Audit Quality Differences in Audits of Federal Programs

Dennis M. López
Assistant Professor
University of Texas – San Antonio
(Doctoral Candidate – University of Arkansas)

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ABSTRACT

This study investigates whether there are differences in audit quality among Circular A-133 audits, better known as *single audits*, when performed by governmental auditors versus independent public accountants. Using a cross-sectional sample of 5,114 single audit reports of U.S. counties, I find evidence indicating that CPA firms are better audit quality providers than government auditors when performing Circular A-133 audits of U.S. county governments. Specifically, I find evidence indicating that CPA firms are more likely to disclose reportable conditions and materials weaknesses than government auditors when performing Circular A-133 audits of counties. Three different groups of CPA firms were investigated—Big N firms, national firms, and local firms. I find evidence that CPA firms, regardless of size, are better audit quality providers than government auditors. Sensitivity tests performed indicate that the results of this study are not driven by any particular U.S. state.

Key Words: Audit quality, single audit, federal funds, material weaknesses, reportable conditions, internal control.

I. Introduction

Every year the federal government disburses billions of dollars to help fund different programs at state and local governments, educational institutions, and other not-for-profit organizations. Governmental and other non-governmental organizations (G&NGOs) receiving more than $300,000 ($500,000 for fiscal years ending after December 31, 2003) in federal awards are required to conform to the single audit requirements of Circular A-133 of the Office of Management and Budget. This study investigates whether there are differences in audit quality among Circular A-133 audits, better known as *single audits*, when performed by governmental auditors versus independent public accountants. Specifically, I investigate the association between auditor type and the likelihood of auditor-disclosed reportable conditions or material weaknesses.

Audit quality in audits of federal programs has been a controversial issue for decades. In 1986 the General Accountability Office (GAO) issued a report stating that 34 percent of the audits of federal programs reviewed during a special investigation were significantly inadequate (GAO/AFMD-86-33). The report also indicates that smaller CPA firms had greater non-compliance problems larger CPA firms. Previous empirical research supports the findings presented in GAO's report. For instance, Brown and Raghunandan (1995), find evidence indicating that Circular A-133 audits are of superior quality when performed by state auditors instead of by independent public accountants. Brown and Raghunandan (1995) builds upon the theory that lower levels of litigation risk in these audits lead independent public accountants to deliver lower quality audits.

Using a cross-sectional sample of 5,114 single audit reports of U.S. counties over the time period 2001-2003, I find evidence indicating that CPA firms are more likely to disclose reportable conditions and material weaknesses than government auditors when performing Circular A-133 audits of U.S county governments. Three different groups of CPA firms were investigated—Big N firms, national firms, and local firms. This study finds evidence that auditors from these any of these three groups are better audit quality providers than government auditors. Sensitivity tests performed indicate that the results of this study are not driven by a particular U.S. state or group of states.

This study adds to the audit quality literature by challenging previous empirical and anecdotal evidence about the performance of CPA firms in audits of governmental and other non-governmental organizations (Brown and Raghunandan, 1995; General Accounting Office, 1986). While potential litigation costs associated with Circular A-133 audits are lower than those of financial statement audits, the reputation costs to CPA firms for delivering a lower quality product remain high. An increased emphasis on the reputation capital of CPA firms during recent years, combined with recent efforts to increase the value of the audit function in the public and private sectors, help to explain the results of this study.

The remainder of this study is organized as follows. Section 2 presents background information and hypothesis development. Section 3 presents the sample selection and methodology. Section 4 presents the empirical results. Section 5 presents the conclusions of this study.

II. Background and Hypothesis Development

The Single Audit Act of 1984 (SAA) requires entities spending more than $300,000 ($500,000 for fiscal years ending after December 31, 2003) in federal awards to have a single or program-specific audit. Before the SAA audits of G&NGOs receiving federal funds were conducted on a grant-by-grant basis and, as a result, some entities were heavily examined while others were completely ignored. The SAA shifted the focus of these audits away from the individual grants and placed the emphasis of the audit on the individual recipients. The SAA also increased the consistency of the audits and made the audit process more demanding by requiring disclosures on compliance with applicable regulations and internal control deficiencies.

The specific reporting requirements and responsibilities of G&NGOs subject to the stipulations of the SAA are detailed in Circular A-133 of the Office of Management and Budget. Circular A-133 is in part the end result of a report issued by GAO in 1986. This report states that many governmental audits performed by CPA firms did not comply with established standards of the SAA. In particular, GAO found that more than 34 percent of the audits reviewed during a special investigation were significantly inadequate. GAO's report helped Congress and other organizations to realize that the auditing measures in place at that time, mainly Attachment P to Circular A-109, were not working as expected and comprehensive changes were necessary.

Circular A-133 solved many of the accountability and compliance problems previous regulation was not able to address. While accountability and compliance are higher now, many single audits are still subject to audit quality problems. Most of these problems arise from the fact that public sector audits carry unique challenges not present

in financial statement audits. First, the operations of G&NGOs are completely different from those of public companies. The primary goal of most G&NGOs is to use the organization's resources to support different programs while complying with applicable regulations and budgetary requirements. Public companies, in contrast, are mostly concerned with maximizing stockholder's wealth. Therefore, the audit plans of G&NGOs need to place greater emphasis on compliance with program requirements and resource utilization. In addition, the Generally Accepted Governmental Auditing Standards (GAGAS) are broader in scope than the Generally Accepted Auditing Standards (GAAS) and require the preparation of reports and the performance of procedures not required by GAAS. Not all CPA firms have the necessary expertise to conduct audits that effectively attend to the particular challenges present in audits of G&NGOs (Hardiman, et al., 1987).

Second, taxpayers tend to be less demanding about the performance of institutions they fund with their tax dollars than stockholders about the performance of the businesses they invest in. For instance, the annual reports of public companies are widely available and heavily examined while the financial statements of G&NGOs tend to receive much less attention. Given a lower level of public oversight in audits of G&NGOs, CPA firms face lower litigation risk in Circular A-133 audits than in financial statement audits (Brown and Raghunandan, 1995). This may motivate some CPA firms to reduce their audit efforts and, as a result, audit quality is negatively affected.

Third, the bidding and contracting procedures followed by many G&NGOs increase the probability of hiring a lower quality provider. For example, auditors are not always allowed access to the entity's accounting records before the contract is awarded

(Hardiman et al., 1987 b). This policy prevents auditors from being able to clearly define the complexity and scope of the audit before being bound by a contract. In addition, some entities have the policy of awarding contracts to the lowest bidder or to award contracts on a one-time basis. All these factors combined with the high costs of preparing a bid decrease the number of capable firms willing to participate in the bidding process.

On the other hand, there are some countervailing factors that motivate CPA firms to keep high-performance standards in audits of G&NGOs. First, the Code of Professional Conduct of the American Institute of Certified Public Accountants (AICPA) requires auditors to exercise due care when performing an audit. AICPA members not adhering to this code risk expulsion or other disciplinary actions. Second, while previous literature has established that governmental audits carry lower levels of litigation risk for the auditors, the reputation costs associated with an audit failure remain high, regardless of whether the client is a business enterprise or a governmental organization (Brown and Raghunandan, 1995; Deis and Giroux, 1992)

Third, recent regulatory changes and increased government oversight over the auditing function in recent years have forced public accounting firms reevaluate their business practices. For example, Sarbanes-Oxley Act of 2002 (hereafter, SOX) requires reports on internal control and further limits the services auditors are allowed to perform for their public company clients. SOX also created the Public Company Accounting Oversight Board (PCAOB), a private non-profit corporation create to oversee the work of auditors of public companies. While most recent regulation is not specific to audits of G&NGOs, these changes are likely to affect CPA firms' general audit practices. In fact,

some state governments have already adopted SOX-like regulations and Congress is considering increased reporting requirements for G&NGOs (Wilson, p. 457).

