“Are public sector auditors more effective than private sector audit firms when auditing governmental entities? Some evidence from United States”

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Are public sector auditors more effective than private sector audit firms when auditing governmental entities? Some evidence from United States counties

Abstract

This study investigates whether a public sector audit agency provides a more effective audit than a private sector firm when attesting to governmental entities' financial statements. Effectiveness in this case means to accurately and timely spot reportable conditions as well as deficiencies in internal control over financial reporting and operation of federal grants. Using a U.S. dataset with 601 counties from nine different American states this paper compares audit report lag (difference between audit report date and fiscal year end) and the number of reportable conditions and material weaknesses discovered for counties using the state auditor and counties using private firms. The findings show that after controlling for between-jurisdictional differences, funds number, and total government expenditures state auditors appear to find more problems (reportable conditions) but are not significantly slower in issuing the report compared to private audit firms. A possible explanation for this could be that time is not a critical factor.

Keywords: government audits, private audit firm, state auditor, audit quality.
JEL Classification: H8, H83.

Introduction

This study investigates whether a state mandated audit agency provides a more effective audit than a private sector firm when attesting to public sector financial statements. Effectiveness in this case means to accurately and timely spot reportable conditions as well as deficiencies in internal control over financial reporting and operation of federal grants. That is, two aspects of audit qualityare addressed, one relating to the auditors' findings and the second to the time needed to complete the audit[1]. Both aspects are important because an audit that does not uncover the audited entity's problems (if there are any) is not reliable. At the same time, financial information – as accurate as it may be – is not very relevant if it is not available in a timely manner.

Audit quality in the U.S. has been subject to significant scrutiny in recent years. In 2007, the National Single Audit Sampling Project examined a sample of government audits and concluded that less than 50 percent of all audits are of acceptable quality; about 16% were labeled as having "limited reliability" while 36% were considered unacceptable (PCIE Report on National Single Audit Sampling Project, 2007). These statistics are troubling. In the private sector big audit fiascos such as Enron and WorldCom lead to new legislation with the goal of bringing the audit function under greater federal government control and to improve audits in the private sector. Several academic studies have examined the effects of these new laws and regulations (see for example Chang et al., 2009; Hermanson et al., 2009; and Hua-Wei et al., 2009). Similarly, audit quality in the public sector has also been questioned and examined in recent years (see for example Jakubowski, 2008; Carslaw et al., 2007). A major public-sector scandal that received wide publicity was the audits of the Roslyn District School Board in New York where school board administrators in a relatively small school district managed to defraud that district of more than $13 million without the auditors providing any form of oversight safeguard (Bovich, 2005). Charges of excessive compensation and implied misuse of funds have been raised against publicly visible charitable agencies such as the United Way (Arenson, 1995). Large cities such as San Diego, California have also received adverse publicity for evidence of severe financial problems without comments from the auditors. However, while the last decade included several new laws for private sector audits, the public sector has not undergone the same reform.

Interestingly, there does not appear to be much discussion of audit quality in the public sector in other countries. We believe that this issue will be of increasing relevance internationally considering the current debt crisis in the European Union (e.g., Lapavitsas and Storey, 2011; Barber, 2010). In addition, the U.K. Audit Commission is to be disestablished and the audits of many public sector entities will be outsourced to private sector firms (Cook, 2010; Accountancy Magazine, 2011). In other jurisdictions, such as Canada, New Zealand and Australia, the audits of public sector entities are performed partly by public sector auditors, and partly by private sector firms either exclusively or under the supervision of an auditor general's office.

