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The Effects of Local Government GAAP Regulation on Audit Market Concentration, Auditor Specialization, and Audit Fees

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ABSTRACT

This study examines the effects of financial statement disclosure regulation on auditor market concentration and audit fees. I compare auditor industry concentration rates between municipalities reporting under the Single Audit Act in the state of Michigan, which requires all local governments to follow GAAP reporting, with concentration rates in Pennsylvania, which has unregulated reporting. Using both an interstate comparison as well as examining a policy change in the unregulated environment, I find evidence suggesting that auditor concentration is related to disclosure mandates. Through survey data, I then explore the impact of reporting regulation on audit fees. My findings suggest GAAP mandated disclosure is associated with an overall lower audit fee, evidence suggestive of economies of scale; however, specialist firms in the GAAP setting are able to differentiate themselves and earn a fee premium. The state with unregulated disclosure does not benefit from the same audit economies having a market containing higher overall audit fees as well as specialist auditors who may discount engagement fees where specialist pricing in both markets appears to depend on audit firm characteristics and market share. Collectively, my results provide evidence that disclosure regulation is associated with overall lower fees, but also results in greater concentration and specialist fee premiums.

Keywords: Reporting regulation; auditor concentration; audit fees; auditor specialization

THE EFFECTS OF LOCAL GOVERNMENT GAAP REGULATION ON
AUDIT MARKET CONCENTRATION, AUDITOR SPECIALIZATION, AND AUDIT FEES

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1. INTRODUCTION

The effects of financial statement disclosure regulation on the audit markets has been a topic of interest to regulators for an extensive period of time. Exempted from federal disclosure mandates under provisions of the Securities Acts of 1933 and 1934, the disclosure requirements of local governmental units have been delegated largely to state lawmakers, presenting a unique opportunity to use the governmental auditing markets as a basis for examining consequences of variation in state-based disclosure mandates on independent audit firm market structure and audit engagement pricing. For a sample of local governmental units reporting under the Single Audit Act, I find disclosure regulation is associated with increases in auditor concentration levels as well as the extent of auditor specialization maintained within a market. Additionally, I find that regulated disclosure may result in auditing efficiencies, or economies of scale, evidenced through overall lower audit pricing. I also find evidence suggesting the effect of disclosure regulation on specialist audit firm pricing may be a function of both regulatory characteristics as well as characteristics of the auditing firms operating in a given local market where disclosure regulation is associated with specialist auditor fee premiums present at varying levels between specialist firms. Similar pricing premiums are not found in the voluntary disclosure setting.

In a recent discussion paper *Enhancing Audit Quality: Plans and Perspectives for the U.S. CPA Profession,* the AICPA has identified audits conducted under Government Auditing Standards (GAS), including engagements performed under the Single Audit Act, as being an area of challenge for independent auditing (AICPA 2014). Emphasizing the importance of market structure and the high levels of audit risk inherent in governmental auditing common among independent auditing firms of all sizes, the AICPA discussion paper suggests audit risk is especially present when engagements conducted under GAS represent a relatively low volume of

a firm's overall engagement work and the AICPA is currently proposing changes to the peer review program as a means of addressing the resultant engagement risk. Similarly, in a 2007 examination undertaken by the President's Council on Integrity and Efficiency (PCIE 2007) the reporting quality of recipients of federal awards under the Single Audit Act was examined finding evidence suggesting that auditor experience and training is directly related to engagement effectiveness in auditing recipients of federal awards. Taken collectively with the AICPA's proposals, the PCIE's findings suggest benefits can be derived from governmental auditing markets containing increased levels of auditor specialization.

Audit firm characteristics and their impact on reporting under the Single Audit Act have been examined by regulators since the establishment of single audit reporting.[1] In 1986, the GAO released a report finding that approximately one-third of single audits failed to conform to professional standards. Later GAO reports (2008, 2007, 2006, 2003) contained similar conclusions while consistently noting that auditor expertise in serving recipients of federal awards was associated with higher reporting quality. Despite the findings of regulators, audit specialization is not observed to the same extent in all audit markets. My study suggests that state-level disclosure regulation may be a contributing factor towards differences in audit firm market structure and that local-level reporting regulation may influence auditor contracting in ways different than the effects of reporting regulation at a national level as seen through provisions of the Single Audit Act or through the empirical findings and suggestions proposed by regulatory bodies such as the GAO or PCIE.

Regulation is a defining feature of the modern audit markets, and globally the trend is towards increasing oversight of the financial reporting and auditing process (DeFond and Zhang

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[1] The Single Audit Act was established in 1984 and was enacted to standardize the requirements for auditing federal programs. The Act is formally described in Section II of this study.

2014). Therefore, studying the relation between reporting regulation and the auditing markets is an important dimension towards understanding the market positioning and audit pricing characteristics of independent auditing firms. The governmental audit markets provide a unique setting for examining this relationship as governmental accounting is not only a complex process that should lend itself towards high levels of auditor specialization (Hogan and Jeter 1999), but differences in the required disclosure between states makes it difficult for auditing firms to service governmental units in multiple states (Chase 1999). Therefore, in many ways, each state may represent its own audit market.

These characteristics, combined with GAO findings of "lowest bid" auditor selection (GAO 1986), yield an auditing market that is fragmented in the sense there has historically been little Big 4 presence and where most governmental units are served primarily by local auditors, providing geographically bounded audit markets useful in conducting an interstate market comparison. When governmental units operate in a disclosure regulated setting, I predict that state-level oversight of the reporting process contributes towards developing more concentrated audit markets where efficiencies gained through auditing under a regulated setting may be associated with audit pricing economies.

The accounting literature identifies several benefits associated with auditor specialization. First, specialization may provide scale economies that can lower the average engagement cost per client and secondly, specialization may provide higher audit fees due to product differentiation (see Gramling and Stone 2001 for a literature review). Though audit firms are developing along specialized industry lines, the fact that auditor specialization is not observed to the same extent in all industries, suggests some unobserved economic reason prevents the transfer of specialized auditing knowledge within certain marketplaces or the demand for

specialized services does not exist within some markets (Hogan and Jeter 1999; Craswell, Francis and Taylor 1995). In my study, I predict that reporting regulation alters auditor demand where auditor specialization becomes valued and a firm's established market niche can result in pricing premiums that may not be conducive in a voluntary disclosure environment.

I conduct my study in both a disclosure regulated and a voluntary disclosure market during the period 1997-2010 using two states that share similar design of local governments but exhibit significant reporting differences.[2] One state (Michigan) has a long-standing GAAP disclosure requirement; the other state (Pennsylvania) has similar characteristics except it does not have a statutory GAAP reporting requirement. I find that audit firm concentration levels are higher in the GAAP-regulated market than in the unregulated market. Notably, during the period of my study, there was a change in policy resulting in increased regulation (GAAP requirement) for county form governments within the unregulated state. Following this change, there was an increase in auditor concentration for county governments as compared with other unregulated governmental units within Pennsylvania. As a result, I provide evidence both between states and within one state suggesting that local-level reporting regulation impacts auditor market concentration levels.

Using survey data, I find that audit fees are lower in the GAAP-regulated state, evidence indicative of economies of scale in engagement pricing. However, in the regulated environment, the established market leader earns a fee premium, consistent with benefits to specialization due to regulation (Eichenseher and Danos 1981; Danos and Eichenseher 1982; Hogan and Jeter 1999). Other market leaders within the regulated environment also earn a fee premium, however, that premium is not as significant as that of the established leader. In contrast, I find

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[2] I follow prior literature in defining a state with GAAP mandated disclosure as being "regulated" and conversely, a state without a statutory GAAP requirement as being disclosure "unregulated" or "voluntary."

evidence of fee discounting associated with the market leader in the non-regulated state, suggesting that premiums associated with specialist auditing may be a function of both individual audit firm characteristics (or market positioning) and demand driven for auditor type by local level regulation.

The remainder of the study proceeds as follows. Section 2 presents background information. Section 3 discusses the development of the research hypotheses. Section 4 describes the sample, and Section 5 provides an analysis of the structure of the CPA firm markets including an analysis of firm concentration measures as well as an analysis of regulation and specialization levels on audit fees. Section 6 provides a discussion of the sensitivity testing performed and Section 7 is the conclusion and discussion.

2. BACKGROUND

2.1 State-Based Reporting Regulation

State legislatures establish the minimum financial disclosure requirements for local governmental units. These requirements may range from full disclosure "GAAP" based financial statements through unregulated or voluntary disclosure with many states adopting their own hybrid methods of reporting and collecting financial information from local governmental units. In my study, I refer to local governments required under state statute to follow pronouncements of the Governmental Accounting Standards Board (GASB) as following "GAAP" and conversely, local governments in states exercising voluntary disclosure as "non-GAAP" states.[3,4]

The extent of GAAP reporting followed by local governments is largely unknown but is of concern to regulatory bodies who encourage its adoption (GASB 2008). In a study sponsored by the GASB, it was estimated that nationally, approximately 43% of county governments and 13% of local municipalities are required under state statute to issue their financial statements on a GAAP basis (GASB 2008). Surveys conducted by the National Association of State Auditors, Comptrollers and Treasurers (NASACT) also estimate wide variation in state reporting mandates. In the accounting literature, research conducted by Baber and Gore (2008) examined state reporting mandates and finds approximately 27 states require GAAP, 14 follow state-specific disclosure, and 9 states have unregulated disclosure.

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[3] GAAP-based reporting standards are established by the Governmental Accounting Standards Board (GASB), the governmental accounting equivalent to the Financial Accounting Standards Board (FASB).
[4] GAAP states typically mandate full disclosure financial statements filed on either an annual or semi-annual basis in accordance with state laws. Non-GAAP states have no formal disclosure requirements and outside of any confounding factors, those municipalities are free to issue financial statements on a fund basis, cash basis, hybrid basis, etc.

The debate concerning why some states mandate GAAP while others do not is beyond the scope of this paper. However, Zimmerman (1977) proposes the high administrative cost assumed by a local government to prepare GAAP-based financial statements and the limited utility gained by voters of the heightened disclosure levels has potentially limited lobbying activity for a uniform GAAP requirement.[5] Despite the inherent complexity of governmental accounting and preparing a report under GAAP, the GASB has continued to propose standards (GASB 34 and GASB 45, among others) aimed at addressing the usability of governmental financial statements; however, unless larger incentives on the part of voters and elected officials to monitor government finances exist, Ingram and Spring (1984) and Ingram and DeJong (1987) suggests lower levels of accounting information will be voluntarily disclosed, absent disclosure mandates under state regulations.

2.2 The Single Audit Act

Each year, the federal government awards greater than $400 billion in grants to various governmental and non-profit organizations. Under the Single Audit Act of 1984, any recipient organization expending federal awards greater than $500,000 ($300,000 for fiscal years ending before January 1, 2004) must undergo an independent audit in accordance with requirements of the Office of Management and Budget (OMB) Circular A-133 "Audits of States, Local Governments and Non-Profit Organizations." In this unique environment, financial statements and supplemental information commonly referred to as "Single Audits" are required to be filed with the Federal Audit Clearinghouse, and portions of those financial statements are publicly available.

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[5] In this study my comparisons examine consequences of statutory reporting policy on the overall audit markets rather than the effects of individual government reporting, as some local governments may adopt GAAP presentation either voluntarily or as a requirement of supplemental financing.