Previous research investigating audit quality in governmental audits is quite limited. Using simultaneous equations modeling and a sample of recipients of federal financial assistance, Copley et al. (1994) find that audit fees appear to be positively related to the supply of audit quality and inversely related to the demand for audit quality. The results of their study indicate that auditors charge a fee premium for higher quality audits and that higher auditor fees may reduce the levels of audit quality demanded. The findings of Copley et al. (1994) have important implications for this study because, as discussed above, the bidding procedures followed by many G&NGOs place undue importance on costs, decreasing the demand for higher quality audits.

Deis and Giroux (1992) examine the determinants of audit quality in audits performed by small, independent CPA firms in Texas in audits of independent school districts. Their study, focused on small CPA firms, is aimed at determining whether audit quality definitions considered descriptive among auditor size groups are sufficiently robust for auditors within the same size group. Deis and Giroux (1992) find that audit quality differences within an auditor size group are more complex than just using auditor brand name as a surrogate for quality. The researchers conclude that audit hours are a suitable surrogate for audit quality among firms of similar size when other direct measures of quality are not available.

Brown and Raghunandan (1995) examine the results of desk reviews and quality control reviews conducted by the Office of the Inspector General (OIG) of various federal agencies. The main objective of their study is to determine whether there are

differences in the quality of audits performed by governmental auditors and independent public accountants. The researchers find that the quality of the audits performed by state and local auditors is superior to the quality of audits performed by independent public accountants. The authors assert that lower litigation risk when performing government audits may help to explain the results of their study.

In a related study Krishnan and Schauer (2000) examine the association between auditor size and audit quality in not-for-profit entities. The researchers measured the level of compliance with eight GAAP requirements as proxy for audit quality and find evidence that noncompliance increases as one moves from smaller CPA firms to larger CPA firms. Krishnan and Schauer (2000) also find that other factors such as client size, financial health, client wealth, and participation in a peer review process impact audit quality.

Similar to Brown and Raghunandan (1995) and Krishnan and Schauer (2000), the purpose of this study is to determine if auditor type is an audit quality determinant. On the one hand, Krishnan and Schauer (2000) make comparisons among different CPA firm size groups but do not investigate the performance of government auditors in relation to these groups. On the other hand, Brown and Raghunandan (1995) investigate audit quality differences between governmental auditors and CPA firms but do not take CPA firm size into consideration.

This study represents a significant incremental contribution to the literature over previous related studies for several reasons. First, Brown and Raghunandan (1995) compare audit quality in the governmental sector (as measured in the quality control reports submitted to the President's Council on Integrity and Efficiency, PCIE) to the

results of peer reviews for members of SEC Practice Section of the AICPA (SECPS). According to Elder (1997), there are too many differences between governmental quality control programs and SECPS's peer reviews to justify Brown and Raghunandan (1995) conclusions. I compare audit quality in audits performed by CPA firm auditors with that of audits performed by state auditors using the same quality measure *and* the same type of audit for both groups. Second, Brown and Raghunandan (1995) conclusions are mainly funded on descriptive statistics. This study employs regression analysis, a much richer methodology that allows me to control for relevant variables such as program size and other relevant covariates. Third, the results of this study are based on a more recent dataset. Thus, this paper updates related studies by investigating the current state of affairs on the issue (Brown and Raghunandan, 1995; Krishnan and Schauer, 2000).

Audit quality is defined by DeAngelo (1981) as the *probability* that the auditor will both detect and report a breach in the client's accounting system. Circular A-133 requires auditors to report any noted exceptions that could affect compliance with program regulations. While audit quality as defined by DeAngelo (1981) is an unobservable, the *number* of reported exceptions can observed and used as a surrogate for audit quality.

GAAS require disclosed exceptions having the potential of adversely affecting the integrity of the reporting process be classified as reportable conditions (RC) and exceptions with a greater likelihood of affecting the reporting process be classified as material weaknesses (MW). In the particular terms of G&NGOs, a reportable condition is a significant deficiency in the design or operation of internal controls that could adversely affect the entity's ability to administer a federal award program in accordance

with laws and regulations (Wilson et al., 2007; p. 455). A material weakness is a reportable condition of such magnitude that the internal control components do not reduce the risk of material noncompliance to an acceptably low level (Wilson et al., 2007; p. 455).

Higher quality audits should carry a higher probability of disclosing reportable conditions and material weaknesses. Everything else equal, the presence (or absence) of reportable conditions and material weaknesses can act as a proxy for audit quality. This discussion leads us to the research hypotheses of this study:

H1: Ceteris paribus, the probability of disclosing a *reportable condition* is the same for all audits, regardless of auditor type.

H2: Ceteris paribus, the probability of disclosing a *material weakness* is the same for all audits, regardless of auditor type.

The examination of reportable conditions and material weaknesses as a proxy for audit quality is interesting because recent regulatory changes place increased emphasis on internal control over financial reporting in audits of public companies. For instance, in response to recent high profile audit failures PCAOB Standard No. 2 now requires companies to include a report on internal control over financial reporting in their financial statements. In addition, auditors are required to issue an opinion on management's assessment of the company's internal controls. An adverse opinion is warranted if at least one of the internal control exceptions disclosed in the report is considered to be a material weakness by the auditors. Hence, after PCAOB Standard No. 2 the disclosure of reportable conditions and material weaknesses in internal control is no longer an exclusive function of G&NGOs.

Ge and McVay (2005) examine a sample of public companies disclosing material weaknesses in internal control, as required by SOX. The researchers find that material weaknesses in internal control are positively associated with business complexity, negatively associated with company size, and negatively associated with firm profitability. Ge and McVay (2005) also find that being audited by a large CPA firm is positively associated with the probability of reporting material weaknesses. This later finding lends some support to the hypothesis of this study. In a related study Krishnan (2005) finds that the independence and financial expertise of the audit committee members affect the disclosure of reportable conditions and material weaknesses. That is, audits of companies with independent members or financial experts in the audit committee are less likely to disclose reportable conditions or material weaknesses.

The sample selection procedures and the methodology of this study are discussed in the next section.

III. Methodology

Sample Selection

The data for this study were obtained from the Single Audit Clearinghouse of the U.S. Census Bureau. Since 1997 the Clearinghouse maintains a comprehensive database of single audit results and related federal award information. The Clearinghouse also distributes single audit reports among funding federal agencies. The selected sample is composed of single audit reports of U.S. county governments.

County governments were selected as the subject of examination in this study because county operations are relatively complex and most counties receive federal

awards from a diversity of federal agencies. Other recipient groups (i.e., hospitals and educational institutions) receive a significant proportion of their awards from a smaller number of federal agencies. For example, educational institutions generally receive most their awards from the Department of Education and the National Science Foundation. Thus, selecting county audits as the unit of analysis increases the generalizability of the results of this study. In addition, the operations of different counties (within state and between states) tend to be more homogeneous than the operations of other types of entities such as hospitals and educational institutions.

The sample of this study is for fiscal years 2001 to 2003. This sample window was selected because the reporting requirements of Circular A-133 remained relatively unchanged during this period and some of the variables analyzed in this study are only available after year 2000. Data for years 2004 or later were not included in the sample because the trigger for single audits was increased from to $300,000 to $500,000 in 2004. This change had the effect of significantly decreasing the number of smaller entities subject to Circular A-133 single audit requirements.[1]

Audits of U.S. counties were identified by running an automated keyword search of the word "county" in the auditee name field of the Single Audit Clearinghouse database. Only records of entities in the 48 contiguous U.S. states, Alaska, and Hawaii were allowed to enter the sample. This procedure identified a total of 14,896 records. These records were individually checked to discard observations not relating the central

[1] The SAA initially required entities receiving $100,000 or more in federal assistance to be subject to a single audit. As a result, thousands of audits were being imposed on small entities but these audits covered only a small portion of total federal assistance. The SAA was amended in 1996 and the trigger for single audits was increased from $100,000 to $300,000. The trigger was increased again in 2004 to $500,000. As a result, the number of (complete) submissions received by the Federal Audit Clearinghouse decreased from 42,166 in 2003 to 19,278 in 2004. During the same period the number or incomplete submissions increased from 681 to 11,306. Data obtained from the Single Audit Clearinghouse's website.

operations of county governments. A total of 5,117 county-year cross-sectional observations remained in the sample after the elimination of irrelevant observations. Three observations were identified as outliers due to their disproportional large size. The final sample consists of 5,114 cross-sectional county-year observations after the deletion of outlier observations.

