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# A Review of Academic Literature on Internal Control Reporting Under SOX

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## 1.0 INTRODUCTION AND BACKGROUND

Section 404 of the Sarbanes-Oxley Act of 2002 (SOX) mandates reporting on the effectiveness of internal control over financial reporting (ICFR) by public company management and auditors.[1] Such reporting began for fiscal years ended November 15, 2004 for accelerated filers (with public float of $75 million or more) and is scheduled to be fully implemented for non-accelerated filers in mid-2010. Section 404(a) of SOX requires public company management to include an assessment of the effectiveness of the company's ICFR in its annual internal control report, and Section 404(b) requires attestation by the company's auditor. Management's assessment of ICFR follows guidance issued by the SEC, while the external auditor's assessment is made in accordance with standards issued by the PCAOB. Guidance from both the SEC [2007] and the PCAOB [2007] indicates that the presence of a material weakness precludes a conclusion that internal controls are effective. The PCAOB [2007, para. A7] defines a material weakness as "a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reason-

We appreciate very helpful comments from Stephen Asare (editor), Paul Walker, and two anonymous reviewers.

[1] Before SOX was enacted, several groups recommended mandatory reporting on internal controls by management and/or auditors [AICPA, 1978; NCFFR, 1987; SEC, 1979; SEC 1988]; however, until SOX, U.S. public companies were not required to report on the effectiveness of their internal controls. One exception was that the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) required large financial institutions (greater than $500 million in total assets) to assess and report on internal controls. It took the accounting frauds at Enron and WorldCom to convince regulators to enact mandatory reporting on internal control for public companies.

able possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis."[2]

While Section 404 requires an annual assessment of the effectiveness of ICFR, company management also must comply with the annual and quarterly reporting requirement in Section 302 of SOX, effective in August 2002.[3] Section 302 requires a quarterly certification by a company's principal executive officer(s) and principal financial officer(s) (i.e., the CEO and CFO), or persons performing similar functions. The certification should indicate, among other things, that these individuals have evaluated the effectiveness of internal controls and that they included in their report their conclusions on the effectiveness of internal controls, as well as any significant changes in internal controls (the external auditor does not attest to Section 302 certifications). Section 302(a)(4)(B) of SOX indicates that the focus in the quarterly certifications is on disclosure controls and procedures, which overlap ICFR and are intended to embody controls and procedures that address the quality and timeliness of disclosure.[4]

We review the literature on internal control reporting under both Sections 302 and 404 in the post-SOX period. The internal control literature has grown substantially since the passage of SOX due to the availability of data regarding ICFR effectiveness that were not previously available. We conducted a literature search through mid-2009 resulting in the inclusion of many published papers and working papers that address ICFR issues covered in our taxonomy. We used judgment in selecting papers for inclusion in this review, focusing on the contribution of the research and its tie to our areas of primary interest. In particular, we did not include studies that use non-U.S. data, studies with small sample sizes, or studies that focus only on specific types of internal controls (e.g., information technology controls). We updated the literature search in late fall of 2009 to reflect the publication or revision of working papers.

Figure 1 presents our organizing framework for reviewing the ICFR reporting literature. We examine research on characteristics of companies reporting internal control deficiencies (ICDs) (Table 1), as well as specific ICDs revealed in internal control reports (Table 2).[5] Internal control reports may have a num-

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[2] What constitutes a material weakness has changed somewhat over time. The PCAOB [2004, para. 10] previously defined a material weakness as "a control deficiency, or combination of control deficiencies, that result in more than a remote likelihood that a material misstatement of the company's annual or interim financial statements will not be prevented or detected."

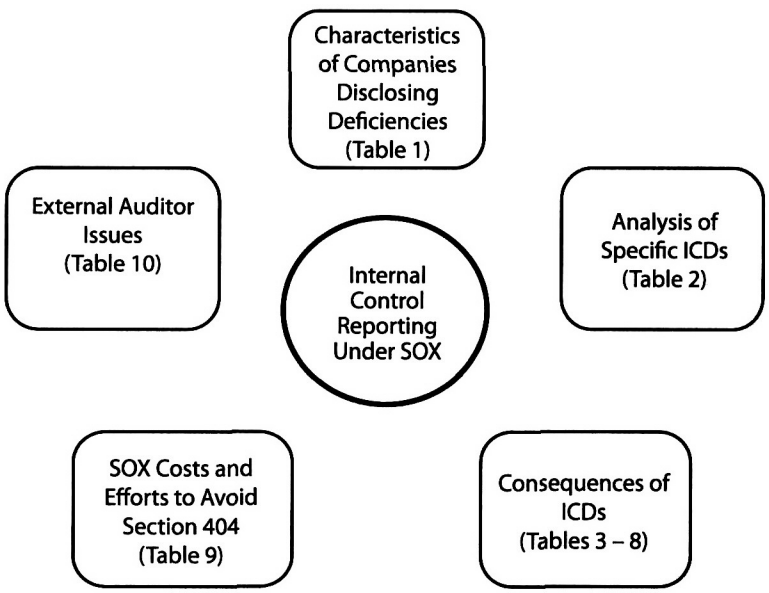
[3] For additional discussion of Section 302 and 404 requirements, see Hermanson and Ye [2009] and Stephens [2009].

[4] The SEC [2003] states, "Exchange Act Rule 13a-15(d) defines 'disclosure controls and procedures' to mean controls and procedures of a company that are designed to ensure that information required to be disclosed by the company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms . . . While there is substantial overlap between a company's disclosure controls and procedures and its internal control over financial reporting, there are both some elements of disclosure controls and procedures that are not subsumed by internal control over financial reporting and some elements of internal control that are not subsumed by the definition of disclosure controls and procedures."

[5] We use the term ICD to refer to material weaknesses, as well as less severe control deficiencies (i.e., significant deficiencies, deficiencies). Sections 302 and 404 of SOX require public reporting of material weaknesses; however, companies may voluntarily disclose information about less severe deficiencies. Further, auditors' workpapers would include descriptions of identified material weaknesses, as well as less severe deficiencies.

ber of consequences, and we review research on consequences related to earnings quality (Table 3), equity market reactions and earnings credibility (Table 4), cost of debt and equity (Table 5), earnings forecasts (Table 6), individual users' decisions (Table 7), and other consequences (Table 8). We then examine research on SOX cost issues and company efforts to avoid Section 404 (Table 9). Finally, we review the literature on various external auditor issues related to internal controls, including auditor judgments and decisions, the audit process and audit firm characteristics, audit firm-client relationships, and audit fees (Table 10).

**Figure 1**
Organizing Framework for Analyzing Internal Control Reporting Research under SOX




The primary insights gleaned from our review of the literature are as follows: The existence of ICDs is associated with smaller companies, riskier/more complex companies, poorly performing companies, and those with weaker boards, audit committees, and financial management (Table 1, Panel A). Effective ICFR and the remediation of ICDs require significant investments of both financial resources and human capital (Table 1, Panels A and B). Almost 40 percent of companies with material weaknesses report entity-level weaknesses[6], and specific ICDs disclosed under SOX often are related to the same financial reporting areas or issues that are present in many cases of fraudulent financial reporting (e.g., revenue recognition, taxes, inventory, accounts receivable, and

[6] Entity-level weaknesses (controls) are referred to as company-level weaknesses (controls) in Auditing Standard No. 2 [PCAOB 2004, para. 53]. Herein we use the term "entity-level" to be consistent with Auditing Standard No. 5 [PCAOB 2007, para. 24] even where the original research uses an alternative description (i.e., "company level").

end-of-period adjustments) (Table 2). There is evidence that the existence of ICDs or their disclosure under SOX can have negative consequences, including lower earnings quality (mixed evidence), negative equity market reactions, higher cost of debt, and less accurate earnings forecasts (Tables 3-6). Experimental researchers also have found that ICD disclosures affect individuals' decisions (Table 7), and there is evidence of other ICD consequences (Table 8). Some managers have attempted to avoid significant SOX 404 costs by delisting (mixed evidence) or reducing companies' market values to achieve or maintain the status of non-accelerated filers (Table 9). Finally, there is evidence that auditors' internal control judgments can be biased and that ICDs affect the audit process and auditor-client relationships (e.g., auditor changes) (Table 10, Panels A-C). Audit fees are higher in the presence of ICDs (Table 10, Panel D).

The following sections present key findings from the literature and specific avenues for future research. We conclude with additional directions for future research.

## 2.0 INTERNAL CONTROL REPORTING UNDER SOX

### 2.1 Characteristics of Companies Disclosing Deficiencies (Table 1)

#### *Comparing Companies with Disclosed ICDs to Those without ICDs (Table 1, Panel A)*

Companies disclosing ICDs may struggle to make needed investments in internal control due to their limited resources, and the risks that they face may be more challenging to mitigate. Hence, one may expect companies disclosing ICDs to be smaller, riskier, and more financially distressed than companies with effective ICFR. In addition, the expertise provided by stronger corporate governance and more qualified management teams (typically associated with larger companies) likely is associated with stronger internal controls.

Several studies have addressed company characteristics and the disclosure of ICDs (see Table 1, Panel A).[7] Ge and McVay [2005] provided initial insight into the differences between companies disclosing material weaknesses under Section 302 and those not disclosing material weaknesses. They found that the presence of material weaknesses was positively related to business complexity and the appointment of a large audit firm, and negatively related to firm size and return on assets. Thus, smaller, "riskier" companies tended to have material weaknesses.

[7] The post-SOX ICFR literature is subject to an important limitation. It is possible that some companies have material weaknesses or other ICDs that are not disclosed under Section 302 or Section 404, because the weaknesses are undetected or unreported. If this happens, then some companies will be misclassified as having effective controls, when in fact their controls are not effective. Such misclassifications, however, should bias against finding significant differences in company characteristics between ICD companies and no-ICD companies.

## Table 1

### Characteristics of Companies Disclosing Deficiencies

### Panel A – Comparing Companies with Disclosed ICDs to Those without ICDs

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Ge and McVay [2005, AH] | Archival | 261 companies with material weaknesses from August 2002 to November 2004 and other 2003 COMPUSTAT firms | Material weaknesses disclosed under Section 302 | The presence of material weaknesses was positively related to business complexity and the appointment of a Big 6 auditor, and negatively related to firm size and return on assets. |
| Ashbaugh-Skaife, Collins, and Kinney [2007, JAE] | Archival | 326 companies disclosing ICDs from November 2003 to December 2004 and 4,484 control firms | ICDs disclosed under Section 302 | The existence, discovery, and disclosure of ICDs under Section 302 were negatively associated with firm size, and positively associated with the number of business segments, sales growth, inventory levels, operating loss, distress risk, auditor changes, the engagement of a Big 6 auditor, earnings restatements, institutional ownership concentration, the incidence of foreign transactions, the presence of mergers or acquisitions, and restructuring activities. |
| Doyle, Ge, and McVay [2007a, JAE] | Archival | 779 companies disclosing material weaknesses from August 2002 to August 2005 and control firms without ICDs | Material weaknesses disclosed under Section 302 or Section 404 | The presence of material weaknesses was negatively related to firm size and firm age, and positively related to operating loss, bankruptcy risk, operating and geographic segments, the incidence of foreign transactions, extreme sales growth, and restructuring charges. Compared to companies without ICDs, companies with only account-specific material weaknesses were smaller, more complex, grew faster, and had more restructuring activities. Compared to companies without ICDs, companies with only entity-level material weaknesses were smaller, younger, financially weaker, and more complex. |
| Krishnan and Visvanathan [2007, IJA] | Archival | 90 companies with material weaknesses and matched 90 firms without ICDs | Material weaknesses disclosed under Section 302 or Section 404 | The presence of material weaknesses was positively associated with the number of audit committee meetings, auditor changes, earnings restatements, foreign operations, special items, and sales growth, and negatively associated with the proportion of audit committee financial experts and return on assets. |
| Ogneva, Raghunandan, and Subramanyam [2007, TAR] | Archival | 2,515 companies with their first Section 404 reports | Disclosures under Section 404 | Receiving an adverse Section 404 opinion was negatively associated with firm size, and positively associated with bankruptcy risk, operating loss, the incidence of foreign transactions or restructuring activities, sales growth, and inventory levels. Companies with material weaknesses had higher idiosyncratic risk than companies without material weaknesses. |
| Zhang, Zhou, and Zhou [2007, JAPP] | Archival | 208 companies disclosing material weaknesses and a control sample | Material weaknesses disclosed under Section 302 or Section 404 | The presence of material weaknesses was positively related to auditor changes and the ratio of audit fees to total auditor fees, and negatively associated with both the accounting financial expertise and non-accounting financial expertise of the audit committee. |
| Bedard, Hoitash, and Hoitash [2009, IJA] | Archival | 2,206 non-accelerated filers during fiscal years 2003-2005 | Material weaknesses disclosed under Section 302 | The disclosure of material weaknesses under Section 302 was positively associated with whether a company was audited by one of the largest six auditors or mid-tier auditors (relative to micro-auditors), and whether the auditor's office had Section 404 experience. The effect of auditor size on the disclosure of material weaknesses under Section 302 was greater in the fourth quarter than in the first three quarters. |

| | | | | |
|---|---|---|---|---|
| Hoitash, Hoitash, and Bedard [2009, TAR] | Archival | 3,911 accelerated filers and 1,569 non-accelerated filers | Material weaknesses disclosed under Section 302 or Section 404 | The probability that an accelerated filer disclosed material weaknesses under Section 404 was negatively associated with the percentage of audit committee members with accounting financial expertise, the percentage of audit committee members with supervisory expertise, board governance, and positively associated with the number of audit committee meetings. The probability that an accelerated filer or a non-accelerated filer disclosed material weaknesses under Section 302 was positively associated with the number of audit committee meetings. Companies that identified financial experts who were neither accounting financial experts nor non-accounting financial experts and companies that listed more than one financial expert were more likely to disclose material weaknesses under Section 404 or Section 302. |
| Li, Sun, and Ettredge [2010, JAE] | Archival | 2,478 companies with their first Section 404 reports issued in 2005 | Receipt of an adverse Section 404 opinion | The receipt of an adverse Section 404 opinion was associated with a less qualified CFO. |
| Naiker and Sharma [2009, TAR] | Archival | 1,225 companies filing Section 404 reports for the 2004 fiscal year | Material weaknesses disclosed under Section 404 | The presence of former audit partners on the audit committee, affiliated (AFAPs) or unaffiliated (UFAPs) with the company's external auditor, was negatively related to the incidence of ICDs in the Section 404 report. There was no significant difference between the effect of AFAPs and UFAPs on ICDs. The results were not sensitive to different classifications of ICDs. |

**Note:** Throughout the tables, journal titles are abbreviated for published or forthcoming papers.

Also note that the papers are presented in chronological order, and then alphabetically within years.

