

# PCAOB Inspections and Large Accounting Firms

Bryan K. Church and Lori B. Shefchik

**SYNOPSIS:** The purpose of this paper is to analyze the PCAOB's inspection reports of large, annually inspected accounting firms. The inspection reports identify audit deficiencies that have implications for audit quality. By examining the inspection reports in detail, we can identify the nature and severity of audit deficiencies; we can track the total number of deficiencies over time; and we can pinpoint common, recurring audit deficiencies. We focus on large accounting firms because they play a dominant role in the marketplace (i.e., they audit public companies that comprise approximately 99 percent of U.S.-based issuer market capitalization). We document a significant, downward linear trend in the number of deficiencies from 2004 to 2009. We also identify common, recurring audit deficiencies, determine the financial statement accounts most often impacted by audit deficiencies, and isolate the primary emphasis of the financial statement impacted. Our findings generally are consistent comparing Big 4 and second-tier accounting firms, though a few differences emerge. In addition, we make comparisons with findings that have been documented for small, triennially inspected firms.

**Keywords:** PCAOB inspections; inspection reports; regulation; audit quality.

**Data Availability:** The data are available from public sources.

## INTRODUCTION

The establishment of the Public Company Accounting Oversight Board's (PCAOB's) inspection process represents a fundamental change in the regulation of public accounting firms (Kinney 2005). The change is away from a regime of self-regulation, including peer reviews conducted under the auspices of the American Institute of Certified Public Accountants (AICPA), to one of statutory regulation. The PCAOB was established to improve audit quality (PCAOB 2009). With six years of inspections underway, it is unclear whether the PCAOB

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*Bryan K. Church is a Professor, and Lori B. Shefchik is a Ph.D. student, both at Georgia Institute of Technology.*

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Corresponding author: Bryan K. Church

Email: [bryan.church@mgt.gatech.edu](mailto:bryan.church@mgt.gatech.edu)

inspection process has benefitted audit quality. The purpose of this paper is to analyze the results in the PCAOB's inspection reports of large accounting firms to shed insight on this important matter.

Inspection reports identify audit deficiencies, which have implications for audit quality. The nature and severity of identified audit deficiencies are very broad, ranging from accounting restatements and departures from Generally Accepted Accounting Principles (GAAP) to inadequate documentation and insufficient testing. Obviously, deficiencies that provide direct evidence of financial statement misstatements have stronger implications for audit quality than other deficiencies. By examining the results of all of the inspection reports in detail, we can identify the nature and severity of audit deficiencies; we can track the total number of deficiencies over time; and we can pinpoint common, recurring audit deficiencies. In addition, we can look for changes over time and hone in on emerging trends. Such detailed examination provides a systematic means to gauge the potential implications for audit quality. Our analyses also provide a general understanding of the overall inspection reports and give readers insight into what to make of the reports. Such insight may help readers avoid drawing erroneous inferences when reviewing inspection reports.

We focus our analyses on large accounting firms, defined as those that audit more than 100 issuers per year and, thus, are inspected annually by the PCAOB. Several studies (e.g., [Hermanson et al. 2007](#); [Hermanson and Houston 2008, 2009](#); [Hermanson et al. 2010](#)) have analyzed the inspection reports of small accounting firms (inspected at least triennially). A focus on large accounting firms, however, is warranted because such firms have very large, very diverse client portfolios, which may impact the results of the inspection process.<sup>1</sup> With the exception of two professional reports ([AICPA 2006](#); [PCAOB 2008](#)), no academic study to date provides detailed evidence of the results of the inspection process for large accounting firms. Yet, the role of these firms in the marketplace is undeniable: these firms audit public companies that make up approximately 99 percent of U.S.-based issuer market capitalization ([PCAOB 2008](#)).

The [AICPA's \(2006\)](#) report provides a preliminary summary of audit deficiencies included in inspection reports issued from September 29, 2005, to January 19, 2006, for large accounting firms. The [PCAOB's \(2008\)](#) report provides initial observations of certain issues identified in the inspection years 2004 to 2007 for large accounting firms. Our study, by comparison, offers a systematic and detailed analysis of the results in the inspection reports and is more comprehensive.

We analyze the inspection reports of large accounting firms for inspection years 2004 to 2009 (issued in years 2005 to 2010). Only eight accounting firms comprise this group for the entire period: the Big 4 firms (Deloitte & Touche, Ernst & Young, KPMG, and PricewaterhouseCoopers) and four second-tier firms (BDO Seidman, Crowe Horwath, Grant Thornton, and McGladrey & Pullen).<sup>2</sup> Throughout our analysis, we scrutinize audit deficiencies. We then look for changes in audit deficiencies over time and for differences between the Big 4 and second-tier firms. We also compare our results for large firms with the results for small firms as reported in prior studies, which allows us to highlight noteworthy differences. In addition, we examine the firms' responses to PCAOB's findings, and we document the presence of quality control criticisms in the reports.

We find that the total number of audit deficiencies declines markedly over time, with consistent rates of decline for Big 4 and second-tier firms. The results hold, looking at misstatement and non-misstatement deficiencies separately. In addition, we identify common audit deficiencies,

<sup>1</sup> In [Hermanson et al.'s \(2007, 143\)](#) analysis of small accounting firms, the average number of issuer clients is 2.60 (using the numbers in Table 3). For large accounting firms, on the other hand, the number of issuer clients ranges from just over 100 to in excess of 1,700. In addition, small accounting firms typically are unable to tolerate the exposure associated with risky clients.

<sup>2</sup> The PCAOB conducted limited inspections of the Big 4 in 2003. We exclude this year from our analyses because the inspections were scaled-down and restricted to the voluntary participation of the Big 4 ([PCAOB 2004](#)). Given that the inspection process has evolved over time, we view the initial inspections as a preliminary, learning phase.

noting they involve testing revenues, fair value measurements, other accounting estimates, and internal controls. Further, we shed light on the common audit deficiencies that are most likely to contribute to a misstatement.

Our analyses indicate that the financial statement accounts most often impacted by audit deficiencies include (in order of frequency) revenues, investments securities and derivatives, loans and reserve for loan losses, goodwill and intangibles, inventories and cost of sales, and accounts receivable and allowance for bad debts. Further, for accounts impacted, we provide evidence of some differences between Big 4 and second-tier firms as well as changes in trends over time. Looking specifically at the accounts impacted, we note the primary emphasis of identified deficiencies is on the balance sheet as compared to the income statement.

Regarding firms' responses to the PCAOB's findings, we note that Big 4 firms disagree with the PCAOB more frequently than do the second-tier firms. Finally, we document that every large accounting firm has criticisms of quality control in every inspection year, but that the criticisms (to date) either have been remediated in a timely fashion or firms have made reasonable progress in addressing the criticisms (PCAOB 2008). Our findings should be of interest to academics, practicing accountants, regulators, and users of the inspection reports.

The remainder of the paper is organized as follows. First, we briefly summarize the PCAOB inspection process, including how the regulatory system came into place and the perceived benefits and drawbacks of the current system. Next, we describe how we code the findings of the inspection reports and then present our results. Last, we offer concluding remarks.