Government financial reports differ significantly from private firm financial reports because of their focus, purpose and audience. Specifically, in addi-

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[1] Audit quality has previously been defined as the probability that the auditor discovers and reports a breach in the auditee's reporting system (DeAngelo, 1981; Deis and Giroux, 1992). Note that this – older – definition does not include the timeliness component. We believe that because timeliness affects the audit's relevance it should be considered part of audit quality.

tion to presenting citizens, legislative bodies, granting agencies, and potential and current investors with a picture of the entity's financial health, governmental financial reports also ensure compliance with grant and other regulations. Thus, auditing government financial information requires a different set of skills than auditing private companies. In our study, we test the performance difference between state audit agencies which focus on a limited type of clientele and private audit firms which typically perform audit work on a wider range of audit clients. While we have an ex-ante expectation that state auditors are more likely to find and report any problems with the county financial statements, we acknowledge that some private auditors may be as experienced and likely to find and report deficiencies. We will discuss this in more detail below. Our hope is that the findings of this study will provide insights regarding the allocation of public resources and help to obtain the greatest efficiency and effectiveness when attesting to public sector financial statements.

In the United States, the requirements for audits of public entities vary significantly from state to state. This enables us to compare the effectiveness of public auditors versus private firms across jurisdictions. We use a dataset of 600 county audits from nine different states and compare the performance of the state or private auditor by examining the number of findings related to reportable conditions, deficiencies in internal control, and material weaknesses as well as the timeliness of filing the report. Two measures assess the speed of completing the audit: the days between fiscal year end and issuance of the audit report (audit lag) and the days between report due date and issuance of the report (late filing).

The remainder of the paper is structured as follows. Section 1 provides some background related to governmental reporting and auditing, summarizes relevant prior literature, and develops the hypotheses. Section 2 discusses methodology and data. Section 3 presents the results, and the final section concludes.

1. Background and hypotheses development

1.1. Government audit requirements and government financial reporting. In the United States, audits of counties are mandated by state legislation. In addition, counties which expend more than $500,000 of federal funds are required to have a "single audit" in accordance with the United States Single Audit Act of 1984, amended in 1996 ("Single Audit Act"). The emphasis of audits of governmental entities differs significantly from audits of private sector agencies. In the private sector the focus is on the accuracy of the profit figures although recent legislations, such as the Sarbanes Oxley legislation in the United States and the Cadbury Code in the UK, has shifted the emphasis towards compliance and control. In the government sector the focus is primarily on compliance and control of expenditures for authorized purposes.

The users of the audited financial reports in each sector are also different. Private sector audits are primarily prepared for investors and creditors. In the public sector, the primary users are federal and state agencies and, to a lesser extent, the citizens. That is, the main purpose of the government audit is to determine if financial statements are presented fairly *and* comply with the requirements of state and local laws and regulations. In addition, because the counties receive federal funding, the audit must determine if expenditures of federal funding have been made in accordance with grant specifications.

Government audits in the United States are performed in accordance with generally accepted government auditing standards. These standards require two reports from the auditor. The first is a financial audit report stating whether or not the financial statements are presented fairly in accordance with U.S. generally accepted accounting principles for governmental entities. The second required report details identified weaknesses in the internal control system over financial reporting.

In addition to these two basis requirements, the Single Audit Act legislatively established uniform audit requirements and an organization-wide audit process for state and local governments which receive federal grant funding. Office of Management and Budget ("OMB") Circular A-133 *Audits of States, Local Governments, and Non-Profit Organizations* provided further guidelines for the auditor in terms of identifying the types and number of programs that needed audit testing for compliance with grant requirements each year. These guidelines require two additional reports from the auditor relating to internal controls over the operation of federal grant programs and to compliance with the provisions of major programs.

The main purpose of this paper is to assess whether the private or the public auditor model provides overall "better" audits in terms of effectiveness and also in terms of timeliness. As stated above, the appointment of auditors by counties varies from state to state. In some states, the State Auditor General's Office has the sole responsibility to perform the audits of counties. Oklahoma, Tennessee and Washington State are examples of these although the Auditor General of Tennessee does contract out the audit of the largest county in the state to a private audit firm on its behalf. In other states, such as Arizona, Iowa, and Mississippi, the Auditor General's staff performs a significant proportion of the county audits but also contracts out many county audits to private firms. In other states, like Georgia and Michigan, the counties are free to choose their

own auditor and essentially all audits are performed by private audit firms except in abnormal circumstances. Table 1 lists the state requirements regarding report due dates. Further noted are the number of public versus private audit firms employed and counties subject to the Single Audit Act.