Panel B – Remediation of ICDs

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Irving [2008] | Archival | 556 companies disclosing material weaknesses | Disclosures under Section 302 or Section 404 | The number of days to remediate material weaknesses were associated with different proxies for severity of material weaknesses. |
| Nagarajan and Carey [2008] | Archival | 310 companies | Remediation of material weaknesses | The remediation of material weaknesses was negatively associated with CFO turnover and the incidence of restructuring activities, and positively associated with sales growth. |
| Bedard and Graham [2009] | Survey | 3,990 ICDs from 76 audit engagements on 44 companies during 2004-2005 | Remediation of ICDs | Approximately 25 percent of ICDs were remediated before the balance sheet date. |
| Goh [2009, CAR] | Archival | 208 accelerated filers disclosing material weaknesses from July 2003 to December 2004 | Remediation of material weaknesses disclosed under Section 302 | Firms' timeliness in the remediation of material weaknesses was positively associated with the proportion of audit committee members with non-accounting expertise, audit committee size, board independence, return on assets, and the appointment of a new CFO, and negatively associated with the severity of material weaknesses and the existence of foreign transactions. |
| Johnstone, Li, and Rupley [2009] | Archival | 733 companies with an adverse Section 404 opinion and a control sample of 3,602 companies | Remediation of material weaknesses | Remediation of material weaknesses was positively related to improvements in board of director, audit committee, and executive management characteristics. |

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|---|---|---|---|---|
| Li, Sun, and Ettredge [2010, JAE] | Archival | 2,478 companies with their first Section 404 reports issued in 2005 | Remediation of material weaknesses | Companies were more likely to improve their Section 404 opinions if they hired a new CFO with better qualifications than the previous CFO. Simply hiring a new CFO was not associated with Section 404 opinion improvements. |

Panel C – Providing Early Warning of Forthcoming Adverse Section 404 Reports

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Hermanson and Ye [2009, AJPT] | Archival | 451 companies with adverse initial Section 404 opinions | ICDs disclosed under Section 302 | Only about 27 percent of companies with adverse initial Section 404 opinions in their first year of Section 404 compliance provided early warning of any of the ICDs under Section 302 during the fiscal year. The probability of providing early warning of any of the ICDs disclosed in the initial Section 404 reports was positively associated with the severity and number of material weaknesses, prior earnings restatements, auditor independence and effort, CFO change, the number of institutional investors, and the number of audit committee meetings, and negatively associated with future equity financing activities and CEO / board chair duality. |
| Stephens [2009] | Archival | 519 companies disclosing material weaknesses from 11/15/2004 to 5/30/2005 | Material weaknesses disclosed under Section 302 | Companies with an auditor that was an industry expert or had a shorter tenure, an audit committee with at least one accounting financial expert, operating loss, and companies that had prior restatements or were the subject of an AAER were more likely to disclose material weaknesses before their first adverse Section 404 report. CFOs with a CPA license or working experience in a public accounting firm were more likely to classify ICDs properly as material weaknesses instead of significant deficiencies. |

Ashbaugh-Skaife et al. [2007] studied companies disclosing ICDs under Section 302 and found the disclosure of ICDs to be negatively related to client size and positively related to a host of variables related to client risk or incentive to discover and disclose ICDs: business segments, sales growth, inventory, operating losses, financial distress, auditor change, Big 6 auditors, restatements, institutional ownership concentration, foreign transactions, mergers/acquisitions, and restructuring. In addition, Doyle et al. [2007a] examined companies that disclosed material weaknesses under Sections 302 or 404. The presence of material weaknesses was negatively related to firm size and firm age, and positively related to operating loss, bankruptcy risk, operating and geographic segments, the incidence of foreign transactions, extreme sales growth, and restructuring charges. Also, compared to companies without ICDs, companies with only account-specific material weaknesses were smaller, more complex, grew faster, and had more restructuring activities. Compared to companies without ICDs, companies with only entity-level material weaknesses were smaller, younger, financially weaker, and more complex. Ogneva et al. [2007] found results similar to these two studies.

Other studies have examined this issue more from a governance or auditing perspective.[8] Zhang et al. [2007] documented that the presence of material

[8] Pre-SOX research also has addressed the association between internal control weaknesses and corporate governance characteristics of companies. Krishnan [2005], the signal paper from the pre-SOX era, analyzed Form 8-K filings and found that the existence of internal control problems was negatively associated

weaknesses under Sections 302 or 404 was negatively associated with both the accounting financial expertise and non-accounting financial expertise of the audit committee. Krishnan and Visvanathan [2007] provided evidence that the presence of material weaknesses was positively associated with the number of audit committee meetings and negatively associated with the proportion of audit committee financial experts. Addressing top management issues, Li et al. [2010] found that the receipt of an adverse Section 404 opinion was associated with a less qualified CFO.

Bedard et al. [2009] have shown that the disclosure of material weaknesses under Section 302 was positively associated with whether a company was audited by one of the largest six auditors or mid-tier auditors (relative to micro-auditors), and whether the auditor's office had Section 404 experience. Naiker and Sharma [2009] found that the presence of former audit partners on the audit committee was negatively related to the incidence of ICDs in the Section 404 report.

Hoitash, Hoitash, and Bedard [2009] found that under Section 404, disclosure of material weaknesses was negatively related to corporate governance attributes (board strength and audit committee financial expertise). However, there was no relation between the disclosure of ICDs under Section 302 and such measures of governance, possibly because companies with poor governance may not detect and report ICDs under Section 302, when the auditor is not providing assurance.

***Summary.*** This line of research shows that the existence of ICDs is associated with smaller companies, riskier/more complex companies, poorly performing companies, and those with weaker boards, audit committees, and financial management.

### *Remediation of ICDs (Table 1, Panel B)*

Given that a company discloses ICDs, the next issue is whether the ICDs are remediated, either in the period after the ICDs are publicly disclosed or during the period the ICDs are discovered (i.e., weaknesses discovered during the year are remediated before year-end). Companies with stronger financial performance, boards, audit committees, and management teams may be better able to remediate ICDs due to their financial resources and human capital, and/or they may be more committed to remediation. In addition, it should be easier for companies to remediate less severe ICDs.

Consistent with these notions, Goh [2009] established that timely remediation of material weaknesses under Section 302 was positively associated with audit committee non-accounting expertise, audit committee size, board independence, return on assets, and the appointment of a new CFO, and negatively associated with the severity of material weaknesses and the existence of foreign transactions. Irving [2008] found that the number of days to remediate material weaknesses was associated with different proxies for severity of material weaknesses. Nagarajan and Carey [2008] documented that the remediation of

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with the proportion of independent members on the audit committee and the number of audit committee members with financial expertise.

material weaknesses was negatively associated with CFO turnover and the incidence of restructuring activities, and positively associated with sales growth. Johnstone et al. [2009] found that remediation of material weaknesses was positively related to improvements in board of director, audit committee, and executive management characteristics. Li et al. [2010] found that companies were more likely to improve their Section 404 opinions if they hired a new CFO with better qualifications than the previous CFO. Finally, Bedard and Graham [2009] gathered proprietary data from audit firms and found that about 25 percent of ICDs were remediated before the balance sheet date.

***Summary.*** Overall, these studies indicate that financial resources and human capital are important ingredients in the remediation of ICDs. In addition, it appears to take longer to remediate more severe ICDs.

### *Providing Early Warning of Forthcoming Adverse Section 404 Reports (Table 1, Panel C)*

Many market observers were critical of management that issued "clean" internal control disclosures under Section 302, only to be followed by an adverse initial Section 404 opinion from the external auditor.[9] Hermanson and Ye [2009] found that the probability of providing early warning under Section 302 of any of the ICDs disclosed in the initial Section 404 reports was positively associated with the severity and number of material weaknesses, prior earnings restatements, auditor independence and effort, CFO change, the number of institutional investors, and the number of audit committee meetings, but negatively associated with future equity financing activities and CEO/board chair duality. In addition, Stephens [2009] found that companies with an auditor that was an industry expert or had a shorter tenure, or an audit committee with at least one accounting financial expert, were more likely to disclose material weaknesses under Section 302 before their first adverse Section 404 report. He also found that CFOs with a CPA license or working experience in a public accounting firm were more likely to classify ICDs properly as material weaknesses instead of significant deficiencies.

***Summary.*** These studies highlight the role of governance attributes and audit quality in promoting early warning of ICDs under Section 302 prior to the initial adverse Section 404 audit report. In addition, ICD characteristics and company characteristics are related to early warning.

### *Avenues for Future Research*

As of this writing, only accelerated filers have adopted Section 404(b), which requires auditor evaluation of ICFR. Thousands of smaller public companies are scheduled to implement Section 404(b) in mid-2010, and we anticipate a second wave of ICFR research in the small public company sector of the

[9] For example, Glass Lewis [2005, 10] stated, "In our view, the CEO and CFO of these companies were using a rubber stamp to certify the effectiveness of internal controls prior to SOX 404. We believe it took the pressure of the PCAOB on audit firms, more rigorous audits, and the implementation of SOX 404 to get the management of these companies to realize and/or disclose that their internal controls were not effective."

market. The smallest public companies often have the most limited financial resources, and they may struggle to attract highly qualified directors and managers – both of which are associated with the existence and disclosure of ICDs for larger companies. Historically, smaller companies have had particularly significant financial reporting challenges [Beasley et al., 1999]; therefore, research on this segment of the market may produce new insights beyond those revealed in the extant research on accelerated filers.

In addition, we believe that it will be fruitful to examine the linkage between corporate governance and ICFR by going beyond governance characteristics revealed in proxy statements (e.g., independence, diligence, and financial expertise) to examine the relation between governance processes and control effectiveness. A growing body of research now examines governance processes [Beasley et al., 2009; Cohen et al., 2009; Gendron et al., 2004]. Are governance processes (beyond governance characteristics) associated with the existence or remediation of ICDs?

Finally, researchers may examine issues related to risk management and internal audit. For example, do companies with more developed enterprise risk management (ERM) systems or more competent internal audit functions experience fewer ICDs, and are they more likely to remediate ICDs in a timely manner?

## 2.2 Analysis of Specific Internal Control Deficiencies (Table 2)

An important issue examined by researchers is the specific types of ICDs disclosed under Sections 302 and 404 of SOX (see Table 2). Two major areas of focus are ICD severity, especially the prevalence of entity-level versus account-specific ICDs, and the specific financial statement areas reflected in ICD disclosures. Entity-level weaknesses are considered more pervasive [Doyle et al., 2007b], and Moody's pays special attention to such weaknesses given their severity and potential indication of management weakness [Doss and Jonas, 2004].

