Private-Client Industry Specialization and Public-Client Audit Quality

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ABSTRACT

This study examines whether auditor industry expertise in private clients influences audit quality of public client engagements in the United States. Private companies are significant to the U.S. economy as well as audit firms. I hand-collect auditors' private client information and construct a national, city, and joint national/city specialist designation and document a 17.9 to 47.3 (12.9 to 25.8) percent decrease in a public client's likelihood to misstate their financial statements (net income earnings management) when an auditor is a private client industry specialist. I then construct and test a city specialist measure using both private and public client data and find that it is economically stronger and more robust than the public only measure commonly employed by audit researchers. This study provides evidence of the importance of private companies to an audit firm's industry expertise as well as to researchers' use of city specialist measure in audit studies.

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GENERAL AUDIENCE ABSTRACT

This study examines whether auditor industry expertise in private clients influences audit quality of public client engagements in the United States. Private companies are significant to the U.S. economy as well as audit firms. I hand-collect auditors' private client information and construct a national, city, and joint national/city specialist designation and find that audit quality is higher for the audit firm's public clients in the same industry. Next, I construct and test a city industry specialist measure using both private and public client data and find that it is economically stronger and more robust than the public only measure commonly employed by audit researchers. This study provides evidence of the importance of private companies to an audit firm's industry expertise as well as to researchers' use of city specialist measure in audit studies.

DEDICATION

To my wife, Emily, for being my foundation and keeping me on track. Without you, this would not have been possible. Thank you for supporting me, helping me, and loving me throughout this crazy adventure. I love you so much.

To my daughter Jane, you can do anything you set your mind to and I hope you will pursue your future dreams. Both of you are my whole world.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

In the United States, private companies account for 99 percent of all companies and generate over 50% of the private sector GDP (Minnis 2011).[1] Audit firms dedicate tremendous resources to attracting and providing services to private companies. Furthermore, private clients comprise 40 to 60 percent of Big 4 firms' and over 80 percent of non-Big 4 firms' total audit fees (Hunt 2018). While prior literature shows that a client of a public-client industry specialist is associated with higher audit quality, (Gul, Fung, and Jaggi 2009; Lim and Tan 2010; Reichelt and Wang 2010), these studies are silent on the implication of private clients on the services provided by audit firms due to difficulties in obtaining private client data. This study aims to answer two research questions. First, do public clients of auditors with industry specialist expertise obtained from private clients have higher audit quality? Second, can the addition of private clients alongside public clients improve upon the specification of industry specialists over a public client only measure? .

There are several reasons why private companies are worthy of additional research. From an economic perceptive, private companies are important to the U.S. capital market and are a significant segment for audit firm growth. These companies account for 58.7 percent of sales and 48.9 percent of aggregate pretax profits (Asker, Farre-Mensa, and Ljungqvist 2014). For audit firms, these companies have always been critical for growth in the audit market; however, their importance has increased due to the continued decline of publicly registered companies over the

[1] For the purposes of this study, I define a private client as a firm that is not listed on a stock exchange and therefore is not subject to public disclosure rules.

past 15 years (PWC 2013). For example, Hunt (2018) documents that in 2014, Big 4 firms collected between 40 and 60 percent of their audit fees from nonpublic clients. While prior literature documents that an auditor who is an industry specialist in the public client market is associated with higher audit quality (Ferguson, Francis, and Stokes 2003; Fung, Gul, and Krishnan 2012; Reichelt and Wang 2010), these studies are silent on the effect of private clients on the services provided by audit firms due to the difficulties in obtaining private client data. Given the significance of private clients to both the economy and audit firms, I hypothesize that industry knowledge acquired from serving private clients is associated with higher audit quality for public clients.

Prior literature argues that an audit firm receives reputational and expertise advantages when they are a designated an industry specialist at the national, city, and joint national/city level based on their public-client market share. Ferguson et al. (2003) provide two contrasting perspectives on how accounting firms differentiate themselves with their industry expertise. The firm-wide perspective argues that knowledge is obtained at the national level leading to higher audit quality for the firm (Francis 1984; Francis and Stokes 1986; Francis and Simon 1987; Chan, Ezzamel, and Gwilliam 1993; Craswell, Francis, and Taylor 1995; DeFond, Francis, and Wong 2000). The office-level perspective views the local practice office as the primary decision-making unit within an accounting firm (Wallman 1996; Francis, Stokes, and Anderson 1999; Francis and Yu 2009). Ferguson et al. (2003) and Francis, Reichelt and Wang (2005) expand upon these two perspectives by examining the pricing of Big 5 audit firm industry expertise in Australia and the U.S. using a joint national and city research framework. Reichelt and Wang (2010) build on these studies and find that joint national and city specialists are associated with higher audit quality. These studies find evidence that public clients value industry expertise

through higher audit quality when an audit firm is either a national, city, or joint specialist (both city and national).