Single Audits are performed in accordance with Governmental Auditing Standards (GAS) issued by the U.S. Government Accountability Office (GAO) and contain a heightened level of specific reporting dealing with a recipient organization's internal control activities and the grantee's compliance with specific program requirements. The standards require audit firms to administer specialized training for in-charge engagement team members and that auditors must issue an opinion on both the financial statements as well as on the grantee's compliance with terms of the federal programs including compliance with laws and regulations, as well as whether the schedule of expenditures of federal awards is prepared properly. Additionally, under OMB Circular A-133, auditing firms must report their assessment of a recipient organization's internal controls and report any instances of noncompliance as either a reportable condition or material weakness. While the internal controls assessment is similar in purpose to reporting on internal controls for commercial entities, the reporting of control assessments under the Single Audit Act is not identical to that of a publicly-traded entity.[6]

2.3 Auditing Markets of Local Governmental Units

The auditing of local governmental units is unique in its nature where the inherent complexities (fund accounting, GASB pronouncements) found in governmental accounting should lend themselves towards heightened specialist use (Hogan and Jeter 1999). Additionally, there are underlying differences in market structure between firms serving governmental entities versus firms serving publicly-traded entities where the vast majority of governmental auditing is performed by state-based or regional independent auditing practices. Though the scope and

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[6] To maintain consistent terminology with pronouncements of the AICPA (i.e., SAS 112), during 2007 the GAO replaced references to "reportable conditions" with the term "significant deficiency." Since my sample period begins prior to the GAO's change, I continue to use the term "reportable conditions" throughout this study. I also note that the reporting and testing of internal controls for recipients of federal awards under these programs has been required well before similar testing for commercial entities.

complexity of governmental audit work is wider than that of a comparable commercial entity, governmental audits are typically less costly for auditees than comparable engagements overseen by the Public Company Accounting Oversight Board (PCAOB) (Petrovits, Shakespeare, and Shih 2011) and given practice management and resource constrains at the Big N auditing firms, it has been found that most governmental auditing work formerly serviced by the Big N firms is shifting to local practices in a fashion similar to what has been noted for not-for-profit entities (Feng and Elder 2014).[7]

Supporting the notion that audit contracting and audit firm involvement within governmental auditing is an important dimension of single audit compliance are the numerous findings of the GAO. Initially, the GAO expressed concerns the independent auditing markets and audit quality could be negatively impacted by "lowest cost" selection norms used in auditor procurement (GAO 1986; Copeland and Ingram 1978). Subsequent GAO reports began encouraging governmental units to consider audit firm expertise and training as signals of audit quality in making audit firm selection decisions (GAO 1987; PCIE 2007). In the GAO's analysis of audit quality, their analysis has maintained a focus on the independent auditing process (i.e., compliance with professional fieldwork standards) rather than the extent of financial statement disclosure mandates, leaving the question of the relationship between required disclosure levels under a comprehensive state policy and auditor market structure largely unknown.

2.4 Regulation and the Independent Auditing Markets

Prior research findings suggest that accounting and disclosure practices of local governmental units adjust through a relationship between political incentives and the desired

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[7] In my sample, I note that the Big N never audited the majority of local governments, but in the years since passage of the Sarbanes Oxley Act of 2002, their involvement in the local governmental markets has further decreased to negligible levels.

monitoring levels of voters (Ingram and Spring 1984; Evans and Patton 1983; Baber 1983; Zimmerman 1977). Built upon the notion that the federal government (outside of possible single audit compliance) imposes relatively few disclosure requirements on governmental units and instead relies upon the independent auditing process as a means of reducing information asymmetry (Ingram and Spring 1984), these studies all suggest that variation in audit demand and disclosure levels emerge as a result of signaling and economic incentives that accrue to either voters or the elected officials themselves (Evans and Patton 1987; Zimmerman 1977).

Outside the trade-offs between political incentives and voter monitoring, a statutory GAAP mandate as a component of a comprehensive state policy establishes a minimum disclosure level all governmental units must follow. The centralized process state governments may use in reviewing municipal financial statements prepared under a GAAP mandate provides an environment through which the effects of state policies on the audit markets can be examined and my study argues that, dependent upon the nature of municipal oversight provided by state regulators, the contracting for independent auditing may be impacted.

Recent empirical evidence suggests state-based GAAP policies are significant determinants impacting contracting costs and ultimately affecting financing outcomes. These studies, (Ingram and Copeland 1981; Gore 2004; Baber and Gore 2008; Vermeer, Styles and Patton 2012; Baber, Gore, Rich and Zhang 2013; Rich and Zhang 2014) collectively find the information environment common in a GAAP-regulated setting impacts user groups of municipal financial statements. My study provides evidence suggesting that not only does a centralized GAAP requirement impact municipal disclosure levels but it may also impact structural characteristics of the audit markets serving governmental units.

3. HYPOTHESIS DEVELOPMENT

In framing my hypotheses, I make several assumptions. First, in the absence of disclosure regulation, municipal reporting may revert to the most cost effective means possible, fund accounting (Watts and Zimmerman 1986). Additionally, the demand for independent auditing would similarly be reduced as substitute mechanisms of information (news, voting, and taxes) could equally provide signals of fiscal stability (Ingram and Copeland 1981; Wallace 1980). Lastly, I assume the goal of independent auditing firms is to maximize firm profits in competitive markets while providing the level of services contracted for by auditees. And, as audit firm profits are unobservable, I use audit firm market share and audit engagement pricing as units of analysis and assume both determinants interact with local level regulation and adjust to equilibrium through competition (Weiss 1989).

3.1 Disclosure Regulation and Auditor Market Structure

Auditing in the governmental markets presents its own unique challenges (fund accounting, single audit reporting, GASB pronouncements) but when the complexities of governmental accounting are compounded through state regulation, another layer of monitoring is added to the equation and may impact the composition of the independent audit markets. Studies by Hogan and Jeter (1999) and Eichenseher and Danos (1981) predict that levels of reporting complexity relate directly to levels of independent auditor concentration. Similarly, Eichenseher and Danos (1986; 1982) predict a positive relationship between regulation levels and auditor concentration within a given market concluding that levels of firm market share can be sustained over time when regulation levels are high, and firm market shares may erode in the absence of regulation.

Bain (1956) concludes there is a cumulative effect of scale and product differentiation barriers that, if developed, may deter entry into certain markets thereby increasing supplier concentration levels. Defond and Zhang (2014) note that regulated disclosure places a floor on the demand for certain types of reporting and auditing which may be highlighted by intervention of regulatory bodies. Combined, this environment may incentivize a shift in both client demand and firm participation in the auditing markets where differences in demand are illustrated by the predominant auditor types or market concentration characteristics within a given market. Therefore, I propose my first hypothesis:

H1: Disclosure regulation will lead to differences in auditor concentration levels.

3.2 Disclosure Regulation and Independent Audit Pricing

Given a requisite level of auditor concentration and disclosure regulation, it is not clear to what extent these characteristics impact audit engagement pricing. Traditional economic arguments suggest pricing rises with concentration (Weiss 1989) however, the settings used in classical economics literature addresses supplier concentration through oligopolistic theories. The auditing markets included in my study do not contain levels of concentration sufficient to suggest the absence of competition and regulators have struggled to find empirical evidence of collusive pricing within the auditing markets, therefore, my study assumes the audit markets are competitive (GAO 2008, 2003).

Despite findings of a competitive audit market, the accounting literature is mixed in regards to the relationship between auditor concentration and audit pricing, with some authors finding a direct relationship between auditor concentration and engagement pricing (Carson, Simnett, Soo and Wright 2012; Bandyopadhyay and Kao 2001, 2004) and others finding evidence suggestive of engagement discounting or lower fees associated with auditor

concentration (Chase 1999; Pearson and Trompeter 1994; Simunic 1980). Collectively, the disparity in research findings indicates that unobserved characteristics may impact audit firm pricing, leaving the relationship between concentration levels and audit pricing not fully understood.

Chase (1999) suggests that local government reporting regulation generates homogeneity within the independent audit process.[8] Over time, the delivery of fixed levels of auditing throughout a marketplace lends itself towards economies of scale, where DeFond, Francis and Wong (2000) find specialist auditors grant fee discounts. In disclosure regulated settings, there should be an established demand for auditing services as a defined set (GAAP) of reporting criteria must be followed.[9] Given the fixed quantities of auditing demanded, and disclosure levels sustaining the marketplace's concentration over time (Danos and Eichenseher 1986, 1982), I anticipate that economies of scale should develop evidenced through lower engagement fees in a disclosure regulated environment.

Absent disclosure regulation, local governments will voluntarily adopt their optimal level of disclosure based upon monitoring incentives (Watts and Zimmerman 1986). In this setting, auditing economies may develop over time but not to the same extent found in a disclosure regulated setting (Danos and Eichenseher 1986, 1982). Therefore, I predict that when governmental audit markets contain disclosure regulation, economies of scale develop more

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[8] Chase (1999) notes that the county governments included in his study are required by the Auditor of Public Accounts (not statute) to issue a Comprehensive Annual Financial Statement ("CAFR's" are usually considered GAAP) and argues as a result, the reporting and auditing process is homogenous between sampled governmental units contributing towards his findings of lower audit fees associated with higher concentration levels. The Chase sample includes a substantial portion (12.5%) served by Big N auditors and approximately 60% of the remaining entities served by the specialist firm, which Chase concluded to be discounting in light of Big N competition.

[9] For example, in addition to enforcing a GAAP mandate, the disclosure regulated state used in this study (Michigan) has issued uniform reporting formats for the financial statements of governmental units, and routinely updates this manual for major changes in GASB pronouncements (i.e., GASB 34), increasing the homogeneity of reporting in this type of environment. A sample of the requirements are available at: http://www.michigan.gov/documents/unifrepformatgasb34_47528_7.PDF

extensively within the auditing process and those economies are returned to auditees, without disclosure regulation, the economies of scale may not develop to the same extent. Therefore, I propose my second hypothesis:

> **H2:** Disclosure regulation results in auditing efficiencies and economies of scale in audit engagement pricing.

3.3 Disclosure Regulation and Demand for Auditor Specialization

The GAO has recognized a rebalancing of auditing firms along specialized industry lines (GAO 2003). This suggests that audit firm differentiation strategies do impact independent audit firm market structure, especially in unique industries or settings where industry knowledge may create competitive advantage, with the implicit understanding that auditor expertise can be priced (GAO 2003). Despite this trend, the accounting literature contains mixed conclusions on the relationship between the demand for auditor specialization and its impact on audit engagement pricing.

Demsetz (1974) suggests that more efficient firms win both profits and market share. Using engagement fees as a proxy for profits, it remains uncertain under what circumstances auditing firms maintain market share, classifying themselves as industry specialists, while also maintaining pricing premiums. DeFond et al. (2000) argue that when specialization results in economies of scale, auditors grant fee discounts. Recent evidence exploring competitive factors within the auditing markets finds that auditors retain a specialist fee premium if their market positioning allows them to do so (Numan and Willekens 2012; Mayhew and Wilkins 2003).

Audit fees represent the extent of engagement effort a firm anticipates spending on a given engagement and auditors cannot unilaterally charge higher fees unless there is a corresponding increase in auditee demand for additional effort or industry knowledge. In the

governmental audit markets, Chase (1999) finds that a large specialist firm discounts

engagement fees, Ward, Elder and Kattelus (1994) find that specialist firms earn a fee premium,

and Rubin (1988) and Lowensohn, Johnson, Elder and Davies (2007) do not find a relationship

between non Big N specialist firms and audit engagement fees. Collectively, these results

indicate that market conditions generating demand for fee premium audit specialization remain

an unresolved question in the accounting literature. I predict that with disclosure regulation, the

additional monitoring of local governmental units not only generates changes in audit firm

market structure, but also creates demand for specialist audit firms who have experience in the

disclosure-regulated environment and these specialist firms can price that experience dependent

upon the firm's positioning within a given market. Therefore I propose my third and fourth

hypothesis:

H3:   Disclosure regulation generates demand for audit specialization.

H4:   Audit specialization fee premiums are a function of disclosure regulation and

characteristics of the auditing firms operating in a disclosure regulated market.

4. SAMPLE SELECTION

4.1 Selection of Comparison States

To explore the consequences of differences in disclosure policy on the audit markets, I selected two states (Michigan and Pennsylvania) as a basis for performing a market comparison. Interstate comparisons have been used in similar studies examining the effects of public policy on audit market behavior. These studies (Hackenbrack, Jensen and Payne 2000; Jensen and Payne 2005) used geographically similar states in their analysis and while the states were not perfectly similar, the studies were able to control for confounding factors through their research design. Gore (2004) notes that as the number of states in an analysis increases, the possibility of correlated omitted variables rises as states are unique (Chase 1999) in their specific reporting requirements.

The selection of Michigan and Pennsylvania as the sample states provides many empirical strengths in addition to shared proximity. First, Michigan has required GAAP reporting since 1968.[10] Through nearly 50 years of GAAP enforcement, the Michigan governmental audit market provides an opportunity to examine market and pricing consequences emerging from a setting that may have altered auditee/auditor contracting incentives, lending towards increased levels of audit specialization and stability in firm market share over time as a consequence of regulation (Danos and Eichenseher 1982, 1986). Pennsylvania is a suitable comparison state as local governments within Pennsylvania are not required under statute to report on a GAAP basis.[11] More notably, during the period of my study, Pennsylvania

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[10] Michigan Public Act 2 of 1968 (MCL 141.421 to 141.440a) formalizes the adoption of GAAP (GASB standards) to be followed by governmental units and charges the State Treasurer with providing implementation guidance to the governmental units.