Table 1. Governmental reporting and auditing for counties in all states in the sample

State	Public vs. non-public auditor	Single audit	Non-GAAP basis	Audit report due date
AZ	8 out of 15 counties with state auditor (53%).	15 out of 15 counties have a single audit (100%).	Not permitted.	Financials are filed at the same time as the single audit, which is 9 months from the year end. Fiscal year ends on June 30, needs to be filed by March 31.
GA	0 out of 149 counties with state auditor (0%).	61 out of 149 counties have a single audit (40%).	Not permitted.	Financials are filed 180 days from the fiscal year end. An extension of 180 days can be granted, but not more than 2 years in a row.
IA	42 out of 98 counties with state auditor (43%).	40 out of 98counties have a single audit (42%).	Not permitted.	Financials are filed at the same time as the single audit, which is 9 months from the year end. Fiscal year ends on June 30, needs to be filed by March 31.
MI	5 out of 83 counties with state auditor (6%).	66 out of 83 counties have a single audit (80%).	Not permitted.	Financials must be filed 6 months after the fiscal year end.
MS	24 out of 76 counties with state auditor (32%).	40 out of 76 counties have a single audit (53%).	Not permitted although exception to full application of GASB 34 appears to be permitted.	Financials must be filed 9 months after the fiscal year end.
OK	76 out of 76 counties with state auditor (100%).	13 out of 76 counties have a single audit (17%).	All counties report on a cash basis.	Financials must be filed 6 months after the fiscal year end.
TN	36 out of 37 counties with state auditor (97%).	37 out of 37 counties have a single audit (100%).	Fund basis appears to be acceptable presentation.	Financials must be filed 6 months after the fiscal year end.
UT	0 out of 29 counties with state auditor (0%).	15 out of 29 counties have a single audit (52%).	Not permitted.	Financials must be filed 6 months after the fiscal year end.
WA	38 out of 38 counties with state auditor (100%).	38 out of 38 counties have a single audit (100%).	18 of 38 (47%) reported in accordance with the BARS state reporting system. BARS is a modified cash basis.	The annual report is due unaudited 150 days after the close.
Totals	229 out of 601 counties with state auditor (38%).	325 out of 601 counties have a single audit (54%).		N/A

Notes: AZ – Arizona, GA – Georgia, IA – Iowa, MI – Michigan, MS – Mississippi, OK – Oklahoma, TN – Tennessee, UT – Utah, WA – Washington.

1.2. Literature review. The quality of audits and audit reports – including timeliness of filing – has been assessed in various ways. For example, Carslaw and Kaplan (1991) and Ashton et al. (1989), have attempted to determine the causes of the length of the time period between the year-end and the date of the audit report for commercial enterprises in New Zealand. Typically these studies examine general corporate as well as auditor characteristics which cause longer or shorter audit lags across companies. In more recent commercial firm studies, auditor experience has been associated with the timeliness of reporting earnings, particularly earnings reflecting bad news (Krishman, 2005; Krishnan and Yang, 2009). Timeliness or audit report lag has also been shown to be associated with the quality of reporting (Laitinen and Laitinen, 1998), the amount of audit work required, incentives to spend more resources in order to complete the audit sooner, the degree to which auditors use a structured approach (Bamber et al., 1993), the actual resource allocation, and the provision of non-audit services (Knechel and Payne, 2001).

Possibly because of limited data availability, there have been fewer studies of audit delay for governmental and not-for profit entities. Earlier studies have found relationships between reporting timeliness and the nature of the message (audit reports were issued sooner when the message was "good news" instead of "bad news"), and between reporting timeliness and auditor type[1] (public auditors were slower than private firms) (Dwyer and Wilson, 1989). Besides being timelier, private audits also seem to be more expensive (Rubin, 1992).

