Accountability in County Governments: Is Auditor Type Related to Audit Quality?

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This study examines governmental audit quality by focusing on differences in the quantity of audit findings reported by public-sector auditors (state audit employees) versus private-sector auditors. Audit reports from 81 Mississippi county governments are examined. Regression results indicate private-sector auditors report significantly fewer audit findings than do public-sector auditors. Results also reveal a significant increase (decrease) in reported audit findings in the fiscal year following a change from a private-sector auditor to a public-sector auditor (public-sector auditor to private-sector auditor). These results have important implications concerning the quality of governmental audits performed by the private sector.

INTRODUCTION

The objectives of the governmental audit process include the expression of an opinion concerning the fair presentation of the governmental unit's financial statements, an assessment of the adequacy of the government's internal control over financial reporting, and tests of the government's compliance with applicable laws and regulations. This process not only allows the citizenry to monitor the performance of elected officials but also provides a mechanism by which those elected officials can improve performance based on the findings from the audit.

A state's audit agency is responsible for performing annual audits of the state and local government entities. That office also has the authority to contract with qualified public accounting firms to perform those audits. In many states, this results in some audits being performed by public-sector auditors (state audit employees) and other audits being performed by private-sector auditors (certified public accounting firms or sole practitioners). This study contrasts the quality of audits performed by governmental audit agencies with audits performed by private firms.

Governmental audit quality has long been a significant issue in the accounting profession (Deis & Giroux, 1992, Samelson, et. al., 2006). Prior literature suggests that, among private-sector auditors, differences in audit quality may exist between large audit firms and small audit firms (Feltham, et. al., 1991; Lee, et. al., 2003; Mansi, et. al., 2004; Tate, 2007; Kitching, 2009; Lai, 2009; Choi, et. al., 2010). Consequently, many prior studies have measured audit quality on the basis of the size or class of the audit firm and the magnitude of audit fees. Copley and Doucet (1993), however, stated that a lack of suitable audit quality measures has limited the potential empirical investigations of quality related issues.

Governmental audits provide a unique opportunity to evaluate audit quality on the basis of audit findings, a measure that prior literature has addressed only on a limited basis.

In this study, audit quality is assessed on the basis of audit findings. The selection of this audit quality measure is based on the Auditor-Reputation Explanation (DeAngelo, 1981b; Deis and Giroux, 1992) and the Power-Conflict Explanation (Goldman and Barlev, 1974; Deis and Giroux, 1992) and ties closely to the objectives of the governmental audit process.

When auditors of governmental financial statements report few or no audit findings, users of these financial statements should be able to conclude that the governmental entity has complied with all material laws and regulations and that internal controls over financial reporting are adequate. Conversely, reporting few or no audit findings could indicate the auditor's failure to either discover or report breaches in the client's accounting system. If financial statement users are unable ascertain the meaning behind an audit report that contains few or no findings, then the audit process will not achieve its objectives, and public trust in the audit profession will suffer as a result. Auditors must perform high-quality audits in accordance with *Government Auditing Standards* for the audit process to properly achieve its objectives.

This study examines all available county audit reports (81) issued in the State of Mississippi for fiscal year 2007. Poisson regression is used to determine whether the quantity of total audit findings is associated with the type of auditor, while controlling for other variables that influence the complexity of the audit. Results indicate that private-sector auditors issue significantly fewer audit findings than do public-sector auditors. Further analysis reveals that this result is applicable to noncompliance findings and findings considered to be material weaknesses in internal controls. However, no significant difference was found concerning the issuance of internal control findings that were not considered to be material weaknesses. Results also indicate a significant increase in reported audit findings in the fiscal year following a change from a private-sector auditor to a public-sector auditor and a significant decrease in reported audit findings in the fiscal year following a change from a public-sector auditor to a private-sector auditor.

Results from this study imply that the type of auditor plays a role in the number of findings that are reported. While Jakubowski (2008) found no significant difference in the number of material weaknesses reported by private-sector auditors versus public-sector auditors in audits of Michigan county component units, the results of this study provide evidence that significant differences exist regarding material weakness findings reported in Mississippi county audits. Conversely, the results from this study regarding the difference in the number of noncompliance findings are consistent with Jakubowski (2008). Since both studies limit their samples to a specific geographical region, the results may not be generalizable to all local governments. However, the results do have some broad policy implications.

The results from this study have direct implications on the usefulness of governmental audit reports. The policy implication of this study is that it may be necessary for the public sector to establish more comprehensive training programs and more stringent monitoring and enforcement procedures to ensure that audits performed by private-sector auditors are of comparable quality to audits performed by public-sector auditors. It may also be necessary to establish measures that will limit the audit client's power to influence the audit engagement.

The remainder of this paper is organized as follows: Section 2 discusses the previous literature and the theoretical development of the hypotheses. Section 3 describes the empirical method. Section 4 presents the results. Section 5 summarizes the findings and comments on the study's implications.