[11] Approximately 97% of Pennsylvania's local governments are not required under law to submit full GAAP based financial statements. These governments may submit the required information using any reporting basis, including cash basis (Patrick 2010).

Commonwealth County Code was amended requiring county governments to report on a GAAP

basis, providing further opportunity to test the market concentration hypothesis between states

and also within one state.[12,13]

The two states share many common characteristics making them suitable comparison

states used in prior studies (Vermeer et al. 2012; Gore 2004). For example, the reporting of

governmental units within each state does not overlap, meaning each government (county, city,

etc.) reports on and is audited on its own financial operations. Secondly, the two states share a

similar design of their local governments in that both states utilize county, city, township and

other local government forms such as villages and boroughs. Additionally, both states require

governmental units to undergo audits and the majority of these audits are performed by

independent CPA firms and none of the CPA firms report on governmental units in both

state.[14,15] The main variation in the financial monitoring of the governmental units comes in the

administration of the GAAP requirement. In Michigan, oversight of GAAP compliance is

centralized and regularly reviewed and tested by state auditors, and governments not found to be

reporting in accordance with GAAP are required to submit corrected financial statements. In

Pennsylvania, a summary of selected financial data is to be submitted to the Department of

Community and Economic Development (DCED) on an annual basis but full disclosure is not

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[12] Pennsylvania Commonwealth County Code 2002 (Section 1705, P.L. 323, No. 130) was enacted by the 2002 General Assembly of the Commonwealth of Pennsylvania. Section 1705 required the adoption of GAAP reporting for county governments to take effect the third full fiscal year (2005) after enactment of the legislation.
[13] It would be ideal to also test a regulatory change in a state moving from GAAP disclosure to voluntary disclosure. However, given the shifts in accounting and auditing towards increased regulation (DeFond and Zhang 2014), there is minimal potential to find this scenario in a suitable comparison market.
[14] It is fairly common for the auditing of local governments to be performed by state auditors, rather than CPA firms. However, in the single audit sample drawn from these two states, the vast majority of auditing is provided by independent CPA firms.
[15] Not all governmental auditing is performed by independent CPAs. For example, boroughs and townships in Pennsylvania may be audited by either elected auditors, an elected controller, or independent CPA's. The elected auditor form is most common in smaller governmental units.

required nor is there a strong enforcement mechanism to ensure compliance with state or GASB requirements (Patrick 2010).[16]

Providing an environment where the policies pertaining to reporting regulation can be examined outside the confounding effects of disclosure choices of individual governmental units, I draw my sample from all local governments in Michigan and Pennsylvania reporting under the Single Audit Act. In addition to holding the disclosure levels comparable between all sampled entities, the Single Audit Act provides many strengths to my research design. All local governments are eligible to receive federal awards and a government's ability to obtain federal awards is not limited by state policy. Additionally, the nature of auditing under the Single Audit Act (and dollar thresholds) results in a sample where all sampled governmental units receive both additional audit focus addressing the administration of their federal programs but also, the dollar limits inherent in single audit reporting lends towards larger government sizes, alleviating the need to arbitrarily drop observations based upon factors such as population.[17] Lastly, the single audit data available from the Federal Audit Clearinghouse contains auditor specific characteristics such as the auditor name, federal awards dollars, and a classification of internal control exceptions as well as auditee contact information necessary for administering survey instruments.

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[16] Pennsylvania requires local governments to submit their financial information on a form (DCED-CLGS 30 – Municipal Annual Audit and Financial Report). This form focuses on budgetary items such as revenues, expenditures, and long-term debt and does not require submission of information on current assets, fixed assets or current liabilities.

[17] Size restrictions based upon population are common in the governmental literature. For example Gore (2004) limits her analysis to governments with populations greater than 10,000; Rubin (1988) limits his analysis to cities with populations greater than 50,000. Using the single audit data is another technique to address size restrictions while also providing a level of homogeneity to the sample.

4.2 Market Analysis Sample

Table 1, Panel A describes the sample selection for my first hypothesis. I begin my study with all local governments submitting a financial statement in accordance with A-133 for the years 1997 through 2010 (Panel A).[18] Excluded from my analysis are governmental units where the auditor selection may be driven by factors different from the remainder of my sample. This includes 74 engagements completed by state auditors as previous research by Lopez and Peters (2010) finds differences in audit quality between engagements performed by independent CPA firms and those completed by state auditors. Additionally, engagements completed by state auditors are excluded as these engagements are not subject to an independent CPA firm's quality control and peer review process, making pricing comparisons not comparable between audit services provided by CPA firms and state auditors.

Jensen and Payne (2005) found that in the years after a bidding restriction in Florida was lifted, the Big N firms left the marketplace for governmental auditing services. Similarly, Feng and Elder (2014) find the Big N firms reduced their presence in the non-profit audit market after the passage of SOX. I also observe this trend in my data as the Big N reduced their presence in the municipal audit market in both states; this relationship becomes more apparent in the years post-SOX. In 1997, the Big N audited 15 (10) governments in Pennsylvania (Michigan); in 2010, comparable numbers were 3 (1), respectively. Accordingly, in order to avoid a result driven by Big N firms, these observations are excluded from my study, allowing the opportunity to conduct this analysis without the confounding effects of firms who can draw competitive advantage through a national client base.[19]

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[18] The year 1997 is the first year the Federal Audit Clearinghouse began making single audit data available.

[19] In addition to building upon prior research findings, I observe that engagements performed by Big N firms are disproportionately larger than those performed by other CPA firms and are more likely to represent a client/CPA firm match on size rather than based on the contracting choices observed in the remainder of my sample.

Table 1 Summary of Local Governments Included in Analysis

Panel A: Data for Longitudinal Analysis of Market Trends

Sample Selection Criteria and Identification of Observations, partitioned by State

	Pennsylvania	*Michigan*	*Total*
Total local governments reporting under A-133 for 1997-2010	2,053	2,529	4,582
Less: A-133 reporting entities with atypical CPA firm contracting needs:			
Entities submitting reports prepared by state auditors	(13)	(61)	(74)
Entities with Big N audit firms	(111)	(76)	(187)
Total local governments included in sample for the years 1997-2010	1,929	2,392	4,321

Final Sample by Government Form and Audit Year, partitioned by State

	Pennsylvania					*Michigan*					*Total Sample*
Audit Year	*County*	*City*	*Township*	*Borough*	*Total*	*County*	*City*	*Township*	*Villages*	*Total*	
1997	51	31	9	12	103	59	57	5	0	121	224
1998	51	39	13	10	113	60	62	10	6	138	251
1999	53	36	13	13	115	60	77	9	7	153	268
2000	50	35	21	17	123	64	78	16	9	167	290
2001	55	39	30	29	153	63	85	20	13	181	334
2002	58	40	33	27	158	67	86	21	18	192	350
2003	59	42	31	27	159	68	89	20	17	194	353
2004	61	39	25	15	140	62	71	13	12	158	298
2005	61	35	29	20	145	63	72	18	12	165	310
2006	62	35	27	22	146	63	73	13	24	173	319
2007	62	39	37	23	161	64	77	19	13	173	334
2008	62	36	23	24	145	65	82	19	13	179	324
2009	63	32	30	25	150	69	74	28	9	180	330
2010	50	26	21	21	118	74	101	31	12	218	336
Total	798	504	342	285	1,929	901	1,084	242	165	2,392	4,321

Panel B: Observations from Administration of Survey

	Pennsylvania					*Michigan*					*Total*					
	County	*City*	*Township*	*Borough*	*Total*	*County*	*City*	*Township*	*Village*	*Total*	*County*	*City*	*Township*	*Borough*	*Village*	*Total*
A-133 Filing Governments	50	26	21	21	118	74	102	31	11	218	124	128	52	21	11	336
Surveys Returned	17	9	6	9	41	29	45	12	4	90	46	54	18	9	4	131
Response Rate in %	34%	35%	29%	43%	35%	39%	44%	39%	36%	41%	37%	42%	35%	43%	36%	39%
Useable Responses	17	7	5	9	38	27	42	12	3	84	44	49	17	9	3	122

I obtained my sample from the Federal Audit Clearinghouse Single Audit Database (https://harvester.census.gov). Panel A summarizes sample observations by state and type of local government over time. In Panel B, I summarize survey responses received by state and type of local government.

In testing my first hypothesis, I use a 14-year time series of single audit data resulting in a final sample of 4,321 observations including 1,929 observations from Pennsylvania and 2,392 from Michigan. The sample is summarized in Table 1.[20] In Panel A, I report the breakdown of observations by type of government and audit year. Counties are the largest portion of the sample with 1,699 observations, 798 in Pennsylvania and 901 in Michigan. The sample includes 1,588 cities, including 504 in Pennsylvania and 1,084 in Michigan. Townships, boroughs and villages comprise the remainder of the sample with aggregate observations of 627 in Pennsylvania and 407 in Michigan.

4.3 Survey of Independent Auditor Fees

My second and third and fourth hypothesis requires data not available through archival sources. Therefore, I surveyed fiscal year 2010 data from local governments within the states of Michigan and Pennsylvania. First, in February 2012, I conducted an electronically administered pilot survey of the two states and performed an initial analysis. Then, in April of 2012, I did a formal mailing of surveys; this was followed with one final electronic mailing. Early versus late respondents were compared for response basis on the basis of audit fees, federal expenditure dollars and population. Additionally, nonresponse basis was checked on the basis of federal expenditure dollars as this information is available for all entities through the Single Audit Database. In all cases, no evidence of response bias was noted.

Survey responses are summarized in Table 1, Panel B. The overall response rate was 39% (Pennsylvania 35%; Michigan 41%) indicting a similar response based upon the balance of observations between states. By focusing my study on two states, I was able to increase the

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[20] I note that overall, my sample includes on average 138 and 170 local governments drawn from Pennsylvania's 2,632 local governments and Michigan's 1,800 local governments, respectively. The sample composition drawn from the single audit act helps eliminate very small governments increasing the homogeneity of my sample.

survey response rate to levels (39%) well in excess of that seen in most survey based research.[21]

Similar to other survey-based research, I received several surveys that did not contain useable

data. The most common reason for an invalid survey response was the exclusion of audit fee

data. Considering the research design used in hypothesis 2, 3 and 4, I was careful in wording the

survey so that fees pertaining to the completion of the financial statement audit were separately

considered from those of any consulting services provided.

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[21] Other survey-based studies and their response rates include Lowensohn et al. (2007) 28%; Vermeer, Raghunandan and Forgione (2009) 14.4%; Ward et al. (1994) 60%; Simunic (1980) 33%; and Krishnan, Yetman and Yetman (2006) 12%.

5. RESEARCH DESIGN AND
EMPIRICAL RESULTS FOR HYPOTHESIS TESTING

5.1 Regulation and Auditor Market Structure

I begin my review of the auditing markets by analyzing the number of audit firms

submitting A-133 reports in each state as compared with the overall number of A-133

engagements performed. My sample is comprised of primarily local audit practices, most of

whom submit governmental engagements in just one state and out of relatively few offices

within that state. Therefore, none of the sampled firms are able to gain competitive market

advantage through a national client base, providing a geographically bounded market where

confounding factors driven by Big N / large national firm market involvement is minimized.

In Figure 1, I summarize the governmental auditing markets for both Michigan and

Pennsylvania. Figure 1 demonstrates how, despite Michigan having an overall greater number of

single audit reports submitted, this state has fewer auditing firms serving that market.

Correspondingly, in Pennsylvania, with fewer single audits completed, more firms are submitting

those reports suggesting increased auditor concentration levels associated with the GAAP-

regulated disclosure environment.