Mayhew and Wilkens (2003) propose that an audit firm's goal is to separate themselves from competitors and allow opportunities to meet client demands and extract economic rents. Prior industry specialist studies make the assumption that some clients demand a higher level of industry expertise in order to obtain higher audit quality. On one hand, industry knowledge from private companies could provide an auditor with expertise that is beneficial to the audit quality of their public clients. On the other hand, since nonpublic client audits are performed according to regulatory frameworks that differ significantly from that of public client audits, any knowledge from these private companies may not spillover to public clients.[2] Extending prior industry specialist literature, I examine whether private client industry expertise is associated with higher audit quality for the firm's public client audits.

While private clients alone can create expertise for an audit firm, the combination of both private and public clients can strengthen the identification of the specialist measure commonly employed in audit quality studies. For example, Minutti-Meza (2013) notes the exclusion of private companies potentially biases the measure of industry specialist. I expect the potential for Type 1 and Type 2 errors to occur for the city specialist measure rather than the national measure because the small number of clients in a given MSA-industry could lead to private clients having an outsized impact on the identification of a specialist.

[2] Audits of private clients are to be conducted in accordance with Generally Accepted Auditing Standards (GAAS) and should also be prepared following GAAP. Furthermore, nonpublic clients are allowed to depart from GAAP when the cost to comply becomes unreasonable. The American Institute of Certified Public Accountants (AICPA) provides guidance in the Financial Reporting Framework for Small and Medium-Sized Entities to assist in determining whether GAAP compliance is necessary (Hunt 2018).

Following prior studies on industry specialization (Ferguson et al. 2003; Francis et al. 2005; Minutti-Meza 2013), I presume that auditor industry expertise can be inferred from a firm's market share of an industry. I identify private companies and their auditors by manually reviewing the companies' annual employee benefit plan filings. Employee Retirement Income Security Act of 1974 (ERISA) requires all companies, private or public, to file an annual benefit plan report and I surmise benefit plan auditor is the same as the company's financial statement auditor.[3] Following Reichelt and Wang (2010) and Minutti-Meza (2013), I label an auditor a private client industry specialist if it has the largest industry market share (industry-MSA) based on the collective size of its private clients and has at least 50 (30) percent market share. I first examine the relationship between private client industry specialist and public client audit quality. I then combine private and public data to construct a city specialist measure and test whether this the measure is economically stronger and more robust than the measure using only public client data. I construct a sample of U.S. public clients audited by Big 4 audit firms from 2000 through 2015. I use financial misstatements (subsequently revealed through restatements) and performance adjusted discretionary accruals as inverse proxies for audit quality.

I find that private industry specialists at the individual national and city level as well as at the joint national and city level are associated with lower misstatement likelihood and lower absolute discretionary accruals for public client audits. On average, public clients of audit firms with national, city, and joint national and city private industry expertise are 17.9, 24.8 and 47.3 percent less likely to have a financial misstatement, respectively. Furthermore, clients audited by a national, city, and joint national and city specialist have discretionary accruals that are lower by 0.40-0.80 percent of assets or 12.9-25.8 percent of income. These results suggest that industry

[3] I discuss in detail the identification method, assumptions, and limitations in section 3.

knowledge from private companies benefits public-client audits through lower misstatement likelihood and decreased earnings management. Additionally, I find evidence that private company specialists are associated with higher audit fees suggesting that audit firms charge a fee premium for this additional industry expertise. My results are robust to requiring the industry leader to have at least a 10 percent market share advantage over the second highest audit firm.