LITERATURE REVIEW AND THEORETICAL DEVELOPMENT OF HYPOTHESES

Government Audit Quality

The U. S. Government Accountability Office (GAO) defines audit quality as compliance with professional standards and contractual terms set out for the particular type of audit being conducted. Generally accepted government auditing standards are issued by the GAO and are to be followed by auditors when required by law, regulation, agreement, contract, or policy. These standards require that

auditors not only report on the fair presentation of financial statements but also report on internal control and on compliance with laws, regulations, and provisions of contracts or grant agreements.

Since the mid-1980s, both the GAO and the American Institute of Certified Public Accountants (AICPA) have cited concerns about the quality of audits of governmental units. In 1986, the GAO examined 120 randomly sampled governmental audits and found that certified public accountants (CPAs) did not satisfactorily comply with auditing standards on 34 percent of the audits they performed, making the audits less useful. More than half of the substandard audits had severe standards violations. The GAO's report stated the two predominant problems were insufficient audit work in (1) testing compliance with governmental laws and regulations and (2) evaluating internal accounting controls (GAO, 1986).

In 1988, the GAO issued a report documenting the results of an examination of audits performed by CPAs of participants in federal guaranteed and insured loan programs. In that report, the GAO noted audit quality problems similar to those outlined in prior GAO studies. Specifically, seven of the 28 randomly sampled audits did not comply with applicable auditing standards. The standards violations included working papers that did not adequately show that the CPA appropriately tested financial transactions, evaluated internal controls, or tested compliance with laws and regulations (GAO, 1988b).

The GAO reported in 1988 that actions taken by state boards of accountancy and the AICPA had demonstrated a commitment to improving the quality of governmental audits performed by CPAs (GAO, 1988a), and in 1989, the GAO reported that Single Audit quality had improved (GAO, 1989). In 2007, however, the President's Council on Integrity and Efficiency published a report of its examination of 208 randomly selected audits of entities that expended federal awards of greater than $500,000 in one year. For 208 audits examined, 30 were found to have had significant deficiencies in the performance of the audit and thus were of limited reliability. Sixty-three of the audits were found to be unacceptable and could not be relied upon. The most prevalent deficiencies included not documenting the testing of internal controls and not documenting compliance testing. For 49 of the audits, elements were noted that should have been included as audit findings but were omitted from the audit report (PCIE, 2007). Although some improvement has been realized since the GAO reports were published, the 2007 report indicates that governmental audit quality remains an area of concern in the profession.

Government auditing standards require auditors to report on deficiencies in internal control and compliance with laws and regulations. In the GAO studies previously cited, some CPAs did not report deficiencies in cases where deficiencies should have been reported, and the audits were, therefore, of suboptimal quality. The GAO states that the Congress, government officials, and private citizens have a common interest in ensuring accountability in governments. Governmental audits are designed to provide assurance that these financial statement users have reliable reports on financial activities, compliance with laws and regulations, and the adequacy of internal controls. The GAO cautions that violations of auditing standards cast doubt on the credibility of the audit and can significantly reduce the usefulness of the auditor's report. Further, the GAO emphasizes that, because of their importance, violations of fieldwork or reporting standards constitute violations of due professional care.

DeAngelo (1981a) describes audit quality as the probability that the auditor will both discover and report a breach in the client's accounting system. Most definitions of audit quality reflect some aspect of DeAngelo's definition (Watkins, et. al., 2004). Copley and Doucet (1993) and Watkins et. al. (2004) discuss that the difficulty with this definition of audit quality is that this probability is largely unobservable and, therefore, of limited usefulness in many empirical studies. Prior studies of audit quality in private-sector companies have, therefore, often proxied audit quality with auditor company size, auditor office size, or auditor class (Feltham, et. Al., 1991; Lee, et. al., 2003; Mansi, et. al., 2004; Tate, 2007; Kitching, 2009; Lai, 2009; Choi, et. al., 2010). In the local government audit market, however, Lowensohn et. al. (2007) found that Big-5 auditors are not uniformly associated with increased perceived audit quality.

In a governmental audit setting, the discovery and reporting of a breach is largely evidenced by audit findings contained within the auditor's report. Studies of governmental audit quality, therefore, offer a unique opportunity to proxy audit quality with the number of audit findings issued in the audit report. One study that used this approach was Jakubowski (2008). In that study, audit findings of 27 Michigan county

component units (mostly road commissions) were examined. One major discovery from that study was that both private-sector and public-sector auditors issue very few audit findings (approximately 0.57 per audit). Jakubowski suggests that while a lack of reported findings should provide reasonable assurance that financial statements are free of material misstatements, that internal controls are effective, and that the entity has complied with applicable regulations, a consistently low frequency of reported findings could also be the result of ineffective audits. The current study addresses that concern and continues the examination of public-sector and private-sector auditors on the basis of audit findings.