**Table 2**

Analysis of Specific Internal Control Deficiencies

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Ge and McVay [2005, AH] | Archival | 261companies with material weaknesses from August 2002 to November 2004 | Material weaknesses disclosed under Section 302 | Material weaknesses disclosed under Section 302 were analyzed. Many material weaknesses were related to revenue recognition, segregation of duties, end-of-period reporting and accounting policies, and account reconciliations. Accounts receivable and inventory comprised many of the account-specific weaknesses. |
| Doyle, Ge, and McVay [2007a, JAE] | Archival | 779 companies disclosing material weaknesses from August 2002 to August 2005 and control firms without ICDs | Material weaknesses disclosed under Section 302 or Section 404 | Approximately 37 percent of sample companies reporting material weaknesses had entity-level weaknesses. |
| Scarborough and Taylor [2007, JOA] | Archival | 3,801 (3,907) accelerated filers in year one (two) of | Material weaknesses | In year one (two) of Section 404, 15.7 percent (10.3 percent) of accelerated filers had material weaknesses. The most common weaknesses related to accounting rule application |

| | | | | |
|---|---|---|---|---|
| | | Section 404 | | failures; accounting documentation, policies, and procedures; material or numerous auditor / year-end adjustments; or accounting personnel issues. Accounting failures most commonly related to taxes, revenue recognition, liabilities, inventory, and receivables. |
| Roybark [2008, ICFAI] | Archival | 663 (453) accelerated filers with adverse Section 404 reports in year one (two) of Section 404 | Material weaknesses | Material weaknesses often related to personnel issues, segregation of duties, restatements, auditor-proposed adjustments, internal audit problems, and information technology (IT) issues. Common accounting areas involved included revenue, taxes, inventory, consolidations, cash flows, debt, leases, depreciation, and intangibles. |
| Bedard and Graham [2009] | Survey | 3,990 ICDs from 76 audit engagements on 44 companies during 2004-2005 | Severity of ICDs | The distribution of ICDs was about 4 percent material weaknesses, 12 percent significant deficiencies, 58 percent deficiencies, and 26 percent remediated before year-end. The most severe ICDs related to existing misstatements, the control environment, monitoring, revenues, and taxes. ICD severity also was related to "stronger" Section 404 processes – e.g., earlier testing by the auditor, use of a consultant by the client, or having clients report ICDs to a level in the company that is independent from management. |
| Bedard, Hoitash, and Hoitash [2009, IJA] | Archival | 2,206 non-accelerated filers during fiscal years 2003-2005 | Material weaknesses disclosed under Section 302 | Non-accelerated filers disclosed more material weaknesses in the fourth quarter than the first three quarters. The disclosure of material weaknesses under Section 302 increased over time during the sample period. |
| Hermanson and Ye [2009, AJPT] | Archival | 451 companies with adverse initial Section 404 opinions | ICDs disclosed under Section 302 | Approximately 38 percent of sample companies reporting material weaknesses had entity-level weaknesses. |

Bedard and Graham [2009] gathered proprietary data from audit firms to examine ICD severity. Overall, the distribution of ICDs was about 4 percent material weaknesses, 12 percent significant deficiencies, 58 percent deficiencies, and 26 percent remediated before year-end. Thus, most ICDs were not publicly disclosed because they did not rise to the level of material weakness. The authors found that the most severe ICDs related to existing misstatements, the control environment, monitoring, revenues, and taxes. ICD severity also was related to "stronger" Section 404 processes – e.g., earlier testing by the auditor, use of a consultant by the client, or having clients report ICDs to a level in the company that is independent from management. Doyle et al. [2007a] and Hermanson and Ye [2009] both segregated material weaknesses into entity-level weaknesses versus account-specific weaknesses and noted that just under 40 percent of sample companies with material weaknesses had entity-level weaknesses.

Ge and McVay [2005] analyzed material weaknesses disclosed by management under Section 302. The most common material weaknesses related to revenue recognition, segregation of duties, end-of-period reporting and accounting policies, and account reconciliations. Account-specific weaknesses often related to accounts receivable and inventory.[10] Several studies have analyzed material weaknesses revealed in Section 404 reports by management and

[10] Also, Bedard et al. [2009] examined the timing of ICD disclosures under Section 302 and found that non-accelerated filers disclosed more material weaknesses in the fourth quarter than the first three quarters and that the disclosure of material weaknesses under Section 302 increased over time during the sample period.

auditors (whose descriptions of the material weaknesses typically are identical). Scarborough and Taylor [2007] and Roybark [2008] both provided comprehensive analyses of essentially the population of adverse Section 404 reports issued in the first two years of Section 404. Scarborough and Taylor reported that the most common material weaknesses related to accounting rule application failures; accounting documentation, policies, and procedures; material or numerous auditor / year-end adjustments; or accounting personnel issues. Accounting failures most commonly related to taxes, revenue recognition, liabilities, inventory, and receivables. Roybark's results were similar.

***Summary and Avenues for Future Research.*** Research on ICD characteristics reveals that most ICDs are not publicly disclosed, but for companies reporting material weaknesses, nearly 40 percent have entity-level weaknesses, the most severe and pervasive ICDs. Research also indicates that ICDs revealed under Sections 302 and 404 most often relate to many of the areas commonly found in accounting fraud cases or areas long thought to be higher risk, such as revenue recognition, taxes, inventory, accounts receivable, and end-of-period adjustments.[11] In addition, many ICDs relate to segregation of duties and accounting personnel issues.

An important area to address in future research is how ICD disclosures for accelerated filers change over time. One possibility is that most large public companies remediate their ICDs over the next few years, such that ICD disclosures become less and less common over time. Also, it is possible that a shift toward increased fair value reporting or IFRS will change the mix of financial statement areas reflected in ICD disclosures. In addition, researchers can examine ICD disclosures for non-accelerated filers to understand whether ICD characteristics differ between larger and smaller public companies (e.g., due to differences in management expertise or resources). For example, smaller companies may have more difficulties in achieving segregation of duties or in attracting qualified audit committee members, and therefore may report more ICDs in these areas than larger companies.

## 2.3 Consequences of Having/Disclosing Deficiencies (Tables 3 – 8)

Some (e.g., Schuetze [1993]) have questioned whether additional information about ICFR would be relevant to market participants. One view is that as long as there is a clean opinion on the financial statements, market participants simply will use the audited financial information and not care about internal control weaknesses. "The auditor's report provides *reasonable assurance*, irrespective of the effectiveness of a company's internal control" (Schneider and Church [2008, 2]). If this were the case, then disclosing ICDs would be unlikely to produce any significant negative consequences. An alternative view is that, even with audited financial statements, the effectiveness of companies' controls is relevant to market participants. For example, weak controls might heighten the risk of undetected misstatements or cause concerns about the quality of management or corporate governance [Doss and Jonas, 2004]. Under this

[11] Research on financial statement fraud has found that many fraud cases related to revenue recognition, accounts receivable, inventory, and end-of-period adjustments [Beasley et al., 1999].

view, the disclosure of ICDs would be expected to produce negative consequences. The following sections examine the consequences of having or disclosing ICDs.

### *Earnings Quality (Table 3)*

Logically, one may expect weak internal controls to be associated with lower quality financial reporting.[12] As Doyle et al. [2007b, 1145] state:

> We expect that weaknesses in internal control will result in lower accruals quality because, by definition, they have the potential to allow errors in accrual estimation to occur and impact the reported financial statements. These potential errors include both intentional (earnings management) and unintentional (poor estimation ability) errors. For a company with weak controls, intentionally biased "discretionary" accruals could be greater by failing to limit management's ability to manage earnings (e.g., by segregating duties). Unintentional errors could be higher if weak controls result in more estimation errors for difficult to estimate accruals (e.g., by failing to ensure that qualified personnel are calculating estimates) and allow more procedural errors (e.g., by failing to have appropriate reconciliations and reviews in place).

Several studies have examined the relation between ICFR effectiveness and different measures of earnings quality (see Table 3).

**Table 3**

Consequences – Earnings Quality

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Li and Wang [2006] | Archival | 2,240 companies with their first Section 404 reports | Disclosures under Section 404 and earnings restatements | Subsequent earnings restatements were more likely to occur in companies with material weaknesses than companies without material weaknesses. Both the entity-level material weaknesses and material weaknesses relating to specific transactions or accounts were positively associated with subsequent earnings restatements. Among the eight types of material weaknesses in the COSO framework, material weaknesses in the accounting policy and procedure area, and those in the control design/risk assessment area were positively associated with (but material weaknesses in the information system process were negatively associated with) subsequent earnings restatements. |

[12] One prominent study of the pre-SOX period is by Altamuro and Beatty [2010], who compared banks not affected by FDICIA-mandated internal control reporting requirements with banks subject to these requirements. They found FDICIA-mandated internal control requirements "increased loan-loss provision validity, earnings persistence and cash-flow predictability, and reduced benchmark-beating and accounting conservatism for affected versus unaffected banks." Thus, internal control regulations were associated with less management reporting discretion, but also less accounting conservatism.

| | | | | |
|---|---|---|---|---|
| Doyle, Ge, and McVay [2007b, TAR] | Archival | 705 companies with material weaknesses and a control sample | Disclosures under Section 302 or Section 404 | Companies with material weaknesses generally had lower quality accruals (mappings of accruals into cash flows, discretionary accruals, average accruals quality, historical earnings restatements, and earnings persistence) than companies without material weaknesses. This relation was driven by entity-level material weaknesses rather than account-specific level material weaknesses. Entity-level material weaknesses were associated with lower quality accruals based on all five measures of accruals quality. Account-specific level material weaknesses were (marginally) associated with lower quality accruals only when average accruals quality is used as a measure of accruals quality. |
| Ogneva, Raghunandan, and Subramanyam [2007, TAR] | Archival | 2,515 companies with their first Section 404 reports | Disclosures under Section 404 | There was no association between material weaknesses disclosed under Section 404 and already-realized poor earnings quality. When the authors expanded their sample to include Section 302 material weaknesses, they found evidence that unsigned discretionary accruals were higher for companies with material weaknesses. |
| Ashbaugh-Skaife, Collins, Kinney, and LaFond [2008, TAR] | Archival | 1,281 firm-year observations with ICDs and 6,497 firm-year observations without ICDs | Disclosures under Section 302 or Section 404 | Relative to firms without ICDs, firms with ICDs had larger absolute abnormal total accruals, larger absolute abnormal working capital accruals, and noisier working capital accruals. The existence of ICDs was positively related to positive accruals and negatively related to negative accruals, but was not related to signed abnormal accruals. Companies that remediated their material weaknesses reported improved accrual quality. The changes in the effectiveness of internal controls were accompanied by predictable concurrent changes in accrual quality. |
| Goh and Li [2008] | Archival | 1,164 companies with material weaknesses and a control sample | Disclosures under Section 302 or Section 404 and accounting conservatism | Companies with material weaknesses were less conservative in reporting earnings than companies without material weaknesses. Companies that remediated their material weaknesses were more conservative in reporting earnings than companies that continued to have material weaknesses. Companies with material weaknesses were more conservative in reporting earnings after the disclosure of material weaknesses than before the disclosure, regardless of whether or not the material weaknesses were remediated. |
| Nagarajan and Carey [2008] | Archival | 1,104 companies | Disclosures under Section 404 and restatements | Firms with material weaknesses were more likely to restate their earnings than firms without material weaknesses. |
| Chan, Farrell, and Lee [2009, AJPT] | Archival | 149 companies with material weaknesses and 908 companies without material weaknesses | Disclosures under Section 404 | There was mild evidence that firms with material weaknesses had more positive and absolute discretionary accruals than firms without material weaknesses. A company had higher positive discretionary accruals if the company had general material weaknesses or only one material weakness, or did not report any internal control problems in its 2004 third quarter 10-Q. A company had higher absolute discretionary accruals if the company had earnings restatements, two or more material weaknesses, or did not report any internal control problems in its 2004 third quarter 10-Q. |
| Epps and Guthrie [2009, AF] | Archival | 218 companies with material weaknesses and 218 companies without material weaknesses | Disclosures under Section 404 | The existence of material weaknesses had a moderate negative influence on discretionary accruals. Analyses based on discretionary accruals stratified into high positive, high negative, and low accruals suggested that the existence of material weaknesses was negatively associated with negative discretionary accruals and positively associated with positive discretionary accruals. |

| | | | | |
|---|---|---|---|---|
| Gong, Ke, and Yu [2009] | Archival | 438 cross-listed firms and 3,332 U.S. firms | ICDs disclosed under Section 302 | Section 302 ICD disclosures were related to earnings quality for U.S. companies, but cross-listed companies' earnings quality was not significantly related to Section 302 ICDs, apparently due to a limited incentive to detect and disclose ICDs in such companies. Cross-listed companies in weak investor protection countries primarily accounted for the insignificant relation for cross-listed companies. |
| Singer and You [2009] | Archival | 1,540 companies complying with Section 404 in 2004-2005 and 249 Canadian companies listed on a U.S. exchange | Effect of compliance with Section 404 | In the post-Section 404 period, compared to Canadian companies listed on a U.S. exchange (not subject to Section 404 in 2004 or 2005), companies complying with Section 404 had a larger reduction in the magnitude of absolute abnormal accruals, a larger increase in the ability of earnings to predict future earnings and future cash flows, and a larger decrease in the asymmetry between the use of negative and positive special items. |

Three studies highlight the association between ICDs and accruals quality. Doyle et al. [2007b] found that companies with material weaknesses disclosed under Section 302 or 404 generally had lower quality accruals (mappings of accruals into cash flows, discretionary accruals, average accruals quality, historical earnings restatements, and earnings persistence) than companies without material weaknesses. This relation was driven by entity-level material weaknesses rather than account-specific material weaknesses. Entity-level material weaknesses were associated with lower quality accruals based on all five measures of accruals quality. Account-specific material weaknesses were associated with lower quality accruals only when average accruals quality is used as a measure of accruals quality (and this association was only marginally significant).