### PCAOB INSPECTION PROCESS

Prior to the inception of the PCAOB inspection process, accounting firms that practiced before the Securities and Exchange Commission (SEC) participated in mandatory peer reviews (every three years) under the direction of the AICPA. While a handful of empirical studies suggest that the AICPA's peer review system was beneficial (e.g., Woodlock and Claypool 2001; Hilary and Lennox 2005), the system was the target of much criticism. Critics argue that the process was ineffective mainly because peer reviewers were not independent (i.e., accounting firms could choose their reviewers) and the system was generally non-punitive (Fogarty 1996; DeFond 2010).

Despite criticism, the AICPA's peer review program remained in place as the primary means to monitor audit quality for the accounting profession until 2002. In the midst of the Enron scandal, the SEC announced plans to overhaul the regulation of public accounting firms, with hopes of improving the effectiveness of regulation and, ultimately, audit quality (Hilzenrath 2002). The U.S. Congress passed the Sarbanes-Oxley Act of 2002 (SOX), which established the PCAOB and mandated that the organization inspect professional accounting firms that audit public companies. The changes were intended to put stronger reigns on the regulation of accounting firms. Starting in 2003, the PCAOB conducted scaled-down inspections of the Big 4 accounting firms. In later years, full-fledged annual inspections were conducted on all registered accounting firms with over 100 issuers and triennial inspections on small firms (100 or fewer issuers).

The PCAOB's inspections are risk-based, targeting the selection of the riskiest engagements and scrutinizing high-risk areas of the engagements. As a result, issuer-engagements inspected are likely atypical of large firms' client portfolios. Following the selection process, inspections include (1) an evaluation of accounting firms' quality control and (2) an examination and review of certain elements of selected issuer engagements (i.e., high-risk areas of high-risk audits). Once the annual inspections are completed, a report is prepared and shared with the accounting firm. Portions of the report, which describe identified audit deficiencies (but do not identify issuers), are publicly disclosed via the PCAOB's website. Portions related to criticisms of the firms' quality control

systems are not publicly disclosed as long as firms, in good faith, are making reasonable progress to remediate the criticisms.

The creation of the PCAOB, along with its duty to inspect registered firms, appears to have addressed the main concerns surrounding the effectiveness of the AICPA's peer review system. First, the PCAOB's inspection staff is independent: inspectors are prohibited from being active auditing practitioners. Second, the PCAOB has investigative and disciplinary authority over registered accounting firms that fail to comply with SOX, the rules of the PCAOB and the SEC, and other rules, laws, and professional standards (PCAOB 2003). For unintentional violations (e.g., negligent acts), the PCAOB has the authority to levy fines of up to \$100,000 per person and up to \$2,000,000 per firm. For intentional violations, the amounts increase to \$750,000 and \$15,000,000, respectively. The PCAOB also has the authority to prohibit accounting firms from conducting audits of public companies (via suspension or revocation of accounting firms' registration).

Some critics, however, express concerns over the implementation and structure of the PCAOB's inspection process. As with other changes from self-regulation to statutory regulation, the change prompts debate over a fundamental trade-off of expertise for independence (Stigler 1971; Peltzman 1976; Ogun 1995; DeFond 2010). Glover et al. (2009) argue that PCAOB staff members' technical knowledge can become outdated all too quickly, especially when compared to the AICPA's peer reviewers. Others have raised similar concerns (e.g., Hodowanitz and Solieri 2005; Kinney 2005).

In spite of the potential drawbacks, we believe the PCAOB's inspections very likely enhance auditor performance. The fact that an independent, oversight organization with powerful sanctioning abilities is scrutinizing audit work creates incentives for auditors to be more diligent and watchful (e.g., DeFond 2010). A sentiment among practitioners is that inspectors are under pressure to be overly critical of audit work, imposing stricter standards than peer reviewers (e.g., Farrell and Shadab 2005). Indeed, some small accounting firms (local and regional) stopped auditing public companies due to concerns over the inspection process (Read et al. 2004). Furthermore, the inspection process, by nature, promotes learning: inspectors discuss issues with accounting firm representatives and provide formal feedback on audit deficiencies and on the firms' quality controls (PCAOB 2009). For large, annually inspected firms, the process is ongoing, recurring on a yearly basis. Thus, the process offers a ready means to identify areas in need of improvement and subsequent checks to determine whether such improvements have been effectively carried out in practice.

A detailed examination of the PCAOB's inspection results sheds insight into audit deficiencies, which may undermine audit quality. By examining inspection reports over time, we can assess accounting firms' responsiveness to the inspection process. Moreover, such analyses provide a fundamental basis to assess the efficacy of the inspection process and, in turn, the potential implications for audit quality.

## RESEARCH METHOD

We systematically examine the inspection reports of the eight large accounting firms issued from 2005 to 2010 for inspection years 2004 to 2009, comprising 48 reports. The reports are available from the PCAOB's website ([http://pcaob.org/Inspections/Public\\_Reports/index.aspx](http://pcaob.org/Inspections/Public_Reports/index.aspx)), allowing us to analyze the audit deficiencies.

According to the PCAOB (2008, 7), audit deficiencies are those for which sufficient, competent evidential matter does not appear to have been collected to support the audit opinion on the issuer's financial statements. For each audit deficiency included in an inspection report, we code the following information: the severity of the deficiency, the nature of the deficiency (in order to identify common audit deficiencies), the specific account(s) impacted, and the primary emphasis as to the financial statement(s) impacted. In addition to the audit deficiencies, for each report we code

firms' responses to the PCAOB findings and whether the report indicates quality control criticisms. Both authors independently coded the data (elaborated below). For each category of coding (e.g., severity of the deficiency, account impacted, etc.) the authors had at least a 95 percent agreement rate. The discrepancies were discussed and easily resolved.

### Severity of Deficiencies

For the severity of deficiencies, we first segregate the deficiencies into two broad categories, those that result in a financial statement misstatement and those that do not. We further partition deficiencies in each group based on their severity. We code deficiencies as resulting in a misstatement if the inspection report indicates that (1) the issuer restated financial statements (RESTATE), (2) the accounting firm failed to identify and appropriately address a departure from GAAP (NON-GAAP), or (3) the accounting firm failed to identify and appropriately address an accounting error (ERROR). The subcategories are listed in order of severity (most severe to least severe). Examples of deficiencies are shown in Table 1.

For deficiencies that do not result in a misstatement, we also identify three subcategories based on the wording contained in the inspection reports, including (1) the accounting firm failed to test an account and/or an accounting assertion (NO-TEST), (2) the accounting firm failed to adequately or properly evaluate an accounting issue and/or whether the accounting treatment was appropriate

**TABLE 1**  
**Examples of Audit Deficiencies That Result in a Misstatement**

Severity of Audit Deficiency	Sample Wording/Phrases Commonly Used	Sample Report Reference
Financial statement restatement (RESTATE)	The issuer has restated certain of its financial statements to make changes relating to the matter described here.	Deloitte & Touche, 10/06/2005, Issuer D, Footnote 11
Failure to identify and appropriately address a departure from GAAP (NON-GAAP)	The Firm failed to identify a departure from GAAP that it should have identified and addressed before issuing its audit report.	Grant Thornton, 06/28/2007, Issuer C
	The Firm failed to identify that the issuer's revised accounting was not in compliance with GAAP.	KPMG, 06/16/2009, Issuer G
Failure to identify and appropriately address an accounting error (ERROR)	After the inspection field work, the Firm and the issuer determined that each of these amounts was incorrect. The issuer later corrected, in a subsequent filing.	Ernst & Young, 4/29/2008, Issuer A, Footnote 9
	The Firm, however, failed to recognize the need for an adjusting entry to correct the misclassification (between accounts).	BDO Seidman, 11/30/2006, Issuer B
	The issuer failed to disclose the losses . . . Such disclosure is required . . . The Firm concluded in its work papers that the magnitude . . . was material to the annual financial statements; however, it failed to appropriately address the issuer's lack of disclosure . . . in its financial statements.	Crowe Chizek, 11/30/2006, Issuer A
	The Firm also failed to identify and address that the modification rendered the issuer's disclosure of the agreement inaccurate.	PwC, 06/27/2008, Issuer B