Model Development

H1 and H2 are tested using different estimations of the following regressions model:

$$\begin{aligned}\text{Prob}(\textit{Audit\_ Finding}) = {} & \alpha + \beta_1 \text{INTL\_CPA} + \beta_2 \text{NATNL\_CPA} + \beta_3 \text{LOCAL\_CPA} \\ & + \beta_4 \text{SIZE} + \beta_2 \text{RISK} + \beta_3 \text{COMPLEXITY} \\ & + \beta_4 \text{LOCATION} + \beta_5 \text{COG\_AGENCY} + \beta_6 \text{CLIENTS} \\ & + \beta_7 \text{TENURE} + \Sigma\, \beta_i \text{AGENCY}_i + \Sigma\, \beta_j \text{YEAR}_j + \varepsilon\end{aligned}$$

Everything else equal, audits performed by higher quality providers should carry a higher probability of disclosing existing accounting exceptions. The dependent variable of interest, *Audit_Finding*, is operationalized using two different proxies for audit quality—the probability of disclosing a reportable condition (RC) and the probability of disclosing a material weakness (MW). These proxies take the form of indicator variables that equal one if the audit discloses at least one reportable condition, or at least one material weakness, and zero otherwise. Thus, two separate logit models are estimated in the first portion of this study—one for the probability of disclosing a reportable condition and another one for the probability of disclosing a material weakness.

The model is also estimated using ordered logit regression to account for the differences in the degree of severity between reportable conditions and material weaknesses. There are three possible levels or categories in the ordered logit estimation

of the model: (1) no reportable conditions is disclosed by the auditors; (2) at least one reportable condition is disclosed by the auditors; and (3) at least one material weakness is disclosed by the auditors. Ordered logit was selected over basic OLS regression for two reasons. First, the Clearinghouse only discloses whether reportable conditions or material weaknesses exist but the total number of existing exceptions is not disclosed by the database. Second, basic OLS estimation would assume that the intercepts for the different categories are equally spaced. This is an incorrect assumption because it ignores the fact that the distance between two different categories depends of the number and severity of the exceptions disclosed.

There are three independent variables of interest in this study; INTL_CPA, NATNL_CPA, and LOCAL_CPA. These variables are operationalized as indicator variables that categorize CPA firms into three different size groups. Previous research indicates that larger CPA firms are better audit quality providers (Craswell et al., 1995; Francis and Wilson, 1998). Consistent with previous research, the international CPA firm group (INTL_CPA) includes the largest CPA firms in the industry. Firms in this group are better known as the Big 5, now the Big 4, and include Arthur Anderson, Deloitte & Touche, Ernst & Young, KPMG Peat Marwick, and PriceWaterhouseCoopers.

The national CPA firm group (NATNL_CPA) includes all other CPA firms identified in the Compustat file that are not part of the INTL_CPA group. Firms in this group compete at the national and regional levels. A complete list of the firms included in the NATNL_CPA group is presented in Appendix A. The local CPA firms group (LOCAL_CPA) includes all other firms. Most firms in this later group only have one office, a few offices in one state, or a few offices in a given region of the country.

Governmental auditors serve as the baseline condition for this matrix of indicator variables. Everything else equal, a positive and significant coefficient in any of the CPA firm variables indicates that audit quality is higher when the audit is performed by a CPA firm from the indicated group than by government auditors. Conversely, a negative and significant coefficient indicates that audit quality is higher when the audit is performed by government auditors.

The control variables of this study are SIZE, RISK, COMPLEXITY, LOCATION, COG_AGENCY, CLIENTS, TENURE, AGENCY, and YEAR. SIZE equals the log of all federal funds spent by the program. This variable is intended to control for any size-related effects and serve as proxy for potentially omitted variables (Becker et al., 1998; Davidson and Neu, 1993). SIZE is expected to have a negative coefficient since larger entities have more resources to establish better internal control systems (Ge and McVay, 2005; Krishnan, 2005).

Circular A-133 requires auditors to disclose whether the auditee is classified as a high risk auditee. RISK is operationalized as a dummy variable that takes a value of 1 if the auditee was classified as high risk, and zero otherwise. This variable is expected to have a positive coefficient since higher risk audits should be expected to have a greater likelihood of disclosing accounting exceptions. COMPLEXITY is measured as the proportion of the county's total awards classified by the auditor as major programs. In general, Circular A-133 defines major programs as programs that are larger in size or carry higher levels of risk. Thus, COMPLEXITY is expected to have a positive coefficient since audits with higher proportions of major programs are subject to more rigorous levels of examination by the auditors.

LOCATION is the county's population density per square mile. This variable is intended to control for the availability audit resources in the auditee's location. Auditees in more populated areas have access to a greater range audit service providers, increasing competition and the quality of services in the area. In addition, population density can also act as a determinant of the amount and type of federal awards received by a county. Data for this variable were hand-collected from the U.S Census Bureau website. LOCATION is expected to have a positive coefficient.

The Office of Management and Budget assigns a cognizant agency to federal fund recipients spending more than $25 million a year in federal awards.[2] COG_AGENCY is an indicator variable that takes a value of one if the county is assigned a cognizant agency and zero otherwise. In general, cognizance is assigned to the federal agency awarding the predominant amount of direct funding for the recipient. Cognizant agencies are expected to provide technical audit advice to auditees and their auditors and to conduct quality control reviews. Cognizant agencies are also expected to serve as a liaison between the auditee, its auditors, and the agencies providing federal awards. Smaller programs are assigned an oversight agency instead. While oversight agencies may voluntarily perform the same functions performed by cognizant agencies, they are only required to provide technical advice to auditees and their auditors, if requested. Thus, COG_AGENCY controls for possible differences in audit rigor motivated by the presence or absence of a cognizant agency. COG_AGENCY is expected to have a negative coefficient because entities assigned a cognizant agency are subject to higher levels of ongoing oversight and thus should carry a lower likelihood of pre-existing control issues.

[2] This threshold was increased to $50 million for fiscal years ending after December 31, 2003.

Similar to Deis and Giroux (1992), CLIENTS is operationalized as the number of Circular A-133 audits of counties performed by the auditor. Deis and Giroux (1992) investigate the determinants of audit quality in the public sector using a sample of quality control reviews of audits of independent schools districts from the state of Texas. The researchers find a positive association between audit quality and the number of independent school district audits performed by the auditor. This finding is supported by the expectation that the reputation concerns of the auditor should be increasing with the number of specialized audits performed by the firm. CLIENTS is expected to have a positive coefficient. TENURE is the number of years the auditor has performed the audit since 1997. Previous empirical evidence indicates that longer auditor tenures lead to increased audit quality (Frankel et al., 2002; Geiger and Raghunandan, 2002; Johnson et al., 2002; Myers, Myers, and Omer, 2003). Consistent with prior research, TENURE is expected to have a positive coefficient.

AGENCY is a matrix of dummy variables identifying the different federal agencies providing federal awards for the county. These dummies are expected to control for differences in the oversight and monitoring efforts of the funding agencies. This matrix includes dummies for the Department of Agriculture (USDA), the Department of Housing and Urban Development (HUD), the Department of Justice (DOJ), the Department of Labor (LABOR), the Department of Transportation (DOT), the Federal Emergency Management Agency (FEMA), the Department of Education (EDU), and the Department of Health and Human Services (HEALTH). All other agencies serve as the baseline condition and constitute less than 5 percent of all federal awards received by

U.S. county governments during any given year. I also control for possible time effects by using a matrix of year dummies (YEAR).