Ashbaugh-Skaife et al. [2008] documented that relative to firms without ICDs, firms with ICDs disclosed under Section 302 or 404 had larger absolute abnormal total accruals, larger absolute abnormal working capital accruals, and noisier working capital accruals. The existence of ICDs was positively related to positive accruals and negatively related to negative accruals, but was not related to signed abnormal accruals. In addition, companies that remediated their material weaknesses reported improved accrual quality (the authors did not examine whether material weaknesses were entity-level or account-specific). The changes in the effectiveness of internal controls were accompanied by predictable concurrent changes in accrual quality.

Chan et al. [2009] provided "mild" (marginally significant) evidence that firms with material weaknesses under Section 404 had more positive and absolute discretionary accruals than firms without material weaknesses. Also, a company had higher positive discretionary accruals if the company had general material weaknesses or only one material weakness, or did not report any internal control problems in its 2004 third quarter 10-Q. A company had higher absolute discretionary accruals if the company had earnings restatements, two or more material weaknesses, or did not report any internal control problems in its 2004 third quarter 10-Q. Other studies listed in Table 3 [Epps and Guthrie, 2009; Goh and Li, 2008] also suggested that ICDs are associated with lower quality earnings, measured by reference to accruals or conservatism. In addition, Gong et al. [2009] documented that Section 302 ICD disclosures were related to earnings quality for U.S. companies, but not for cross-listed compa-

nies, mainly because cross-listed companies domiciled in weak investor protection countries have a limited incentive to detect and disclose ICDs.

By contrast, Ogneva et al. [2007] found no association between material weaknesses disclosed under Section 404 and already-realized poor earnings quality. However, they (a) recognized that material weaknesses could be associated with the risk of future accounting quality problems, and (b) reconciled their results with Doyle et al. [2007b] who used material weaknesses revealed under Section 302 or 404 – versus only under Section 404 in the Ogneva et al. study. Specifically, when Ogneva et al. expanded their sample to include Section 302 material weaknesses, they found evidence that unsigned discretionary accruals were higher for companies with material weaknesses.

Using a different measure of quality, Li and Wang [2006] found that earnings restatements were more likely to occur in companies with material weaknesses than in companies without material weaknesses. Nagarajan and Carey [2008] documented a similar result. Finally, Singer and You [2009] showed that compared to Canadian companies listed on a U.S. exchange (not subject to Section 404 in 2004 or 2005), companies complying with Section 404 had a larger reduction in the magnitude of absolute abnormal accruals and a larger increase in the ability of earnings to predict future earnings and future cash flows.

***Summary and Avenues for Future Research.*** Research on the relation between ICDs and earnings quality is somewhat mixed. Most studies find evidence that ICDs are associated with lower quality earnings. Also, results in these studies indicate that ICDs are associated with both unintentional and intentional misstatements [Singer and You, 2009]. However, focusing only on Section 404 material weaknesses, Ogneva et al. [2007] did not find such a relation. Moreover, based on Section 302 ICD disclosures, Gong et al. [2009] found such a relation for U.S. companies, but not for cross-listed companies. In addition, research typically indicates that remediation of ICDs is associated with improvements in earnings quality.

Given the conflicting results, we believe that the relation between ICDs and earnings quality deserves further investigation. It appears that results may vary between Section 302 and Section 404 ICDs and between U.S. companies and cross-listed companies. We also encourage researchers to consider a wide range of proxies for earnings quality. Finally, this fundamental question of the controls – earnings quality relation can be further examined in the smaller company segment of the market as well.

### *Equity Market Reactions and Earnings Credibility (Table 4)*

Some studies have examined equity market reactions to the disclosure of ICDs under Section 302 or Section 404 (see Table 4). If internal control effectiveness matters to investors, then one would expect negative equity market reactions to ICDs and/or reduced earnings credibility in the presence of ICDs.

## Table 4

### Consequences – Equity Market Reactions and Earnings Credibility

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| De Franco, Guan, and Lu [2005] | Archival | 102 companies disclosing initial ICDs | Disclosures under Section 302 or Section 404 | Cumulative abnormal returns around the disclosures were significantly negative. The net buying of small investors was positively associated with the cumulative abnormal returns. |
| Ghosh and Lubberink [2006] | Archival | 2,853 accelerated filers with Section 404 opinions in 2004 or 2005 | Disclosures under Section 404 and earnings response coefficients | Compared to companies with unqualified Section 404 opinions, companies with adverse Section 404 opinions had lower earnings response coefficients in 2001 and 2002. Such an association was weaker in 2003. |
| Gupta and Nayar [2007, IJDG] | Archival | 90 companies with initial ICDs under Section 302 | Disclosures under Section 302 | The stock market reacted adversely to the disclosures of ICDs. Such reactions were attenuated if the company also disclosed remediation steps, had a Big 4 auditor, or had lower current liabilities levels. |
| Tang and Xu [2007] | Archival | 885 companies with material weaknesses | Disclosures under Section 302 or Section 404 | Firms with material weaknesses had significantly negative abnormal stock returns in the one-year post-disclosing period and the abnormal stock returns were more negative for companies with firm-level material weaknesses. |
| Beneish, Billings, and Hodder [2008, TAR] | Archival | 330 companies with ICDs under Section 302 and 383 companies with material weaknesses under Section 404 | Disclosures under Section 302 or Section 404 | There were adverse stock price reactions to Section 302 disclosures, but not to Section 404 disclosures. Analysis of Section 302 disclosures suggests that non-accelerated filers experienced more adverse market reactions than accelerated filers. Firms with higher-quality auditors had less negative market reactions to Section 302 disclosures. |
| Chen, Deumes, Knechel, and Meuwissen [2008] | Archival | 176 companies with an adverse Section 404 opinion | Disclosures under Section 302 or Section 404 | There were adverse stock price reactions to the disclosures of ICDs. The reactions were more adverse for firms without previous financial reporting problems, firms disclosing material weaknesses (rather than less severe control deficiencies), or firms with a non-Big 4 auditor. There was some evidence that the reactions were more negative if the deficiencies were less auditable, if management only provided a limited description of the deficiencies, or if the deficiencies were detected by the auditor. |
| Dowdell, Kim, Klamm, and Wiedenmier [2008] | Archival | 8,372 companies | Disclosures under Section 404 | Companies with an adverse Section 404 opinion had lower market liquidity than companies with an unqualified Section 404 opinion. |
| Hammersley, Myers, and Shakespeare [2008, RAS] | Archival | 358 companies announcing initial ICDs under Section 302 | Disclosures under Section 302 | There was no stock price reaction to disclosures of deficiencies, but there were increasingly negative stock price reactions to disclosures of significant deficiencies and material weaknesses. The market reactions were more adverse if management concluded that the internal control system was not effective, the deficiencies were less auditable, the disclosure regarding the deficiencies was vague, or the company did not engage a Big 4 auditor. |
| Irving [2008] | Archival | 556 companies disclosing material weaknesses and a control sample | Disclosures under Section 302 or Section 404 | Event period return volatility and trading volume for companies disclosing material weaknesses were greater compared to the non-event period or control companies without any internal control problems. Companies with longer remediation periods or severe material weaknesses suffered significantly negative cumulative abnormal returns during the remediation period. |
| Krishnan, Sami, and Zhou [2008] | Archival | 1,579 companies with an unqualified 404 opinion and 150 | Disclosures under Section 404 and | Companies with an unqualified Section 404 opinion had greater earnings response coefficients in the year of adopting Section 404 than in the prior year. However, there was no |

| | | | | |
|---|---|---|---|---|
| | | companies with an adverse 404 opinion | earnings response coefficients | such difference for companies with material weaknesses. |
| Ashbaugh-Skaife, Collins, Kinney, and LaFond [2009, JAR] | Archival | 787 companies disclosing ICDs | Disclosures under Section 302 or Section 404 | The stock market reacted adversely to the disclosures of ICDs. There was no evidence that the reactions to material weaknesses were more adverse than to significant deficiencies or control deficiencies. |
| Kim and Park [2009, JAPP] | Archival | 394 companies with ICDs under Section 302 in 2004 | Disclosures under Section 302 | The cumulative abnormal stock returns around the disclosures of ICDs were negatively related to changes in the standard deviations of daily stock returns around disclosures (changes in market uncertainty). The effect of reducing uncertainty was greater for the disclosure of non-material weakness ICDs, especially when the company had prior suspicious events. |
| Singer and You [2009] | Archival | 1,540 companies complying with Section 404 in 2004-2005 and 249 Canadian companies listed on a U.S. exchange | Earnings credibility under Section 404 | In the post-Section 404 period, compared to Canadian companies listed on a U.S. exchange (not subject to Section 404 in 2004 or 2005), investors in companies complying with Section 404 reacted more to surprises in earnings (the reaction is measured using the relation between abnormal stock returns and analyst forecast errors). |

Three studies are representative of the main results to date related to stock price reactions. Hammersley et al. [2008] found that there was no stock price reaction to disclosures of deficiencies, but there were increasingly negative stock price reactions to disclosures of significant deficiencies and material weaknesses under Section 302. The market reactions were more adverse if management concluded that the internal control system was not effective, the deficiencies were less auditable, the disclosure regarding the deficiencies was vague, or the company did not engage a Big 4 auditor.

Beneish et al. [2008] examined disclosures under Sections 302 or 404 and, consistent with Hammersley et al. [2008], noted that there were adverse stock price reactions to Section 302 disclosures. Analysis of Section 302 disclosures suggested that non-accelerated filers experienced more adverse market reactions than accelerated filers. Firms with higher-quality auditors had less negative market reactions to Section 302 disclosures. However, Beneish et al. found no significant market reaction to material weaknesses disclosed by accelerated filers under Section 404. Beneish et al. [2008, 666] speculated that their "inability to detect a market response to Section 404 disclosures is consistent with the hypothesis that accelerated filers . . . operate in richer information environments, as well as Doyle et al.'s [2007b] hypothesis that audited internal control disclosures reflect a lower materiality threshold for disclosure." Thus, it could be that other information renders Section 404 material weakness disclosures less informative, or that auditors have a low threshold for material weaknesses, such that some material weaknesses are not important to market participants.

Finally, Ashbaugh-Skaife et al. [2009] documented negative reactions to ICDs disclosed under Section 302 or 404, but they did not find evidence that reactions to material weaknesses were more adverse than to other ICDs. Overall, there is some general evidence that the market views ICDs negatively, es-

pecially those disclosed under Section 302, but there are some inconsistencies in specific findings across studies.[13]

In addition, some studies address equity market reactions by reference to earnings credibility using earnings response coefficients (ERCs) or other measures. Krishnan, Sami, and Zhou [2008] found that companies with unqualified Section 404 opinions had greater ERCs in the year of adopting Section 404 than in the prior year. However, there was no such difference for companies with material weaknesses. Similarly, Singer and You [2009] found that in the post-Section 404 period, compared to Canadian companies listed on a U.S. exchange (not subject to Section 404 in 2004 or 2005), investors in companies complying with Section 404 reacted more to surprises in earnings (the reaction is measured using the relation between abnormal stock returns and analyst forecast errors). In addition, Ghosh and Lubberink [2006] found that compared to companies with unqualified Section 404 opinions, companies with adverse Section 404 opinions had lower ERCs in 2001 and 2002. Such an association was weaker in 2003. Overall, these studies indicate that investing in internal control to achieve a clean Section 404 opinion is associated with greater earnings credibility.

Finally, researchers have found that companies with internal control material weaknesses had lower market liquidity [Dowdell et al., 2008] and greater event period return volatility and trading volume [Irving, 2008]. Kim and Park [2009] found that cumulative abnormal stock returns around the disclosures of ICDs were negatively related to changes in market uncertainty. The effect of reducing uncertainty was greater for the disclosure of non-material weakness ICDs, especially when the company had prior suspicious events.

***Summary and Avenues for Future Research.*** Overall, the research evidence suggests that equity markets react negatively to the disclosure of many ICDs (i.e., those disclosed under Section 302, but perhaps not under Section 404) and that earnings credibility is enhanced with Section 404 adoption. Future research can further explore the differing reactions to ICDs disclosed under Section 302 versus Section 404 to better understand inconsistencies across studies. Specifically, does this difference persist when smaller public companies (which operate in less information-rich environments) are studied? Also, we encourage additional research on market reactions to material weaknesses disclosed by accelerated filers under Section 404. If the market begins to react to such weaknesses in the future, is that an indication that auditors' materiality threshold for determining material weaknesses has shifted upward? Finally, does the market react when a company restates its report on ICFR, or are such disclosures ignored?

### *Cost of Debt and Equity (Table 5)*

If ineffective ICFR is indicative of greater risk, then one would expect the cost of debt and equity to be higher in the presence of ICDs. Accordingly, re-

[13] De Franco et al. [2005], Gupta and Nayar [2007], Tang and Xu [2007], and Chen et al. [2008] also provided evidence of negative market reactions associated with ICDs.

search has examined the relation between ICDs and companies' cost of debt and equity (see Table 5).