(NO-EVAL), and (3) the accounting firm failed to perform or document sufficient procedures/analyses when testing (NO-SUFF). The subcategories are similar to those used by [Hermanson et al. \(2007\)](#) for deficiencies of small accounting firms. Examples of deficiencies in each subcategory are shown in Table 2. We determine that NO-TEST is the most severe deficiency in this group because it indicates that the accounting firm did not test an account or an assertion. We determine that NO-EVAL is the next most severe deficiency because the accounting firm either identified an accounting issue but did not assess it thoroughly or failed to evaluate whether the accounting treatment was appropriate (i.e., in compliance with GAAP). The least severe deficiency is NO-SUFF, which is indicative of inadequate audit support (i.e., not enough evidence was collected and documented).

In coding deficiencies, the subcategories referred to above are mutually exclusive and exhaustive. Sometimes the inspection reports include wording that is consistent with more than one subcategory. For example, KPMG's inspection report dated January 11, 2007, indicated that for issuer E, the accounting firm failed to evaluate an accounting issue (NO-EVAL) that resulted in a financial statement restatement (RESTATE). For these instances, we coded the deficiency as the most severe subcategory, which for this example is RESTATE.

TABLE 2

## Examples of Audit Deficiencies That Do Not Result in a Misstatement

Severity of Audit Deficiency	Sample Wording/Phrases Commonly Used	Sample Report Reference
Failure to test an account and/or an assertion (NO-TEST)	The Firm failed to audit the issuer's goodwill impairment analysis.	KPMG, 09/25/2005, Issuer F
	The Firm failed to test all the relevant assertions regarding cost of goods sold.	Crowe Chizek, 01/19/2006, Issuer E
	There was no evidence . . . that the Firm had performed audit procedures related to the income tax provision, deferred tax assets and liabilities, or related footnote disclosures.	McGladrey & Pullen, 04/29/2008, Issuer B
Failure to adequately or properly evaluate an accounting issue and/or whether the accounting treatment was appropriate (NO-EVAL)	There was no evidence . . . that the Firm had evaluated whether the issuer complied with SFAS No. 144.	Grant Thornton, 06/28/2007, Issuer E
	There was no evidence . . . that the Firm had evaluated whether, in those circumstances, the issuer's decision not to consolidate those licensees was consistent with FIN 46(R).	Ernst & Young, 04/29/2008, Issuer B
	The Firm failed to sufficiently evaluate whether revenue from . . . was recognized appropriately.	McGladrey & Pullen, 05/06/2009, Issuer D
Failure to perform or document sufficient procedures/analyses when testing (NO-SUFF)	The Firm failed to perform sufficient procedures to test revenue, as the Firm's calculated sample size was insufficient.	PwC, 12/14/2006, Issuer E.
	The Firm failed to perform sufficient procedures to evaluate the issuer's valuation of these securities . . . the Firm failed to evaluate the reasonableness of certain of the assumptions.	Deloitte & Touche, 04/16/2009, Issuer G
	The Firm failed to perform sufficient audit procedures to test the existence and completeness of . . .	BDO Seidman, 07/09/2009, Issuer E

**TABLE 3**  
**Examples of Common Primary Audit Deficiencies**

**Revenues**

Basic principles of revenue recognition—failures to:

- Properly test the timing of booking revenue in connection with the sale of goods and services
- Ensure that all criteria for revenue recognition were met (e.g., to evaluate specific terms in sales contracts)

Complex revenue-generating transactions or processes—failures to adequately test or evaluate:

- Multiple-element arrangements governed by SOP 97-2, Software Revenue Recognition
- Long-term contracts subject to SOP 81-1, Accounting for Performance of Construction-Type and Certain Production-Type Contracts
- Arrangements with multiple deliverables governed by EITF 00-21, Revenue Arrangements with Multiple Deliverables

Confirmations on amounts due from revenue-generating transactions—failures to:

- Perform appropriate procedures when confirmation replies indicated discrepancies
- Perform adequate alternate procedures when customers failed to respond to the request for confirmation
- Properly perform other substantive procedures when the use of confirmations was deemed to be ineffective

Others (e.g., unbilled revenue and other vague descriptions such as “failed to perform sufficient procedures to test revenue”)

**Fair Value Measurements**

Evaluating goodwill and other long-lived assets for impairment and testing the fair values of financial instruments (e.g., derivative instruments, securities, etc.), loans and allowance for loan losses, and acquired assets and liabilities:

- Failures to gain an understanding of the methods and assumptions used to develop the estimate
- Failures to test the reasonableness of significant assumptions and underlying data used to develop the estimate
- Inappropriate reliance on third-party information (e.g., pricing information and/or confirmation responses)
- Failures to evaluate a difference and/or to challenge management’s conclusions (e.g., not testing for impairment despite indicators)

**Other Accounting Estimates**

Accounting for income taxes and related accounts (e.g., tax contingency reserve, valuation allowance, deferred tax assets) and other accounting estimates (e.g., estimated liabilities, allowance for doubtful accounts, etc.):

- When testing management’s process for developing the estimate, failures to obtain an understanding of management’s methodology and/or to test the reasonableness of significant assumptions and underlying data used to develop the estimate
- When developing an independent expectation of the estimate, failures to support the assumptions used and/or to test the underlying data used to develop the estimate

**Nature of Deficiencies**

For the nature of deficiencies, we focus on identifying common auditing issues, similar to those identified by the PCAOB (2008, 2010). We code the nature of deficiencies based on the wording in the inspection report and organize them into primary and secondary audit deficiencies. First, we identify primary audit deficiencies, defined as those that are common for testing specific accounting areas, including revenues, fair value measurements, or other accounting estimates. The primary audit deficiencies are mutually exclusive. See Table 3 for a detailed listing of examples.

Next, we identify secondary audit deficiencies. These deficiencies are common for specific auditing procedures and entail testing internal controls, performing analytical procedures, using the work of specialists, audit sampling, and evaluating adjustments and misstatements. The secondary audit deficiencies are not mutually exclusive and often coincide with primary audit deficiencies. For example, audit deficiencies that relate to testing fair value measurements (a primary audit deficiency) also contain deficiencies that involve using the work of specialists (a secondary audit deficiency). See Table 4 for a detailed listing of examples.