Public-Sector Auditors vs. Private-Sector Auditors

Given the importance the GAO places on testing for compliance with laws and regulations and evaluating internal control over financial reporting, this study examines the quality of governmental audits being performed more than 20 years after the initial GAO reports. The number of audit findings reported in each governmental audit report in the sample will be used as a proxy for audit quality. A lack of reported audit findings could be indicative of two separate events: (1) The financial statements are free of material misstatements, internal controls over financial reporting are effective, and the entity has complied with applicable laws and regulations, or (2) the auditor did not comply with fieldwork and/or reporting standards and, therefore, did not identify and/or report violations as a result of the audit. This study seeks to provide evidence of the latter by examining two groups of auditors (public-sector auditors and private-sector auditors) that have differing motivations when conducting the audit. Deis and Giroux (1992) suggests two theories to explain variations in these two groups of auditors: auditor-reputation explanation and power-conflict explanation.

The Auditor-Reputation Explanation

DeAngelo (1981b) suggests that, faced with competitive pricing pressures, an auditor may choose to lower audit quality and audit price to retain the client. Deis and Giroux (1992) suggests that audit firm size is a moderating effect, since a large client base allows a concern for reputation to remain more important than the retention of any given client. An audit firm that could be damaged more from the loss of reputation than from the loss of a given client will have an incentive to perform a higher quality audit.

Public-sector auditors have little competitive pricing pressure. For example, in Mississippi, audit fees are set by state law. Each state auditor in the United States is either elected by citizens or appointed by state legislature, therefore the state auditor's reputation is paramount to the effective operation of the agency and vital to the state auditor maintaining his or her position as a public servant. As such, the auditor-reputation explanation implies that since public-sector auditors could be damaged more from the loss of reputation than from the loss of a given client, public-sector auditors will perform higher quality audits than will private-sector auditors. As suggested by the GAO (1986) study and DeAngelo's (1981a) definition of audit quality, a higher quality audit will both detect and report any instances of noncompliance with laws and regulations and any weaknesses in internal control over financial reporting. As such, it is expected that audits performed by public-sector auditors will report a larger number of total audit findings than will audits performed by private-sector auditors.

The Power-Conflict Explanation

The second explanation suggested by Deis and Giroux (1992) is the power-conflict explanation, which centers on the ability of the auditor to resist pressures from the client to violate professional standards. This explanation is especially important, given the context of audit findings and the audit client's desire to minimize any reported instances. Roberts et al. (1990), for example, provides evidence that auditors may be replaced for reporting information that reflects negatively on the audit client. The auditor's report serves as financial statement users' means of evaluating the entity and its managers. Governmental managers are either elected by the citizens or appointed by some governing body or politician and are concerned about being re-elected or maintaining their positions within the government. As such, management is concerned with how audit findings reflect adversely upon the entity and its

management and has much to gain by influencing the auditor's report in order to present more favorable results.

As an auditor becomes more concerned with the retention of a client rather than with his or her reputation (the auditor-reputation explanation), that auditor becomes more susceptible to the audit client's power to influence the audit report (the power-conflict explanation). Goldman and Barlev (1974) developed a behavioral model of auditor independence that illustrates that the auditor's behavior according to professional standards is a function of his or her ability to withstand pressures from the audit client. The audit client's power comes from the ability to hire and fire the auditor, the ability to determine the auditor's fees, and the ability to determine work conditions. Since the audit clients in this study do not possess the ability to hire and fire public-sector auditors or determine the auditor's fees, the balance of power shifts away from the audit client to the public-sector auditor. The public-sector auditor is, therefore, better able to withstand client pressures than is the private-sector auditor, for whom the audit client does possess the ability to hire and fire and determine the auditor's fees.

Hypotheses

On the basis of the preceding discussion, the following hypotheses are stated in the alternative form:

>   *H_1: Private-sector auditors will issue fewer total audit findings than will public-sector auditors.*

Three different classifications of governmental audit findings include noncompliance findings, significant deficiency findings, and material weakness findings. Figure 1 contains the definition of each type of finding.

FIGURE 1
CATEGORIES OF FINDINGS AS DEFINED BY GOVERNMENT AUDITING STANDARDS

Noncompliance	Instances of noncompliance with certain provisions of laws, regulations, contracts and grant agreements; noncompliance which could have a direct and material effect on the determination of financial statement amounts.
Significant Deficiency	A control deficiency that adversely affects the entity's ability to initiate, authorize, record, process, or report financial data reliably in accordance with generally accepted accounting principles such that there is more than a remote likelihood that a misstatement of the county's financial statements that is more than inconsequential will not be prevented or detected by the county's internal control.
Material Weakness	A significant deficiency that results in more than a remote likelihood that a material misstatement of the financials statements will not be prevented or detected by the county's internal control.