**Table 5**

Consequences – Cost of Debt and Equity

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Ghosh and Lubberink [2006] | Archival | 2,853 accelerated filers with Section 404 opinions in 2004 or 2005 | Disclosures under Section 404 | Compared to companies with unqualified Section 404 opinions, companies with adverse Section 404 opinions had higher cost of debt in 2001 and 2002 (but not in 2003 or 2004) and less favorable debt ratings during 2001 through 2004. |
| Ogneva, Raghunandan, and Subramanyam [2007, TAR] | Archival | 2,515 companies with first time Section 404 reports | Disclosures under Section 404 | Univariate analyses suggested that companies with material weaknesses had higher implied cost of equity than companies without material weaknesses. However, such an association did not exist in multivariate analyses when primitive firm characteristics and analyst forecast bias were controlled. |
| Beneish, Billings, and Hodder [2008, TAR] | Archival | 330 companies with ICDs under Section 302 and 383 companies with material weaknesses under Section 404 | Disclosures under Section 302 or Section 404 | Based on univariate analyses, equity cost of capital increased for firms with Section 302 ICD disclosures, but not for firms with Section 404 material weakness disclosures. |
| Dhaliwal, Hogan, Trezevant, and Wilkins [2008] | Archival | 571 companies with Section 404 reports | Disclosures under Section 404 | Compared to firms with an unqualified Section 404 opinion, firms with an adverse Section 404 opinion (ICW firms) had lower credit ratings and higher credit spreads in the year preceding the initial Section 404 report. For firms with rated debt, the adverse Section 404 opinion was not related to the change in the credit spread around the initial Section 404 report. The increase in the credit spread around the initial Section 404 report was larger for ICW firms if the debt was not rated, or if the firm did not have a new or revised bank loan agreement. Delinquent filers had a larger increase in the credit spread than timely filers. |
| Ashbaugh-Skaife, Collins, Kinney, and LaFond [2009, JAR] | Archival | 221 firms with ICDs and a control sample | Disclosures under Section 302 or Section 404 | Firms with ICDs had higher cost of equity after other risk factors were controlled. Changes in the auditor's Section 404 opinion led to predicted changes in the cost of equity. |
| Elbannan [2009, IJDG] | Archival | 171 companies with ICDs and a control sample | Disclosures under Section 302 or Section 404 | Companies with ICDs were more likely to have lower credit rating than companies without ICDs. |
| Kim, Song, and Zhang [2009] | Archival | 2,740 facility-years for 1,250 companies | Disclosures under Section 404 | Companies with ICDs had higher loan spreads, and loan rates were higher for companies with entity-level ICDs than with account-level ICDs. Companies with ICDs had tighter nonprice terms and fewer lenders. Companies that remediated previous ICDs were not penalized by lenders. |

In terms of the cost of debt, Kim et al. [2009] found that companies with ICDs had higher loan spreads, and loan rates were higher for companies with entity-level ICDs than with account-level ICDs. Companies with ICDs had tighter nonprice terms and fewer lenders. Companies that remediated previous ICDs were not penalized by lenders. Similarly, Dhaliwal et al. [2008] found that compared to firms with an unqualified Section 404 opinion, firms with an adverse Section 404 opinion had lower credit ratings and higher credit spreads in the year preceding the initial Section 404 report. Elbannan [2009] and Ghosh

and Lubberink [2006] also provided evidence of lower credit ratings or higher costs of debt for companies with ICDs.

The evidence related to the cost of equity is not consistent across studies examining this issue. Ashbaugh-Skaife et al. [2009] found that firms with ICDs had higher cost of equity after controlling for other risk factors. Changes in the auditor's Section 404 opinion led to predicted changes in the cost of equity. Based on univariate analyses, Ogneva et al. [2007] provided evidence that companies with material weaknesses had a higher implied cost of equity than companies without material weaknesses. However, such an association did not exist in multivariate analyses after controlling for primitive firm characteristics and analyst forecast bias. Finally, Beneish et al. [2008] noted, based on univariate analyses, that equity cost of capital increased for firms with Section 302 ICD disclosures, but not for firms with Section 404 material weakness disclosures.

***Summary and Avenues for Future Research.*** Overall, several studies find evidence of higher cost of debt for companies with ICDs. The evidence regarding higher cost of equity for companies with ICDs is not consistent. We encourage future research examining the relation between ICDs and the cost of equity to determine whether there are circumstances under which ICDs are associated with the cost of equity. Future research should examine whether material weaknesses have a greater impact on the cost of equity than other ICDs. Among material weaknesses, future researchers can investigate whether there is any differential impact on the cost of equity between entity-level weaknesses and account-specific weaknesses.

### *Earnings Forecasts (Table 6)*

It is possible that effective ICFR reduces the potential for accounting errors and misstatements [Doyle et al. 2007b], thus increasing the ability of managers or analysts to accurately forecast future earnings. Several studies have examined the relation between ICFR and earnings forecasts (see Table 6).

**Table 6**

Consequences – Earnings Forecasts

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Ghosh and Lubberink [2006] | Archival | 2,853 accelerated filers with Section 404 opinions in 2004 or 2005 | Disclosures under Section 404 | Compared to companies with unqualified Section 404 opinions, companies with adverse Section 404 opinions had less accurate analysts' forecasts in 2001, 2002, and 2004 (but not in 2003). |
| Beneish, Billings, and Hodder [2008, TAR] | Archival | 330 companies with ICDs under Section 302 and 383 companies with material weaknesses under Section 404 | Disclosures under Section 302 or Section 404 | Based on univariate analysis, firms that disclosed ICDs under Section 302 experienced abnormally negative forecast revisions after the Section 302 disclosures, but firms with Section 404 disclosures did not have such a change after the Section 404 disclosures. |
| Irving [2008] | Archival | 556 companies with material weaknesses and a control sample | Disclosures under Section 302 or Section 404 | Variance of earnings forecasts increased significantly after the disclosure of material weaknesses. |
| Pinello and Ashbaugh- | Archival | 3,723 firm-year observations | Disclosures under Section | Compared to firms without material weaknesses, firms with material weaknesses had poorer earnings predictability (had |

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|---|---|---|---|---|
| Skaife [2008] | | | 404 | larger analyst forecast errors and greater analyst forecast dispersion, and were less likely to meet or just beat analyst forecasts). The earnings predictability improved after the firms remediated the material weaknesses. |
| Xu and Tang [2008] | Archival | 727 companies with material weaknesses and a control sample | Disclosures under Section 302 or Section 404 | Analysts' forecast accuracy was lower and optimistic forecast bias was higher for companies that disclosed firm-level material weaknesses than companies that did not disclose material weaknesses. Also, the optimistic forecast bias only existed in forecasts provided by analysts affiliated with less reputable brokerage houses. |
| Feng, Li, and McVay [2009, JAE] | Archival | 2,994 firm-year observations | Disclosures under Section 404 | Management forecasts were less accurate in firms with material weaknesses than in firms without material weaknesses, and changes in internal control effectiveness were associated with changes in forecast accuracy. Management forecast error was larger when companies had material weaknesses related to revenue or cost of goods sold. |

Feng et al. [2009] found that management forecasts were less accurate in firms with material weaknesses than in firms without material weaknesses, and changes in internal control effectiveness were associated with changes in forecast accuracy. Management forecast error was larger when companies had material weaknesses related to revenue or cost of goods sold. Similarly, Pinello and Ashbaugh-Skaife [2008] documented that, compared to firms without material weaknesses, firms with material weaknesses had poorer earnings predictability (had larger analyst forecast errors and greater analyst forecast dispersion, and were less likely to meet or just beat analyst forecasts). The earnings predictability improved after the firms remediated the material weaknesses. In addition, Xu and Tang [2008] showed that analysts' forecast accuracy was lower and optimistic forecast bias was higher for companies that disclosed firm-level material weaknesses than companies that did not disclose material weaknesses. Other studies listed in Table 6 generally found similar results [Ghosh and Lubberink, 2006; Irving, 2008]. In addition, Beneish et al. [2008] found that firms that disclosed ICDs under Section 302 (but not under Section 404) experienced abnormally negative forecast revisions after the disclosures.

***Summary and Avenues for Future Research.*** Overall, the evidence indicates that ICDs are associated with less accurate forecasts and that remediation of ICDs is followed by more accurate forecasts. Going forward, it will be important to understand how the relation between ICDs and earnings forecasts changes over time, especially if larger companies' controls improve from period to period. It is possible that the number of disclosed ICDs will decline over time, such that ICDs become less diagnostic of forecast accuracy.

### *Experimental Research on the Effects on Individual Users' Decision-Making (Table 7)*

Internal control disclosures may affect the decisions of various users, including individual lenders, investors, and financial analysts, in ways that are not readily observable in archival studies. To address this possibility, researchers have examined individual decision-making in controlled experiments (see Table 7).

## Table 7

Consequences – Experimental Research on the Effects on Individual Users' Decision-Making

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Asare and Wright [2008] | Experiment | 65 equity analysts | Effect of ICDs on analysts' judgments | Analysts who had internal control reports with entity-level weaknesses, relative to those who had reports with account-specific weaknesses, had lower confidence in the most recent year's audited and upcoming financial statements, audit reports on financial statements, and internal control strength. They also had higher investment risk assessments and made more unfavorable stock recommendations. |
| Schneider and Church [2008, JAPP] | Experiment | 111 loan officers | Effect of ICDs on commercial lending decisions | Lenders' risk assessments and probabilities of granting lines of credit were negatively affected when the company received an adverse internal control opinion as compared to a clean one. This effect was not lessened by use of a Big Four auditor. |
| Shelton and Whittington [2008, MAJ] | Experiment | 36 investment analysts | Effect of ICDs on analysts' judgments | Adverse audit opinions on the effectiveness of internal controls were associated with investments analysts' assessing company risk higher and internal control strength lower. The adverse opinions resulted only in a marginally lower likelihood of recommending stock to clients. Auditors' opinions on management's internal control assessments had no effect on the investment analysts' judgments. |
| Lopez, Vandervelde, and Wu [2009, JAPP] | Experiment | 81 MBA students | Effect of ICDs on non-professional investors' judgments | Adverse audit opinions on the effectiveness of internal controls were associated with several investor assessments: higher risk of misstatement and future restatement, greater information asymmetry, less accounting information transparency, higher risk premium and cost of capital, lower sustainability of earnings, and lower predictability of earnings. |
| Schneider [2009, MAJ] | Experiment | 100 students and 102 accountants | Effect of ICDs on students' and accountants' judgments | The type of internal control opinion (clean, disclaimer, and two forms of adverse) had no effect on either risk assessments or probability assessments relating to investments. Findings for those who had some level of sophistication about internal controls (accountants) were similar to those who did not (students). |

Schneider and Church [2008] found that loan officers' assessments of the risk of extending a line of credit and the probability of extending the line of credit were negatively affected when the company received an adverse internal control opinion as compared to an unqualified opinion. Lopez et al. [2009] investigated decisions made by individual investors and observed that adverse audit opinions on the effectiveness of ICFR were associated with several investor assessments: higher risk of misstatement and future restatement, greater information asymmetry, less accounting information transparency, higher risk premium and cost of capital, lower sustainability of earnings, and lower predictability of earnings.

Shelton and Whittington [2008] documented that auditors' adverse internal control opinions led to higher company risk assessments by investment analysts, as well as lower evaluations of internal control strength, and only marginally lower likelihoods of favorable stock recommendations. Asare and Wright [2008] found that equity analysts who were given internal control reports with entity-level weaknesses, versus those given reports with account-specific weaknesses, had lower confidence in the most recent year's audited

and upcoming financial statements, audit reports on the financial statements, and internal control strength. In addition, they had higher assessments of investment risk and made more unfavorable stock recommendations. Hence, entity-level weaknesses were perceived to be more serious than account-specific weaknesses.

None of the above studies had participants make investment decisions. Schneider [2009] had students and accountants evaluate investment scenarios that differed as to the type of internal control opinion given by the auditor. The results indicated that the type of internal control opinion made no difference for either risk assessments or investment decisions. Moreover, in contrast to Asare and Wright [2008], no differences were found on the impact of adverse opinions disclosing weaknesses related to the overall control environment versus account-specific weaknesses. Findings for participants who had some level of sophistication about internal controls were similar to those who did not.

***Summary and Avenues for Future Research.*** With the exception of Schneider [2009], the studies on individuals' judgments involving lending and investing imply that auditors' internal control opinions make a difference in company risk assessments, probability of extending credit, stock price assessments, internal control strength evaluations, stock purchase recommendations, and confidence in financial statements (current and future), as well as audit reports on them. It is possible that in the Schneider [2009] study, internal control opinions were overshadowed by financial data and historical stock prices.

Going forward, researchers can examine the incremental effects of auditors' internal control opinions over and above ICD disclosures. None of the individual user decision-making studies separates the effects of ICD disclosures from effects of audit opinions. More specifically, does giving an adverse opinion create an additional impact on decisions beyond just disclosing material weaknesses? Does issuing a clean opinion have differential effects for prior significant deficiency disclosures versus no prior disclosures? Future research also can investigate the effects of issuing clean opinions when material weaknesses have been remediated.