In subsequent analysis, I empirically examine whether the addition of private clients alongside public clients enhances the *city* specialist measure over the public client only measure commonly employed in audit research studies. The exclusion of private clients from the specialist measure could lead to either a Type 1 or a Type 2 errors. I find that a city measure based on only public clients misidentifies expertise compared a measure using both public and private clients in 20 percent of all client-year observations. In multivariate analysis, I find evidence that the overall specialist measure including both private and public companies is statistically and economically stronger than a standalone public client industry measure. Furthermore, this new measure is robust to propensity score matching which is shown to influence public company specialist measures (Minuti-Meza 2013).

I make several contributions to the literature examining auditor industry specialization. First, this study fills a gap in the literature by examining private companies in the context of industry specialists. Prior studies (e.g., Ferguson et al. 2003; Fung et al. 2012) acknowledge private clients as a missing piece when examining industry specialization. Specifically, Minutti-Meza (2013) acknowledges that industry expertise can be obtained from auditing private clients. This study documents the importance of private clients through a unique dataset that is publicly available to academic researchers. While prior work has ignored these companies, this study is

the first to document their importance in providing industry knowledge that benefits an audit firms' audit quality.

Second, this study sheds light on the value of private industry specialists to an audit firm's public clients through higher audit quality. Evidence from the city-specific and firm-wide analysis suggest public clients benefit from private client industry knowledge, though it is the strongest when a firm has both national and city level expertise. In addition, the inclusion of private clients alongside public clients enhances the identification of city industry specialists. Since the city industry specialist measure is a common control variable used by audit researchers, this finding contributes to the current literature as well as future studies.

Lastly, I document the study's results using a research design that addresses a critical econometric concern with prior industry specialist studies. Prior studies examining office size or industry expertise use audit fees to measure an auditor characteristic (e.g., Francis and Yu 2009; Reichelt and Wang 2010). Minutti-Meza (2013) documents how industry specialist measures using this method lead to the specific characteristic (e.g., office size, industry specialist) being a function of the client's characteristics, resulting in problematic interpretations of auditor effects. I use an out-of-sample approach by calculating the private industry specialist variables with a dataset separate from what is used in the analyses, leading to measures that are largely uncorrelated with public client characteristics. This attribute of the research design provides evidence of a specialist effect that is able to distinguish between the characteristics of auditors and those of their clients.

The remainder of the paper is organized as follows. Section 2 reviews prior literature and motivates my hypotheses. Section 3 outlines my research design. Section 4 describes the sample

and empirical results. Section 5 covers the supplemental and sensitivity analyses, and Section 6 concludes with implications for future research.

CHAPTER TWO

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Private Companies and Audit Firms

Private companies are significant in the overall economy. For example, Asker et al. (2014) note that in 2010, "private U.S. firms accounted for 52.8 percent of aggregate nonresidential fixed investment, 68.7 percent of private-sector employment, 58.7 percent of sales, and 48.9 percent of aggregate pretax profits." While private companies can be small, 86.4 percent of all companies with 500 employees or more are privately held (Asker et al. 2014). An audit firm can provide services to both public and private clients (Brivot, Roussy, and Mayer 2018); however, due to data limitations, few studies examine private clients and their potential impact on public audit quality (Vanstraelen and Schelleman 2017). Francis, Khurana, Martin, and Pereira (2011) acknowledge how "little is known about these firms with respect to their accounting and auditing choices or the economic consequence of these choices." Since private company information is not publicly available, researchers sometimes rely on regulatory audit requirements that vary across countries and time. For example, Guedhami and Pittman (2008) use 144A filings, which are required for any company (private or public) that has publicly traded debt. Since few private companies issue public debt, however, it is difficult to examine potential reputational impacts with this data. Other work (e.g., Asker et al. 2014; Badertscher et al. 2018; Minnis 2001) uses Sageworks, an analytics software for audit firms and banks that provides financial information for some private companies. Outside the U.S., Sweden and the United Kingdom are two countries that collect private company financial statements (Lennox and Pittman 2011; Zerni 2012); however these companies comprise a relatively small piece of the

economy. In summary, private companies have largely been ignored in research when compared to public companies.

Private clients are also a key component to audit firms' portfolios. Hunt (2018), for example, reports that private clients comprise 40 to 60 percent of Big 4 firms' total audit fees and over 80 percent for non-Big 4 firms. Each of the Big 4 audit firms have Private Client/Company Services (PCS) groups dedicated to attracting and retaining private companies. [4] Audit firms also advertise their current position in the private-company marketplace. In 2017, EY advertised that they audit 20 percent of the Forbes' list of America's Largest Private Companies and 28 percent of the 2017 U.S.-based IPO companies audited by a Big 4 firm (EY 2018).