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**TABLE 4**

**Examples of Common Secondary Audit Deficiencies**

**Internal Controls**

Inappropriate reliance on internal controls, thus, failures to properly alter the nature, timing, and extent of substantive testing:

- Failures to test the controls the firms relied on and/or to test the entire time period for which the firms relied on the controls
- Firms relied on controls that they had identified as ineffective during control testing

Inappropriate reliance on information in reports that were generated from the issuer's computer system without adequately testing whether the reports were complete and accurate and whether the underlying systems that generated the reports could be relied on

Inappropriate reliance on internal controls at service organizations—due to the following:

- Failures to obtain and evaluate a service auditor's report (SAR), or to perform other procedures to be able to rely on the controls at the service organization
- Failures to test the issuer's controls that are necessary to support reliance on controls at the service organization
- Failures to perform appropriate procedures when the SAR did not cover a sufficient amount of the period subject to the audit

Others (e.g., inappropriate internal control risk assessments, failures to identify a material weakness in internal controls)

**Others**

Analytical procedures intended to be substantive tests—failures to:

- Develop appropriate expectations and/or to establish appropriate thresholds for differences
- Test the data used in the analytical procedures
- Investigate and/or to corroborate management's explanations for significant unexpected differences

Reliance on the use of others' work (e.g., specialists, internal audit, etc.)—failures to:

- Understand the methods and assumptions used by others and/or to test the data used by others
- Evaluate the qualifications or objectivity of others
- Evaluate discrepancies between others' conclusions and those of the issuer

Audit sampling:

- Using sample sizes that were too small and/or not appropriately testing all of the items in the sample
- Failures to appropriately project the effect of errors identified in the sample to the entire population
- Failures to select a sample that is representative of the underlying population

Failures to sufficiently evaluate the effects of passed adjustments and/or misstatements (e.g., to evaluate quantitative and qualitative factors in concluding on the significance to the financial statements)



## Accounts and Financial Statements Impacted

We identify the specific financial statement account(s) impacted by the audit deficiency from the detailed description included in the inspection report. We then infer the primary emphasis of the financial statement(s) impacted from the specific accounts(s) impacted. In some cases, the audit deficiency does not impact a specific account, but something more general, such as internal controls, journal entries, going-concern evaluations, related-party transactions, or reportable segments.

## Firms' Responses to PCAOB's Findings

For each inspection report, we examine the firm's response, regarding any disagreements, to the PCAOB's findings included in the draft report. We identify four types of responses. First, the firm may acknowledge the PCAOB's findings, but not mention any disagreement with the findings. Second, the firm may acknowledge differences in professional judgment between the firm and the PCAOB's inspectors, without explicitly disagreeing with the findings. Third, the firm may disagree with some of the PCAOB's findings, but not provide a specific defense. Fourth, the firm may disagree with some of the PCAOB's findings and offer specific arguments to defend their position.

## Quality Control Criticisms

For each inspection report, we examine whether there is an indication of quality control criticisms. There are two indicators contained in the inspection reports: (1) the cover page states that it is a public version of the inspection report and that portions of the report are omitted to comply with sections 104 (g)(2) and 105 (b)(5)(A) of SOX and (2) Part I, Section B of the report states that any criticisms of the firm's quality control are discussed in the nonpublic portion of the report.

## RESULTS

### Total Number and Severity of Deficiencies

We coded 664 deficiencies for inspection years 2004 to 2009 (across 48 reports). The average number of deficiencies per report is slightly higher for Big 4 firms (mean = 15.5,  $n = 372$ ) than for second-tier firms (mean = 12.2,  $n = 292$ ), but the difference is not significant ( $t = -1.308$ ,  $p = 0.197$ , two-tailed). However, the average number of deficiencies per report for large firms is considerably higher than that for small firms (mean = 1.6,  $n = 510$ ), as reported by [Hermanson et al. \(2007, 146\)](#).<sup>3</sup> This difference is not surprising because the PCAOB examines many more issuers for large, annually inspected firms than for small, triennially inspected firms. For the largest accounting firms, the PCAOB typically examines 50 to 75 issuers per report ([Evans et al. 2011, A1](#)). For small firms, on the other hand, [Hermanson et al. \(2007, 142\)](#) find that the PCAOB examines, on average, just under three issuers per report.

The detailed coding results are presented in Table 5. We note that the vast majority of deficiencies (88.6 percent) do not result in a misstatement. The most frequent subcategories, by far, are NO-SUFF and NO-EVAL, comprising 53.3 percent and 28.0 percent, respectively, of the total. The proportion of deficiencies for each non-misstatement subcategory is similar for Big 4 firms and second-tier firms ( $p > 0.30$  using Chi-squared tests). Likewise, the rates of deficiencies that do not

<sup>3</sup> As a side note, the descriptions of audit deficiencies in large firm reports appear to be more detailed than in small firm reports. This difference may be driven by the fact that large firms are able to tolerate riskier clients and, in turn, deal with more challenging auditing issues. As a consequence, identified audit deficiencies may involve more complicated matters, which require greater detail to explain.

**TABLE 5**  
**Frequencies of Audit Deficiencies by Severity over Time**

		<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
Misstatement Deficiencies								
RESTATE	Total	17	8	3	3	3	1	35
	[Big 4]	[12]	[5]	[1]	[2]	[3]	[0]	[23]
	(Second-tier)	(5)	(3)	(2)	(1)	(0)	(1)	(12)
NON-GAAP	Total	4	4	5	1	1	6	21
	[Big 4]	[2]	[1]	[2]	[1]	[1]	[3]	[10]
	(Second-tier)	(2)	(3)	(3)	(0)	(0)	(3)	(11)
ERROR	Total	6	5	4	4	0	1	20
	[Big 4]	[6]	[2]	[3]	[4]	[0]	[0]	[15]
	(Second-tier)	(0)	(3)	(1)	(0)	(0)	(1)	(5)
Total	Total	27	17	12	8	4	8	76
	[Big 4]	[20]	[8]	[6]	[7]	[4]	[3]	[48]
	(Second-tier)	(7)	(9)	(6)	(1)	(0)	(5)	(28)
Non-Misstatement Deficiencies								
NO-TEST	Total	10	12	5	5	8	8	48
	[Big 4]	[8]	[5]	[4]	[1]	[3]	[3]	[24]
	(Second-tier)	(2)	(7)	(1)	(4)	(5)	(5)	(24)
NO-EVAL	Total	43	41	35	31	21	15	186
	[Big 4]	[21]	[21]	[19]	[20]	[12]	[12]	[105]
	(Second-tier)	(22)	(20)	(16)	(11)	(9)	(3)	(81)
NO-SUFF	Total	112	73	43	33	38	55	354
	[Big 4]	[63]	[37]	[18]	[18]	[19]	[40]	[195]
	(Second-tier)	(49)	(36)	(25)	(15)	(19)	(15)	(159)
Total	Total	165	126	83	69	67	78	588
	[Big 4]	[92]	[63]	[41]	[39]	[34]	[55]	[324]
	(Second-tier)	(73)	(63)	(42)	(30)	(33)	(23)	(264)
Total Deficiencies	Total	192	143	95	77	71	86	664
	[Big 4]	[112]	[71]	[47]	[46]	[38]	[58]	[372]
	(Second-tier)	(80)	(72)	(48)	(31)	(33)	(28)	(292)

For deficiencies that result in a misstatement, RESTATE means that the issuer restated its financial statements; NON-GAAP means that the accounting firm failed to identify and appropriately address a GAAP departure; and ERROR means that the accounting firm failed to identify and appropriately address an accounting error. For deficiencies that do not result in a misstatement, NO-TEST means the accounting firm failed to test an account and/or an accounting assertion; NO-EVAL means that the accounting firm failed to adequately or properly evaluate an accounting issue and/or whether the accounting treatment was appropriate; and NO-SUFF means that the accounting firm failed to perform or document sufficient procedures/analyses when testing. For each category of deficiencies, we show the number of observations for all firms combined (denoted total), for the Big 4 firms in brackets (Deloitte & Touche, Ernst & Young, KPMG, and PricewaterhouseCoopers), and for the second-tier firms in parentheses (BDO Seidman, Crowe Horwath, Grant Thornton, and McGladrey & Pullen).

result in a misstatement are comparable to those of small firms, as reported by [Hermanson et al. \(2007, 148\)](#).