Source: Government Auditing Standards 2007 Revision issued by the U. S. Government Accountability Office

Jakubowski (2008) indicates that both public-sector and private-sector auditors issued internal control findings (including significant deficiencies and material weaknesses) with the same degree of frequency (means of 0.32 and 0.36, respectively). Public-sector auditors, however, were found to have issued, on average, significantly more noncompliance findings than did private-sector auditors (means of 0.48 and 0.06, respectively). The author suggests that the difference may be attributable to the fact that public-sector auditors are not organized to earn a profit, as are private-sector auditors, and they may be willing to spend more time gathering evidence. In this study, in addition to examining the total number of audit findings, further analysis is performed to determine whether differences exist regarding the type of audit finding reported by public-sector auditors versus private-sector auditors.

In addition to evaluating data on audit findings for a single year, the current study also examines the changes (if any) in the number of audit findings issued in the fiscal year following a switch by the audit client from a public-sector auditor to a private-sector auditor or vice-versa. While prior studies, such as Tate (2007), have found that changes in operational structure, management's reputation, and audit fees are significant in determining whether an organization will choose to change auditors, entities in the current study were not given the choice in determining the type of auditor. Instead, the Office of the State Auditor chooses which entities its office will audit and which entities it will contract out to private-sector firms. In this study, these instances of auditor switching are used not for determining what led to the change in auditors, but whether differences occurred regarding the number of findings issued after the change. Based on the preceding discussions, the following hypothesis is stated in the alternative form:

> H_{2a}: When an audit client changes from a private-sector auditor to a public-sector auditor, the total number of audit findings will increase in the year following the auditor change.
>
> H_{2b}: When an audit client changes from a public-sector auditor to a private-sector auditor, the total number of audit findings will decrease in the year following the auditor change.

EMPIRICAL METHOD

Empirical Model

The purpose of this study is to examine whether differences exist in the number of audit findings issued by private-sector auditors when compared with the number of audit findings issued by public-sector auditors. The following model was developed to provide evidence regarding differences in audit findings while controlling for other factors that may account for differences in the number of findings issued by an auditor:

$$TOTALFINDINGS = \beta_0 + \beta_1 AUDITORTYPE + \beta_2 lnPOPULATION + \beta_3 DELAY + \beta_4 SINGLEAUDIT + \varepsilon$$

Where:
TOTALFINDINGS = the total number of findings the auditor issued in the fiscal year 2007 audit.

AUDITORTYPE = a dummy variable where 1 indicates the auditor is a private-sector auditor and 0 indicates the auditor is a public-sector auditor.

lnPOPULATION = the natural log of population

DELAY = the number of calendar days between the fiscal year end and the date of the audit report.

SINGLEAUDIT = a dummy variable where 1 indicates that the auditor performed a Single Audit, 0 otherwise.

The dependent variable, TOTALFINDINGS, is a count variable representing the total number of findings issued in the fiscal year 2007 audit report. A count variable takes on a discrete value of zero or any positive integer. Using a count variable as the dependent variable in ordinary least squares (OLS) regression may produce biased standard errors and significance tests if the mean of the count variable is relatively low—fewer than 10, as a rule of thumb (Coxe, et. al., 2009). Count variables often violate the OLS assumptions of constant variance and normality. As an alternative, Poisson regression is the appropriate model to test the hypothesis that the total number of audit findings differs according to the type of auditor. Poisson regression allows transformations of the predicted outcome, which can linearize a potentially nonlinear relationship between the dependent variable and the predictors. Also, Poisson regression allows for a non-normal error structure, specifically the Poisson distribution, which is used to represent the distribution of the errors.

The independent variable, AUDITORTYPE, is a dummy variable where 1 indicates the auditor is a private-sector auditor and 0 indicates the auditor is a public-sector auditor. AUDITORTYPE is the variable of interest in the model. Each of the other independent variables is used to control for differences in audit complexity. The professional standards state that more diverse and complex client operations will lead to a greater likelihood of material errors (Bryan, 1996) and potentially to a greater number of audit findings. Each control variable has been found in prior studies to have a potentially significant effect on audit quality or audit fees and, in some cases, has been found to differ between private-sector auditors and public-sector auditors.

The control variable, lnPOPULATION, which is the natural log of the population of each county, has been suggested in a number of public-sector studies (Wallace, 1986; Baber, et. al., 1987; Evans & Patton, 1987; Rubin, 1988; Roberts, et. al., 1990; Rubin, 1992; Deis & Giroux, 1992; Beattie, et. al., 2001) as a proxy for organizational complexity. Prior studies have shown that audit client size can have an important effect on the audit process. Johnsen et al. (2004) suggests that the audit tasks and the technology that the auditors apply may be subject to certain auditee characteristics such as size. Deis & Giroux (1992) and O'Keefe & Westort (1992) each found that larger clients are apt to receive lower quality audits, and O'Keefe et al. (1994) found that client size is positively and significantly associated with violations of generally accepted auditing standards on governmental engagements. As such, it is predicted that population will be negatively associated with the total number of reported audit findings. Prior studies indicate the existence of a nonlinear relation between audit quality measures and auditee size, thus providing justification for a logarithmic transformation of county population in this study.