IV. Empirical Results

Univariate Analysis

Table 2 presents descriptive statistics of the probability of disclosing material weaknesses and reportable conditions by auditor type. The probabilities depicted in this table were calculated by dividing the number of audits disclosing accounting exceptions (i.e., material weaknesses and reportable conditions) by the total number of observations in each group. The sample is partitioned in four different auditor type groups—international CPA firms, national CPA firms, local or regional CPA firms, and governmental auditors.[3] As shown in this table, 29.80 percent and 28.88 percent of the audits performed by international and national CPA firms, respectively, disclose at least one reportable condition. In contrast, only 15.75 percent and 13.80 percent of the audits performed by local CPA firms and government auditors, respectively, disclose at least one reportable condition.

A similar pattern is observed for audits disclosing material weaknesses. The second row of this table shows that 11.37 percent and 12.30 percent of the audits performed by international and national CPA firms, respectively, disclose at least one material weakness. However, only 6.14 percent and 5.36 percent of the audits performed by local CPA firms and government auditors, respectively, disclose at least one material weakness.

[3] See Appendix A for a list of the entities included in each group.

The third row of Table 2 presents the probability of disclosing at least one material weakness, given that reportable conditions were disclosed. Interestingly, the probabilities shown in this row are about the same for all auditor types with the exception that audits performed by national CPA firms display a slightly higher probability of disclosing exceptions than audits performed by firms in the other groups. In sum, the data presented in Table 2 provide evidence that audits performed international and national CPA firms have a greater likelihood of disclosing reportable conditions. However, the probability of disclosing materials weaknesses is about the same for all auditor types after controlling for the existence of reportable conditions.

Table 3 presents descriptive statistics for five different sub-samples generated on the basis of auditor type and size. The first column of this table is for international CPA firms (INTL_CPA); the second column for national CPA firms (NATNL_CPA); the third column for local CPA firms (LOCAL_CPA); the fourth column for government auditors (GOVT_CPA); the fifth column for all CPA firms in the sample; and the sixth and last column is for the sample as a whole. As shown in this table, audits performed by non-government auditors are larger in size and more likely to be assigned a cognizant agency than audits performed by government auditors. This table also shows that the mean value for SIZE decreases as one moves from column 1 to column 4. This highlights the importance of including a control variable for size in the regression model of this study.

The differences in audit size discussed above also reflected in the mean values for COG_AGENCY. For instance, 63.5 percent of the audits conducted by international CPA firms are assigned a cognizant agency whereas only 9.6 percent and 2.0 percent of the audits performed by local CPA firms and government auditors, respectively, are

assigned a cognizant agency. Interestingly, the mean value for the variable RISK increases as one moves from column 1 to column 4. This indicates that, in average, smaller CPA firms and government auditors are more conservative in their risk assessments than larger CPA firms. However, this may also be an indication that smaller counties carry higher levels audit of risk since, as presented in this table, audits of smaller counties are performed by smaller auditors. This is further discussed in the analysis of Table 5 later.

The mean values for LOCATION indicate that, on average, larger CPA firms audit counties in more populated areas while government auditors audit counties in less populated areas. The variable CLIENTS indicate that, in average, government auditors perform most of the audits in any given state. The mean values for CLIENTS and SIZE in columns (1) through (3) present evidence that, on average, CPA firms have the same relative presence in Circular A-133 audits of county governments than in financial statement audits. That is, the mean number of audits performed by CPA auditors in any state increases as one moves from column (3) to column (1). This is an important condition since it provides evidence that the usage of Compustat auditor codes to determine auditor size is appropriate in the context of this study.

Table 4 depicts descriptive statistics by audit findings. There are three different groups of audits are presented in this table—the first group is composed of audits that did not disclosed audit findings; the second group of audits that disclosed at least one reportable condition but no material weaknesses; and the third group of audits that disclosed at least one material weakness. Thus, groups are organized in accordance to the severity of the internal control deficiencies disclosed by the audit, if any. This table

shows that the mean values of RISK and COMPLEXITY increase as one moves from the first group to the third group. This provides partial evidence that auditors' *ex ante* assessments of audit risk and complexity were generally accurate.

Table 5 depicts correlations among the independent variables in this study. Pearson correlations are presented in the lower diagonal of the table and Spearman correlation in the upper diagonal. All correlation coefficients depicted in this table were estimated using all available county-year observations (n = 5,114). The correlation between SIZE and COG_AGENCY is 68.58 percent and 53.39 percent for Person and Spearman, respectively. This is an expected finding since only larger entities are assigned a cognizant agency. The correlation between RISK and SIZE is negative, confirming previous assertions from Table 3 that audits of smaller counties are more likely to be classified by auditors as high risk audits. The correlations in this table also confirm previous assertions about the relationship between SIZE and auditor type.

Multivariate Analysis

Table 6 through 4.9 present the regression results of this study. The independent variables of interest in these tables are the three CPA firm groups identified before: INTL_CPA, NATNL_CPA, and LOCAL_CPA. The estimated coefficients for each of these groups indicate the differential likelihood of disclosing accounting exceptions when the audit is performed by CPA auditors from one of these groups instead of by auditors from the baseline group (i.e., government auditors).

Two logistic regression models are presented in Table 6. The first model is for the probability of disclosing a reportable condition and the second model is for the

probability of disclosing a material weakness. Both models are significant when taken as a whole and have pseudo r-square values of 11.0 percent and 12.6 percent, respectively. The estimated coefficients for INTL_CPA and NATNL_CPA in both models are positive and significant at the .001 level. However, the coefficients for LOCAL_CPA are positive but only significant at the .05 level. However, this provides some evidence that audits performed by CPA firm auditors, regardless of CPA firm size, carry a higher likelihood of disclosing reportable conditions and material weaknesses than audits performed by government auditors.

With respect to the control variables in the regression model, the estimated coefficients for RISK are positive and significant in both models, as expected. The estimated coefficients for SIZE are not in the expected direction but none of the coefficients for this variable is significant. CLIENTS has a negative and significant coefficient ($\alpha = .05$) in both models. This indicates that audit quality, as proxied by the likelihood that the audit will disclose an accounting exception, decreases as the number of county audits performed by an auditor increases. This is an unexpected result but, as shown in Table 2, a significant number of the audits in the sample were performed by small CPA firms. Thus, a negative coefficient for CLIENTS may be capturing the fact that small firms are not independent to their government audit engagements. Additional tests are performed below to further investigate this issue.

Table 7 presents the results for the ordered logit regression. Three intercepts are presented in this model. The baseline intercept is for audits with no audit findings. The second intercept is for audits with material weaknesses and reportable conditions versus baseline of no audit findings. The third intercept is for audits with material weaknesses

versus audits with reportable conditions and baseline of no audit findings. The second and third intercepts are negative, as expected, since the model was estimated using audits with no audit findings as the baseline intercept condition. The model presented in this table is significant at the .001 level when taken as a whole and the pseudo r-square for the model is 9.3 percent. The sign and significance for the estimated coefficients for INTL_CPA, NATNL_CPA, and LOCAL_CPA are consistent with those in Table 6. The same is true for most of the control variables in the regression model. Thus, Table 7 provides evidence that the results of this study are robust to differences in the degree of severity between reportable conditions and material weaknesses.

The evidence presented up to this point may be sensitive to the presence of state-related effects. A variety of reasons support this assertion. First, some states have regulations prohibiting CPA auditors from performing Circular A-133 audits of counties. In contrast, other states have the policy of only engaging CPA firm auditors to perform *all* their Circular A-133 audits. Second, some jurisdictions follow bidding and contracting procedures that are mostly intended to identify the lowest cost provider. These procedures may lead some auditees to overlook other relevant factors such as auditor experience and reputation. Third, the models presented in Table 6 and 4.7 do not control for differences in audit quality among different government auditors.