I test my first hypothesis concerning market concentration and the extent of market

involvement of the largest suppliers of auditing services through use of the Herfindahl Index and

concentration ratios, calculated for each state. The Herfindahl Index, calculated as the sum of

squares of individual audit firm market shares, has been used in a large number of studies

(Bandyopadhyay and Kao 2004; Eichenseher and Danos 1981) as well as by regulators such as

the U.S. Department of Justice in order to assess levels of fair trade and market competition

among accounting firms. Using concentration ratios, in conjunction with the Herfindahl Index

identifies the extent to which specific auditing firms serving the largest proportion of clients may

differ between the regulated and unregulated setting and how the involvement of those firms

within the markets has changed over time. I calculate the concentration ratios as the sum of

market shares (number of audits) of the top firms in each state and considering the predictions

made at the individual firm level in hypothesis 3 and 4, I separately analyze concentration ratios

for the top firm, top two firms and top four firms.[22]

Figure 1 Overview of Market Structure and CPA Firm Involvement

	1997	1999	2001	2003	2005	2007	2009
Pennsylvania Number Engagements	103	115	153	159	145	161	150
Pennsylvania Number of Firms	60	60	77	74	68	73	67
Michigan Number of Engagements	121	153	181	194	165	173	180
Michigan Number of Firms	39	46	47	54	38	42	41
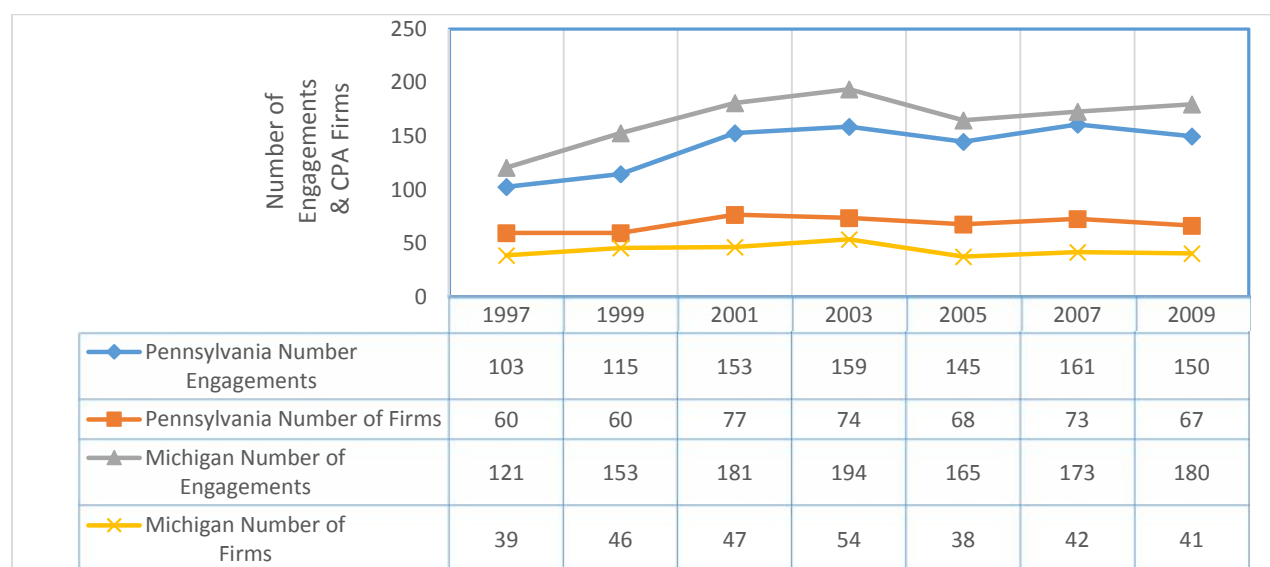
Figure 1 summarizes the overall structure of the A-133 reporting markets in Pennsylvania and Michigan during the period 1997-2010. Using an aggregate fourteen year sample of 1,929 and 2,392 local governments in the states of Pennsylvania and Michigan, respectively, drawn from the Federal Audit Clearinghouse Single Audit Database (https://harvester.census.gov), I present both the number of audit engagements performed as well as the number of firms performing those engagements in both states over time.

Table 2 presents the descriptive statistics for the Herfindahl Index as well as of the

concentration ratios, partitioned by state. The mean Herfindahl Index for the GAAP regulated

state (Michigan 0.11) is more than double the mean of the non-GAAP state (Pennsylvania 0.04)

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[22] My results are substantially similar calculating both industry concentration measures with federal expenditure dollars audited per firm. The top 4 firm measure is typically used in the concentration literature. I expand on this and separately analyze the top firm and top two firms in further regression testing of my specialization hypothesis and present the market concentration levels associated with those firms in Table 2.

and the difference of 0.07 is significant at $p < 0.01$; this relationship holds consistently throughout the time series. For example, the Herfindahl Index in Pennsylvania was 0.03 in 1997 and increased to 0.05 by 2010. In comparison, the measure in Michigan remained consistent at 0.11 for both 1997 and 2010, respectively, with little deviation noted throughout the period.

The concentration ratios reported in Table 2 indicate that as measured by firm market share, in all cases, the GAAP regulated state is significantly more concentrated than the unregulated state ($p < 0.01$). Over the fourteen year sample period, mean values in Pennsylvania for the four-firm, two-firm and top-firm concentration ratios are 0.312, 0.216, and 0.128, respectively. Comparable values are 0.585, 0.416 and 0.224 for Michigan, evidencing concentration levels approximately double that of the unregulated setting. Consistent with the notion of increased auditor concentration over time (Hogan and Jeter, 1999), my results demonstrate slight gains in the market shares of top firms in both states over time however, my results indicate that higher concentration levels may be associated with disclosure regulation.

Table 2 Auditor Industry Concentration, Partitioned by State

Analysis of concentration measures for Pennsylvania local governments

Audit Year	Obs.	Herfindahl Index	Concentration Ratios		
			Four Firm	**Two Firm**	**Top Firm**
1997	103	0.03	0.233	0.155	0.107
1998	113	0.03	0.257	0.168	0.124
1999	115	0.04	0.296	0.200	0.148
2000	123	0.04	0.276	0.187	0.114
2001	153	0.03	0.261	0.183	0.111
2002	158	0.03	0.272	0.196	0.114
2003	159	0.04	0.308	0.214	0.126
2004	140	0.04	0.329	0.214	0.136
2005	145	0.04	0.324	0.221	0.131
2006	146	0.04	0.336	0.240	0.123
2007	161	0.05	0.366	0.255	0.130
2008	145	0.05	0.372	0.262	0.159
2009	150	0.05	0.353	0.253	0.140
2010	118	0.05	0.390	0.271	0.136
Mean	**1,929**	**0.04**	**0.312**	**0.216**	**0.128**

Analysis of concentration measures for Michigan local governments

Audit Year	Obs.	Herfindahl Index	Concentration Ratios		
			Four Firm	**Two Firm**	**Top Firm**
1997	121	0.11	0.562	0.421	0.231
1998	138	0.10	0.558	0.399	0.210
1999	153	0.09	0.542	0.373	0.203
2000	167	0.09	0.533	0.371	0.198
2001	181	0.11	0.558	0.414	0.216
2002	192	0.10	0.542	0.411	0.224
2003	194	0.09	0.525	0.387	0.222
2004	158	0.12	0.601	0.443	0.241
2005	165	0.14	0.667	0.491	0.261
2006	173	0.11	0.624	0.422	0.220
2007	173	0.12	0.624	0.434	0.231
2008	179	0.12	0.615	0.425	0.223
2009	180	0.12	0.633	0.422	0.228
2010	218	0.11	0.601	0.413	0.225
Mean	**2,392**	**0.11**	**0.585**	**0.416**	**0.224**
Diff in Means	4,321	0.07	0.273	0.200	0.096
Significance		***	***	***	***

Table 2 summarizes the extent of auditor concentration between the two states. Using data obtained from the Federal Audit Clearinghouse Single Audit Database (https://harvester.census.gov), I present auditor concentration statistics using both the Herfindahl Index as well as concentration ratios. The table also provides the difference in concentration between both states.

Significance = *** $p<0.01$

5.2 Test of Regulatory Change

      I utilize a change in Pennsylvania reporting regulation in order to provide further

evidence on the relationships between GAAP reporting regulation and independent auditor

concentration levels. Pennsylvania Commonwealth County Code 2002 (Section 1705, P.L.323,

No. 130) "the code" began requiring all Pennsylvanian county governments to submit their

financial statements using GAAP presentation beginning in 2005. Building on my hypothesis

that reporting regulation is directly related to auditor selection decisions, the independent

auditing markets relative to county governments in Pennsylvania should become more

concentrated in the periods after passage of the regulation while the regulation's focus on county

governments allows me to use Pennsylvanian city governments as the control group within my

analysis.

      Using both four-firm and two-firm concentration ratios and using city form governments

as a control group, I calculated concentration ratios for a three-year period before and after

passage of the code, leaving a three year adjustment period, as dictated under the regulation.

The choice of Pennsylvanian city governments as the unit of analysis in my control group is

suitable as both government forms operate locally and within the same state, minimizing

potentially confounding factors and enhancing the homogeneity of my sample (Lopez and Peters

2010; Giroux and McLelland 2003; Payne and Jensen 2002; McLelland and Giroux 2000).[24]

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[24] Since the code applied to the largest government forms in my sample (counties), it was not practical to match
individual county governments with comparably sized local governments within Pennsylvania.

Table 3 Univariate Tests of Market Movement Following a Regulatory Change Impacting Reporting Requirements of Pennsylvania County Governments

| Audit Year | Pre-Period (1999-2001) | | | Post-Period (2005-2007) | | | | | |
| | Concentration Ratio | | | Concentration Ratio | | | Difference | | |
Government Form	Obs.	Four Firm	Two Firm	Obs.	Four Firm	Two Firm	Total Obs.	Four Firm	Two Firm
County	158	0.449	0.335	185	0.546	0.395	343	0.097 ***	0.06 ***
City	110	0.345	0.236	109	0.367	0.248	219	0.022 ***	0.012 ***
Difference	268	0.104 ***	0.099 ***	294	0.179 ***	0.147 ***	562	0.075 ***	0.048 ***

Significance = *** $p < 0.01$

Table 3 presents descriptive statistics and univariate testing of auditor concentration levels for Pennsylvania county and city governments, partitioned based upon dates of a regulatory change. Using data obtained from the Federal Audit Clearinghouse Single Audit Database (https://harvester.census.gov), this table summarizes the impact of Pennsylvania Commonwealth County Code 2002 (Section 1705, P.L. 323, No. 130) on the auditor concentration levels of county governments within Pennsylvania and uses Pennsylvania city governments as a control group. The table analyzes concentration using four-firm and two-firm concentration ratios and three-year trend windows to test changes in auditor concentration within and between the two government forms over time.

The univariate results in Table 3 indicate the increase in concentration for county governments was significantly greater than the increase in concentration for city governments, using both the four-firm and two-firm concentration ratios. For example, the four-firm ratio for counties increased from 0.449 to 0.546, an increase of 0.097 (p < 0.01). In contrast, the same ratio for cities only increased from 0.345 to 0.367, an increase of 0.022 (p < 0.01). Testing the proportion means found in county governments to city governments, my results suggest a significant increase in concentration (p<0.01) reported in the post-regulatory change period for county governments as compared with rates of change for city governments. These results provide further support that local level disclosure regulation impacts audit market concentration levels.

5.3 Regulation and Audit Engagement Pricing

To test my second, third and fourth hypothesis, I develop a model of municipal audit fees following a review of previous studies of the determinants of local government audit fees. Collectively, these studies focused on U.S. municipalities and all used survey data to empirically test their hypothesis (Baber, Brooks and Ricks 1987; Rubin 1988; Copley 1989; Ward et al. 1994; Hackenbrack et al. 2000; Jensen and Payne 2005). I use the following OLS regression specification to test my second and third hypothesis:

$$
\begin{aligned}
lnAuditFees = {} & \beta 0 + \beta 1\ Regulation + \beta 2\ Specialization\ Measure + \\
& \beta 3\ lnPopulation + \beta 4\ lnFedExp + \beta 5\ County + \beta 6\ City + \\
& + B7\ Urban\ Government + \beta 8\ Internal\ Audit\ Function + \\
& \beta 9\ Audit\ Committee + \beta 10\ Audit\ Tenure + \beta 11\ Auditor\ Change + \\
& \beta 12 Type\ of\ Audit\ Report + \beta 13\ Material\ Weakness + \beta 14\ CPA + \\
& \beta 15\ BidsReceived + \beta 16\ BidYear + \varepsilon
\end{aligned}
$$

Regulation

I measure disclosure regulation using an indicator variable to identify the GAAP-regulated state (Michigan). Eichenseher and Danos (1981) and Danos and Eichenseher (1982, 1986) suggest economies of scale develop more fully in regulated settings. Therefore, I expect the consistent reporting and fixed levels of auditing present in the disclosure regulated setting to generate economies of scale where those economies are returned to clients through the audit contracting process.