While economically significant, private companies are also a large potential source of indsutry knowledge for accounting firms.[5] Each year, over 110,000 private company audits are performed compared to only 17,000 public audits (Cullinan, Earley, and Roush 2013). Despite the fact these audits are different in nature, industry knowledge from auditing private companies could enhance an audit firm's reputation and ability to provide higher quality audits to their public client engagements. Collectively, this evidence documents the importance of private-company audits as a potential source of knowledge.

[4] For example, EY states the following in a brochure advertising their private client services: "EY has a long history of assisting private companies. The insights we have gained mean that we are well-placed to help you achieve your business and personal ambitions. Our Private Client Services professionals focus on your business needs. We offer audit, tax and advisory services that can support you at every stage of your company's growth" (EY 2018).

[5] Knowledge spillover research is an alternative to industry specialist research and primarily focuses on non-audit services provided by the external auditor (Kinney Jr., Palmrose, and Scholz 2004; Cook, Huston, and Omer 2008; Robinson 2008; Gleason and Mills 2011; Patterson and Valencia 2011; Prawitt, Sharp, and Wood 2012). While this research supports efficiency gains, the relationship is within the client as opposed to across clients.

2.2 Industry Specialist and Audit Quality

Audit firms work to develop industry expertise and advertise that expertise to separate themselves from their competition.[6] Prior research documents the different motivations for audit firms to acquire this expertise. For example, audit firms acquire industry expertise in order to increase their reputation, attract new clients, and above all, provide higher audit quality (Solomon, Shields, and Whittington 1999; Low 2004; McMeeking, Peasnell, and Pope 2006; Carson 2009). Furthermore, an increase in reputation also allows audit firms to extract additional audit fees (Habib 2011).

Ferguson et al. (2003) present two distinct views of accounting firms. At the country-level, audit firms are organized as partnerships under one administrative structure. Within a country, these firms operate through a decentralized network of semi-autonomous practice offices (Wallman 1996; Francis et al. 1999; Chan, Ferguson, Simunic, and Stokes 2001; Francis and Yu 2009; Gunn and Michas 2018). While each firm has a national office, they are used for administrative purposes and firm-wide technical guidance. Individual engagements are contracted at the office-level even though the firms have national and international organizational structures (Ferguson et al. 2003). Prior industry specialist research examines the association of audit quality and public client industry specialization at the city, national, and global levels.

Beginning with national-level specialization, numerous studies document a positive association between auditor industry specialization and audit quality (Craswell et al. 1995; DeFond et al. 2000; Casterella, Francis, Lewis, and Walker 2004; Huang, Liu, Raghunandan, and

[6] See https://www.pwc.com/us/en/industries.html; https://www.ey.com/en_us/what-we-do; https://www2.deloitte.com/us/en.html#; https://home.kpmg/xx/en/home/industries.html

Dasaratha 2007; Gul, Fung, and Jaggi 2009; Cahan, Jeter, and Naiker 2011). Balsam, Krishnan, and Yang (2003) and Kwon, Lim, and Tan. (2007) find that clients of national industry specialist exhibit lower absolute discretionary accruals and higher earnings response coefficients. Carson and Fargher (2007) find the audit premium effect is strongest among audit fees paid by the largest clients in each industry. By contrast, Casterella et al. (2004) document a specialization premium only for the small client segment of the U.S. market. In addition, a few studies provide no evidence of a fee premium (Ferguson and Stokes 2002; and Mayhew and Wilkins 2003). Taking the firm-wide perspective a step further, Carson (2009) documents a significant fee premium for global specialists across a sample of firms from more than 60 countries.