A matrix of state dummies is added to the regression model in order partially address the issues presented above. The first model in Table 8 is for the probability of disclosing reportable conditions and the second model is for the probability of disclosing material weaknesses. Both models are significant when taken as a whole ($\alpha = .001$) and have pseudo r-squares of 22.8 percent and 27.7 percent, respectively. All regression

coefficients in the first model are consistent with previous specifications of the main regression model. The same is true for the coefficients in the second model. However, the estimated coefficient for INTL_CPA in the second model is negative and not significant and the estimated coefficient for LOCAL_CPA is positive but not significant. This seemingly contradictory finding is partially explained by the fact that, as shown in Table 2, the probability of finding a material weakness, given that a reportable condition is found, is approximately the same for all auditor types.

Table 9 depicts the results of the ordered logit model after the inclusion of a matrix of state dummies in the model. The model, when taken as a whole, is significant at the .001 level and the pseudo r-square for the model is 21.0 percent. The estimated regression coefficients for INTL_CPA, NATNL_CPA, and LOCAL_CPA are positive and significant, providing additional evidence that CPA firms, regardless of size, are better audit quality providers than government auditors.

Sensitivity Analyses

Different specifications of the models were estimated to assess the robustness of the results in this study. First, the models were estimated using the log of funds received from each agency instead of the agency indicator variables used in the estimation of the results presented in Table 1. Results remained qualitatively unchanged after this alternative specification of the model. In addition, SIZE was re-specified as the square root of total awards and the raw value of total awards. Again, results are not sensitive to these alternate definitions of the variable SIZE.

None of the audits from the states of Delaware, Idaho, Maine, Missouri, Nevada, North Dakota, Oregon, Rhode Island, or Utah disclosed material weaknesses during the sample window. Audits coming from these states add to a total of 372 observations. The models were re-estimated after the exclusion of these states from the sample. The interpretation of the models remained unchanged after the exclusion of these observations from the sample. A closer examination of the data also revealed that a great majority of the audits in the state of Virginia were performed by the same local auditor. As shown in Table 2, an average of 16.35 percent and 6.39 percent of all audits in the sample disclosed reportable conditions and material weaknesses, respectively. However, only 4.35 percent and 0.79 percent of the audits in Virginia disclosed reportable conditions and material weaknesses, respectively. Thus, the proportion of county audits from the state Virginia disclosing audit findings is significantly smaller when compared to county audits from the rest of the nation. All previous specifications of the regression model were re-estimated after excluding the state of Virginia from the sample. The estimated coefficients for INTL_CPA, NATNL_CPA, and LOCAL_CPA remained positive and significant.

V. Conclusion

Every year the federal government disburses billions of dollars to help fund different programs at state and local governments, educational institutions, and other not-for-profit organizations. Governmental and other non-governmental organizations (G&NGOs) receiving more than $300,000 ($500,000 for fiscal years ending after December 31, 2003) in federal awards are required to conform to the single audit

requirements of Circular A-133 of the Office of Management and Budget. Despite the magnitude of Federal government spending, previous empirical and anecdotal evidence indicates that audits of government entities performed by CPA firms are subject to audit quality problems (Brown and Raghunandan, 1995; GAO, 1986). This study updates Brown and Raghunandan (1986) study by investigating whether there are still significant audit quality differences among Circular A-133 audits, better known as single audits, when performed by independent public accountants instead of by government auditors.

Using a cross-sectional sample of 5,114 single audit reports of U.S. counties for fiscal years 2001 to 2003, I find evidence indicating that CPA firms are better audit quality providers than government auditors when performing Circular A-133 audits of U.S. county governments. Specifically, I find evidence indicating that CPA firms are more likely to disclose reportable conditions and materials weaknesses than government auditors when performing Circular A-133 audits of county governments. Three different groups of CPA firms were investigated—Big N firms, national firms, and local firms. I find evidence that CPA firms, regardless of size, are better audit quality providers than government auditors. The sensitivity tests performed indicate that the results of this study are robust to the possibility of state-related effects.

This study adds to the audit quality literature by challenging previous empirical and anecdotal evidence about the performance of CPA firms in audits of G&NGO's. While potential litigation costs associated with Circular A-133 audits are lower than those of financial statement audits, the reputation costs to CPA firms for delivering a lower quality product remain high. An increased emphasis on the reputation capital of CPA

firms, especially after the collapse of Arthur Andersen, help to explain the results of this study.

An additional contribution of this study is that it represents one of the first attempts to investigate the issues surrounding the disclosure of material weaknesses and reportable conditions. Recent regulatory changes now make the reporting of these conditions mandatory in audits of financial statements of public companies.

Table 1
Variable Definitions

RC =	1 if the audit disclosed at least one reportable condition; 0 otherwise
MW =	1 if the audit disclosed at least one material weakness; 0 otherwise
INTL_CPA =	1 if audit performed by an international CPA firm, 0 otherwise
NATNL_CPA =	1 if audit performed by a national CPA firm, 0 otherwise
LOCAL_CPA =	1 if audit performed by a local or regional CPA firm, 0 otherwise
GOVT_AUD =	1 if audit performed by a government auditor, 0 otherwise
SIZE =	log of total federal funds received by the county
RISK =	equals 1 if the audit has been identified as high risk by the auditor, 0 otherwise
COMPLEXITY =	percentage of funds received that the auditor identifies as major programs
LOCATION =	population density per square mile
COG_AGENCY =	1 if the county was assigned a cognizant agency, 0 if only an oversight agency was assigned
CLIENTS =	number of Circular A-133 of counties performed by the firm during the year
TENURE =	number of years the auditor has been performing the audit since 1997
USDA =	1 if the Department of Agriculture provided funds for the county, 0 otherwise
HUD =	1 if the Department of Housing and Development for the county, 0 otherwise
DOJ =	1 if the Department of Justice provided funds for the county, 0 otherwise
LABOR =	1 if the Department of Labor provided funds for the county, 0 otherwise
DOT =	1 if the Department of Transportation provided funds for the county, 0 otherwise
FEMA =	1 if the Federal Emergency Management Agency provided funds for the county, 0 otherwise
EDU =	1 if the Department of Education provided funds for the county, 0 otherwise
HEALTH =	1 if the Department of Health and Human Services provided funds for the county, 0 otherwise

OTHER = 1 if other federal government entities provided funds for the county, 0 otherwise; the funding provided by these other agencies compromise less than 5% of all federal funds received by county governments during any given fiscal year

YEAR = matrix of year dummies

STATE = matrix of state dummies

Table 2
Probability of Disclosing a Reportable Condition or Material Weakness by Auditor Type

	Audits performed by international CPA firms	Audits performed by national CPA firms	Audits performed by local CPA firms	Audits performed by government auditors	All observations
	(A)	(B)	(C)	(D)	(E)
Prob (RC)	.2980	.2888	.1575	.1380	.1635
Prob (MW)	.1137	.1230	.0614	.0536	.0639
Prob (MW|RC)	.3816	.4259	.3899	.3886	.3911
n	255	187	3,143	1,529	5,114

See Appendix A for a list of the auditors included in the groups presented in columns A though D above and Table 1 for variable definitions.