Specialization Measures

I measure auditor specialization using both continuous and binary variables. Dopuch and Simunic (1982) suggest specialist firms have greater industry knowledge of specific accounting practices. Neal and Riley (2004) conclude specialist auditors distinguish themselves from other accounting firms and note that specialists are industry leaders if they audit about 10 – 30% of a

given audit market.[25] In regards to audit pricing, auditors cannot unilaterally charge higher

engagement fees unless there is a corresponding increase in client demand for that additional

effort or expertise. DeFond and Zhang (2014) note that regulation places a floor on demand for

certain types of auditing where regulatory intervention may alter auditee/auditor client

alignment. I hypothesis that within the disclosure-regulated environment, there will be more

extensive demand for specialization where established specialist firms may distinguish

themselves and earn fee premiums based upon their market positioning and regulation.

I measure specialization first with a continuous variable representing the number of A-

133 engagements submitted by each respective firm (Deis and Giroux 1992). This is followed

with two binary measures, first an indicator variable for firms auditing greater than 5% of the

markets and secondly, for firms auditing 10% or more of the market.[26] My review of firm

concentration (Table 2) finds the effects of competition may vary between the top two producing

CPA firms in each state and I hypothesize the disclosure-regulated climate alters municipal

contracting by providing additional demand for audit specialists where fee premiums may be

more likely due to regulation. To test the effects of specialization on audit fees in each state by

CPA firm, I use an indicator variable to identify the top CPA firm (top two CPA firms) in each

state, thereby measuring specialization using both continuous and binary measures, and

supplement these results by analyzing specialization at the individual firm level.

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[25] I note that these studies are based upon samples drawn from predominately Big N-dominated markets where concentration levels are significantly greater than the markets included in this study, therefore, in some regression specifications, the identification of specialist auditors will be based upon a lower threshold.

[26] I determine the cut off points for the two binary measures through a review of a scatterplot of firms and their client bases while noting that specialization cutoffs at this level are not uncommon in the governmental auditing literature; Bandyopadhyay and Kao (2001) used a similar specialization measure in some of their testing.

Control Variables

I control for characteristics common in the municipal literature. Organizational

complexity, measured by population is the first size control. Prior studies (Ward et al. 1994;

Copley and Doucet 1993; Rubin 1988) find population to reflect agency incentives, such as

voting characteristics and the size of a government's tax base, and found population to be a

significant determinant of audit fees. Federal expenditure levels, also a reflection of government

size, represents the extent of involvement a local government has within the A-133 program and

I predict should be directly related to audit fees. I control for local government form with

indicator variables for county and city governments, respectively, and anticipate a direct

relationship between these two government forms and audit fees as Zimmerman (1977) argues

these governments are subject to additional agency considerations and potential conflicts of

interests between voters and politicians, suggesting the entities may carry different demand for

assurance services. I control for factors such as local-level population density and economic

activity with an indicator variable if a local government is classified as being in an urban area as

defined by the Office of Management and Budget (OMB) and I predict higher audit fees

associated with urban-classified local governments.[27]

The Government Finance Officers Association (GFOA) recommends local governments

adopt governance provisions such as internal audit functions and audit committees (GFOA

2008). Despite the GFOA's recommendation, adoption of these bodies remains optional and

empirical evidence on their effectiveness in the governmental markets is limited. In the non-

profit sector, Vermeer et al. (2009) found evidence of a direct relationship between these

governing bodies and audit fees, concluding that organizations committed towards greater

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[27] The OMB classification of rural/urban counties was used in this study as it provides a clear delineation of census activity useful in coding the local governments.

internal oversight are more willing to incur additional costs for external monitoring. In the governmental sector, Rich and Zhang (2014) found an inverse relationship between audit committee formation and internal control deficiencies, suggesting these bodies play an active monitoring role. Given these findings, I predict a positive relationship between internal audit functions and audit committees and audit fees in my study.

I also control for characteristics pertaining to the relationship a local government has with its audit firm. I measure auditor tenure through a six-level categorical variable and predict longer tenure will be associated with greater audit fees. In a study of North Carolina county governments, Baber, Brooks, and Ricks (1987) found evidence of lowballing in first year audit fees of approximately 20%. Accordingly, I predict an inverse relationship between fees and auditor changes. In the governmental sector, report qualifications are common and recurring, although Ward et al. 1994 and Rubin 1988 did not find a significant relationship between qualifications and audit fees. I control for report type with a categorical variable but do not make a directional prediction.

Given the heightened level of oversight found in recipients of federal grants, as well as the extent of supplemental reporting required when issuing control findings, I anticipate a direct relationship between findings of material weaknesses and audit fees. Client financial expertise should impact the auditing process, but the extent of this relationship on fees is uncertain in the governmental sector. I control for financial expertise with an indicator variable representing whether the local government's chief financial officer is a CPA, but I do not make a directional prediction. Lastly, Copley and Doucet (1993) found a direct relationship between competition for an audit award and selection of a quality auditor while Rubin (1988) found an inverse relationship on the joint effect of tenure and requisitioning on audit fees. I anticipate an inverse

relationship between clients who obtained multiple bids during their contracting and whether audit fees for the 2010 audit year were a component of a multi-year fee arrangement (bid year). Further variable descriptions, including variable sources, are included in the Appendix.

Empirical results

Descriptive statistics are reported in Table 4 (Panel A) for the full sample of survey respondents, and partitioned separately (Table 4, Panel B) for respondents from Michigan and Pennsylvania. The univariate statistics indicate that logged audit fees and government size measured by population are not significantly different between the states. Also, the proportion of local governments classified as urban is not significantly different between the two states. Total federal expenditures are significantly higher in the unregulated state as is usage of an internal audit function. [28] Additionally, I found no difference in the proportion of urban governments between the two sampled states.

In terms of audit contracting, more audit bids are received in the regulated state, but overall auditor tenure is longer. Additionally, in the regulated state, more unqualified audit reports are issued and the single audit reports contain fewer material weaknesses, suggesting that regulation enhances reporting quality. Collectively, the descriptive data are consistent with the notion that active procurement is a determinant of quality auditor selection (GAO 1987; Copley and Doucet 1993), and this relationship may also be enhanced through local level reporting regulation. Table 4, Panel C, provides the frequency counts of binary and categorical variables.

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[28] The number of federal grants received is an alternative measure of a local government's involvement in federal programs and may also represent the extent of grant specific auditing effort. Univariate testing finds no difference in federal grants received between states. Additionally, this measure is not significant in regression analysis, therefore, I relied upon federal expenditure dollars as an additional measure of a government's size as well as of a local government's involvement in the federal programs.

Table 4 Descriptive statistics and tests of significance of differences between Michigan and Pennsylvania

Variable	Mean	Median	Std. Dev.					
Panel A: Total Sample (n = 122)								
Continuous Measures								
Total Audit Fees	46,228	34,375	38,557					
Log Total Audit Fees	10.465	10.45	0.754					
Population	62,777	21,382	130,246					
Log Population	10.033	9.97	1.467					
Federal Expenditures^	5,819	1,735	12,800					
Log Federal Expend	14.677	14.37	1.178					
Bids received on audit	1.893	0.000	2.241					
Binary Measures								
County Government	0.361	-	0.482					
City Government	0.402	-	0.492					
Urban Government	0.582	-	0.495					
Internal Audit	0.180	-	0.386					
Audit Committee	0.213	-	0.411					
Auditor Change	0.033	-	0.178					
Material Weakness	0.393	-	0.491					
Chief Officer is CPA	0.254	-	0.437					
Bid Year	0.328	-	0.471					
Categorical Measures								
Audit Tenure	3.114	3.000	1.449					
Type of Audit Report	3.951	4.000	0.217					

| | Michigan *(n = 84)* | | | Pennsylvania *(n = 38)* | | | | |
Variable	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	T-Stat	P-Value
Panel B: Subset of population by state government								
Continuous Measures								
Total Audit Fees	42,102	33,830	32,109	55,349	48,899	49,241	1.773	0.079*
Log Total Audit Fees	10.424	10.43	0.674	10.558	10.80	0.911	0.909	0.364
Population	55,239	21,000	140,835	79,439	40,700	102,805	0.491	0.625
Log Population	9.934	9.95	1.329	10.251	10.61	1.731	1.107	0.271
Federal Expenditures^	4,420	1,532	12,300	8,911	4,507	13,400	1.812	0.073*
Log Federal Expend	14.442	14.24	1.057	15.197	15.32	1.275	3.419	0.001***
Bids received on audit	2.202	2.000	2.312	1.211	0.000	1.933	2.304	0.023**
Binary Measures								
County Government	0.321	-	0.470	0.447	-	0.503	1.340	0.183
City Government	0.500	-	0.503	0.184	-	0.393	3.424	0.001***
Urban Government	0.583	-	0.496	0.579	-	0.500	0.045	0.964
Internal Audit	0.083	-	0.278	0.395	-	0.495	4.432	0.000***
Audit Committee	0.226	-	0.421	0.184	-	0.392	0.521	0.604
Auditor Change	0.035	-	0.185	0.026	-	0.162	0.267	0.789
Material Weakness	0.310	-	0.465	0.579	1.000	0.500	2.893	0.005***
Chief Officer is CPA	0.298	-	0.460	0.157	-	0.369	1.646	0.102
Bid Year	0.369	-	0.485	0.236	-	0.431	1.441	0.152
Categorical Measures								
Audit Tenure	3.226	3.500	1.426	2.868	3.000	1.491	14.96	~0.005***
Type of Audit Report	3.988	4.000	0.109	3.868	4.000	0.343	8.013	~0.005***

^ in thousands   ~ = Chi Sq.

*, **, *** represents significance levels of 0.10, 0.05, and 0.01, respectively (two-tailed)

TABLE 4 – *Continued*

Panel C: Frequency count of binary variables partitioned by state

Internal Audit Function	Michigan	Pennsylvania	Total		Material Weakness Reported	Michigan	Pennsylvania	Total
Yes Response	7	15	22		Reported	26	22	48
No Response	77	23	100		Not Reported	58	16	74
Total	84	38	122		Total	84	38	122

Audit Committee Function	Michigan	Pennsylvania	Total		Chief Financial officer is a CPA	Michigan	Pennsylvania	Total
Yes Response	19	7	26		CPA	25	6	31
No Response	65	31	96		Non CPA	59	32	91
Total	84	38	122		Total	84	38	122

Audit Change in 2010	Michigan	Pennsylvania	Total		Bid Year	Michigan	Pennsylvania	Total
Switch	3	1	4		Bid Year	31	9	40
No Switch	81	37	118		Not Bid Year	53	29	82
Total	84	38	122		Total	84	38	122

Panel D: Frequency count of categorical variables partitioned by state

Auditor Tenure	Michigan	Pennsylvania	Total		Type of Opinion Given	Michigan	Pennsylvania	Total
1-3 Years	11	11	22		Unqualified	83	33	116
4-6 Years	21	3	24		Qualified	1	5	6
7-9 Years	10	12	22		Total	84	38	122
11-15 Years	21	4	25					
>15 Years	21	8	29					
Total	84	38	122					

This table presents descriptive statistics for the total sample of survey respondents as well as the two subsamples of respondents separated by the state of local government origin. Panel A reports the differences in means between the two states using both T-tests and Chi Square tests, as required. Panel B partitions the data based upon state. Panel C shows the summary of binary variables and their observed frequencies between the two states, Panel D shows the summary of categorical variables and their observed frequencies between the two states. Variable descriptions follow:

TOTAL AUDIT FEES is the natural log of fees paid to the independent CPA firm; LOG POPULATION is the natural log of a governments population; LOG FEDERAL EXPENDITURES is the natural log of a government's federal expenditure dollars that were reported on under section A133; COUNTY is 1 if the local government is a county form, else 0; CITY is 1 if the local government is a city form, else 0; URBAN GOVERNMENT is 1 if the local government is contained in an urban county; INTERNAL AUDIT FUNCTION is 1 if the local government had an internal audit function, else 0; AUDIT COMMITTEE is 1 if the local government had an audit committee, else 0; AUDIT TENURE a categorical variable with 1 representing the shortest auditor tenure and 6 representing the longest auditor tenure; AUDITOR CHANGE is 1 if the government switched firms for the 2010 audit, else 0; MATERIAL WEAKNESS is 1 if the local government reported a material weakness within their A-133 submission, else 0; TYPE OF AUDIT REPORT is a categorical variable with 1 equal to an adverse opinion and 4 equal to an unqualified opinion; CPA is 1 if the senior financial officer at the local government is a CPA, else 0; BIDS RECEIVED a continuous measure of the number of bids the local government received from its most recent bidding proposal; BID YEAR is 1 if 2010 is an audit year included as a component of a multiyear fee arrangement, else 0.