More recent research has identified additional characteristics that influence audit delay for municipalities in the United States. These include municipal size (McLelland and Giroux, 2000), the use of multiple auditors to perform the audit (Johnson, 1998; Payne and Jensen, 2002; McLelland and Giroux, 2000), a September 30 fiscal year end (Johnson, 1998; 1996), disclosure of Single Audit Act information in the Comprehensive Annual Financial Report and the receipt of a certificate of excellence (Johnson, 1998). Finally, there also appears to be an interaction between audit delay and fee (Johnson et al., 2001).

Payne and Jensen (2002) examined incentives to enhance audit report timeliness for about 250 municipalities on four dimensions for their 1992 audits.

[1] Note that of the 142 audits examined only two were performed by state auditors (Dwyer and Wilson, 1992, p. 48).

They found that the existence of a manager form of municipal government, certification, and bonded indebtedness reduced audit delay. They explain these as manager incentives for timely reporting. They also found some evidence for increased audit delay for municipalities which did not solicit of independent audit bids. Stronger evidence of increased audit lag was found for size (municipal expenditures), for audits performed during the "busy season" (between November and April), and significant financial audit opinion qualifications. They also found some evidence of size and experience of the audit firm to have some influence on audit report timeliness.

Aside from the timeliness of reporting, the probability of finding and reporting problems with the auditee's financial reporting system has also been studied in the United States. In general, auditor tenure and client base has been associated with audit quality (DeAngelo, 1981); additionally, auditor expertise (i.e., industry specialization) seems to matter (Lowensohn et al., 2007). In the context of governmental reporting, it appears that expertise/specialization does affect audit quality (Deis and Giroux, 1992) but, on the other hand, initial audits which are associated with lower fees ("low balling"), are not necessarily of lower quality (Deis and Giroux, 1996). Carslaw et al. (2007) found that school districts have a high level of internal control and grant compliance findings but were very slow in filing their financial reports. Delayed financial reports were positively associated with larger district size, government auditors, sole practitioner auditors, and problems with internal controls and qualified reports. Audit delay and low-risk audit classification on the other hand are negatively correlated.

Additional academic work examines single audit compliance in general and with respect to various types of reporting entities. Keating et al. (2005) provide a good review of the literature. Two more recent papers looked at audits of American not-for-profit organizations. Keating et al. (2005) examined 11,841 nonprofit entities audited by 3,592 audit firms between 1997 and 1999 and found a high level of compliance with only 4.2% of their financial audit opinions being qualified. However, smaller nonprofits and those not classified as low-risk tended to have a significantly greater rate of adverse audit opinions. Krishman and Schauer (2000) examined several audits of United Way operating agency units and found that larger audit firms were associated with lower levels of noncompliance. Jakubowski (2008) compared the work of state auditors with the work of private accounting firms in Michigan and found that state auditors report more non-compliance findings than independent CPA firms but both groups find only few reportable conditions. This is consistent over time and not many findings (about 1/5) were corrected over time. Jakubowski's finding contradicts earlier studies, such as Rubin (1992), suggesting that private auditors are "better" at finding and reporting deficiencies.

The research question of this paper concentrates on the performance of private audit firms versus public auditors with regard to the audits of counties. Specifically, we ask whether public auditors are more or less effective than private audit firms when auditing these governmental units. We look at both, auditor findings as well as the audit delay. As summarized above, auditor expertise has been associated with the probability of finding problems with the entity's financial reporting. While private auditors may also specialize on providing governmental audits, the more recent Jakubowski (2008) results, indicate that public auditors are more likely to have the very specific knowledge necessary to perform a governmental audit and that private audit firms may not find and report problems (such as reportable conditions or internal control deficiencies). This leads to our first hypothesis:

H1: State auditors are more likely to find deficiencies and problems when auditing counties compared to private sector auditors.

On the other hand, we believe that – as shown in prior literature and summarized above – private auditors are more likely to complete the audits earlier than state auditors. A possible reason for this distinction could be the difference in incentive structure. Formally stated:

H2: State auditors are slower in auditing counties compared to private sector auditors.