Table 3
Descriptive Statistics by Auditor Type

Variable	Intl. CPA Firms (1)	National Firms (2)	Local Firms (3)	Govt. Auditors (4)	All CPA Firms (5)	Whole Sample (6)
SIZE	17.445 *17.522* [1.481]	16.143 *15.864* [1.717]	14.931 *14.713* [1.573]	14.300 *14.180* [1.084]	15.173 *14.925* [1.716]	14.912 *14.635* [1.605]
RISK	0.310 *0.00* [0.463]	0.385 *0.00* [0.488]	0.502 *1.00* [0.500]	0.586 *1.00* [0.493]	0.482 *0.00* [0.500]	0.513 *1.00* [0.500]
COMPLEXITY	0.546 *0.516* [0.211]	0.584 *0.576* [0.203]	0.601 *0.586* [0.208]	0.580 *0.566* [0.186]	0.596 *0.581* [0.208]	0.591 *0.577* [0.202]
LOCATION	6.364 *6.422* [1.238]	5.242 *5.288* [1.228]	4.039 *4.078* [1.493]	4.097 *4.096* [1.159]	4.267 *4.241* [1.597]	4.216 *4.206* [1.481]
COG_AGENCY	0.635 *1.00* [0.482]	0.348 *0.00* [0.477]	0.096 *0.00* [0.294]	0.020 *0.00* [0.141]	0.147 *0.00* [0.354]	0.109 *0.00* [0.312]
CLIENTS	29.384 *25.000* [14.095]	14.187 *18.000* [6.368]	8.519 *3.000* [15.160]	52.284 *58.000* [24.745]	10.299 *3.000* [15.721]	22.852 *8.000* [26.940]
TENURE	4.550 *5.000* [1.776]	3.952 *4.000* [2.030]	3.557 *3.000* [2.075]	4.294 *5.000* [2.126]	3.648 *4.000* [2.069]	3.841 *4.000* [2.107]
USDA	0.933 *1.00* [0.250]	0.930 *1.00* [0.255]	0.786 *1.00* [0.411]	0.672 *1.00* [0.470]	0.804 *1.00* [0.397]	0.764 *1.00* [0.425]
HUD	0.902 *1.00* [0.298]	0.695 *1.00* [0.462]	0.715 *1.00* [0.451]	0.660 *1.00* [0.474]	0.727 *1.00* [0.445]	0.707 *1.00* [0.455]
DOJ	0.988 *1.00* [0.108]	0.957 *1.00* [0.203]	0.887 *1.00* [0.317]	0.873 *1.00* [0.333]	0.898 *1.00* [0.303]	0.890 *1.00* [0.312]
LABOR	0.682 *1.00* [0.466]	0.428 *0.00* [0.496]	0.269 *0.00* [0.443]	0.253 *0.00* [0.435]	0.307 *0.00* [0.461]	0.291 *0.00* [0.454]
DOT	0.918 *1.00* [0.275]	0.765 *1.00* [0.425]	0.686 *1.00* [0.464]	0.714 *1.00* [0.452]	0.707 *1.00* [0.455]	0.709 *1.00* [0.454]

Variable	Intl. CPA Firms (1)	National Firms (2)	Local Firms (3)	Govt. Auditors (4)	All CPA Firms (5)	Whole Sample (6)
DOT	0.918 *1.00* [0.275]	0.765 *1.00* [0.425]	0.686 *1.00* [0.464]	0.714 *1.00* [0.452]	0.707 *1.00* [0.455]	0.709 *1.00* [0.454]
FEMA	0.847 *1.00* [0.361]	0.802 *1.00* [0.399]	0.713 *1.00* [0.452]	0.700 *1.00* [0.458]	0.727 *1.00* [0.445]	0.719 *1.00* [0.449]
EDU	0.647 *1.00* [0.479]	0.460 *0.00* [0.500]	0.337 *0.00* [0.473]	0.388 *0.00* [0.488]	0.365 *0.00* [0.482]	0.372 *0.00* [0.483]
HEALTH	0.992 *1.00* [0.088]	0.963 *1.00* [0.190]	0.864 *1.00* [0.343]	0.764 *1.00* [0.424]	0.878 *1.00* [0.327]	0.844 *1.00* [0.363]
OTHER	0.863 *1.00* [0.345]	0.807 *1.00* [0.395]	0.616 *1.00* [0.487]	0.504 *1.00* [0.500]	0.643 *1.00* [0.479]	0.601 *1.00* [0.490]
n	255	187	3,143	1,529	3,585	5,114

See Table 1 for variable definitions.

Table 4
Descriptive Statistics by Audit Findings

	GROUP 1			GROUP 2			GROUP 3		
	Audit disclosed no reportable conditions or material weaknesses (n=4,278)			Audit disclosed at least one reportable condition but no material weaknesses (n=509)			Audit disclosed at least one material weakness (n=327)		
Variable	**Mean**	**Median**	**Standard Deviation**	**Mean**	**Median**	**Standard Deviation**	**Mean**	**Median**	**Standard Deviation**
INTL_CPA	0.042	0.00	0.200	0.092	0.00	0.290	0.089	0.00	0.285
NATNL_CPA	0.031	0.00	0.174	0.061	0.00	0.239	0.070	0.00	0.256
LOCAL_CPA	0.619	1.00	0.486	0.593	1.00	0.492	0.590	1.00	0.493
GOVT_CPA	0.308	0.00	0.462	0.253	0.00	0.435	0.251	0.00	0.434
SIZE	14.840	14.585	1.536	15.391	15.038	1.935	15.113	14.846	1.776
RISK	0.478	0.00	0.500	0.591	1.00	0.492	0.844	1.00	0.363
COMPLEXITY	0.587	0.571	0.205	0.600	0.588	0.193	0.637	0.620	0.170
LOCATION	4.156	4.153	1.435	4.586	4.542	1.753	4.429	4.421	1.520
COG_AGENCY	0.095	0.00	0.293	0.212	0.00	0.409	0.135	0.00	0.342
CLIENTS	23.422	9.000	27.540	19.974	6.000	23.987	19.869	11.000	22.573
TENURE	3.836	4.000	2.106	3.819	4.000	2.102	3.942	4.000	2.126
USDA	0.753	1.00	0.431	0.837	1.00	0.370	0.792	1.00	0.406
HUD	0.701	1.00	0.457	0.729	1.00	0.445	0.749	1.00	0.434
DOJ	0.887	1.00	0.316	0.904	1.00	0.295	0.911	1.00	0.285
LABOR	0.271	0.00	0.445	0.405	0.00	0.491	0.364	0.00	0.482
DOT	0.701	1.00	0.458	0.782	1.00	0.413	0.691	1.00	0.463
FEMA	0.715	1.00	0.451	0.745	1.00	0.437	0.737	1.00	0.441
EDU	0.370	0.00	0.483	0.385	0.00	0.487	0.379	0.00	0.486
HEALTH	0.833	1.00	0.373	0.916	1.00	0.278	0.887	1.00	0.317
OTHER	0.586	1.00	0.493	0.707	1.00	0.455	0.633	1.00	0.483

See Table 1 for variable definitions.

Table 5
Pearson Correlations among Discretionary Accruals, WLC, and Control Variables