The control variable, DELAY, which is the number of calendar days between the fiscal year end and the date of the audit report, is included to capture any differences in the number of audit findings that may result from time pressures and delays. Prior studies have found a positive correlation between audit delay and audit fees (Chan, et. al., 1993; Ezzamel, et. al., 1996), and O'Keefe, et. al. (1994) found that violations of audit standards decrease as audit fees increase. Deis & Giroux (1992) found that more timely audits are of higher quality. Rubin (1992), however, found that timeliness was better for private-sector audit firms, which in the context of this study, are expected to be associated with lower quality audits. In this study, no directional prediction is made regarding the association of audit delay with the total number of reported audit findings.

The control variable, SINGLEAUDIT, is included because audit clients subject to the Single Audit Act have received substantial federal funding and are thus subject to additional audit procedures regarding the use of those funds. These additional procedures could lead to an increase in the total number of audit findings reported. Brannan (1993), however, found that auditors believe that the Single Audit Act improved recipient compliance with applicable federal rules and regulations, which could lead to a decrease in the total number of reported audit findings. Regarding public-sector versus private-sector auditors, Jakubowski (1995) found that state auditors conducting Single Audits reported more internal control weaknesses than did private-sector auditors. In this study, no directional prediction is made regarding the association of a Single Audit with the total number of reported audit findings.

Sample and Data Collection

Differences between private-sector and public-sector auditors were tested using 2007 audit reports for Mississippi counties. The year 2007 was chosen because it was the most recent year, at the time of data collection, in which substantially all county audits in Mississippi were completed. Of the 82 counties in Mississippi, one was excluded from the sample, leaving a total of 81 counties in the final sample. Greene County was excluded from the sample because the audit of its financial statements had not been completed as of the date of data collection. The final sample includes 55 counties audited by private-sector audit firms and 26 counties audited by the Mississippi Office of the State Auditor.

County audit reports are published on the Mississippi Office of the State Auditor's website (http://www.osa.state.ms.us). The total number of audit findings was obtained from each county's fiscal year 2007 audit report. Information concerning the type of audit finding (noncompliance, significant deficiency, and material weakness) was also obtained from each county's audit report. Audit delay was calculated as the number of calendar days that lapsed between the financial statement date (September 30, 2007) and the date the county's audit report was issued. County population data were gathered from the U.S. Census Bureau's website (www.census.gov). Single Audit information was obtained from each county's audit report.

Table 1 presents descriptive statistics for each variable in the model along with descriptive information about the specific types of findings (NONCOMPLIANCE, SIGNIFICANTDEFICIENCY, MATERIALWEAKNESS). Panel A includes all 81 counties in the sample. Panels B and C present descriptive information separately for private-sector and public-sector auditors, respectively.

A t-test was performed for each variable to assess any differences that exist between audits performed by private-sector auditors versus public-sector auditors. Results of these univariate tests reveal that significant differences exist between private-sector and public-sector auditors regarding total audit findings, noncompliance findings, material weakness findings, and population. No significant differences were found regarding significant deficiency findings, audit delay, or the presence of a Single Audit.

The mean number of total findings for all counties is 7.81, with some counties receiving zero findings and others receiving as many as 30 findings. Private-sector auditors issued an average of 6.51 total findings per audit, while the public-sector auditors issued an average of 10.58 total findings per audit. The majority of the findings issued were noncompliance findings, with a mean of 4.51 findings per audit. Private-sector auditors issued an average of 3.67 noncompliance findings per audit, while public-sector auditors issued an average of 6.27 noncompliance findings per audit. Financial statement findings not considered to be material weaknesses (i.e. significant deficiencies) were issued at an average of 1.20 findings per audit, with private-sector and public-sector auditors issuing an average of 1.20 and 1.19 per audit, respectively. Financial statement findings considered to be material weaknesses were issued at a rate of 2.16 per audit. Private-sector auditors issued an average of 1.71 material weakness findings per audit, while public-sector auditors issued an average of 3.12 material weakness findings per audit.

Counties audited by private-sector auditors were larger than those audited by public-sector auditors. Mean (median) population for private-sector clients was 43,853 (29,248), while mean (median) population for public-sector auditor clients was 20,221 (19,219). The difference in the mean and median populations for private-sector clients and standard deviation of 47,618 indicates that the population is skewed by a small number of large counties.