The present study adds to the literature in two ways. First, to our knowledge, this is the first research comparing the state auditor model with the private accounting firm model across a number of states. Second, we examine both the quality of the report as well as the timeliness of preparation.

2. Data and methodology

2.1. Data. Our database includes audit report information of nine states (Arizona, Georgia, Iowa, Michigan, Mississippi, Oklahoma, Tennessee, Utah, and Washington) and has 601 observations. The sample consists of states where state auditors are mandated to perform the audit function, states where (mostly) private auditors perform the county audits both are present. The report year is 2004 with a few exceptions due to data availability. The nine states included comprise a convenience sample. That is, the states in our sample are the only states with audit report data for all counties readily available to the public (via internet). All data was collected from online sources such as county or state websites. We acknowledge that using a convenience sample may bias the results; however, we consi-

dered that it was more important to use data from the audited financial statements rather than relying on data reported elsewhere. Furthermore, we believe that our data set is a diverse sample set with states from all regions and with various audit and financial reporting requirements (see Table 1). A first glance at our sample reveals that significant reporting differences between state auditors and private audit firms exist. Table 2 provides the summary statistics for all counties in the sample (Panel A), counties using a private audit firm (Panel B) and counties that use a state auditor (Panel C). We also list the average number of reportable conditions and several timeliness measures for each state separately (Panel D).

Table 2. Summary statistics

Panel A. All counties					
		Mean	Standard deviation	Minimum	Maximum
Audit lag (days)		216.19	128.83	27.00	1095.00
Reportable conditions fin stm		2.52	3.63	0.00	22.00
Unqualified		87%	33%	0%	100%
Compliance		93%	25%	0%	100%
Material weakness		40%	49%	0%	100%
Material weakness funds		5%	22%	0%	100%
Conditions number funds		0.30	1.30	0.00	19.00
Log of total population		10.25	1.19	6.85	15.11
Log of total assets		7.53	0.58	3.94	9.54
Panel B. Counties using private audit firm					
		Mean	Standard deviation	Minimum	Maximum
Audit lag (days)		199.95	124.42	34.00	1095.00
Reportable conditions fin stm		2.05	3.21	0.00	21.00
Unqualified		92%	27%	0%	100%
Compliance		90%	30%	0%	100%
Material weakness		28%	45%	0%	100%
Material weakness funds		5%	22%	0%	100%
Conditions number funds		0.34	1.48	0.00	19.00
Log of total population		10.28	1.20	6.85	14.51
Log of total assets		7.50	0.58	3.94	9.54
Panel C. Counties using state auditor					
		Mean	Standard deviation	Minimum	Maximum
Audit lag (days)		242.58	131.76	27.00	787.00
Reportable conditions fin stm		3.26	4.10	0.00	22.00
Unqualified		79%	40%	0%	100%
Compliance		98%	15%	0%	100%
Material weakness		58%	50%	0%	100%
Material weakness funds		5%	21%	0%	100%
Conditions number funds		0.26	1.07	0.00	10.00
Log of total population		10.19	1.17	7.69	15.11
Log of total assets		7.61	0.58	6.49	9.45
Panel D. Average number of reportable conditions and average audit lag (number of days) for each state					
State	State/private sector	Average number of reportable conditions	Audit lag	Average days late (early)	Number (percent) of late filers
AZ	Both	1.27	392.2	118.20	8 (53%)
GA	Private	2.11	177.0	-4.99	39 (26%)
IA	Both	3.98	177.0	-97.01	7 (7%)
MI	Both	1.15	148.7	-33.33	12 (14%)
MS	Both	2.32	354.6	80.64	48 (63%)
OK	Public	1.68	311.0	128.97	62 (82%)
TN	Public *	8.43	112.7	-69.27	3 (8%)
UT	Private	2.24	169.8	-12.21	5 (17%)
WA	Public	0.19	218.6	-55.39	3 (8%)

Notes: Audit lag (days): number of days between fiscal year end and issuance of audit report; Average days late (early) (days): number of days between audit report due date and issuance of audit report; negative numbers indicate the report was filed early; Reportable conditions fin stm: number of conditions with financial statements; Unqualified: number of unqualified opinion issued; Compliance: non-compliance in grant audit report mentioned; Material weakness: material weakness of internal controls on financial statements; Material weakness funds: material weakness of internal controls regarding funds; Conditions number funds: number of reportable conditions in funds; Log of population: natural log of total county population; Log of total assets: natural log of total assets; Log total expenditures: natural log of total expenditures. * One county is contracted out to a private audit firm.

