09	0.29	1.001	t-stat
Post-SOX	0.00	0.15	0.36	0.318	p-value
AAER					
Pre-SOX	0.00	0.04	0.20	0.00	t-stat
Post-SOX	0.00	0.04	0.20	1.000	p-value
RSMT					
Pre-SOX	0.00	0.04	0.20	**2.05**	t-stat
Post-SOX	0.00	0.14	0.35	**0.042****	p-value
Company Performance					
GROWTH_1					
Pre-SOX	5.69	32.72	97.05	0.91	t-stat
Post-SOX	4.12	61.89	259.79	0.364	p-value
GROWTH_3					
Pre-SOX	42.48	-8.01	342.98	0.38	t-stat
Post-SOX	9.96	-25.82	188.44	0.702	p-value
MB					
Pre-SOX	1.60	-15.68	116.15	1.37	t-stat
Post-SOX	1.89	2.80	11.61	0.172	p-value
$D_{CAPITAL}$					
Pre-SOX	0.00	0.04	0.21	0.45	t-stat
Post-SOX	0.00	0.03	0.17	0.652	p-value
LOSS					
Pre-SOX	1.00	0.10	0.50	1.65	t-stat
Post-SOX	1.00	0.64	0.48	0.100	p-value
ALTZ					
Pre-SOX	0.00	0.49	0.50	0.65	t-stat
Post-SOX	1.00	0.55	0.50	0.517	p-value

Table 4 (cntd.)

Variable	Median	Mean	Standard Deviation	Difference in Means Test	
ROA					

Pre-SOX	0.00	-0.26	0.74	0.18	t-stat
Post-SOX	-0.03	-0.24	0.65	0.860	p-value
LEV					
Pre-SOX	0.21	0.28	0.32	0.78	t-stat
Post-SOX	0.22	0.33	0.38	0.434	p-value
CR_RATING					
Pre-SOX	14.00	13.54	4.52	0.38	t-stat
Post-SOX	15.00	14.23	4.69	0.705	p-value
Other Control Environment Factors					
SIZE					
Pre-SOX	2.15	2.00	0.83	0.32	t-stat
Post-SOX	2.11	2.04	0.77	0.752	p-value
AGE					
Pre-SOX	6.39	10.13	10.18	1.22	t-stat
Post-SOX	8.39	12.15	10.11	0.225	p-value
NYSE					
Pre-SOX	0.00	0.24	0.43	0.19	t-stat
Post-SOX	0.00	0.23	0.42	0.848	p-value
AMEX					
Pre-SOX	0.00	0.13	0.34	0.23	t-stat
Post-SOX	0.00	0.15	0.36	0.816	p-value
NASDAQ					
Pre-SOX	1.00	0.52	0.50	0.00	t-stat
Post-SOX	1.00	0.52	0.50	1.000	p-value
OTC					
Pre-SOX	0.00	0.11	0.31	0.00	t-stat
Post-SOX	0.00	0.11	0.31	1.000	p-value
INTAUD					
Pre-SOX	0.00	0.29	0.46	**1.95**	t-stat
Post-SOX	0.00	0.45	0.50	**0.053***	p-value

*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level

Note: See Table 2 for variable definitions. Probabilities are two-tailed for non-directional predictions and one-tailed for directional predictions.

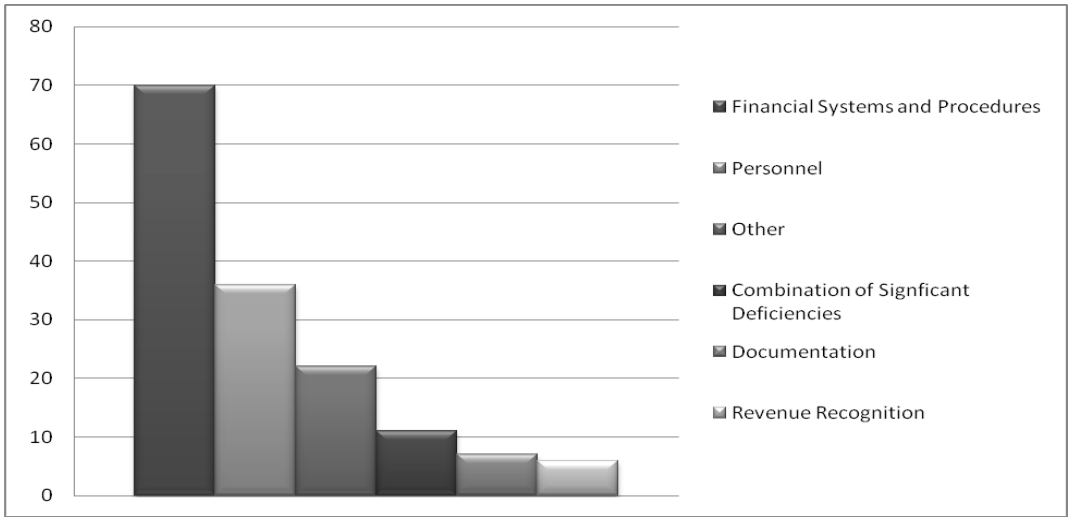

Figure 1. Internal Control Deficiency Categories

Notes:
This figure displays the number of sample internal control deficiency disclosures by category of disclosure. Financial systems and procedures include financial close processes, account reconciliations and inventory processes; personnel issues include lack of segregation of duties, inadequate staffing, training and supervision problems; and other issues include information technology problems and other miscellaneous problems. Firms may report multiple types of internal control deficiency categories. A material weakness can also be combination of significant deficiencies.

	Efficiency		**Rent Extraction**
	Substitute for internal control	Complement to internal control	Governance features that allow managerial opportunism
Relation between governance features and internal controls	**Negative**	**Positive**	**Negative**

Figure 2. Efficiency vs. Rent Extraction: Why are directional predictions difficult?

Under the efficiency theory, shareholders choose optimal governance structures and internal controls to maximize long-run firm value. Under the rent extraction theory, governance features may induce opportunism by firm managers and board members. As an example, consider whether the governance feature, high board member remuneration, is "good" or "bad" for shareholders. Rent extraction predicts it is bad because it directly reduces shareholder value, ceteris paribus. In contrast, efficiency theory does not make a clear prediction. If the remuneration provides board members incentives to monitor more closely, this would be good for shareholders, ceteris paribus. However, if high board remuneration is merely a substitute for high-quality internal controls, this tradeoff may not be cost-effective. Thus, if board remuneration is a complement to (substitute for) internal controls, there should be a positive (negative) relation between board remuneration and high quality internal controls. In summary, rent extraction predicts a negative relation while efficiency predicts that either a positive or negative relation could occur.