We also encourage researchers to complement psychology-based experiments with research using experimental markets where there are immediate economic consequences to participants (e.g., the participants' compensation is based on the quality of their decisions). Such research may provide additional insights into the effect of ICFR reports on users' decisions. Using experiments also may help to examine if investors cast doubt on management's ability to operate the company if a company has ICDs, especially entity-level material weaknesses.

### *Other Consequences (Table 8)*

Some studies have documented other consequences associated with the disclosure of ICDs (see Table 8).

## Table 8

### Other Consequences

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Tang and Xu [2007] | Archival | 885 companies with material weaknesses | Disclosures under Section 302 or Section 404 and firm performance | The existence of material weaknesses was negatively associated with future firm operating performance. This association was stronger for companies with firm-level material weaknesses. |
| Goh [2008] | Archival | 184 accelerated filers disclosing material weaknesses from July 2003 to December 2004 and a matched control sample | Subsequent changes in governance structures | Compared to firms without any ICDs, firms with material weaknesses were more likely to experience the turnover of more than half of the audit committee members and more than half of the outside directors within two years of the detection of material weaknesses. Also, compared to firms without any ICDs, audit committee members and outside directors in firms with material weaknesses lost more outside directorships in other public companies from the year before the detection of material weaknesses to the second year after the detection of material weaknesses. In addition, firms with material weaknesses were more likely to experience an overall improvement in governance structure than firms without any ICDs. |
| Henry, Shon, and Weiss [2008] | Archival | 2,455 firm-years of accelerated filers | Executive compensation | Internal control effectiveness was related to the portion of compensation that is explained by firm-specific economic determinants, but unrelated to the remaining portion that is unexplained by such determinants. |
| Hermanson, Krishnan, and Ye [2009, AH] | Archival | 240 companies with adverse Section 404 opinions and a matched control sample | Shareholder ratification of auditors | Results examining whether shareholders were less likely to vote for the reappointment of the auditor after an adverse Section 404 opinion had been issued differed depending on whether there had been a restatement. In the non-restatement sample, shareholders reacted negatively only to non-entity-level material weaknesses (the auditor may be too strict). In the restatement sample, shareholders reacted more negatively to entity-level material weaknesses (the auditor may share blame for the problem). |
| Hoitash, Hoitash, and Johnstone [2009] | Archival | 104 companies with material weaknesses and 628 without material weaknesses | Executive compensation | CFO stock options and bonuses were negatively related to material weaknesses, and CFO compensation penalties associated with material weaknesses were most severe when the board of directors was stronger. More serious material weaknesses (measured by the number of areas affected) had more adverse impacts on CFO compensation. |
| Johnstone, Li, and Rupley [2009] | Archival | 733 companies with an adverse Section 404 opinion and a control sample of 3,602 companies | Subsequent changes in governance structures | Material weaknesses were associated with subsequent turnover of directors, audit committee members, and top executives. |
| Li, Sun, and Ettredge [2010, JAE] | Archival | 2,478 companies with their first Section 404 reports issued in 2005 | Receipt of an adverse Section 404 opinion | The receipt of an adverse Section 404 opinion was associated with greater CFO turnover in the next year, and replacing the CFO with a more qualified individual subsequently. |

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|---|---|---|---|---|
| Ye and Krishnan [2009] | Archival | 370 companies with adverse Section 404 opinions and a matched control sample | Director elections and director turnover | Adverse Section 404 opinions were related to shareholder dissatisfaction (measured by votes withheld) with directors, including both manager directors and audit committee members. Manager directors were penalized for both entity-level and account balance-level material weaknesses, while audit committee members were penalized only for account balance-level material weaknesses. Both shareholders' withholding of votes from directors and entity-level material weaknesses were associated with subsequent director turnover. |

Three studies provided evidence of management and board changes after ICDs were disclosed. Goh [2008] found that firms with material weaknesses were more likely to experience audit committee and outside director turnover. Also, audit committee members and outside directors in firms with material weaknesses lost more outside directorships in other public companies, and firms with material weaknesses were more likely to experience an overall improvement in governance structure than firms without any ICDs. Similarly, Johnstone et al. [2009] documented that material weaknesses were associated with subsequent turnover of directors, audit committee members, and top executives. Li et al. [2010] found that the receipt of an adverse Section 404 opinion was associated with greater CFO turnover in the next year, as well as replacing the CFO with a more qualified individual subsequently.

In terms of the association between shareholder voting and ICDs, Hermanson et al. [2009] examined whether shareholders were less likely to vote for the reappointment of the auditor after an adverse Section 404 opinion. Results differed depending on whether there had been a restatement. In the non-restatement sample, shareholders reacted negatively only to non-entity-level material weaknesses (the auditor may be too strict). In the restatement sample, shareholders reacted more negatively to entity-level material weaknesses (the auditor may share blame for the problem). Also, Ye and Krishnan [2009] found that adverse Section 404 opinions were related to shareholder dissatisfaction (measured by votes withheld) with directors, including both manager directors and audit committee members. Manager directors were penalized for both entity-level and account balance-level material weaknesses, while audit committee members were penalized only for account balance-level material weaknesses. Both shareholders' withholding of votes from directors and entity-level material weaknesses were associated with subsequent director turnover.

Research also has documented that ICDs were associated with poorer future company performance. Tang and Xu [2007] found that the existence of material weaknesses was negatively associated with future firm operating performance. This association was stronger for companies with firm-level material weaknesses. The authors speculated that material weaknesses are associated with noisier financial information, which may hinder management's ability to make decisions, as well as shareholders' ability to monitor management.

Two studies have examined the relation between internal control reports and executive compensation. Hoitash, Hoitash, and Johnstone [2009] showed that CFO stock options and bonuses were negatively related to material weaknesses, and CFO compensation penalties associated with material weaknesses were most severe when the board of directors was stronger. Also, more serious material weaknesses (measured by the number of areas affected) had more ad-

verse impacts on CFO compensation. In addition, Henry et al. [2008] found that internal control effectiveness was related to the portion of executive compensation that is explained by firm-specific economic determinants, but unrelated to the remaining portion that is unexplained by such determinants. The authors concluded that the explained portion of compensation provides managers with incentives to maintain effective internal controls, while the unexplained portion appears to reflect "pay without performance."

***Summary and Avenues for Future Research.*** Overall, the disclosure of ICDs appears to be related to numerous effects, such as management and board changes, shareholder dissatisfaction, poor future company performance, and decreases in executive compensation. These effects were documented in the SOX implementation period, and it will be important to understand how the consequences of ICDs change over time, and how ICDs affect non-accelerated filers. In addition, the studies on executive compensation can be extended in future research by investigating whether the presence of entity-level weaknesses and the specific nature of disclosed weaknesses impact compensation differently. Finally, are there other consequences associated with ICDs? For example, do companies with material weaknesses have a difficult time finding competent and independent audit committee members, are they more likely to have untimely regulatory filings, are they more at risk of not being in compliance with other regulatory requirements such as the Foreign Corrupt Practices Act (FCPA), or are they more likely to go into bankruptcy?

## 2.4 SOX Compliance Costs and Efforts to Avoid Section 404 (Table 9)

SOX has generated a great deal of discussion regarding compliance costs, and the SEC [2009, 2] recently released a major study of the costs of SOX, concluding as follows:

> The general conclusion from the analysis of survey data is that compliance costs vary with company size (increasing with size), compliance history (decreasing with increased compliance experience), and compliance regime (lower after the 2007 reforms). Larger companies tend to incur higher compliance costs in dollar terms ("absolute cost"), while smaller companies report higher costs as a fraction of asset value ("scaled cost"). The evidence suggests that companies bear some fixed start-up costs of compliance that are not scalable. Some of these costs are recurring fixed costs, while others are one-time start-up costs borne in the first years of compliance that tend to dissipate over time. For companies complying with both parts of Section 404, the cost of complying with Section 404(b) is reportedly similar to the incremental cost of complying with Section 404(a) alone.

The costs of complying with SOX Section 404 far exceed initial SEC estimates of approximately $90,000 per public company. In addition, there has been widespread speculation that SOX costs have pushed companies out of the public arena, or that companies have taken steps to delay being subject to the Section 404 requirements (e.g., Gao et al. [2009]).

In addition to the investigation of audit fees discussed in the next section, several studies have examined costs attributable to Section 404 compliance (see

Table 9). From a sample of companies disclosing Section 404 costs, Krishnan, Rama, and Zhang [2008] documented that during the period of January 2003 to September 2005, mean total (non-audit) compliance costs were $2.2 million ($1.35 million). According to Maher and Weiss [2008], average annual SOX compliance costs for the four years after SOX was enacted ranged from 0.289 percent to 0.618 percent of revenues. Furthermore, companies reporting ICDs had significantly higher compliance costs. Likewise, Engel et al. [2007] found that SOX compliance costs were more burdensome for smaller and less liquid companies.

**Table 9**

SOX Compliance Costs and Efforts to Avoid Section 404

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Austen and Dickins [2007, CIIA] | Archival | 7,432 delistings from 1998-2005 | Requests to delist from stock exchanges | There was no evidence that delistings increased after SOX and few cases in which management cited SOX or increased costs as a reason to delist. Companies that did cite SOX as a reason to delist were more likely to be smaller companies without Big 4 auditors. |
| Engel, Hayes, and Wang [2007, JAE] | Archival | 237 firms that went private from 1998 to 2005 | SOX compliance costs and SOX avoidance | Abnormal returns associated with SOX enactment are positively related to firm size and share turnover, implying that SOX compliance costs are more burdensome for smaller and less liquid companies. Also, the quarterly frequency of going-private transactions increased after the enactment of SOX. |
| Krishnan, Rama, and Zhang [2008, AJPT] | Archival | 172 companies disclosing Section 404 costs between January 2003 and September 2005 | Section 404 costs | Mean (median) Section 404 total compliance costs between January 2003 and September 2005 amounted to $2.2 ($1.2) million. |
| Maher and Weiss [2008] | Archival | 1,493 accelerated filers for the first four years after enactment of SOX | SOX compliance costs | Average annual SOX compliance costs for the four years after SOX was enacted ranged from 0.289 percent to 0.618 percent of revenues. These costs varied widely across firms and industries. Companies reporting ICDs had significantly higher compliance costs. Also, smaller companies had larger SOX compliance costs, as a percentage of revenues, than larger companies. |
| Nondorf, Singer, and You [2008] | Archival | 257 firm-years with market capitalization between $60-$90 million | Section 404 avoidance | Compared to control firms or other quarters, companies around the threshold of Section 404 (threshold firms) reduced their market value in the measurement quarters that determined Section 404 compliance through dampening the stock returns and insider trading activities. Threshold firms used discretionary accruals to temporarily dampen stock prices in the second quarter. Threshold firms having fewer outside directors on the board or a CEO that also chaired the board, growing fast, or having a public float closer to the Section 404 threshold in the prior year were more likely to avoid the implementation of Section 404. |
| Gao, Wu, and Zimmerman [2009, JAR] | Archival | 6,946 firm-years of non-accelerated filers | Section 404 avoidance | Non-accelerated filers remain small by reducing investments, making more cash payouts to stockholders, decreasing the number of shares held by non-affiliates, making more disclosures of bad news, and reporting lower earnings than companies in a control group. |
| Hansen, Pownall, and Wang [2009, RAS] | Archival | 136,071 firm-years – CRSP companies from 1962 to 2005 | Effect of Section 404 on firm delistings from U.S. exchanges | After controlling for general market conditions, the implementation of SOX Section 404 (SOX404) was negatively associated with delisting based on time series analysis, and the passage of SOX (SOXPASS) was negatively associated with delisting based on cross-sectional analysis. Both SOX404 and SOXPASS added little |

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| | explanatory power to the models. Analyses based on the population partitioned into size quintiles suggested that SOXPASS was negatively associated with delisting for firms in the second smallest and largest quintiles, and SOX404 was positively associated with delisting for firms in quintiles 3 and 4. |

Some studies have focused on actions taken by companies to avoid or postpone Section 404 costs. Hansen et al. [2009] found that after controlling for general market conditions, the implementation of Section 404 (SOX404) was negatively associated with delisting based on time series analysis, and the passage of SOX (SOXPASS) was negatively associated with delisting based on cross-sectional analysis. Both SOX404 and SOXPASS added little explanatory power to the models. Analyses based on the population partitioned into size quintiles suggested that SOXPASS was negatively associated with delisting for firms in the second smallest and largest quintiles, and SOX404 was positively associated with delisting for firms in quintiles 3 and 4. Engel et al. [2007] noted that the frequency of going-private transactions increased after the enactment of SOX, but their results are not necessarily attributable to Section 404, as the study did not distinguish between the effects of that section of the Act versus others. Austen and Dickins [2007] found no evidence that delistings increased after SOX, and they came across few cases in which management cited SOX or increased costs as a reason to delist. Companies that did cite SOX as a reason to delist were more likely to be smaller companies without Big 4 auditors. Overall, there is mixed evidence to suggest that SOX has caused public companies to delist.