The summary statistics suggest that the distribution of the audit delay measure is quite skewed. The two extremes are Navajo County (AZ) with 1,095 days and Gila County (AZ) with 787 days.

2.2. Methodology. We measure the difference between state auditors and private audit firms with regard to audit completion time as well as auditor "thoroughness" using t-tests. We estimate the latter using the number of reportable conditions found as well as other related variables such as unqualified opinions issued and material weaknesses with regard to internal controls.

Next, we estimate the following OLS regression models:

$$REP_COND = \beta_0 + \beta_1 STATEAUDIT\ OR + \beta_2 SINGLEAR + \beta_3 GOV_EXP + \beta_4 FUNDSNR + \\ + STATEDUMMI\ ES + \varepsilon, \quad (1)$$

$$AUDIT_LAG = \beta_0 + \beta_1 STATEAUDITOR + \beta_2 REP_COND + \beta_3 SINGLEAR + \beta_4 GOV_EXP + \\ + \beta_5 FUNDSNR + STATEDUMMIES + \varepsilon, \quad (2)$$

where *REP_COND* measures the number of reportable conditions found by the auditor and *AUDIT_LAG* measures the difference between the audit report date and the county's fiscal year end. *STATEAUDITOR* is a dummy variable equals one if a state auditor does the audit and zero otherwise. *SINGLEAR* is a dummy variable equals 1 if the county has a single audit and zero otherwise. The *GOV_EXP* variable measures government expenditures and controls for the county's size. *FUNDSNR* is the number of funds which is measure for the county's complexity[1]. We predict that both, size and complexity are positively correlated with reportable conditions as well as the audit lag. We employ two different approaches to account for the between-state differences. First, we include state dummies for all states except the state with the largest number of counties, Georgia (which will be captured in the intercept). Second, we create three dummy variables one for states with only public auditors (we include Tennessee with 36 out of 37 counties with public auditors in this group), one for states with only private auditors and one for states where some counties are audited by public auditors and others by private firms. Addressing the between-state differences is important because states differ with regard to government financial reporting requirements. States may also differ with regard to oversight characteristics such as rules for auditor procurement which has been shown to affect audit quality (Jensen and Payne, 2005).

The number of reportable conditions found ("*REP_COND*") likely affects the time needed to complete the audit and is therefore included on the right hand side of regression model (2). Auditor effort or resources allocated to the audit (in terms of hours and personnel) likely affect timeliness (Knechel and Payne, 2001). Thus, audit fee (which captures both hours and type of personnel) is likely to be negatively associated with audit lag (Rubin, 1992). Unfortunately, this variable is not available for the dataset of this study.

3. Results

Table 3 reports the t-tests results for the entire sample (Panel A) and the counties in "mixed states", i.e., states where both private firms and state auditors do the government audits (Panel B).

Table 3. T-tests for differences between private and state audit firm reports

Panel A. All states in the sample (AZ, GA, IA, MI, MS, OK, TN, UT, and WA)			
	No state auditor (mean)	State auditor (mean)	p-value
Audit lag (days)	199.9	242.6	<.0001
Late filing (days)	-10.5	15.6	0.02
Reportable conditions fin stm	2.05	3.26	0.00
Panel B. "Mixed" states (AZ, IA, MI, and MS)			
	No state auditor (mean)	State auditor (mean)	p-value
Audit report lag	222.6	247.6	0.20
Late filing (days)	-14.2	-20.6	0.73
Reportable conditions fin stm	1.98	3.75	0.00

Notes: Audit lag (days): number of days between fiscal year end and issuance of audit report; Late filing (days): number of days between audit report due date and issuance of audit report; a negative number means that the audit report was filed early. Reportable conditions fin stm: number of conditions with financial statements. The term "mixed" states refers to states where some counties use a state auditor and others do not. Tennesse with only one county audited by a private firm is not included in the "mixed" group.