TABLE 1
DESCRIPTIVE STATISTICS FOR A SAMPLE OF 81COUNTY AUDIT REPORTS FOR
FISCAL YEAR 2007 AND A DESCRIPTIVE COMPARISON OF DATA
GROUPED BY TYPE OF AUDITOR

Panel A: All Counties (n=81)

Variables	Mean	Standard Deviation	Min	First Quartile	Median	Third Quartile	Max	Occurrences (Percent)
TOTALFINDINGS	7.81	3.59	0.00	3.00	6.00	11.00	30.00	
NONCOMPLIANCE	4.51	5.17	0.00	1.00	3.00	6.00	28.00	
SIGNIFICANTDEFICIENCY	1.20	1.77	0.00	0.00	0.00	2.00	8.00	
MATERIALWEAKNESS	2.16	1.79	0.00	1.00	2.00	3.00	8.00	
POPULATION	36,267	41,121	1,612	13,308	23,046	36,900	247,631	
DELAY (measured in days)	419.77	142.64	101.00	323.00	397.00	516.00	795.00	
SINGLEAUDIT								54 (67%)

Panel B: Counties Audited by Private-Sector Auditors (n=55)

Variables	Mean	Standard Deviation	Min	First Quartile	Median	Third Quartile	Max	Occurrences (Percent)
TOTALFINDINGS	6.51**	6.13	0.00	2.50	5.00	8.00	30.00	
NONCOMPLIANCE	3.67*	4.91	0.00	1.00	2.00	5.00	28.00	
SIGNIFICANTDEFICIENCY	1.20	1.89	0.00	0.00	0.00	2.00	8.00	
MATERIALWEAKNESS	1.71**	1.80	0.00	0.00	1.00	3.00	8.00	
POPULATION	43,853**	47,618	1,612	16,249	29,248	46,360	247,631	
DELAY (measured in days)	399.16	146.44	101.00	302.00	369.00	481.50	795.00	
SINGLE AUDIT								35 (64%)

Panel C: Counties Audited by Public-Sector Auditors (n=26)

Variables	Mean	Standard Deviation	Min	First Quartile	Median	Third Quartile	Max	Occurrences (Percent)
TOTALFINDINGS	10.58**	6.80	3.00	4.25	10.00	15.25	30.00	
NONCOMPLIANCE	6.27*	5.33	0.00	2.25	5.00	8.75	24.00	
SIGNIFICANTDEFICIENCY	1.19	1.52	0.00	0.00	1.00	2.00	5.00	
MATERIALWEAKNESS	3.12**	1.34	1.00	2.00	3.00	4.00	7.00	
POPULATION	20,221**	10,906	5,420	12,667	19,219	25,082	57,860	
DELAY (measured in days)	463.15	126.01	236.00	371.00	460.00	567.00	718.00	
SINGLE AUDIT								19 (73%)

**, * Difference is significant at $p<0.01$ and $p<0.05$, respectively

Variable definitions
TOTALFINDINGS: total number of findings in the fiscal year 2007 audit
NONCOMPLIANCE: total number of noncompliance findings in the fiscal year 2007 audit
SIGNIFICANTDEFICIENCY: total number of significant deficiency findings in the fiscal year 2007 audit
MATERIALWEAKNESS: total number of material weakness findings in the fiscal year 2007 audit
POPULATION: county population
DELAY: number of calendar days between the fiscal year end and the date of the audit report
SINGLEAUDIT: dummy variable coded 1 if Single Audit performed, 0 otherwise

EMPIRICAL RESULTS

The results of the Poisson regression are shown in Table 2. Multicollinearity was assessed by examining the correlation matrix, tolerance, and variance inflation factors (VIF). Results indicated that no significant multicollinearity exists among the independent variables. The Poisson regression model predicting total number of audit findings for the entire sample of 81 counties was significant with a likelihood ratio chi-square = 87.850, df=4, p<0.001. The explanatory variable, AUDITORTYPE, was

statistically significant ($p<0.001$). Private-sector auditors had an expected log count 0.332 less than public-sector auditors, which amounts to about 2.57 fewer findings per audit than public-sector auditors while holding other variables constant. This result supports H_1, which states that private-sector auditors will issue fewer total audit findings than will public-sector auditors.

An overdispersion scaling parameter of 4.652 was computed, suggesting overdispersion (the conditional variance of the residuals is larger than the conditional mean) in the data. If overdispersion is not accounted for, estimates of the standard errors will be too small, test statistics for the parameter estimates will be too large, and significance will be overestimated (Coxe, et. al., 2009). To account for this, an overdispersed Poisson regression model was computed, which included the inverse of the overdispersion scaling parameter. As a result, the parameter estimates are unchanged from the Poisson model, but the statistical tests are more conservative. Results of the overdispersion Poisson model are similar to those of the Poisson model (AUDITORTYPE p-value = 0.04). The model was also refit using a negative binomial distribution, but the model fit statistics were not an improvement over the original Poisson model.