Two other studies examined tendencies to delay Section 404 costs by reducing company market values to attain or retain non-accelerated filer status. Gao et al. [2009] showed that non-accelerated filers remained below the $75 million non-accelerated filer threshold by reducing investments, making more cash payouts to stockholders, decreasing the number of shares held by non-affiliates, making more disclosures of bad news, and reporting lower earnings. Similarly, Nondorf et al. [2008] provided evidence that companies with market capitalization between $60 million and $90 million reduced their market values during time periods that determined Section 404 compliance through insider trading activities and using discretionary accruals to achieve stock price reduction. Hence, studies find evidence that some companies take actions to delay the implementation of Section 404 requirements.

***Summary and Avenues for Future Research.*** While the articles reviewed in this section cover a variety of internal control reporting issues relating to compliance costs and management actions, a common thread is the non-trivial impact made by Section 404 implementation. It is clear that Section 404 has been far more costly than originally expected, and there is evidence that some companies have taken steps to avoid or delay their need to comply with Section 404.

One apparent hole in the SOX / ICFR academic literature relates to the company-level benefits of Section 404, which logically are more difficult to quantify than the costs. Based on surveys and interviews, the SEC [2009, 2] concluded:

Respondents ascribe some beneficial effects to Section 404 compliance. In particular, respondents were more likely to report *direct* benefits of compliance with Section 404 rules (i.e., improvements directly related to a company's financial reporting process, such as the quality of the company's ICFR), rather than *indirect* benefits of compliance (i.e., improvements indirectly related to a company's financial reporting process, such as the company's ability to raise capital). Respondents from larger companies and Section 404(b) companies tend to regard Section 404 compliance more favorably than those from their counterparts in almost every respect.

We believe that academics have an opportunity to contribute to the dialogue on Section 404 costs and benefits by seeking to further understand the direct and indirect benefits of Section 404 and how these benefits may vary with company characteristics.

## 2.5 External Auditor Issues

### *Auditor Judgment and Decision Making (Table 10, Panel A)*

Having to opine on internal control effectiveness requires the auditor to use a top-down audit approach, results in the auditor performing a great deal of controls testing, provides the auditor with information on the existence of material weaknesses, and requires the auditor to make a number of judgments related to internal controls [PCAOB, 2007]. Several studies have examined this expanded audit approach and the related auditor judgments using experimental methods (see Table 10, Panel A). Kaplan et al. [2008] found that knowledge about management assessments of internal controls biased auditors' internal control reliability ratings in the direction of the management assessments for low-experience auditors. Judgments of high-experience auditors were not influenced by management assessments. Earley et al. [2008] showed that auditors' initial assessments of ICFR were influenced by management's assessments, even when management's assessments understated the severity of the ICFR problem. However, when auditors were required to document the financial statement impact of identified ICFR deficiencies, the influence of management assessments was reduced.

**Table 10**

External Auditor Issues

Panel A – Auditor Judgment and Decision Making

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Blaskovich and Mintchik [2007] | Experiment | 63 auditors: seniors through partners | Involvement of external consultant in management's ICFR assessment | When management integrity was low, involvement by external consultants in management's ICFR assessments resulted in auditors recommending a higher reliance on internal controls and lower budgeted hours than in the absence of such involvement. When management integrity was high, the involvement of external consultants resulted in higher budgeted hours. |
| Earley, Hoffman, and Joe [2008, | Experiment | 122 in-charge auditors | Classification of an identified | Auditors' classifications of identified ICFR problems were influenced by management's assessment. However, increased documentation requirements (i.e., the potential financial |

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| TAR] | | | ICFR problem as a control deficiency, significant deficiency, or material weakness | statement impact of the ICFR problem) mitigated management's influence. |
| Kaplan, O'Donnell, and Arel [2008, AJPT] | Experiment | 136 audit seniors | Judgment of internal control reliability for controls in an e-commerce sales system | Less experienced auditors were persuaded by a favorable control assessment made by management, while more experienced auditors were not influenced by management's assessment. |
| Gramling, O'Donnell, and Vandervelde [2010, AJPT] | Experiment | 90 audit partners | Evaluation of compensating controls | Knowledge about a material weakness unrelated to the compensating control caused auditors to require (a) that a compensating control within a specific process be designed with a higher level of precision, and (b) a greater extent of testing for determining the operating effectiveness of compensating controls than they would deem necessary if such a material weakness was not present. The authors found no evidence that global knowledge of factors that influence inherent risk affected auditor judgments about the design effectiveness or the extent of testing needed to assess operating effectiveness. |
| Hammersley, Johnstone, and Kadous [2009] | Experiment | 95 audit seniors | Identification of fraud risk factors and development of an audit program | Information about same-cycle material weaknesses prompted auditors to make higher fraud risk assessments and to propose doing more audit work. However, when fraud risk was salient, auditors had difficulty determining which audit procedures should be modified and how to do so – often proposing larger sample sizes that would not reveal the fraud. |

## Panel B – Audit Process and Audit Firm Characteristics

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Ettredge, Li, and Sun [2006, AJPT] | Archival | 2,344 companies filing Section 404 reports from January 2005 to June 2005 | Audit report delay | Companies reporting material weaknesses in internal controls experienced longer audit delays than companies reporting effective internal controls. Further, firm-wide pervasive material weaknesses were associated with longer delay than account or transaction specific material weaknesses. |
| Hammersley, Myers, and Shakespeare [2008, RAS] | Archival | 358 companies announcing initial ICDs under Section 302 | Auditor discovery of disclosures under Section 302 | Auditors played a significant role in identifying ICDs that were not identified by company management. |
| Jiang, Rupley, and Wu [2008] | Archival | 1,813 companies: 361 (1,452) material weakness (control) companies and 31 (1,782) going concern (non-going concern) companies filing SOX Section 404 reports in 2004 and 2005 | Going concern opinions | Entity-level material weaknesses, but not account-specific material weaknesses, were significantly and positively associated with the likelihood of a company receiving a going concern opinion. The average delay in issuing an audit report was significantly higher for material weakness companies (121 versus 68 days). |
| Roybark [2008, ICFAI] | Archival | 3,914 and 4,006 ICFR audit opinions issued during the first two years of SOX | First two years of ICFR reporting by auditors | In the first (second) year, 88 percent (83 percent) of the SOX 404 reports were issued by Big 4 auditors. In the first year, the Big 4 firms issued 80 percent of all adverse opinions. Further, the national firms issued a greater proportion of adverse opinions than the proportion of total opinions issued by these firms. |

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| Bedard and Graham [2009] | Survey | 3,990 ICDs from 76 audit engagements on 44 companies during 2004-2005 | Auditor discovery of ICDs | The external auditor (or external auditor and client jointly) detected over 70 percent of ICDs and nearly 85 percent of material weaknesses. Auditors found most ICDs when performing tests of controls, rather than substantive tests. Client management tended to understate the severity of management-detected ICDs. Auditor involvement was critical to the identification and public disclosure of material weaknesses. |
| Elder, Zhang, Zhou, and Zhou [2009, JAAF] | Archival | 2,306 companies with fiscal years ending between November 15, 2004 and November 14, 2005 | Audit firm response to clients with material weaknesses | Clients with internal control weaknesses were more likely to receive a modified audit opinion. The study recognized three viable risk management strategies used by audit firms for clients with material weaknesses and found that as the clients' control risk increased the second most likely response by an audit firm was a modified audit opinion. Audit firms tended to issue modified opinions for the less severe account-specific weaknesses than to take other risk management strategies (i.e., resignations, increase in fees). |

## Panel C – Audit Firm-Client Relationships

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Elder and Zhou [2007] | Archival | Internal control reports filed in 2004 and 2005; the expanded sample includes 3,287 firm-year observations, including 18 disagreement observations | Audit firm – audit client disagreements on internal control | Auditor-client disagreement about internal control weaknesses was less likely to occur when a firm was audited by a Big 4 auditor and more likely to occur for firms with more internal control weaknesses. Clients with such disagreements were more likely to have modified audit opinions, more likely to experience auditor switches, and more likely to dismiss the auditor. |
| Krishnan and Visvanathan [2007, IJA] | Archival | 90 companies with material weaknesses and matched 90 firms without ICDs | Material weaknesses disclosed under Section 302 or Section 404 and audit firm switches | More auditor changes characterized clients that reported weaknesses in their internal controls compared to firms with no weaknesses. |
| Zhang, Zhou, and Zhou [2007, JAPP] | Archival | 208 companies disclosing material weaknesses and matched 208 companies without material weaknesses | Material weaknesses disclosed under Section 302 or Section 404 and auditor independence | Companies were more likely to have an internal control weakness if their auditors were more independent. In addition, firms with recent auditor changes were more likely to have internal control weaknesses. |
| Elder, Harris, and Zhou [2008] | Archival | 7,253 companies (1,683 in 2004, 2,677 in 2005, 2,893 in 2006) issuing reports on internal control | Provision of nonaudit services | The extent of tax consulting (dichotomous measure and ratio of tax fees to total fees) was associated with a reduced likelihood of all types of internal control weaknesses. Further, the magnitude, but not the presence of tax consulting, was associated with a reduced likelihood of receiving a tax-related internal control weakness. |
| Li, Scholz, and Sun [2008] | Archival | 5,960 firm-year observations, including 3,645 companies that received first-year SOX 404 opinions, and 2,315 companies that received second-year SOX 404 opinions | Auditor independence | In year one of SOX 404 implementation, auditors were less likely to issue adverse 404 opinions to clients contributing higher abnormal fees (audit fees, total fees). However, there was no association between abnormal 404 fees and ICFR audit opinions. The negative association between auditor independence and client importance observed in year one was significantly reduced in year two. |

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| Nagy [2008, MAJ] | Archival | 337 companies with a financial information design and implementation service disclosure in 2000-2001 and a Section 404 internal control report issued from November 30, 2004-2005 | Auditor independence | An adverse audit report on ICFR was less likely if the same audit firm issued the internal control opinion and performed the financial information design and implementation service for the client. |
| Elder, Zhang, Zhou, and Zhou [2009, JAAF] | Archival | 2,306 companies with fiscal years ending between November 15, 2004 and November 14, 2005 | Audit firm response to clients with material weaknesses | Auditor resignations were more likely for clients with internal control weaknesses. The study recognized three viable risk management strategies used by audit firms for clients with material weaknesses and found that as the clients' control risk increases, the least likely response was an auditor resignation. However, auditors tended to use resignations for the more severe entity-level weaknesses. |
| Ettredge, Heintz, Li, and Scholz [2009] | Archival | 13,772 firm-year observations, including 598 companies that dismissed their auditor after a Section 404 report | Audit firm switches | Companies were more likely to dismiss their auditors if they had received adverse SOX 404 opinions, and this result held for a four-year period. Companies with adverse Section 404 reports were more likely to switch to Big 4 or industry specialist auditors. Companies that dismissed their auditor following the adverse SOX 404 report and hired a new industry specialist auditor were more likely to have effective controls the next year. |

## Panel D – Audit Fees

| STUDY | METHOD | COMPANIES / SUBJECTS | DOMAIN | KEY RESULTS |
|---|---|---|---|---|
| Raghunandan and Rama [2006, AJPT] | Archival | 660 manufacturing companies in fiscal year 2004 | Comparison of fees for companies with and without material weaknesses | Audit fees for companies disclosing a material weakness in the first year of compliance with Section 404 were 43 percent higher than for companies without such disclosure, regardless of the type of material weakness. |
| Bedard, Hoitash, and Hoitash [2007, RAR] | Archival | 2,296 non-accelerated filers filing Section 302 reports in both 2003 and 2004 | Section 302 disclosures for non-accelerated filers | Companies disclosing material weaknesses had audit fees that were 36 percent higher than companies with effective controls, while audit fees of companies disclosing other deficiencies were 19 percent higher. Remediating an internal control problem did not yield a reduction in the audit fee following the remediation. |
| Foster, Orenstein, and Shastri [2007, MAJ] | Archival | 3,497 companies with audit fee availability from 2003 to 2005 | Effect of Section 404 on audit fees | Audit fees increased significantly in the first year of compliance, and there was some decline in audit fees in the second year of compliance. Companies with material weaknesses paid higher audit fees than companies without material weaknesses. |
| Hogan and Wilkins [2008, CAR] | Archival | 410 companies that disclosed deficiencies per Section 302 between November 2003 and November 2004, and 6,451 control companies that did not report deficiencies | Section 302 disclosures prior to the initial year of Section 404 compliance | Audit fees were significantly higher for ICD companies after controlling for size, risk and profitability. The fee increases were highest for companies that had the most severe internal control problems. |

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| Hoitash, Hoitash, and Bedard [2008, AJPT] | Archival | 2,501 accelerated filers with fiscal year ends through October 31, 2005 (first year of compliance) | Audit pricing and internal control problems in Section 302 and 404 disclosures | Audit fees were higher for companies disclosing internal control problems, and audit pricing varied with the severity of the internal control problem. Companies disclosing internal control problems under Section 302 continued to pay higher fees the following year, even if there were no material weaknesses disclosed under Section 404. |
| Krishnan, Rama, and Zhang [2008, AJPT] | Archival | 172 companies voluntarily disclosing Section 404 costs between January 2003 and September 2005 | Section 404 audit related costs | Mean (median) audit costs in the initial year of compliance amounted to $0.85 ($0.59) million. Further, the presence of a material weakness was associated with increased audit costs; the presence of a material weakness alone increased audit costs by 136 percent. |
| Lin, Lin, and Liu [2008] | Archival | 22,308 companies from 2000-2005 | Audit fee models pre and post SOX | There were increased audit fees from 2003 to 2004 and a structural change in audit pricing following SOX. |
| Roybark [2008, ICFAI] | Archival | 3,914 and 4,006 ICFR audit opinions issued during the first two years of SOX | First two years of ICFR reporting | Audit fees associated with the first year Section 404 engagements totaled $9.4 billion, with the other nonaudit-related accounting fees totaling $2.7 billion. There was a slight decrease in year two. |
| Bedard, Hoitash, and Hoitash [2009, IJA] | Archival | 2,206 non-accelerated filers during fiscal years 2003-2005 | Material weaknesses disclosed under Section 302 | The engagement of auditors with Section 404 experience was positively associated with audit fees among micro-auditors, but not among larger auditors. |
| Elder, Zhang, Zhou, and Zhou [2009, JAAF] | Archival | 2,306 companies with fiscal years ending between November 15, 2004 and November 14, 2005 | Audit firm response to clients with material weaknesses | Companies with internal control weaknesses were charged higher audit fees, and the audit fee premium for entity-level weaknesses was significantly higher than that for account-specific weaknesses. The study recognized three viable risk management strategies used by audit firms for clients with material weaknesses and found that as the clients' control risk increased, the most likely audit firm response was a fee increase. |

Hammersley et al. [2009] provided evidence that information about same-cycle material weaknesses prompted auditors to make higher fraud risk assessments and to propose doing more audit work. However, when fraud risk was salient, auditors had difficulty determining which audit procedures should be modified and how to do so – often proposing larger sample sizes that would not reveal the fraud.