Table 5 presents the Pearson correlation matrix for the variables using the continuous measure of specialization. Similar to most audit fee research, municipal size measured through population and federal expenditure dollars expended is significantly related to audit fees, a finding consistent with results found in similar studies such as Rubin (1988).The measures of specialization are interaction terms between firm market share and state regulation, therefore, a requisite level of correlation is expected between the specialization measures and the regulation variable. Most other correlation coefficients are similar in direction and statistical magnitude to those of prior studies which examine fee regression models in governmental audit research.

Regression Results

I report regression results in Table 6 using the continuous measure of auditor specialization as well as the two binary measures of auditor specialization. Significance levels are computed using White's correction for heteroscedasticity. The models are all significant at p < 0.01. The model R^2 values are all approximately 80%. The explanatory power of the models is similar to other governmental audit fee research (e.g., Chase 1999; Ward et al. 1994). All variance inflation factors are below 4.0, indicating multicollinearity is not likely a problem.

Table 5 Pearson Correlation Coefficients

	Log Audit Fees	State 1=MI 0=PA	MI Specialization Measure	PA Specialization Measure	Log Population	Log Federal Expenditures	County	City	Urban Government	Internal Audit Function	Audit Committee	Audit Tenure	Audit Change	Material Weakness	Type of Audit Report	CPA	Bids Received	Bid Year
Log Audit Fees	1.00																	
Regulation 1=MI 0=PA	-0.08	1.00																
MI Specialization Measure	0.37***	0.58***	1.00															
PA Specialization Measure	0.31***	-0.66***	-0.38 ***	1.00														
Log Population	0.80***	-0.10	0.23 ***	0.34***	1.00													
Log Federal Expenditures	0.60***	-0.30***	0.00	0.37***	0.65***	1.00												
County	0.33***	-0.12	-0.11	0.24***	0.57***	0.47***	1.00											
City	0.01	0.30***	0.30 ***	-0.16*	-0.19**	-0.30***	-0.62***	1.00										
Urban Government	0.37***	0.01	0.27 ***	0.06	0.26***	0.23***	-0.26***	0.15*	1.00									
Internal Audit Function	0.33***	-0.38***	-0.22 **	0.40***	0.33***	0.40***	0.36***	-0.25***	-0.08	1.00								
Audit Committee	0.19**	0.05	0.06	-0.04	0.20**	0.17*	0.15*	0.02	-0.05	0.17*	1.00							
Audit Tenure	0.11	0.11	0.24 ***	-0.19**	-0.03	-0.09	-0.17**	0.00	0.07	-0.01	-0.03	1.00						
Auditor Change	-0.15*	0.02	-0.13	-0.07	-0.09	0.03	0.05	-0.06	-0.12	-0.09	0.02	-0.27***	1.00					
Material Weakness	0.24***	-0.26***	0.00	0.35***	0.08	0.11	0.02	-0.04	0.11	0.10	-0.05	0.04	-0.05	1.00				
Type of Audit Report	0.15*	0.26***	0.12	-0.10	-0.01	0.07	0.01	-0.12	0.00	0.01	-0.07	0.04	0.04	-0.05	1.00			
CPA	0.22**	0.15	0.17 *	0.03	0.22**	0.11	0.03	0.14	0.04	-0.08	0.11	0.04	0.00	-0.08	0.13	1.00		
Bids Received	0.08	0.21**	0.08	-0.05	0.14*	0.03	0.04	0.19**	0.01	-0.13	0.14	-0.29***	0.09	-0.06	-0.04	-0.01	1.00	
Bid Year	0.11	0.14	0.11	-0.10	0.12	0.04	-0.01	0.17*	-0.02	-0.07	0.18**	-0.22***	0.15*	0.00	0.05	0.00	0.76***	1.00

Note: This table provides the Pearson correlation matrices (coefficient) for all variables. The variables are defined as follows:

LOG AUDIT FEES is a continuous measure of the fees a local government paid for audit services; REGULATION: is a binary measure representing a local government in Michigan1, Pennsylvania 0; SPECIALIZATION MEASURES are as defined within the manuscript and represent an either continuous (as included above) or binary measure of a CPA firm's level of engagement within the marketplace; LOG POPULATION is the natural log of a government's population; LOG FEDERAL EXPENDITURES is the natural log of a government's federal expenditure dollars that were reported on under OMB Circular A-133; COUNTY is 1 if the local government is a county form, else 0; CITY is 1 if the local government is a city form, else 0; URBAN GOVERNMENT is 1 if the local government is within an urban county, else 0; INTERNAL AUDIT FUNCTION is 1 if the local government has an internal audit function, else 0; AUDIT COMMITTEE is 1 if the local government had an audit committee, else 0; AUDIT TENURE a categorical variable with 1 representing the shortest auditor tenure and 6 representing the longest auditor tenure; AUDITOR CHANGE is 1 if the government switched firms for the 2010 audit, else 0; MATERIAL WEAKNESS is 1 if the local government reported a material weakness within their A-133 submission, else 0; TYPE OF AUDIT REPORT is a categorical variable with 1 equal to an adverse opinion and 4 equal to an unqualified opinion; CPA is 1 if the senior financial officer at the local government is a CPA, else 0; BIDS RECEIVED is a continuous measure of the number of bids the local government received from its most recent bidding proposal; BID YEAR is 1 if 2010 is an audit year included as a component of a multiyear fee arrangement, else 0; and bids received is a continuous measure of the number of bids the local government received from its most recent bidding proposal.

Significance is indicated as follows   *p < 0.10 (two-tailed) **p<0.05 (two-tailed) ***p<0.01 (two-tailed)

Table 6 OLS Results for tests of the Relation between Audit Fees, Disclosure Level and Audit Specialization Measures

Dependent Variable Log of Total Audit Fees	Pred. Sign	Measure of Specialization within the Markets					
		Number of clients		Five Percent or more of reports filed		Ten Percent or more of reports filed	
Regulation	-	-0.273	**	-0.197	*	-0.219	**
		(0.132)		(0.121)		(0.115)	
Michigan Specialist Measure	+	0.009	***	0.293	***	0.263	***
		(0.002)		(0.087)		(0.093)	
Pennsylvania Specialist Measure	?	0.003		0.097		-0.059	
		0.013		(0.147)		0.174	
Log Population	+	0.316	***	0.326	***	0.339	***
		(0.039)		(0.039)		(0.038)	
Log Federal Expenditures	+	0.066	**	0.071	**	0.059	*
		(0.040)		(0.041)		(0.044)	
County	+	0.072		-0.022		-0.045	
		(0.131)		(0.130)		(0.129)	
City	+	0.301	***	0.288	***	0.307	***
		(0.109)		(0.110)		(0.112)	
Urban Government	+	0.121	*	0.154	**	0.158	*
		(0.093)		(0.094)		(0.010)	
Internal Audit Function	+	0.156	*	0.169	**	0.168	*
		(0.103)		(0.099)		(0.107)	
Audit Committee	+	0.081		0.083		0.079	
		(0.085)		(0.085)		(0.088)	
Audit Tenure	+	0.048	**	0.053	**	0.042	*
		(0.026)		(0.026)		(0.028)	
Auditor Change	-	-0.072		-0.021		-0.083	
		(0.085)		(0.088)		(0.089)	
Type of Audit Report Issued	?	0.649	**	0.603	*	0.645	**
		(0.316)		(0.317)		(0.316)	
Material Weakness Issued	+	0.199	***	0.217	***	0.239	***
		(0.065)		(0.060)		(0.065)	
Client finance officer CPA	?	0.017		-0.010		-0.015	
		(0.075)		(0.075)		(0.076)	
Bids Received on Audit	-	0.003		-0.006		0.001	
		(0.024)		(0.023)		(0.024)	
Bid Year	-	-0.001		-0.004		-0.004	
		(0.023)		(0.023)		(0.023)	
Constant		2.937	**	3.251	**	3.185	**
		(1.258)		(1.385)		(1.424)	
Number of Observations		122		122		122	
Probability > F		0.0000		0.0000		0.0000	
R-Squared		0.8181		0.8141		0.8064	

*, **, *** Indicates statistical significance at the 0.10, 0.05 or 0.01 levels, respectively. Results shown are two-tailed except where a prediction has been made. The table presents model coefficients followed by standard errors in parenthesis. White's statistics were utilized and all regressions have been checked for the presence of influential points using Cook's D statistic; three influential points were removed.
Note: variables are described in the Appendix

My results indicate that audit fees in the regulated environment are significantly lower (range $p = .021$ through $p = .053$) than those of the unregulated environment. This finding suggests that regulated reporting and delivery of a consistent fixed quantity of auditing through a concentrated market results in economies of scale where fee discounts range from 20% through 30% depending upon regression specification.[29] I hypothesize that auditor specialization carries a significant return to those firms who can differentiate their services in a regulated market and maintain market share. My results indicate that specialist firms in Michigan earn a significant premium for their services at $p < 0.01$ or on average, about 33%. Similar returns are not found in the unregulated environment, suggesting that despite operating in an environment with higher overall fees, specialization strategies do not necessarily result in specialist fee premiums.

Results for control variables generally follow empirical predictions. Population and federal expenditures, two proxies for government size, are positively related to audit fees. The coefficient for the county form of government is not significant; this result is likely because counties are larger in overall form and have more resources to commit to financial reporting. The city form of government did have a significant positive coefficient suggesting the smaller nature of this government form requires additional audit effort. Urban governments are associated with greater audit fees while the presence of an internal audit function is directly related to audit fees, but audit committees are not significantly related to audit fees.

In terms of audit firm contracting, I find that longer auditor tenure is associated with higher audit fees. The coefficient for an initial audit engagement is negative, but surprisingly not

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[29] I follow Seetharaman, Gul and Lynn (2002), Craswell et al. (1995), and Simon and Francis (1988) in calculating the percentage discount/premium for a binary variable through the following specification ($e^{a} - 1$) where a denotes parameter estimates.

significant. I find a significant positive coefficient for the type of audit report issued indicating

greater audit fees for unqualified opinions than for qualified opinions, consistent with the notion

that qualifications are common in this reporting segment and the issuance of a qualification may

result in less audit effort.[30] Material weaknesses reported under the Single Audit Act require

additional reporting, and my results indicate a significant positive relationship between material

weaknesses and audit fees. Interestingly, my measures of competition for an audit award (Bids

Received on Audit and Bid Year) are not significant in any of the regression models. In

untabulated results, I interact the number of bids received with my regulation and specialization

measures and similarly do not find a significant effect of bidding on engagement pricing.

To further analyze the effects of specialization in the two markets, in Table 7 I separately

analyze the top two firms in each market. In Michigan, the top two firms completed 42% of the

engagements, while 27% of engagements were completed by the top two firms in

Pennsylvania.[31] In Michigan, Firm MI-A maintained the top spot as the leading firm for all but

four of the sample years; Firm MI-B maintained the second spot for the same time period but

was the top firm in the four years not held by MI-A. Pennsylvania is a bit more complex with

one firm maintaining steady market growth during 1997-2010 while other practices sporadically

grow or leave the market. In 2010 two Pennsylvania firms were tied for the top market producer

as measured by number of clients. Therefore, I assigned PA-A to the firm that audited the most

federal expenditure dollars. Interestingly, firm PA-A was never the market leader throughout

1997-2009 as measured by number of clients.

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[30] For example, many local governments continue to have difficulty implementing GASB 34 "Basic Financial Statements – and Management's Discussion and Analysis – for State and Local Governments." If infrastructure assets are not recorded, resulting in a qualification, less audit effort can be anticipated.

[31] After the top two firms in Pennsylvania, there is a drop in market shares of subsequent firms and it becomes difficult to identify additional specialists operating in the state.