TABLE 2
POISSON REGRESSION RESULTS FOR A MODEL OF TOTAL AUDIT FINDINGS FOR A SAMPLE OF 81 MISSISSIPPI COUNTIES FOR FISCAL YEAR 2007

The model is expressed as:
$$TOTALFINDINGS = \beta_0 + \beta_1 AUDITORTYPE + \beta_2 lnPOPULATION + B_3 DELAY + B_4 SINGLEAUDIT + \varepsilon$$

	Predicted Sign	Parameter Estimate (Standard Error)
Intercept		2.101*** (0.5470)
AUDITORTYPE	-	-0.332*** (0.0868)
lnPOPULATION	-	-0.071 (0.0534)
DELAY	?	0.002*** (0.0003)
SINGLEAUDIT	?	0.041 (0.0895)
Likelihood Ratio Chi-Square		87.850***
Pseudo R-squared		0.2064

*** Indicates significance at $p<0.001$

See Tables 1 and 2 for variable definitions.

The control variable, DELAY, was also found to be significant ($p<0.001$). Audit findings were found to occur at a greater rate as the time required to complete the audit increased. Further analysis revealed

that this occurred with both private-sector and public-sector auditors, although it is not clear whether a delay in the audit leads to the discovery of a greater number of audit findings or whether a greater number of audit findings leads to a delay in the audit. The control variables, lnPOPULATION and SINGLEAUDIT were not statistically significant. Separate regressions were performed after replacing lnPOPULATION with total county revenues and then with total county expenditures. Results (not tabulated) were similar regardless of which control variable was used.

Closer examination of the data revealed that the top 11 most populated counties in Mississippi were audited by private-sector firms. As a sensitivity check, an analysis was conducted after removing these 11 counties from the sample. In the reduced sample, the mean population is 20,221 and 24,675 for public-sector and private-sector auditors, respectively. The results of the Poisson regression (not tabulated) reveal similar results when compared with the analysis of the full sample. The public-sector auditors' propensity to choose less populous audit clients, therefore, does not appear to influence the differences in reported audit findings.

Further investigation indicated that none of the counties in the extreme northern portion of the state was audited by the state auditor. To control for this, a separate Poisson regression was performed on a sample reduced by the six counties on the northern border of the state (all of which were audited by private-sector auditors). The results of the Poisson regression (not tabulated) reveal similar results when compared with the analysis of the full sample. The geographical location of audit clients does not appear to influence the differences in observed audit findings.

Table 3 presents results for three separate Poisson regression models, each using a dependent variable related to the total number of each of three different types of audit findings. These tests were performed to assess whether differences exist in the total number of each specific type of audit finding reported by private-sector auditors versus public-sector auditors. The first column presents regression results for the total number of noncompliance findings. The explanatory variable, AUDITORTYPE, was statistically significant ($p<0.001$; In the overdispersed Poisson regression model, $p=0.04$). Private-sector auditors had an expected log count 0.427 less than public-sector auditors, which amounts to about 1.86 fewer noncompliance findings than public-sector auditors while holding other variables constant. This result is consistent with Jakubowski (2008).

The third column of Table 3 presents regression results for the total number of material weakness findings. While Jakubowski (2008) did not find a significant relationship concerning material weaknesses between auditor type, the results of this regression reveal that the explanatory variable, AUDITORTYPE, was statistically significant ($p=0.003$; In the overdispersed Poisson regression model, $p=0.01$). Private-sector auditors had an expected log count 0.495 less than public-sector auditors, which amounts to about 1.10 fewer material weakness findings than public-sector auditors while holding other variables constant. The second column of Table 4 presents regression results for the total number of significant deficiency findings. The explanatory variable, AUDITORTYPE, was not statistically significant.

H2a and H2b test whether differences exist regarding the change in the total number of findings in the fiscal year following an audit client's switch in auditor type. Data were gathered for all counties that changed auditor type over the five-year period from 2003 to 2007. Two groups were established: (1) counties changing from a private-sector auditor to a public-sector auditor (19 observations), and (2) counties changing from a public-sector auditor to a private-sector auditor (21 observations). For each group, the mean total number of findings was observed in the year before the auditor change and in the year after the auditor change. Paired-sample t-tests were performed for each group. Results are presented in Table 4.

TABLE 3
POISSON REGRESSION RESULTS FOR A MODEL OF (A) NONCOMPLIANCE FINDINGS, (B) SIGNIFICANT DEFICIENCY FINDINGS, AND (C) MATERIAL WEAKNESS FINDINGS FOR A SAMPLE OF 81 MISSISSIPPI COUNTIES FOR FISCAL YEAR 2007

The models are expressed as:
(a) $NONCOMPLIANCE = \beta_0 + \beta_1 AUDITORTYPE + \beta_2 lnPOPULATION + B_3 DELAY + B_4 SINGLEAUDIT + \varepsilon$
(b) $SIGNIFICANTDEFICIENCY = \beta_0 + \beta_1 AUDITORTYPE + \beta_2 lnPOPULATION + B_3 DELAY + B_4 SINGLEAUDIT + \varepsilon$
(c) $MATERIALWEAKNESS = \beta_0 + \beta_1 AUDITORTYPE + \beta_2 lnPOPULATION + B_3 DELAY + B_4 SINGLEAUDIT + \varepsilon$