	INTL_CPA	NATNL_CPA	LOCAL_CPA	GOVT_CPA	SIZE	RISK	COMPLEXITY	LOCATION	COG_AGENCY	CLIENTS	TENURE
INTL_CPA	**1.00**	-0.045	-0.289	-0.150	0.293	-0.093	-0.054	0.291	0.386	0.139	0.076
NATL_CPA	-0.045	**1.00**	-0.246	-0.127	0.138	-0.050	-0.006	0.140	0.149	0.035	0.010
LOCL_CPA	-0.289	-0.246	**1.00**	-0.825	0.029	-0.029	0.063	-0.126	-0.055	-0.715	-0.170
GOVT_CPA	-0.150	-0.127	-0.825	**1.00**	-0.227	0.095	-0.040	-0.062	-0.186	0.680	0.141
SIZE	0.362	0.149	0.015	-0.249	**1.00**	-0.234	0.038	0.490	0.534	0.032	0.296
RISK	-0.093	-0.050	-0.029	0.095	-0.215	**1.00**	0.402	-0.163	-0.115	0.035	-0.195
COMPLEX	-0.051	-0.007	0.060	-0.037	0.064	0.392	**1.00**	-0.067	0.047	-0.139	-0.228
LOCATION	0.332	0.135	-0.151	-0.053	0.533	-0.140	-0.065	**1.00**	0.375	0.046	0.141
COG_AGCY	0.386	0.149	-0.055	-0.186	0.686	-0.115	0.053	0.415	**1.00**	-0.034	0.079
CLIENTS	0.056	-0.063	-0.672	0.714	-0.048	0.049	-0.152	0.049	-0.099	**1.00**	0.252
TENURE	0.077	0.010	-0.170	0.140	0.250	-0.197	-0.229	0.140	0.080	0.287	**1.00**
USDA	0.091	0.076	0.064	-0.142	0.403	-0.142	-0.195	0.067	0.177	0.099	0.318
HUD	0.098	-0.005	0.022	-0.068	0.228	-0.005	0.029	0.168	0.176	-0.115	-0.008
DOJ	0.072	0.042	-0.014	-0.036	0.212	-0.105	-0.174	0.238	0.105	0.032	0.180
LABOR	0.198	0.059	-0.060	-0.054	0.471	-0.056	-0.105	0.320	0.306	0.156	0.163
DOT	0.105	0.024	-0.064	0.008	0.229	-0.154	-0.181	0.170	0.124	0.029	0.157
FEMA	0.065	0.036	-0.017	-0.028	0.124	-0.029	-0.028	0.051	0.072	-0.032	0.046
EDU	0.130	0.035	-0.092	0.022	0.407	-0.098	-0.146	0.204	0.192	0.282	0.246
HEALTH	0.093	0.064	0.069	-0.144	0.311	-0.200	-0.285	0.095	0.145	0.082	0.292
OTHER	0.122	0.082	0.037	-0.131	0.292	-0.140	-0.145	0.144	0.156	-0.070	0.125

	USDA	HUD	DOJ	LABOR	DOT	FEMA	EDU	HEALTH	OTHER
INTL_CPA	0.091	0.098	0.072	0.198	0.105	0.065	0.130	0.093	0.122
NATL_CPA	0.076	-0.005	0.042	0.059	0.024	0.036	0.035	0.064	0.082
LOCL_CPA	0.064	0.022	-0.014	-0.060	-0.064	-0.017	-0.092	0.069	0.037
GOVT_CPA	-0.142	-0.068	-0.036	-0.054	0.008	-0.028	0.022	-0.144	-0.131
SIZE	0.439	0.218	0.231	0.466	0.240	0.122	0.434	0.337	0.303
RISK	-0.142	-0.005	-0.105	-0.056	-0.154	-0.029	-0.098	-0.200	-0.140
COMPLEX	-0.193	0.029	-0.169	-0.106	-0.184	-0.029	-0.144	-0.279	-0.140
LOCATION	0.069	0.159	0.254	0.309	0.172	0.056	0.195	0.110	0.144
COG_AGCY	0.177	0.176	0.105	0.306	0.124	0.072	0.192	0.145	0.156
CLIENTS	0.087	-0.065	0.038	0.154	0.051	0.011	0.278	0.078	-0.036
TENURE	0.315	-0.006	0.181	0.162	0.157	0.041	0.245	0.289	0.126
USDA	**1.00**	-0.053	0.108	0.244	0.168	0.067	0.313	0.486	0.211
HUD	-0.053	**1.00**	0.107	0.181	0.010	0.057	0.095	-0.038	0.078
DOJ	0.108	0.107	**1.00**	0.131	0.164	0.097	0.173	0.179	0.149
LABOR	0.244	0.181	0.131	**1.00**	0.145	0.026	0.441	0.228	0.180
DOT	0.168	0.010	0.164	0.145	**1.00**	0.062	0.107	0.213	0.168
FEMA	0.067	0.057	0.097	0.026	0.062	**1.00**	0.039	0.064	0.021
EDU	0.313	0.095	0.173	0.441	0.107	0.039	**1.00**	0.258	0.163
HEALTH	0.486	-0.038	0.179	0.228	0.213	0.064	0.258	**1.00**	0.128
OTHER	0.211	0.078	0.149	0.180	0.168	0.021	0.163	0.128	**1.00**

Pearson correlations are presented in the lower diagonal and Spearman correlations in the upper diagonal. All coefficients are estimated using all available firm-year observations in the final sample (n=5,208). See Table 1 for variable definitions.

Table 6
Logistic Regression of the Probability of Disclosing at Least One Reportable Condition or Material Weakness

$$\text{Prob}(\textit{Audit\_Finding}) = \alpha + \beta_1 \text{INTL\_CPA} + \beta_2 \text{NATLN\_CPA} + \beta_3 \text{LOCAL\_CPA} + \beta_4 \text{SIZE} + \beta_5 \text{RISK} + \beta_6 \text{COMPLEXITY} + \beta_7 \text{LOCATION} + \beta_8 \text{COG\_AGENCY} + \beta_9 \text{CLIENTS} + \beta_{10} \text{TENURE} + \Sigma\, \beta_j \text{AGENCY}_j + \Sigma\, \beta_j \text{YEAR}_j + \varepsilon$$

		Model #1		**Model #2**	
		Prob (RC)		**Prob (MW)**	
Variable	**Expected Sign**	**Coefficient Estimate**	**Logit p-value**	**Coefficient Estimate**	**Logit p-value**
Intercept	-/+	-4.332	<.001	-6.374	<.001
INTL_CPA	-/+	1.098	<.001	1.390	<.001
NATNL_CPA	-/+	1.002	<.001	1.307	<.001
LOCAL_CPA	-/+	0.242	0.020	0.327	0.037
SIZE	-	0.041	0.381	0.050	0.486
RISK	+	1.193	<.001	1.993	<.001
COMPLEXITY	+	-0.070	0.779	-0.004	0.992
LOCATION	+	0.088	0.010	0.073	0.166
COG_AGENCY	-	0.174	0.293	-0.372	0.159
CLIENTS	+	-0.017	<.001	-0.012	0.030
TENURE	+	-0.002	0.921	0.045	0.161
USDA	-/+	0.157	0.200	-0.007	0.969
HUD	-/+	0.003	0.976	0.152	0.285
DOJ	-/+	0.011	0.939	0.178	0.409
LABOR	-/+	0.370	<.001	0.224	0.149
DOT	-/+	0.132	0.158	-0.096	0.475
FEMA	-/+	0.062	0.498	0.056	0.683
EDU	-/+	-0.225	0.024	-0.113	0.458
HEALTH	-/+	0.617	<.001	0.521	0.015
YEAR2002	-/+	-0.017	0.864	0.124	0.410
YEAR2003	-/+	0.108	0.276	0.314	0.036
Chi-square		341.92		249.77	
(p-value)		<.001		<.001	
Pseudo R2		0.1097		0.1260	
AIC		4,255.46		2,223.22	
N		5,114		5,114	

See Table 1 for variable definitions.