Deficiencies that lead to a misstatement are identified much less frequently (11.4 percent). The proportion of deficiencies for each misstatement subcategory is similar for Big 4 firms and second-tier firms ( $p > 0.10$  using Chi-squared tests). Further examination of the data indicates that the misstatement deficiencies encompass a broad range of auditing issues, including testing revenues, income taxes, derivatives, debt obligations, leases, and expenses. The [PCAOB \(2008, 10\)](#) made

similar observations for large firms: they note that deficiencies that produce a GAAP departure often involve revenues, income taxes, derivatives, and cash flow presentations.<sup>4</sup>

We note that 35 misstatement deficiencies (or 5.3 percent) result in a restatement of the issuer's financial statements. The rates are comparable for Big 4 firms (6.2 percent) and second-tier firms (4.1 percent). The overall rate of restatements also is very similar to that for small firms (5.1 percent), as reported by [Hermanson et al. \(2010, 148\)](#) for the same time period. We caution, however, that RESTATE deficiencies may be understated because restatements potentially occur *after* the report date. A review of Table 5 indicates that the number of restatements drops considerably over time. While the result is consistent with improved audit quality, inspection reports also have been issued nearer to calendar year end over time ([Roybark 2009](#)). Hence, some of the drop in restatements may be attributable to the shorter period of time (i.e., less time for the restatement to occur).

If the inspection process serves a useful means to the audit industry, then we would expect to observe a decline in audit deficiencies identified in inspection reports over time. While the [PCAOB \(2008, 2\)](#) cautions against drawing conclusions from the total number of deficiencies included in inspection reports, they hint toward some general improvements. To provide further insight, we test for changes in observed deficiencies over time. As noted above (also refer to Table 5), the total number of deficiencies, as well as the number resulting in a misstatement (i.e., more severe deficiencies), declined markedly over the six years:<sup>5</sup> the total deficiencies identified in 2009 ( $n = 86$ ) was just 44.8 percent of the total in 2004 ( $n = 192$ ). Using a repeated-measures (years) test for a linear trend, we find evidence of a downward, linear trend over the six-year period in the total number of deficiencies ( $F = 13.348$ ,  $p = 0.008$ ), the number of misstatement deficiencies ( $F = 16.909$ ,  $p = 0.005$ ), and the number of non-misstatement deficiencies ( $F = 9.813$ ,  $p = 0.017$ ). The findings generally are consistent with those reported by [Hermanson et al. \(2007, 145\)](#), who document that the number of deficiencies for small firms was significantly lower in 2005 than in 2004.

### Nature of Deficiencies

Next, we look at the nature of common audit deficiencies identified in the inspection reports categorized as primary audit deficiencies (i.e., those that are common to testing specific accounting areas) and secondary audit deficiencies (i.e., those that are common to specific auditing procedures). Of the total deficiencies ( $n = 664$ ), 92.3 percent contain at least one common audit deficiency (primary or secondary). Tables 6 and 7 present the frequency of common audit deficiencies over time. Though not tabulated, the data are similar comparing Big 4 firms and second-tier firms. Our findings also are similar to those presented by the [PCAOB \(2008\)](#); however, we provide additional details, especially regarding the frequencies of the unique audit deficiencies over time.

The frequencies of common, primary audit deficiencies are shown in Table 6. We observe a general downward trend in the number of primary deficiencies that involve revenues and other accounting estimates. This finding is encouraging because revenue recognition and other estimates (e.g., reserves and allowances) are often contentious accounting issues that are at the heart of financial scandals. Indeed, [Beasley et al. \(2010\)](#) document that approximately 60 percent of all

<sup>4</sup> The [AICPA's \(2006, 3\)](#) report, on the other hand, indicates that deficiencies that produce GAAP departures most often involve derivatives, segments, securitization arrangements, and related parties. But, the AICPA's report only encompasses one inspection year. Further, the AICPA's approach to categorizing audit deficiencies differs from our approach.

<sup>5</sup> We also observe that the average proportion of misstatement deficiencies (i.e., misstatement deficiencies divided by total deficiencies) declined each year through 2008. The percentages are 15.3, 12.3, 11.0, 9.2, 5.2, and 11.3 from 2004 to 2009, respectively.

**TABLE 6**  
**Frequencies of Common Primary Audit Deficiencies over Time**

**Panel A: Revenues**

	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
Basic principles of revenue recognition	13	9	6	5	5	7	45
Complex revenue-generating transactions or processes	5	7	9	5	7	2	35
Confirmations on amounts due from revenue-generating transactions	18	12	7	3	4	1	45
Others	8	10	5	2	6	4	35
Total	44	38	27	15	22	14	160

**Panel B: Fair Value Measurements**

	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
Evaluating goodwill and other long-lived assets for impairment	10	12	17	8	10	13	70
Testing the fair values of financial instruments (e.g., derivative instruments, securities, etc.)	15	9	10	14	17	24	89
Testing the fair value of loans and the allowance for loan losses	18	13	2	11	10	8	62
Testing the fair value of acquisitions and business combinations	4	9	10	2	4	2	31
Total	47	43	39	35	41	47	252

**Panel C: Other Accounting Estimates**

	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
Accounting for income taxes and related accounts	4	6	5	6	2	4	27
Other accounting estimates (e.g., reserves, accrued liabilities, allowance for doubtful accounts, etc.)	38	28	18	18	8	13	123
Total	42	34	23	24	10	17	150

The data are consistent for Big 4 firms and second-tier firms; thus, we only report the total for all firms.

fraud cases examined from 1998 through 2007 involved revenues, and the next most common issue involved overvaluation of existing assets (e.g., understating reserves and allowances).