The results show for the entire sample the state auditor counties have a longer audit lag, more late filers, and more reportable conditions in their audit report. For "mixed states", i.e., states where both state and private auditors do the audit work, the reportable condition variable is significantly different (higher) for the state auditor counties but time measures are not significantly different[2].

[1] We acknowledge that a better indicator for complexity would be the number of *major* funds. However, that measure is not available to us.

[2] This holds when the two outliers Navajo County, AZ and Gila County, AZ with audit lags of over 700 days were removed from the sample. It also holds when the entire state of Arizona is excluded.

The results of the regression analysis, provided in Table 4, confirm the impact of the state auditor dummy variable on the average number of reportable conditions in the audit report. Specifically, having a state auditor positively impacts the number of reportable conditions listed by about 1.3 or 1.7 on average. This finding supports hypothesis 1 that state auditors find and report more deficiencies and problems.

On the other hand, the state auditor variable is not significantly correlated with the audit lag measure while the number of reportable condition impacts audit lag positively. That is, adding the control eliminates partially the findings of the t-tests. Stated differently, our results suggest that the reason for longer audit lags in certain counties with public auditors is related to location or complexity of the county and is not primarily caused by the auditor type. Note that this is an unexpected finding and does not support hypothesis 2. A possible explanation for this is that there seems to be little incentive for the auditee to complete the audit other than within the state or federal mandated maximum period. That mandated maximum period is generally a very generous period of six to nine months compared to the time limits within which audits of stock exchange listed companies must be performed. To test this, we repeated the analysis with a continuous and dummy *LATE* measure as our dependent variable. The continuous *LATE* variable measures the difference between audit report due date and the actual filing of the report. It is positive for late filers and negative for early filers. The *LATE* dummy variable equals one for counties that filed the report after the due date and zero otherwise. In the latter case we use a logistic regression model. The results are qualitatively similar. The *STATEAUDITOR* dummy does not significantly impact the timeliness measure but the number of reportable conditions is positively related to the continuous and to the dummy *LATE* variable. It appears under existing state and federal regulations timeliness is simply not that important and that whatever financial incentives may exist for private audit firms they are generally not sufficient to result in speedier audits. Additionally, in the case of federal and some state mandated periods there also seems to be little penalty for filing a late audit report.

It is also interesting that various state dummies are significant which indicates that some states have better (more effective) auditors than others. For example, according to our data, auditors in Iowa are comparatively faster and better at finding problems. We cannot tell from this study whether certain states are more aggressive in the timeliness and effectiveness of the audit but it opens up an avenue for future research. Because of some very significant between state differences we remove the two outlier states, Tennessee and Washington, from the sample and rerun the analysis. We also reran our regression models without the two outlier counties (Navajo, AZ and Gila, AZ) and without all Arizona counties. Results for both models were qualitatively equivalent.

In order to further test for robustness of our results we performed t-tests and re-estimated the OLS regression with alternative variables measuring auditor "thoroughness" (not tabulated). Specifically, we employed the measures "compliance" (non-compliance in grant audit report mentioned), "qualified opinion", and "material weaknesses in internal control" and found that counties with state auditors are less compliant, have fewer unqualified opinions and more material weaknesses in internal control. However, regression models using these variables instead of the *REP_COND* dependent variable show mixed results. We believe that one problem with these alternate effectiveness measures is the relative small sample size and low variance. Overall, robustness checks do not contradict our main findings.