Table 7
Ordered Logit Regression of the Probability of Disclosing at Least One Reportable Condition or Material Weakness

$$\text{Prob (MWRC)} = \alpha_1 + \alpha_2 + \beta_1 \text{INTL\_CPA} + \beta_2 \text{NATLN\_CPA} + \beta_3 \text{LOCAL\_CPA} + \beta_4 \text{SIZE} + \beta_5 \text{RISK} + \beta_6 \text{COMPLEXITY} + \beta_7 \text{LOCATION} + \beta_8 \text{COG\_AGENCY} + \beta_9 \text{CLIENTS} + \beta_{10} \text{TENURE} + \Sigma\, \beta_j \text{AGENCY}_j + \Sigma\, \beta_j \text{YEAR}_j + \varepsilon$$

Variable	Expected Sign	Coefficient Estimate	Logit p-value
Intercept3	-/+	-5.517	<.001
Intercept2	-/+	-4.406	<.001
INTL_CPA	-/+	1.141	<.001
NATNL_CPA	-/+	1.025	<.001
LOCAL_CPA	-/+	0.247	0.016
SIZE	-	0.042	0.368
RISK	+	1.226	<.001
COMPLEXITY	+	-0.024	0.924
LOCATION	+	0.080	0.019
COG_AGENCY	-	0.104	0.526
CLIENTS	+	-0.016	<.001
TENURE	+	0.005	0.815
USDA	-/+	0.137	0.258
HUD	-/+	0.015	0.872
DOJ	-/+	0.033	0.812
LABOR	-/+	0.345	<.001
DOT	-/+	0.116	0.210
FEMA	-/+	0.063	0.492
EDU	-/+	-0.205	0.038
HEALTH	-/+	0.631	<.001
YEAR2002	-/+	-0.001	0.991
YEAR2003	-/+	0.135	0.167
Chi-square		350.68	
(p-value)		<.001	
Pseudo R2		0.099	
AIC		5,367.71	
N		5,114	

Variables are defined as follows:
Intercept3 = material weakness versus baseline of reportable condition and no audit findings
Intercept2 = material weakness and reportable condition versus baseline of no audit findings
RCMW = 1 if the audit did not disclose any reportable conditions or material weaknesses, 2 if the audit disclosed at least one reportable condition, and 3 if the audit disclosed at least one material weakness

See Table 1 for the definitions of the other variable depicted in this table.

Table 8
Logistic Regression of the Probability of Disclosing at Least One Reportable Condition or Material Weakness with Control Dummies for State-Related Effects

$$\text{Prob}(\textit{Audit\_Finding}) = \alpha + \beta_1 \text{INTL\_CPA} + \beta_2 \text{NATLN\_CPA} + \beta_3 \text{LOCAL\_CPA} + \beta_4 \text{SIZE} + \beta_5 \text{RISK} + \beta_6 \text{COMPLEXITY} + \beta_7 \text{LOCATION} + \beta_8 \text{COG\_AGENCY} + \beta_9 \text{CLIENTS} + \beta_{10} \text{TENURE} + \Sigma\, \beta_j \text{AGENCY}_j + \Sigma\, \beta_j \text{YEAR}_j + \varepsilon$$

		Model #1		**Model #2**	
		Prob (RC)		**Prob (MW)**	
Variable	**Expected Sign**	**Coefficient Estimate**	**Logit p-value**	**Coefficient Estimate**	**Logit p-value**
Intercept	-/+	-5.019	<.001	-6.873	<.001
INTL_CPA	-/+	0.764	0.017	-0.207	0.701
NATNL_CPA	-/+	1.529	<.001	1.474	<.001
LOCAL_CPA	-/+	0.589	0.003	0.369	0.181
SIZE	-	0.155	0.017	0.184	0.073
RISK	+	1.326	<.001	2.066	<.001
COMPLEXITY	+	0.220	0.430	-0.244	0.581
LOCATION	+	0.109	0.033	0.042	0.604
COG_AGENCY	-	0.089	0.629	-0.079	0.790
CLIENTS	+	0.005	0.452	0.035	0.004
TENURE	+	0.042	0.078	0.084	0.019
USDA	-/+	0.190	0.168	-0.116	0.578
HUD	-/+	-0.080	0.465	-0.086	0.610
DOJ	-/+	-0.039	0.796	0.296	0.198
LABOR	-/+	0.387	0.002	-0.045	0.821
DOT	-/+	-0.238	0.029	-0.523	<.001
FEMA	-/+	0.066	0.524	-0.042	0.790
EDU	-/+	0.104	0.410	-0.040	0.837
HEALTH	-/+	0.451	0.024	0.198	0.530
YEAR2002	-/+	-0.030	0.770	0.139	0.383
YEAR2003	-/+	0.094	0.374	0.306	0.059
STATE		(not reported)		(not reported)	
Chi-square		738.67		554.64	
(p-value)		<.001		<.001	
Pseudo R2		0.228		0.277	
AIC		3,946.72		2,006.34	
N		5,114		5,114	

See Table 1 for variable definitions.

Table 9
Ordered Logit Regression of the Probability of Disclosing at Least One Reportable Condition or Material Weakness with Control Dummies for State-Related Effects

$$\text{Prob (MWRC)} = \alpha_1 + \alpha_2 + \beta_1\text{INTL\_CPA} + \beta_2\text{NATLN\_CPA} + \beta_3\text{LOCAL\_CPA} + \beta_4\text{SIZE} + \beta_5\text{RISK} + \beta_6\text{COMPLEXITY} + \beta_7\text{LOCATION} + \beta_8\text{COG\_AGENCY} + \beta_9\text{CLIENTS} + \beta_{10}\text{TENURE} + \Sigma\,\beta_j\text{AGENCY}_j + \Sigma\,\beta_j\text{YEAR}_j + \varepsilon$$

Variable	Expected Sign	Coefficient Estimate	Logit p-value
Intercept3	-/+	-6.174	<.001
Intercept2	-/+	-4.955	<.001
INTL_CPA	-/+	0.687	0.029
NATNL_CPA	-/+	1.532	<.001
LOCAL_CPA	-/+	0.555	0.004
SIZE	-	0.153	0.017
RISK	+	1.371	<.001
COMPLEXITY	+	0.195	0.477
LOCATION	+	0.099	0.047
COG_AGENCY	-	0.039	0.830
CLIENTS	+	0.007	0.251
TENURE	+	0.044	0.060
USDA	-/+	0.175	0.198
HUD	-/+	-0.109	0.310
DOJ	-/+	0.032	0.832
LABOR	-/+	0.318	0.010
DOT	-/+	-0.262	0.014
FEMA	-/+	0.059	0.562
EDU	-/+	0.072	0.556
HEALTH	-/+	0.419	0.034
YEAR2002	-/+	-0.005	0.961
YEAR2003	-/+	0.128	0.219
STATE		(not reported)	
Chi-square		776.16	
(p-value)		<.001	
Pseudo R2		0.210	
AIC		5,030.23	
n		5,114	

Variables are defined as follows:
Intercept3 = material weakness versus baseline of reportable condition and no audit findings
Intercept2 = material weakness and reportable condition versus baseline of no audit findings
RCMW = 1 if the audit did not disclose any reportable conditions or material weaknesses, 2 if the audit disclosed at least one reportable condition, and 3 if the audit disclosed at least one material weakness

See Table 1 for the definitions of the other variable depicted in this table.

Appendix A
Auditor Type Designation Procedures

State Auditors
This group includes all auditing bodies that are part of the state and local governments. Among others, this group includes oversight groups such as the Office of State Auditor, Office of the Comptroller of the State, and the Treasurer of the State.

International CPA Firms
This group include firms better known as the Big 5 (or the Big 4 after the dissolution of Arthur Andersen). Firms in this group have offices throughout the U.S. and in multiple international locations.

Arthur Anderson
Deloitte & Touche
Ernst & Young
KPMG Peat Marwik
PriceWaterhouseCoopers

National CPA Firms
This group includes all other firms identified in the Compustat file that are not part of the Big 5. Firms in this group have offices in multiple states of the Nation.

Altschuler, Melvoin & Glasser
BDO Seidman
Baird, Kurtz & Dobson (BKD)
Cherry, Bekaert & Holland
Clarkson & Gordon
Clifton & Gunderson
Crowe Chizek
Grant Thornton
J.H. Cohn
Kenneth Leventhal
Laventhol & Horwath
McGladrey & Pullen
Moore Stephens
Moss Adams
Pannell Kerr Forster
Plante & Moran
Richard A. Eisner
Spicer & Oppenheim

Local CPA Firms
This group is composed of all other firms not included in any of the groups presented above. Most of the firms in this group consist of only one office, a few offices in one state, or a few offices in particular region of the country.