	DV = NONCOM-PLIANCE	DV = SIGNIFICANT DEFICIENCY	DV = MATERIAL WEAKNESS
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Intercept	-0.358	5.076***	0.920
			(1.0632)
	(0.7031)	(1.3133)	
AUDITORTYPE	-0.427***	0.243	-0.495**
			(0.1651)
	(0.1153)	(0.2307)	
lnPOPULATION	0.071	-0.490***	-0.038
			(0.1034)
	(0.0691)	(0.1298)	
DELAY	0.003***	0.000	0.001*
			(0.0006)
	(0.0004)	(0.0008)	
SINGLEAUDIT	-0.114	0.616*	0.094
			(0.1725)
	(0.1161)	(0.2501)	
Likelihood Ratio Chi-Square	98.490***	16.905**	20.854***
Pseudo R-squared	0.2475	0.0873	0.1475

***, **, * Indicates significance at $p<0.001$, $p<0.01$, $p<0.05$, respectively.
See Tables 1 and 2 for variable definitions.

TABLE 4
RESULTS OF PAIRED-SAMPLE T-TESTS COMPARING THE TOTAL
NUMBER OF AUDIT FINDINGS IN THE FISCAL YEAR PRECEDING
AN AUDITOR CHANGE TO THE TOTAL NUMBER OF AUDIT
FINDINGS IN THE FISCAL YEAR FOLLOWING
THE AUDITOR CHANGE

	Private-Sector to Public-Sector Auditor (n=19)	Public-Sector to Private-Sector Auditor (n=21)
Mean Number of Findings in Year Preceding the Change	2.84	7.81
Mean Number of Findings in Year Following the Change	10.53	5.05
Mean Difference	7.69***	-2.76*
(Standard Error)	(1.688)	(1.460)

***, * Indicates significance at p<0.001 and p<0.05, respectively.

Results of the paired sample t-test indicate a significant increase (t=4.553, df=18, p<0.001) in the total number of findings in the first fiscal year following a client changing from a private-sector auditor to a public-sector auditor (a mean increase of 7.69 findings). This result supports H2a, which states that when an audit client changes from a private-sector auditor to a public-sector auditor, the total number of audit findings will increase in the year following the auditor change. H2b states that when an audit client changes from a public-sector auditor to a private-sector auditor, the total number of audit findings will decrease in the year following the auditor change. A mean decrease of 2.76 findings was observed. Results of the paired sample t-test indicate this is a significant decrease (t=1.891, df=20, p=0.037). This result supports H2b.

SUMMARY AND CONCLUSION

In this study, evidence is presented that significant differences exist in the number of audit findings issued by public-sector and private-sector auditors on governmental audit engagements. These observed differences have important implications on the quality of the audits being performed by the private-sector. The results of this study provide evidence that will be useful to auditors, managers, and citizens, as all of these groups are affected by issues of audit quality. This study also provides evidence that audit findings, or lack thereof, may provide some indication of audit quality. The policy implication of this study is that it may be necessary for the public sector to establish more comprehensive training programs and more stringent monitoring and enforcement procedures to ensure that audits performed by private-sector auditors are of comparable quality to audits performed by public-sector auditors.

Prior literature has suggested that differences in the behaviors of public-sector auditors versus private-sector auditors may be explained by the auditor's concern for his or her reputation rather than for retaining a certain audit client by not strictly adhering to audit standards (DeAngelo, 1981b). Since public-sector auditors have little competitive pricing pressures and could sustain more damage from the loss of reputation, they are more likely to report audit findings than private-sector auditors, who may be more interested in retaining a significant audit client. A second explanation, which complements the auditor-reputation explanation, is that private-sector auditors are more susceptible to client pressures to

violate standards, while public-sector auditors are better able to withstand these pressures (Goldman and Barlev, 1974).

Based on a sample of audits of 81 counties in Mississippi for the year 2007, Poisson regression results show that private-sector auditors are significantly less likely to issue audit findings for governmental entities than are public-sector auditors. This applies to both noncompliance findings and material weakness findings. Also, for the period from 2003 to 2007, audit clients changing from public-sector auditors to private-sector auditors experienced a mean decrease in the number of findings received in the first year following the change. In contrast, audit clients changing from private-sector auditors to public-sector auditors experienced a mean increase in the total number of audit findings received in the first year following the change.

One limitation of this study is the fact that data were gathered only for county audits. Results may not be generalizable to other forms of government. Also, data were only gathered from counties in Mississippi, and results may not be generalizable to other geographic areas. While measures were taken to control for factors influencing the public-sector auditors' choice of audit client, other factors may exist that were not considered. These unobserved factors may influence the results of this study. Future research could be performed regarding other forms of government. Also, while the focus of this study was not on that of the influence of audit delay on audit findings, significant relationships were observed. Further research could concentrate on a more in-depth analysis of the causes and effects of audit delay.

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