We also observe that the number of primary deficiencies that involve fair value measurements is reasonably stable over the six-year period. Accordingly, the make-up of primary deficiencies shifts markedly over time. In 2004, the total number is split fairly evenly across the three common, primary deficiencies. As time progresses, the make-up becomes more heavily weighted toward deficiencies that involve fair value measurements: the percentage increases from 35.3 percent in 2004 to 60.3 percent in 2009. The increase corresponds to a recent increase in the number and significance of accounting standards that deal with fair value accounting. The movement toward fair value accounting has very likely introduced new challenges for the auditor. The details of the PCAOB's inspection reports include the following involving fair value measurements: failures to obtain an understanding of the methods used by management; failures to test the significant assumptions and underlying data that the issuers used; relying on issuer-supplied or third-party

**TABLE 7**  
**Frequencies of Common Secondary Audit Deficiencies over Time**

**Panel A: Internal Controls**

	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
Reliance on internal controls	22	11	5	4	5	17	64
Reliance on information in reports that were generated from the issuer's computer system	13	4	4	1	1	13	36
Reliance on internal controls at service organizations	9	4	3	1	2	6	25
Others	6	5	1	0	3	4	19
Total	50	24	13	6	11	40	144

**Panel B: Others**

	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
Inappropriate reliance on the use of others' work	12	11	13	7	15	13	71
Analytical procedures intended to be substantive tests	25	14	6	8	7	6	66
Audit sampling	19	13	4	3	6	4	49
Evaluating the effects of passed adjustments and/or misstatements	14	11	4	1	2	0	32
Total	70	49	27	19	30	23	218

The data are consistent for Big 4 firms and second-tier firms; thus, we only report the total for all firms.

information without corroborating that information; and failures to challenge management's conclusions, despite indicators that are contradictory (see also [PCAOB 2008](#), 13–14). We suggest that accounting firms may continue to face difficulties auditing fair value measurements, as the accounting profession moves steadily toward fair value accounting.

We cross-reference common, primary audit deficiencies with the severity of deficiencies. Our aim is to determine the extent to which common, primary deficiencies account for misstatements (i.e., RESTATE, NON-GAAP, and ERROR). We find that 58 of 76 (76.3 percent) misstatement deficiencies, including 27 of 35 (77.1 percent) RESTATE deficiencies, fall into the categories of primary audit deficiencies explained above. In order of frequency, misstatement deficiencies most often relate to testing other accounting estimates (non-tax related); testing fair value measurements of derivative instruments and securities and of goodwill and other long-lived assets impairment; and auditing revenues, specifically related to testing basic principles of revenue recognition and complex revenue-generating transactions processes. Looking further, we note that RESTATE deficiencies are generally in line with these common audit deficiencies. By comparison, restatement deficiencies for small firms were most often related to the following accounting areas or issues: mergers, acquisition, consolidation, and equity method; equity transactions; and convertible debt ([Hermanson et al. 2010](#), 69).

Next, we turn to secondary audit deficiencies (i.e., those that are common to specific auditing procedures), shown in Table 7. We note that a significant number of secondary deficiencies relates to testing internal controls over financial reporting (refer to Panel A of Table 7), which is consistent with the [AICPA's \(2006\)](#) report. Surprisingly, the frequency of these deficiencies has increased considerably in the most recent inspection year from an average of 21 for years 2004 to 2008 to 40

in 2009. The most frequent internal control deficiency relates to inappropriate reliance on internal controls for substantive testing. The PCAOB (2008, 17) also observed that firms often did not test controls they relied on, failed to test controls sufficiently, and relied on controls that had been identified as ineffective. Finally, other secondary deficiencies that are most common include an inappropriate reliance on the use of others' work and an insufficient use of analytical procedures intended to be substantive tests (refer to Panel B of Table 7).

### Accounts Impacted

Looking carefully at each audit deficiency ( $n = 664$ , of which many contained multiple references to an account), we identify 703 references to a specific account and 83 references to an accounting issue that did not impact an account (e.g., going-concern evaluation, related-party transaction, and internal controls). We compile a list of the specific accounts that were commonly referenced in the audit deficiencies. Panel A of Table 8 summarizes the frequencies of accounts impacted by deficiencies over time, grouping related accounts together. The frequencies are generally consistent with those reported by the AICPA (2006, 3). We observe that revenues were impacted most often, representing 14.2 percent of the total. The finding is consistent with concerns about improper revenue recognition expressed by Beasley et al. (2010). Other accounts identified frequently in our sample include investment securities and derivatives (10.6 percent), loans and reserve for loan losses (9.3 percent), goodwill and intangibles (9.2 percent), inventories and cost of sales (8.5 percent), and accounts receivable and allowance for bad debts (7.0 percent). The findings are generally consistent with those for small firms reported by Hermanson et al. (2007, 149). In contrast, however, Hermanson et al. (2007) also report that deficiencies frequently impact equity-related accounts, liabilities, and expenses (in excess of 10.0 percent of the total).

We examine the frequencies of accounts impacted over time to look for notable trends. While revenues are impacted the most in early years (an average of 24.3 from 2004 to 2006), the account is impacted much less frequently in later years (an average of 13.0 from 2007 to 2009). Inventories and costs of sales and accounts receivable and allowance for bad debts also are impacted frequently in 2004 and 2005 and show a marked decline thereafter. In contrast, the frequency of deficiencies impacting investment securities and derivatives has increased every year since 2006, reaching a high of 26 in 2009, more than double that of any other account.

Finally, we note some differences in accounts impacted between Big 4 and second-tier firms (refer to Panel B of Table 8). Specifically, deficiencies identified for Big 4 firms, as compared to second-tier firms, are more likely to impact investment securities and derivatives, accounts receivable and allowance for bad debts, and current liabilities and accrued expenses ( $p < 0.10$  using Chi-squared tests). In contrast, loans and reserve for loan losses and expenses are more likely to be impacted by deficiencies of second-tier firms than Big 4 firms ( $p < 0.05$  using Chi-squared tests). The statistical differences may be attributable to differences in auditor performance (between Big 4 and second-tier firms) and/or differences in the make up of client portfolios. We return to this issue later in the Additional Analyses section.

### Financial Statements Impacted

Based on the accounts identified, we determine the primary emphasis of the financial statement(s) impacted. Table 9 summarizes the frequencies. Of the total deficiencies, 80.9 percent impacted one financial statement, 9.2 percent impacted two financial statements, and 9.9 percent did not relate to a financial statement (e.g., those that relate to internal controls or going-concern evaluations). The total deficiencies impacted 665 financial statements with the balance sheet being impacted the most frequently—69.0 percent. Though not tabulated, the data are very similar for Big 4 firms and second-tier firms. We note that our findings are comparable to those included in the

**TABLE 8**  
**Accounts Impacted by Audit Deficiencies**

**Panel A: Frequencies over Time**

<u>Account</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
Revenues	25	28	20	9	18	12	112
Investment securities and derivatives	19	8	7	11	12	26	83
Loans and reserve for loan losses	23	16	3	13	10	8	73
Goodwill and intangibles	6	16	20	10	10	10	72
Inventories and cost of sales	23	21	8	6	1	8	67
Accounts receivable and allowance	21	13	9	4	6	2	55
Other income and other expenses	11	7	4	6	0	5	33
Taxes (deferred taxes and expense)	7	8	5	6	2	4	32
Fixed assets	11	7	3	3	1	4	29
Expenses (SG&A, payroll depreciation)	11	7	6	1	1	0	26
Current liabilities and accrued expenses	10	5	2	2	2	0	23
Debt and long-term liabilities	6	8	2	3	0	4	23

**Panel B: Frequencies and Percentages for Big 4 and Second-Tier Firms**

<u>Account</u>	<u>Big 4</u>	<u>Percent</u>	<u>Second-Tier</u>	<u>Percent</u>
Revenues	58	16.9	54	19.0
Investment securities and derivatives***	57	16.6	26	9.2
Loans and reserve for loan losses***	25	7.3	48	16.9
Goodwill and intangibles	39	11.3	33	11.6
Inventories and cost of sales	36	10.5	31	10.9
Accounts receivable and allowance*	36	10.5	19	6.7
Other income and other expenses	14	4.1	19	6.7
Taxes (deferred taxes and expense)	20	5.8	12	4.2
Fixed assets	20	5.8	9	3.2
Expenses (SG&A, payroll depreciation)**	9	2.6	17	6.0
Current liabilities and accrued expenses*	17	4.9	6	2.1
Debt and long-term liabilities	13	3.8	10	3.5

\*, \*\*, \*\*\* Indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels (two-tailed), respectively. Percentages are computed as frequencies over the total of 786 accounts impacted. The total is comprised of 703 references to a specific account and 83 references to an accounting issue that did not impact an account (e.g., going-concern evaluation, related-party transactions, and internal controls).