In Table 7, I replace the specialist variables with indicator variables representing the top audit firms in each market. The results indicate that in the regulated state, the top specialist earns a highly significant fee premium ($p < 0.01$) while specialist MI-B also earns a premium, but it is not significant. In Pennsylvania, specialist PA-A receives significantly lower fees ($p < 0.10$), while specialist PA-B receives higher fees, although the coefficient is not significant.

Although I find evidence of lower fees associated with the disclosure regulated state, I find evidence of a fee premium associated with auditor specialization. The effect is strongest for the auditing firm with the largest market share and who has also been the industry leader for an extensive period of time. This result is consistent with the notion that in a regulated setting, the contracting incentives between auditees and auditors is impacted by the regulation, generating value and demand for reporting expertise where that expertise appears to be priced based upon market positioning.

In the unregulated disclosure state, specialization is associated with fee discounting. This finding indicates that specialization may not be valued to the same extent as it is with disclosure regulation and therefore, a firm seeking a growth strategy within this industry must do so through fee discounting and the market structure found in the unregulated setting makes such a competitive strategy conducive.

Table 7 OLS Results for Tests of the Relation between Audit Fees, Disclosure Level, and Audit Specialization Measured at the Audit Firm Level

Dependent Variable Log of Total Audit Fees		Measure of specialization within the markets			
		Firm submitting the most reports		Top two firms submitting reports	
Regulation	-	-0.255	***	-0.275	***
		(0.108)		(0.116)	
Michigan Firm "MI – A"	+	0.446	***	0.498	***
		(0.079)		(0.091)	
Michigan Firm "MI – B"	+			0.105	
				(0.095)	
Pennsylvania Firm "PA – A"	?	-0.403	**	-0.350	*
		(0.197)		(0.212)	
Pennsylvania Firm "PA – B"	?			0.146	
				(0.178)	
Log Population	+	0.331	***	0.310	***
		(0.038)		(0.039)	
Log Federal Expenditures	+	0.080	**	0.072	**
		(0.041)		(0.041)	
County	+	0.150		0.149	
		(0.131)		(0.132)	
City	+	0.401	***	0.383	***
		(0.097)		(0.101)	
Urban Government	+	0.105		0.096	
		(0.088)		(0.088)	
Internal Audit Function	+	0.115		0.101	
		(0.096)		(0.097)	
Audit Committee	+	0.084		0.082	
		(0.082)		(0.081)	
Audit Tenure	+	0.043	**	0.044	**
		(0.025)		(0.025)	
Auditor Change	-	-0.171	**	-0.154	**
		(0.093)		(0.090)	
Type of Audit Report Issued	?	0.705	***	0.719	***
		(0.281)		(0.283)	
Material Weakness Issued	+	0.190	***	0.175	***
		(0.068)		(0.069)	
Client finance officer CPA	?	0.039		0.043	
		(0.076)		(0.075)	
Bids Received on Audit	-	0.018		0.017	
		(0.026)		(0.025)	
Bid Year	-	-0.010		-0.007	
		(0.025)		(0.025)	
Constant		2.851	**	3.023	**
		(1.190)		(1.237)	
Number of Observations		122		122	
Probability > F		0.0000		0.0000	
R-Squared		0.8322		0.8348	

*, **, *** Indicates statistical significance at the 0.10, 0.05 or 0.01 levels, respectively. Results are two-tailed except where a prediction has been made. The table presents model coefficients followed by standard errors in parenthesis. White's statistics were utilized and all regressions have been checked for the presence of influential points using Cook's *D* statistic; three influential points were removed. *Note:* variables are described in the Appendix.

6. SENSITIVITY TESTING

6.1 Auditor Wages and Commercial Audit Fees

In my sample, competition for an audit award exists at the state level where no auditing firm operates nationally and where most audit firms' service governmental units solely in either Michigan or in Pennsylvania, providing a contained marketspace. To help rule out the potential my results are being impacted by differences in underlying audit pricing determinants at the state level, I examined characteristics of both auditor wages and commercial audit engagement pricing within both states.

Differentials in auditor wages resultant from variation in the cost of living or competition for human resources could potentially impact the results. Using data from the U.S. Census Bureau http://www.census.gov for occupation code 13-2011 "Accountants and Auditors" over the time period 1997 – 2010, mean wages in Michigan and Pennsylvania were $55,604 and $53,771, respectively. Mean wages were marginally higher in Michigan during 1997-2004 and marginally higher in Pennsylvania for 2005-2010. The percentage difference in wages is significantly smaller than the percentage difference in audit fees, suggesting that the difference found in audit fees between the two states is not driven by differences in auditor salaries between the two states.

As an additional test, I reviewed the audit pricing characteristics of publicly traded entities reporting in the two states during the period 2001-2010.[32] Using 2,413 firm year observations (704 Michigan; 1,709 Pennsylvania) and after controlling for company size, I found no state effect between commercial audit fees reported in Michigan and Pennsylvania, providing

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[32] 2001 was the first year audit fees became available.

further corroborating evidence that audit engagement pricing differences found in this study are not driven by characteristics of the overall markets for auditing services within the two states.

6.2 Client Influence

A joint effect of auditor industry specialization and client bargaining power may impact audit engagement pricing. Studies have explored this relation between audit client influence and auditing outcomes in the markets for publicly traded entities and have found mixed evidence between client bargaining power and auditing outcomes (Li 2010; Caterella, Francis, Lewis and Walker 2004; Frankel, Johnson and Nelson 2002). Empirical evidence on the effects of client importance in the municipal auditing sector is relatively limited. Using a sample of Canadian municipalities, Bandyopadhyay and Kao (2004) find mixed evidence pertaining to the impact of client influence on municipal fees while also noting their study was conducted during a period of time when the Canadian municipal auditing markets were rebalancing following the removal of anti-competitive statutes.

I measure client importance two ways. First, based upon the relative importance of a given municipal engagement as compared with the audit firm's overall municipal audit portfolio. Secondly, based upon the importance of a given municipal engagement as compared to the state's overall municipal audit market where client importance is measured based on the overall federal expenditure dollars audited.[33, 34] In untabulated multivariate analysis, I find no significant effect of client influence on audit fees. As additional tests, I classify the measure

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[33] The ratios used in my study include all municipalities reporting under the Single Audit Act, not solely respondents to my survey.

[34] My sensitivity testing relies upon federal expenditure dollars to measure client influence as this data is empirically available for all sampled governments and federal expenditure dollars is highly correlated with audit engagement fees. Alternatively, I could use population or audit fees but these variables are not available for all municipalities included in my sample.

based upon quintiles and deciles and again, find no significant relationship between client influence and the municipal audit fees included in my study.

6.3 Auditor Office Effects

Findings from the accounting literature demonstrate a local-level relation between auditor specialization and audit engagement pricing. These studies (Francis, Reichelt and Wang 2005; Ferguson, Francis and Stokes 2003) are drawn from Big N dominated audit markets and conclude a joint effect of national and local level (or MSA level) specialization and an audit firm's ability to attain pricing premiums. Despite the findings from the commercial auditing literature, the impact of local-level auditor competition on audit engagement fees of governmental units remains unknown, especially considering the fragmented nature of the delivery of auditing to these entities.

Many of the specialist auditors included in my sample perform A-133 audits out of multiple offices within their given state where one or more of those offices may have a proportionally higher involvement in the auditing of local governments as compared with other offices. To address the potential of specialist audit fee differentials being an artifact of a specific firm office, in untabulated results, I segregate the specialist audit firms by office and perform multivariate testing of engagement fees. In my regression analysis, I find overall no significant effect of office level specialization on my results.

7. CONCLUSIONS AND DISCUSSION

My study explores the consequences of statutory GAAP disclosure mandates on the structure of independent auditing markets. Drawing a sample from two states, Michigan, which has required that local governments follow pronouncements of the GASB and its predecessors for at least 50 years and Pennsylvania, which has voluntary disclosure (non-GAAP), I frame my arguments around the notion that regulatory oversight of municipal financial reporting may impact the contracting relationships for independent auditors and auditor types.

Drawing a sample from local governments reporting under the Single Audit Act, I find evidence suggesting the auditing markets are significantly more concentrated in the GAAP state as compared with the markets in the non-GAAP state. Through concentration ratios, I also find the GAAP state contains an audit market with more extensive levels of auditor specialization and those specialists are able to maintain their market shares over a period of time. The non-GAAP state has a much less structured audit market where some firms enter and leave the auditing markets and no firm is clearly an industry leader, as measured by extensive market share.

Utilizing a change in Pennsylvanian disclosure laws, I was able to support the results of my interstate comparison by analyzing changes in auditor concentration levels for the county form governments, which were impacted by the revised disclosure laws compared with city form governments, which continued to have voluntary disclosure. My results supported the idea that GAAP disclosure requirements, enforced through local-level regulation, impact the market characteristics or contracting relationships for independent auditing services.

Using survey data, my study explores the policy implications of GAAP reporting statutes on audit engagement pricing. Building on the idea that in a market containing regulated disclosure, the fixed levels of auditing required contribute towards an efficient independent

auditing process and I find evidence of lower audit fees associated with the GAAP state. I attribute the reduced auditing fees to economies of scale that may develop while auditing in a disclosure regulated setting.

Auditor specialization has been viewed as rational economic behavior on the part of a CPA firm, but the extent of auditor specialization varies between markets. My study finds evidence that the demand for auditor type is related to local level reporting regulation. Additionally, I find that specialist auditors may price their expertise dependent upon a function of both the demand for specialist services driven through disclosure regulation but also through their own positioning within a given market.

I find evidence that specialization is associated with fee premiums with the GAAP markets where I also find evidence that the market leader earns a significant fee premium for their services. In the unregulated state, I find evidence of fee discounting association with the market leader, suggesting different demand for auditor type may be determined at least partially, by GAAP reporting mandates where in the absence of disclosure regulation, specialist firms are forced to compete based upon pricing, not the value added in their services.

APPENDIX
Variable Description, Source and Predicted Sign

Variable Name	Variable Description	Source	Predicted Sign
Total Audit Fees	The sum of all 2010 audit fees paid by a municipality for accounting services. The sum of base fees, premiums charged for A-133 compliance (if billed separately by the accounting firm) and any upcharges incurred on the engagement. The variable is log transformed.	Survey	Dependent Variable
Regulation	An indicator variable measuring the level of accounting regulation by State. The variable = 1 if the municipality is located in Michigan (GAAP) and 0 = if the municipality is located in Pennsylvania (NonGAAP).	Archival	-
Population	Population of the local government is a measure of overall size and is representative of the government's tax base as well as services demanded of the government. The variable is log transformed.	Survey	+
Federal Expenditures	A complexity measure which is the sum of all federal funds received by the municipality required to be audited in accordance with A-133 regulations. The variable is log transformed. The predicted sign is positive as larger federal expenditures increase the complexity of the engagement.	Archival	+
County	An indicator variable = 1 if the local government takes the county form, else 0. Due to their size, counties have greater demands upon their reporting function and are typically more complex than other forms of local governments. Predicted sign is positive.	Archival	+
City	An indicator variable = 1 if the local government takes the city form, else 0. Cities have different management forms than counties, townships, boroughs, etc. Predicted sign is positive.	Archival	+
Urban Government	An indicator variable = 1 if the local government is contained in a county classified as urban by the Office of Management and Budget.	Archival	+
Internal Audit Function	An indicator variable = 1 if the local government has an internal audit function, else 0. Existence of an internal audit function signals higher desired audit/reporting quality.	Survey	+

Appendix – Continued

Audit Committee	An indicator variable = 1 if the local government has an audit committee function, else 0. Existence of an audit committee signals higher desired audit/reporting quality.	Survey	+
Audit Tenure	Audit tenure is measured categorically with ranges from 1 (tenure 1 to 3 years) to 6 (tenure longer than 15 years). The predicted direction is positive as tenure lengthens.	Survey	+
Auditor Change	An indicator variable = 1 if the local government engaged a new audit firm for reporting year 2010, else 0. The predicted direction is negative as audit switching has been shown to be associated with lower fees.	Survey	-
Type of Audit Report Issued	A categorical variable where 1 = Adverse opinion issued, 2 = Disclaimer, 3 = Qualified and 4 = Unqualified opinion issued. Given that qualifications are commonplace within the governmental/municipal sector, no directional hypothesis is made.	Archival	?
Material Weakness Issued	An indicator variable where 1 = Material Weakness issued on the government's financial statement; else = 0. Material weaknesses result in additional reporting under the A-133 program and likely result in increased fees. Predicted direction is positive.	Archival	+
Chief Finance Officer is a CPA	An indicator variable = 1 if the local government employs a CPA in the senior reporting position; else = 0. No directional prediction is made	Survey	?
Bids Received during last Contracting	A continuous measure of the number of bids a local government received from prospective service providers (CPA firms) for its audit engagement work. The hypothesized direction is negative as the more fee pressure exerted, the lower the audit engagement fees.	Survey	-
Bid Year	An indicator variable = 1 if 2010 is a year included in a multi-year fee arrangement.	Survey	-

REFERENCES

American Institute of Certified Public Accountants (AICPA), 2014, Enhancing Audit Quality: Plans and Perspectives for the U.S. CPA Profession. AICPA 2014.