A judgment that must be made on many engagements is whether a compensating control is sufficient to mitigate an internal control deficiency that would otherwise be considered a material weakness. Gramling et al. [2010] indicated that when a material weakness (unrelated to the compensating control being evaluated) exists, audit partners required a higher level of precision in the design of the compensating control and a higher level of auditor testing of the operating effectiveness of the compensating control than when there were no other material weaknesses.

Blaskovich and Mintchik [2007] explored issues related to companies hiring an outside consultant to assist management in its evaluation of ICFR. They noted that the use of an outside consultant by management resulted in auditors recommending higher reliance on internal controls and lower budgeted hours than in the absence of such involvement, but only when management integrity was low. When management integrity was high, the involvement of external consultants resulted in auditors recommending higher budgeted hours.

***Summary and Avenues for Future Research.*** The performance of an integrated audit results in auditors having increased information about a client's internal controls. In some cases, that knowledge (i.e., about management's assessments or about the presence of other material weaknesses) seems to bias the auditors' judgments. This bias appears to be somewhat mitigated when experienced auditors make the judgment or when enhanced documentation requirements are implemented. In other cases, acquired knowledge (i.e., whether management used an external consultant in its assessment of ICFR) caused the auditor to adjust both reliance on internal control and the audit budget.

Future research could examine the factors that mitigate bias in auditors' internal control related judgments. Given that there is a great deal of professional judgment required in classifying ICDs, what factors cause an auditor to classify a deficiency as a significant deficiency rather than a material weakness? Are these factors associated with the audit engagement (e.g., fraud risk level, known error associated with the deficiency), with the audit team members (e.g., experience level), or with the audit firm (e.g., audit approach, review process, quality control system, etc.)?

### *Audit Process and Audit Firm Characteristics (Table 10, Panel B)*

Several studies have examined issues related to the audit process and audit firm characteristics (see Table 10, Panel B). Roybark [2008] summarized demographic data on audit firms providing audit opinions on ICFR during the first two years of reporting. In the first (second) year, 88 percent (83 percent) of the SOX 404 reports were issued by Big 4 auditors. In the first year, the Big 4 firms issued 80 percent of all adverse opinions.

The nature of the audit opinion on the financial statements and other aspects of the audit process have been found to be associated with disclosures about a client's ICFR. Jiang et al. [2008] examined financially distressed companies and found that companies with pervasive entity-level material weaknesses (but not account-specific material weaknesses) were more likely to receive going concern audit opinions. Also, Elder et al. [2009] found that clients with internal control weaknesses were more likely to receive modified audit opinions. Audit firms tended to issue modified audit opinions for the less severe account-specific weaknesses, rather than to employ other strategies (i.e., resign, raise audit fees). In terms of the timeliness of the audit process, Ettredge et al. [2006] and Jiang et al. [2008] documented that companies reporting material weaknesses in internal controls experienced longer audit delays than companies reporting effective internal controls.

Hammersley et al. [2008] documented the importance of the audit process in identifying material weaknesses. They provided evidence that the auditor, rather than management, discovered the ICDs in over half of the companies. Similarly, Bedard and Graham [2009] found that the external auditor (or external auditor and client jointly) detected over 70 percent of ICDs and nearly 85 percent of material weaknesses. Auditors identified most ICDs when performing tests of controls, rather than substantive tests, and client management tended to understate the severity of management-detected ICDs. Thus, auditor involvement was critical to the identification and public disclosure of material weaknesses.

***Summary and Avenues for Future Research.*** Overall, the nature of the audit opinion on the financial statements has been shown to be associated with whether a company has a material weakness and the severity of the identified material weakness. Further, the existence of a material weakness is associated with a longer audit report delay, and auditor involvement in ICFR reporting is critical to detecting and disclosing ICDs.

A number of research questions remain unanswered. First, as of this writing, non-accelerated filers have not been required to have auditor attestation on their management reports. How credible were those management reports? Are they more credible than Section 302 reports? Second, research can provide more details on how the audit process differs between companies with versus without material weaknesses. Are there differences in audit testing (e.g., extent of substantive analytical procedures and tests of details) of account balances? Are the engagements staffed differently (e.g., in terms of audit experience, in terms of IT knowledge)? Is the involvement of national-level experts different? Finally, a number of companies have had their auditors restate their opinions on ICFR. Are such restatements associated with changes in the audit process for future engagements?

### *Audit Firm-Client Relationships (Table 10, Panel C)*

The expansion of the audit to include an opinion on ICFR has had implications for the relationship between the audit firm and the audit client, at least in the initial SOX implementation period examined to date (see Table 10, Panel C). Ettredge et al. [2009] revealed that companies were more likely to dismiss their auditors if they had received adverse SOX 404 opinions, and this result held for a four-year period. Companies with adverse Section 404 reports were more likely to switch to Big 4 or industry specialist auditors. Companies that dismissed their auditor following the adverse SOX 404 report and hired a new industry specialist auditor were more likely to have effective controls the next year. Krishnan and Visvanathan [2007] also found that more auditor changes characterize firms that report weaknesses in their internal controls compared to firms with no weaknesses. Elder and Zhou [2007] documented auditor-client disagreements on ICFR effectiveness to be more frequent for companies with more internal control weaknesses. Also, auditor-client disagreements were less likely when a client was audited by a Big 4 auditor. Further, they found that firms with such disagreements were more likely to have modified audit opinions and more likely to experience auditor switches.

In analyzing auditors' client risk management techniques in the first year of SOX 404 implementation, Elder et al. [2009] found that auditor resignations were more likely for firms with internal control weaknesses. Further, they described a pecking order among auditors' strategies to manage control risk resulting from internal control weaknesses. They examined three viable risk management strategies and found that as the clients' control risk increased, the least likely of the three responses was auditor resignation.

Other studies have examined issues related to auditor independence from the client and various aspects of internal control reporting. Zhang et al. [2007] showed that companies were more likely to report internal control weaknesses if their auditors were more independent. Li et al. [2008] found that in the first

year of ICFR reporting, auditors were less likely to issue adverse 404 opinions to clients with higher abnormal fees (audit fees, total fees). However, there was no association between abnormal 404 fees and ICFR audit opinions. The negative association between auditor independence and abnormal fees observed in year one was significantly reduced in year two.

Two studies looked more specifically at the relation between the provision of non-audit services by the auditor and internal control reporting. Nagy [2008] found that an adverse audit report on ICFR was less likely if the same audit firm issued the internal control opinion and performed financial information design and implementation services for the client than if the implementation services were performed by another firm. Finally, Elder et al. [2008] documented that tax consulting was associated with a reduced likelihood of all types of internal control weaknesses.

***Summary and Avenues for Future Research.*** Overall, these studies suggest that the adoption of internal control reporting requirements has had an effect on auditor-client realignments. Specifically, auditor switches appear to be associated with adverse opinions on ICFR and auditor-client disagreements on ICFR weaknesses. Further, research suggests that the auditor's relationship with the client (i.e., auditor independence) is associated with the type of ICFR opinion issued by the audit firm, although in at least one study this finding appears to be most prevalent in the first year of ICFR reporting.

Going forward, additional research can examine whether the results above can be generalized to later time periods. Since these studies occurred during the initial years of SOX 404 opinions, the companies required to provide internal control reports were at the large end of the spectrum, and the regulations and guidelines pertaining to these reports and opinions were still developing. It is possible that SOX 404 opinions will have less effect on audit firm-client relationships once the initial implementation period has passed. It also will be important to understand how audit firms' relationships with smaller clients are affected when the implementation of Section 404(b) occurs.

### *Audit Fees (Table 10, Panel D)*

With the adoption of SOX Section 404, it is clear that audit fees would rise, perhaps quite dramatically. Not only were auditors of accelerated filers performing audits of ICFR for the first time, but they also may have been adjusting audit fees upward to account for higher levels of risk and higher investor expectations (e.g., more audit effort) in the wake of SOX and the accounting scandals. In addition, it is reasonable to expect that companies with ICDs would pay higher audit fees than companies without ICDs, and that audit fees might be further increased in the presence of more severe weaknesses.

The literature in this area confirms these expectations, and the results generally are consistent across studies (see Table 10, Panel D). Researchers have documented a substantial upward shift in audit fees associated with the implementation of Section 404 [Foster et al., 2007; Lin et al., 2008; Roybark, 2008]. Several studies have investigated the association between internal control disclosures under Section 404 and audit fees. For example, Raghunandan and Rama [2006] showed that audit fees in 2004 were higher for companies with material weaknesses. Similarly, Foster et al. [2007], Hoitash et al. [2008],

Krishnan, Rama, and Zhang [2008], and Elder et al. [2009] found that companies with material weaknesses under Section 404 paid higher fees. While Raghunandan and Rama [2006] found that the association between audit fees and material weaknesses did not vary depending on the type of material weakness (systemic or non-systemic), Elder et al. [2009] and Hoitash et al. [2008] found that the audit fee premium was larger for general, entity-level material weaknesses than for account-specific weaknesses.[14] In addition, Bedard et al. [2009] found that the engagement of auditors with Section 404 experience was positively associated with audit fees among micro-auditors, but not among larger auditors.

***Summary and Avenues for Future Research.*** The issue of the association between audit fees and internal control reporting has been extensively examined. The literature indicates that audit fees significantly increased for companies having to comply with Section 404 reporting and auditing requirements. Further, audit fees were higher for companies reporting ICDs than those without such deficiencies, and the literature generally provides evidence that suggests that the severity of the disclosed deficiency is associated with the size of the audit fee increase.

A number of unanswered questions remain related to the relation between ICDs and audit fees. Does this fee differential persist beyond the initial years of ICFR reporting? What is the impact on audit fees for clients not remediating ICDs? Would failure to remediate ICDs result in increased audit fees or in an auditor-client realignment? Future research can address whether the relationship between severity of deficiencies and audit fees persists over time, how remediation may or may not make a difference, and whether auditor-client realignments result.

## 3.0 CONCLUSION

The implementation of Sections 302 and 404 of SOX represents a significant change in public company reporting and auditing, and the availability of new data has spawned a great deal of research in this area. This literature finds differences between companies with ICDs and those without ICDs and documents a number of consequences of ICDs. It also addresses SOX costs and auditor issues.

Beyond the specific suggestions for future research presented earlier, we believe that there are two larger issues warranting more research. First, if ICDs across public companies are reduced in the coming years, will the evidence indicate that more effective controls across the portfolio of public companies are associated with an overall improvement in earnings quality, fewer restatements, less fraud, etc.? In other words, can researchers provide evidence that improving ICFR ultimately led to better outcomes, i.e., higher quality financial reports? Second, the investment in SOX Section 404 has been extremely large, running well into billions of dollars. Ten or 20 years out, what does the overall

[14] Researchers also have incorporated Section 302 into their examinations on audit fees and ICDs. For example, Bedard et al. [2007] and Hogan and Wilkins [2008] both found higher fees in the presence of ICDs under Section 302. Further, fees appeared to be increasing in the severity of the underlying control problems.

cost/benefit analysis look like? Does it appear that internal control reporting has added value to society, or does it appear that the benefits of ICFR reporting have been swamped by the costs? We hope that this review of the literature will prompt additional inquiry into internal control reporting.

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