In Panel A, no other account, set of related accounts, or accounting issue comprises at least 2.5 percent of the total. In Panel B, we performed Chi-squared tests for differences in proportions of account frequencies for Big 4 firms and second-tier firms.

AICPA's (2006) report. In addition, our findings are comparable to those of Hermanson et al. (2007, 149) for small firms.

**Firms' Responses to PCAOB's Findings**

We examine firms' responses to the PCAOB's findings in the inspection reports. We note that 30 of 48 responses (62.5 percent) disagree with some of the PCAOB's findings (refer to Table 10). Further examination of the data indicates that disagreements occur more frequently for Big 4 firms

TABLE 9

## Primary Emphasis of the Financial Statement(s) Impacted by Audit Deficiencies

## Panel A: Number of Financial Statements Impacted

	Count	Percent
One financial statement	537	80.9
Two financial statements	61	9.2
None	66	9.9
Total	664	100.0

## Panel B: Financial Statement Impacted

	Count	Percent
Balance sheet	459	69.0
Results of operations	198	29.8
Cash flows	8	1.2
Total	665	100.0

The data in Panels A and B are consistent for Big 4 firms and second-tier firms; thus, we only report the total for all firms.

(79.2 percent) than for second-tier firms (45.8 percent), with the difference being significant (Chi-squared = 5.689,  $p = 0.017$ ). Subsequent analyses indicate that, for Big 4 firms, we are able to reject the null that the frequency of responses in each category is equal (Chi-squared = 10.333,  $p = 0.016$ ). Rather, the responses of Big 4 firms clearly favor disagreements. For second-tier firms, on the other

TABLE 10

## Frequencies of Firms' Responses to PCAOB's Findings

		2004	2005	2006	2007	2008	2009	Total
No mention of disagreement	Total	0	2	1	1	1	5	10
	[Big 4]	[0]	[1]	[0]	[0]	[0]	[2]	[3]
	(Second-tier)	(0)	(1)	(1)	(1)	(1)	(3)	(7)
Difference in professional judgment	Total	3	1	2	0	0	2	8
	[Big 4]	[0]	[0]	[1]	[0]	[0]	[1]	[2]
	(Second-tier)	(3)	(1)	(1)	(0)	(0)	(1)	(6)
Disagreement/no specific defense	Total	2	1	0	3	4	1	11
	[Big 4]	[1]	[1]	[0]	[2]	[2]	[1]	[7]
	(Second-tier)	(1)	(0)	(0)	(1)	(2)	(0)	(4)
Disagreement/specific defense	Total	3	4	5	4	3	0	19
	[Big 4]	[3]	[2]	[3]	[2]	[2]	[0]	[12]
	(Second-tier)	(0)	(2)	(2)	(2)	(1)	(0)	(7)

For each category of response, we show the number of observations for all firms combined (denoted total), for the Big 4 firms in brackets (Deloitte & Touche, Ernst & Young, KPMG, and PricewaterhouseCoopers), and for the second-tier firms in parentheses (BDO Seidman, Crowe Horwath, Grant Thornton, and McGladrey & Pullen).



hand, we are unable to reject the null that the frequency of responses in each category is equal (Chi-squared = 1.000,  $p = 0.801$ ). We note that our rates of disagreement are greater than those for small firms (38.6 percent) reported by [Hermanson et al. \(2007, 141\)](#), particularly our rate for Big 4 firms. The differences are not surprising in that large accounting firms are likely to be more concerned about their reputational capital and they have more resources and wherewithal to disagree with the PCAOB.

Finally, we consider changes in firm responses over time. Although the sample size is small, we observe a noticeable decrease in disagreements in the last year of inspection reports. In 2009, there was only one disagreement (or 12.5 percent) for all large firms' responses, whereas the minimum number of disagreements per year was five (or 62.5 percent) from 2004 to 2008.

### Quality Control Criticisms

For each inspection report, we determine whether there is an indication of quality control criticisms. We find that every large firm has criticisms of quality control in every inspection year 2004 to 2009. However, we note that to date, none of the criticisms have been publicly disclosed. Hence, the quality control defects have either been remediated in a timely fashion, or the firms have, in good faith, made reasonable progress toward remediating the defects.<sup>6</sup> Similarly, [Hermanson and Houston \(2008, 2009\)](#) observe that small firms with quality control defects typically remediate the defect in a timely fashion. For instance, [Hermanson and Houston \(2008, 39\)](#) note that 179 of 199 small firms (89.9 percent) adequately addressed the PCAOB's criticisms in a timely manner.

In contrast to our findings, [Hermanson et al. \(2007\)](#) find that a number of small firms do not receive quality control criticisms. Looking at 2004 and 2005, they document that 89 of 316 firms (28.2 percent) do not experience quality control criticisms. However, we point out that size can have a dramatic impact on the complexity and formality of firms' quality control systems. In fact, the [PCAOB \(2006, 9\)](#) readily acknowledges that firm size is a critical factor in assessing quality control policies and procedures. The quality control criticisms of small firms, for the most part, are attributable to audit performance issues—inferred from deficiencies uncovered in the performance of the audits. By comparison, the quality control criticisms of large firms not only focus on audit performance issues, but also on firms' infrastructure to ensure audit quality. In particular, the [PCAOB \(2006, 10\)](#) scrutinizes policies and procedures that underlie “internal inspections, evaluation and compensation of partners, compliance with independence requirements, establishment and internal communication of policies and procedures, and client acceptance and retention.”

### Additional Analyses

Throughout the paper, we make comparisons between Big 4 and second-tier firms. At this point, we note other differences between the two groups, which are important to keep in mind when assessing our findings. The Big 4 and second-tier firms have very different client portfolios, in terms of the number of issuer clients and the type of issuer clients. Table 11 provides a summary of the firms' issuer-client portfolios for fiscal year 2009 (the last inspection year included in our data).<sup>7</sup>

<sup>6</sup> Because none of the quality control criticisms have been publicly disclosed, we are unable to comment on the nature of the criticisms. However, interested readers are referred to the [PCAOB's report \(2008\)](#), which provides a summary of quality control deficiencies observed for large accounting firms for inspection years 2004 to 2007. Further, [Evans et al. \(2011\)](#) provide a prototype of the nonpublic portions of PCAOB inspection reports for large firms: the paper includes a detailed, representative example of the structure and substance of quality control criticisms included in PCAOB inspection reports for large firms.

<sup>7</sup> For comparisons to small firms, interested readers should consult [Hermanson et al. \(2007\)](#) for client characteristics of triennially inspected firms. Obviously, the small firm issuer client portfolios are considerably smaller than Big 4 and second-tier firms.