Baber, W. 1983. Toward understanding the role of auditing in the public sector. *Journal of Accounting and Economics* 5 (3): 213-227.

Baber, W., E. Brooks, and W. Ricks. 1987. An empirical investigation of the market for audit services in the public sector. *Journal of Accounting Research* 25 (2): 293-305.

Baber, W., and A. Gore. 2008. Consequences of GAAP disclosure regulation: Evidence from municipal debt issues. *The Accounting Review* 83 (3): 565-591.

Baber, W., A. Gore, K. Rich, and J. Zhang. 2013. Accounting restatements, governance and municipal debt financing. *Journal of Accounting and Economics* 56 (2-3): 212-227.

Bain, J. 1956. *Barriers to New Competition*. Cambridge, MA: Harvard University Press.

Bandyopadhyay, S., and J. Kao. 2001. Competition and Big 6 brand name reputation: Evidence from the Ontario municipal audit market. *Contemporary Accounting Research* 18 (1): 27-64.

Bandyopadhyay, S., and J. Kao. 2004. Market structure and audit fees: A local analysis. *Contemporary Accounting Research* 21 (3): 529-61.

Carson, E., Simnett, R., Soo, B., and Wright, A. 2012. Changes in audit market competition and the Big N premium. *Auditing: A Journal of Practice & Theory* 31 (3), 47-73.

Casterella, J., J. Francis, B. Lewis, and P. Walker. 2004. Auditor industry specialization, client bargaining power, and audit pricing. *Auditing: A Journal of Practice & Theory* 23 (1): 123-140.

Chase, B., 1999. The influence of auditor change and type on audit fees for municipalities. *Research in Government and Nonprofit Accounting* 10: 49-63.

Copeland, R., and R. Ingram. 1979. Municipal financial reporting deficiencies: causes and solutions. *Governmental Finance* 8 (3): 21-24.

Copley, P., and M. Doucet. 1993. The impact of competition on the quality of governmental audits. *Auditing: A Journal of Practice & Theory* 12 (1): 88-98.

Craswell, A., J.R. Francis, and S.L. Taylor. 1995. Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics* 20 (3): 297-322.

Craswell, A., and S. Taylor. 1991. The market structure of auditing in Australia: The role of industry specialization. *Research in Accounting Regulation* 5: 55-77.

Danos, P., and J.W. Eichenseher. 1982. Audit industry dynamics: Factors affecting changes in client-industry market shares. *Journal of Accounting Research* 20 (2): 604-618.

Danos, P., and J.W. Eichenseher. 1986. Long term trends toward seller concentration in the U.S. audit market. *The Accounting Review* 61 (4): 633-650.

DeFond, M., J. Francis, and T. Wong. 2000. Auditor industry specialization and market segmentation: Evidence from Hong Kong. *Auditing: A Journal of Practice & Theory* 19 (1), 49-66.

DeFond, M. and J. Zhang. 2014. A review of archival auditing research. *Journal of Accounting and Economics* 58 (2014) 275-326.

Deis, D., and G. Giroux. 1992. Determinants of audit quality in the public sector. *The Accounting Review* 67 (3): 462-479.

Demsetz, H. 1974. Two systems of belief about monopoly. In Goldschmid et al., pp. 164-184.

Dopuch, N. and D. Simunic. 1982. Competition in auditing: An assessment. In: Symposium on Auditing Research IV. University of Illinois, Urbana, pp. 401-450.

Eichenseher, J., and P. Danos. 1981. The analysis of industry-specific auditor concentration: Towards an explanatory model. *The Accounting Review* 56 (3): 479-492.

Evans, J., and J. Patton. 1983. An economic analysis of participation in the municipal finance officers association certificate of conformance program. *Journal of Accounting and Economics* 5 (2): 151-175.

Feng, N., and R. Elder. 2014. Post-Sox downward auditor switches and their effect on the nonprofit audit market. Suffolk University working paper.

Ferguson, A., J. Francis, and D. Stokes. 2003. The effects of firm-wide and office-level industry expertise on audit pricing. *The Accounting Review* 78 (2): 429-448.

Francis, J., K. Reichelt, and D. Wang. 2005. The pricing of national and city-specific reputations for industry expertise in the U.S. audit markets. *The Accounting Review* 80 (1): 113-136.

Frankel, R., M. Johnson, and K. Nelson. 2002. The relation between auditors' fees for non-audit services and earnings quality. *The Accounting Review* 77 (Supplement): 71-105.

Giroux, G. and A. McLelland. 2003. Governance structures and accounting at large municipalities. *Journal of Accounting and Public Policy* 22 (3): 203-230.

Gore, A. 2004. The effects of GAAP regulation and bond market interaction on local government disclosure. *Journal of Accounting and Public Policy* 23 (1): 23-52.

Governmental Accounting Standards Board. 2008. State and Local Government Use of Generally Accepted Accounting Principles for General Purpose External Financial Reporting. Norwalk, Ct.: GASB.

Government Finance Officers Association (GFOA). 2008. *GFOA Recommended Practice on Audit Committees.* Chicago, IL: GFOA.

Gramling, A., and D. Stone. 2001. Audit firm industry expertise: A review and synthesis of the archival literature. *Journal of Accounting Literature* 20: 1-29.

Hackenbrack, K., K. Jensen, and J. Payne. 2000. The effect of a bidding restriction on the audit services market. *Journal of Accounting Research* 38 (2): 355-374.

Hogan, C., and D. Jeter. 1999. Industry specialization by auditors. *Auditing: A Journal of Practice & Theory* 18 (1): 1-17.

Ingram, R., and R. Copeland. 1981. Municipal accounting information and voting behavior. *The Accounting Review* 56 (4): 830-843.

Ingram, R., and D. DeJong. 1987. The effect of regulation on local government disclosure practices. *Journal of Accounting and Public Policy* 6 (4): 245-70.

Ingram, R., and W. Spring. 1984. Economic incentives and the choice of state government accounting practices. *Journal of Accounting Research* 22(1): 126-144.

Jensen, K., and J. Payne. 2005. The introduction of price competition in a municipal audit market. *Auditing: A Journal of Practice & Theory* 24 (2): 137-152.

Krishnan, R., M. Yetman, and R. Yetman. 2006. Expense misreporting in nonprofit organizations. *The Accounting Review* 81 (2): 399-420.

Li, C. 2010. Does client importance affect auditor independence at the office level? Empirical evidence from going concern opinions. *Contemporary Accounting Research* 26 (1) 201-230.

Lopez, D., and G. Peters. 2010. Internal control reporting differences among public and governmental auditors: The case of city and county Circular A-133 audits. *Journal of Accounting and Public Policy* 29 (5): 481-502.

Lowensohn, S., L. Johnson, R. Elder, and S. Davies. 2007. Auditor specialization, perceived audit quality, and audit fees in the local government audit market. *Journal of Accounting and Public Policy* 26 (6): 705-732.

Mayhew, B. and M. Wilkins. 2003. Audit firm industry specialization as a differentiation strategy: Evidence from fees charged to firms going public. *Auditing: A Journal of Practice & Theory* 22 (2) 33-52.

McLelland, A. and G. Giroux. 2000. An empirical analysis of auditor report timing by large municipalities. *Journal of Accounting and Public Policy* 19 (3), 263-281.

Neal, T. and R. Riley. 2004. Auditor industry specialist research design. *Auditing: A Journal of Practice & Theory* 23 (2). 169 -177.

Numan, W. and M. Willekens. 2012. An empirical test of spatial competition in the audit market. *Journal of Accounting and Economics* 53, 450-465.

Patrick, P. 2010. The adoption of GASB 34 in small, rural, local governments. *Journal of Public Budgeting, Accounting & Financial Management* 22 (2): 227-249.

Payne, J., and K. Jensen. 2002. An examination of municipal audit delay. *Journal of Accounting and Public Policy*. 21 (1), 1-29.

Pearson, T., and G. Trompeter. 1994. Competition in the market for audit services: The effect of supplier concentration on audit fees. *Contemporary Accounting Research*. 11 (1): 115-135.

Pennsylvania Commonwealth County Code (Section 1705, P.L. 323, No. 130), amendment dated June 2002.

Petrovitz, C., Shakespeare, C., and Shih, A. 2011. The causes and consequences of internal control problems in nonprofit organizations. *The Accounting Review* 86 (1), 325-357.

President's Council on Integrity and Efficiency. 2007. Report on National Single Audit Sampling Project. Washington D.C.: PCIE.

Reichelt, K., and D. Wang. 2010. National and office-specific measures of auditor industry expertise and effects on audit quality. *Journal of Accounting Research.* 48 (3): 647-686.

Rich, K. and J. Xhang. 2014. Does audit committee monitoring matter in the government sector? Evidence from municipal internal control quality. *Journal of Governmental and Nonprofit Accounting* 3 (1): 58-80.

Rubin, M. 1988. Municipal audit fee determinants. *The Accounting Review* 63 (2): 219-236.

Seetharaman, A., Gul, F., and Lynn, S. 2002. Litigation risk and audit fees: Evidence from UK firms cross-listed on US markets. *Journal of Accounting and Economics* 33 (1): 91-115.

Simon, D. and J. Francis, 1988. The effects of auditor change on audit fees: Tests of price cutting and price recovery. *The Accounting Review* 63, 255-269.

Simunic, D. 1980. The pricing of audit services: Theory and evidence. *Journal of Accounting Research* 18 (1): 161-190.

U.S. Department of Housing and Urban Development. 1984. *Single Audit Act of 1984*: Questions and Answers. Available at: http://www.hudclips.org.

U.S. Government Accountability Office (GAO), 1986. CPA Audit Quality: Many governmental audits do not comply with professional standards (GAO/AFMD-86-33). US Government Accountability Office, Washington, DC.

U.S. Government Accountability Office (GAO), 1987. CPA Audit Quality: A framework for procuring audit services (GAO/AFMD-87-34). US Government Accountability Office, Washington, DC.

U.S. Government Accountability Office (GAO), 2003. Public Accounting Firms: Mandated Study on Consolidation and Competition (GAO-03-864). US Government Accountability Office, Washington, DC.

U.S. Government Accountability Office (GAO), 2006. Letter to the 110th Congress (GAO-07-235R). US Government Accountability Office, Washington, DC.

U.S. Government Accountability Office (GAO), 2007. Single Audit Quality: Actions needed to address persistent audit quality problems (GAO-08-213T). US Government Accountability Office, Washington, DC.

U.S. Government Accountability Office (GAO), 2008. Continued concentration on audit market for large public companies does not call for immediate action (GAO-08-163). US Government Accountability Office, Washington, DC.

Vermeer, T., K. Raghunandan, and D. Forgione. 2009. Audit fees at U.S. non-profit organizations. *Auditing: A Journal of Practice & Theory* 28 (2): 289-303.

Vermeer, T., A. Styles, and T. Patton. 2012. Do local governments present required disclosures for defined benefit pension plans? *Journal of Accounting and Public Policy* 31 (1): 41-68.

Wallace, W. 1980. The economic role of the audit in free and regulated markets. *Touche Ross & Co.*

Ward, D., R. Elder, and S. Kattelus. 1994. Further evidence on the determinants of municipal audit fees. *The Accounting Review* 69 (2): 399-411.

Watts, R., and J. Zimmerman. 1986. *Positive Accounting Theory.* Upper Saddle River, NJ: Prentice Hall.

Weiss, L. 1989. *Concentration and Price*. Cambridge, MA: The MIT Press.

White, H. 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48: 817-838.

Zimmerman, J. 1977. The municipal accounting maze: An analysis of political incentives. *Journal of Accounting Research* 15 (Suppl.): 107-144.

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