Table 4. OLS regression results

		Dependent variable		Dependent variable	
		Reportable conditions fin stm (1)	Audit lag (2)	Reportable conditions fin stm (1)	Audit lag (2)
Intercept	Parameter estimate	1.25	453.78	4.41	466.46
	p-value	0.65	<.0001	0.13	<.0001
State auditor dummy	Parameter estimate	1.29	-14.66	1.67	20.30
	p-value	0.00	0.32	0.00	0.23
Reportable conditions fin stm	Parameter estimate		3.68		-1.11
	p-value		0.01		0.45
Single audit report	Parameter estimate	-0.41	-1.57	0.15	-29.69
	p-value	0.21	0.88	0.65	0.01
Funds number	Parameter estimate	0.43	-48.49	1.52	-81.82
	p-value	0.34	0.00	0.00	<.0001
Log total gov expenditures	Parameter estimate	-0.10	-12.09	-1.17	7.52
	p-value	0.77	0.25	0.00	0.54

Table 4 (cont.). OLS regression results

		Dependent variable		Dependent variable	
		Reportable conditions fin stm (1)	Audit lag (2)	Reportable conditions fin stm (1)	Audit lag (2)
Arizona (state dummy)	Parameter estimate	-1.24	232.50		
	p-value	0.18	<.0001		
Iowa (state dummy)	Parameter estimate	1.25	-3.62		
	p-value	0.01	0.81		
Michigan (state dummy)	Parameter estimate	-0.88	-22.79		
	p-value	0.06	0.13		
Mississippi (state dummy)	Parameter estimate	-0.18	177.69		
	p-value	0.71	<.0001		
Oklahoma (state dummy)	Parameter estimate	-1.53	113.98		
	p-value	0.03	<.0001		
Tennessee (state dummy)	Parameter estimate	5.30	-75.11		
	p-value	<.0001	0.00		
Utah (state dummy)	Parameter estimate	0.16	-10.68		
	p-value	0.81	0.61		
Washington (state dummy)	Parameter estimate	-2.97	63.50		
	p-value	0.00	0.01		
Public states (dummy)	Parameter estimate			-0.12	15.59
	p-value			0.86	0.49
Mixed states (dummy)	Parameter estimate			-0.16	54.41
	p-value			0.68	<.0001
Adjusted R-square		25.40%	38.87%	0.06	0.10
Model F-value (p-value)		17.41 (<.0001)	29.18 (<.0001)	6.89 (<.0001)	10.16 (<.0001)

Notes: Reportable conditions fin stm: number of conditions with financial statements; Audit lag: number of days between fiscal year end and issuance of audit report; State auditor: dummy variable equaling 1 if the audit was performed by a state auditor and zero otherwise; Single audit report: dummy variable equaling one for counties that had a single audit; Funds number: number of funds listed in financial statement; Log total gov expenditures: natural log of total government expenditures. Public: dummy variable for states where all counties were audited by a public auditor; Mixed: dummy variable for states where some counties were audited by a private firm and others by the state auditor.

Conclusion

The main purpose of this study was to examine the differences between audit effectiveness of governmental audits prepared either by public or by private auditors. We use a sample of nine American states (with a total of 601 counties) and compare the number of reportable conditions listed in the report and two timeliness measures for counties with public and counties with private auditors. Our results indicate that state auditors are more likely to find more reportable conditions in a government entity's audit. While at first glance it seems that state auditors are slower than public audit firms, a more detailed examination reveals that this is not necessarily true. The regression results indicate that there is no difference between state and private auditors with regard to audit lag (the difference between fiscal year end and issuance of the report) and late filing (the difference between due date and issuance of the report). It appears that time is simply not important in the case of governmental audits.

Interestingly, we find significant differences between states indicating that audit quality and timeliness largely depend on individual state characteristics. One possible determinant could be state and/or county oversight rules such as regulations concerning audit procurement. Future research should therefore focus on these state characteristics to determine how audits can be improved and become available on a timelier basis.

Another avenue for future studies may be a comparison of audit requirements and audit reports across different countries. In light of current economic events in Europe, audit quality is likely become more relevant in other countries – especially those with significant amounts of debt. Future research could therefore look into factors affecting auditor effectiveness in an international context.

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