**TABLE 11**  
**Firms' Client Portfolios for 2009**  
 (\$s in 000s)

	<u>Big 4</u>	<u>Second-Tier</u>
Issuer clients		
Total number	6,648	1,432
Number inspected by the PCAOB in 2009	267	104
Client characteristics		
Market capitalization***	\$256,952.5	\$70,096.4
Assets***	\$1,193,972.0	\$195,481.2
Revenues***	\$430,147.0	\$92,612.0
Earnings***	\$15,594.5	\$(1,084.5)
Market value/book value***	264.0%	157.2%
Audit fees***	\$507.1	\$328.0
Probability of bankruptcy	0.379	0.401
High-litigation industries***	44.1%	51.9%

\*\*\* Denotes a statistically significant difference at the 1 percent level (two-tailed).

We determine the total number of issuer clients for fiscal 2009 using Audit Analytics. We determine the number of issuers inspected using the PCAOB's inspection reports. For client characteristics, we report issuer-client data for U.S.-based firm audits for fiscal year 2009, per Audit Analytics and Compustat. The probability of bankruptcy is computed following Ohlson (1980). High-litigation industries include biotechnology, computing, electronics, retailing, and financial services (Palmrose 1988; Francis et al. 1994). The cell entries for market capitalization, assets, revenues, earnings, market value/book value, and audit fees are median values, due to extreme observations. The cell entry for probability of bankruptcy is the mean value. We perform t-tests and Mann-Whitney tests to compare client characteristics, excepting high-litigation industries, between Big 4 and second-tier firms. We perform a Chi-squared test to compare the proportion of issuer clients in high-litigation industries between Big 4 and second-tier firms.

As might be expected, the Big 4 firms have far more issuer clients ( $n = 6,648$ ) than second-tier firms ( $n = 1,432$ ) and a higher number of issuers inspected.<sup>8</sup> Using data obtained from Audit Analytics and Compustat, we report key client characteristics to gauge differences in client portfolios between Big 4 and second-tier firms. As shown in Table 11, Big 4 firms' issuer clients, on average, have significantly higher market capitalization, assets, revenues, earnings, market-to-book value ratios, and audit fees than second-tier firms (all  $p$  values  $< 0.01$ , two-tailed). By comparison, second-tier firms have a significantly greater proportion of issuer clients in high-litigation industries than Big 4 firms ( $p < 0.01$ , two-tailed), suggesting more relative exposure.

Although Big 4 and second-tier firms have very different issuer-client portfolios, the issuers selected for inspection may be comparable. Recall that the PCAOB's issuer selection process is risk-based (i.e., the riskiest issuers are selected for inspection). The total number of issuers reviewed each inspection year is a relatively small portion of the firms' issuer-client portfolios (PCAOB 2008). During inspection year 2009, the PCOAB only reviewed 4.0 and 7.3 percent of the Big 4 and second-tier firms' issuer clients, respectively. Even though the two groups' average issuer clients are very different, their high-risk issuers may be relatively alike, each with challenging, complex auditing issues. Therefore, the notable differences in client portfolios may not necessarily

<sup>8</sup> We determine the number of issuer clients using Audit Analytics, and we determine the number of inspected clients using the PCAOB's inspection reports. Beginning in 2010 (for inspection year 2009), the PCAOB's reports disclosed the total number of issuers examined for annually inspected firms. The number for Big 4 firms ranges from 58 to 76 and for second-tier from 13 to 39.

lead to inherent differences in the inspection results of Big 4 and second-tier firms. Indeed, our findings are generally consistent when comparing the two groups of firms.

### CONCLUDING REMARKS

This study provides insight into the PCAOB's inspection results for large, annually inspected accounting firms. The inspection reports identify audit deficiencies that have implications for audit quality. By examining the inspection reports in detail, we can assess the nature and severity of audit deficiencies, track the total number of deficiencies over time, and determine common, recurring audit deficiencies. We document a significant, downward linear trend in the total number of audit deficiencies from 2004 to 2009. This result holds, looking at the number of misstatement and non-misstatement deficiencies separately. We identify common, recurring audit deficiencies, and note that 92.3 (77.0) percent of the total (misstatement) audit deficiencies involve a common, recurring deficiency. Further, we identify the financial statement accounts most often impacted by audit deficiencies and the primary emphasis of the financial statement impacted by audit deficiencies. We also discuss firms' responses to the PCAOB's findings, noting that Big 4 firms have more disagreements than second-tier firms. Finally, we document that every large accounting firm has criticisms of quality control in every inspection year, although all of the criticisms have been addressed in a timely manner (avoiding public disclosure). Our findings should be of interest to academics, practicing accountants, regulators, and users of inspection reports.

Throughout the paper, we make comparisons between Big 4 and second-tier firms and also with the findings for small firms reported by others (e.g., [AICPA 2006](#); [Hermanson et al. 2007](#); [Hermanson and Houston 2008, 2009](#); [PCAOB 2008](#); [Hermanson et al. 2010](#)). For the most part, our findings are consistent across Big 4 and second-tier firms as well as with findings reported elsewhere, although a few differences emerge. The most notable difference involves the accounts impacted by audit deficiencies. We also provide evidence of other differences between Big 4, second-tier, and small firms.

Our findings should be interpreted in light of various limitations. First, our ability to code audit deficiencies into unique categories relies on the wording contained in the inspection reports. That is, the coding is dependent on the standardization and consistency applied by the PCAOB in preparing and disseminating the inspection reports. Second, though we document a steady decline in audit deficiencies over time, the explanation for this finding is unclear. Auditor performance may have improved due to the PCAOB's inspections or due to some other factor(s) (e.g., other aspects entailed in the passage of SOX). Alternatively, accounting firms may have become more adept at dealing with the PCAOB inspection process by providing special attention to issuers that are likely targets for inspection (i.e., high-risk issuers) or by stylizing working papers to appease inspectors (as opposed to producing substantive changes to audit quality). Still another possibility is that the inspection process has changed over time: the PCAOB's inspectors may have become less picky in identifying audit deficiencies or the relative riskiness of inspected engagements may have declined. Third, recall that Parts II and III of the PCAOB's inspection reports are not publicly available. Hence, we are unable to determine the extent to which improvements in accounting firms' quality control procedures led to the decrease in audit deficiencies over time. Finally, we make comparisons throughout the paper with findings reported elsewhere for small accounting firms. Such comparisons, however, are complicated by the fact that small firms have dramatically different client portfolios than large firms. Most small firms are unable to tolerate the exposure associated with risky clients and, thus, encounter less complex auditing issues. Moreover, the inspection process may be more predictable for small firms because it is easier to pinpoint likely candidates for inspection.

Notwithstanding the limitations described above, our study provides useful insights into the inspection results for large firms. But further research is needed to continue to expand our knowledge of PCAOB inspections and whether the inspection process has enhanced audit quality. We encourage future studies to delve into the specific effects that the PCAOB inspections have on large firms' quality control procedures and audit methodology. We also encourage future studies to examine the link between inspection audit deficiencies and overall audit quality. The aim is to *isolate* the effect of inspection outcomes on suitable proxies for audit quality (e.g., [Bedard et al. 2010](#)). While some researchers have begun to address this issue ([Gunny and Zhang 2009](#); [Carcello et al. 2010](#)), the empirical challenges are daunting. Yet, this line of research is needed to shed light on the efficacy of the PCAOB inspection process.

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