While industry expertise can be obtained at the firm-level, the decentralized nature of audit offices results in an alternative view that "industry expertise resides in the unique human capital and experience of professionals in each office" (Ferguson et al. 2003). With audit work taking place in the local practice office, industry expertise can be obtained and applied locally. Studies compare the effect of an auditor obtaining industry expertise at the local versus national level and whether joint specialists obtain larger fee premiums. Ferguson et al. (2003) and Francis et al. (2005) find that city-level industry specialists earn a premium over non-specialists. Furthermore, Ferguson et al. (2003) and Francis et al. (2005) document a fee premium of 24 and 19 percent, respectively, when an audit firm is both a city and a national industry leader. Both studies do not a show a fee premium when a firm only holds a national specialist designation, supporting the idea that the individual professionals within an office uniquely hold an auditor's expertise, which is difficult to share across the firm (e.g., Ferguson et al. 2003). Building on the idea of locally obtained expertise, Zerni (2012) provide evidence of a fee premium for individual partners using Swedish data, suggesting audit partners develop expertise to induce efficient

audits and extract additional fees (Liu and Simunic 2005). From a quality perspective, Reichelt and Wang (2010) find that auditors who are both national and city-specific industry specialists have clients with the lowest abnormal accruals, suggesting that joint national and city-specific industry specialists have the highest audit quality. Overall, industry expertise literature documents a fee premium and lower discretionary accruals when an audit firm is an industry expert among public clients at either the national or city-level; however, the joint national and city specialist exhibit the largest fee premium to the auditor and overall higher audit quality to the client.

2.3 Hypothesis development

While prior research demonstrates that public industry specialists exhibit higher audit quality, it is unclear whether private industry specialists would provide the same benefit to an audit firm's clients. Mayhew and Wilkens (2003) argue that audit firms can differentiate along various dimensions (e.g., size, number of segments, industry membership, regulation) to gain a competitive advantage. An audit firm could acquire industry knowledge from their private clients and leverage this expertise on their public engagements; however, it is uncertain whether this knowledge would lead to an increase in audit quality for public clients. Furthermore, prior literature documents higher audit quality for national (firm-wide) and city (local) specialists but it is unknown whether private industry expertise would be present at either or both levels. If an audit firm acquires a firm-wide reputation as an industry specialist for private companies, the expertise could be transferred across offices and the clients could access it regardless of their location. By contrast, research suggests that accounting is a knowledge-based professional service that is acquired through experience working with individual clients in specific industries (Solomon et al. 1999). If expertise is contained within individuals of a firm, this knowledge

would be present only in the cities and clients in which those individuals work. It is important to note that these two options are not mutually exclusive. Reichelt and Wang (2010) find that national and city industry specialists are independently significant; however, the joint national and city specialist is where the strongest effect occurs. Similar to Reichelt and Wang (2010), the private industry effect may be strongest when the audit firm is a joint national and city specialist. There is the potential for an effect to not be present due to the difference in regulatory frameworks that govern private company audits. In addition, these audits are often non-integrated which could reduce the potential for expertise to be transferred to public clients.

Following prior literature on public industry specialization (Reichelt and Wang 2010), I empirically examine whether the national (firm-wide) or city (local) level frameworks yield higher public client audit quality for industry expertise obtained from an audit firm's private clients. In subsequent analysis, I examine whether joint national and city industry specialization from private clients yields a similar effect. Accordingly, I hypothesize the following:

> HYPOTHESIS 1a. *Private client city industry specialist auditors will provide higher audit quality for public clients in the same city-industry.*
>
> HYPOTHESIS 1b. *Private client national industry specialist auditors will provide higher audit quality for public clients in the same industry.*
>
> HYPOTHESIS 1c. *Joint private client city and national industry specialists will provide higher audit quality for public clients in the same city-industry.*

Due to data limitations, researchers have been forced to construct audit firm characteristics (e.g. office size, socialization) with public client data even though private clients consist of at least half of all audit revenue for the firm (Hunt 2018). Studies acknowledge private clients as a missing piece when examining industry specialization (Ferguson et al. 2003; Fung et al. 2012). Minutti-Meza (2013) specifically acknowledges that industry expertise can be obtained from auditing private clients and that by ignoring private companies, these measures (e.g., office

size, industry specialist) could be a function of client characteristics, thereby createing problematic interpretations of auditor effects. If private industry specialists lead to higher audit quality and fees for public clients, then the inclusion of private companies alongside public companies could influence the identification of industry specialists. The potential for misspecification of an industry specialist is more likely to occur at the city-industry level of analysis since there are fewer companies as compared to the national-industry level.[7] For example, the mean number of public clients at the city-industry level is 5.6 with the 25th and 75th percentile being one and five, respectively. When including private companies, the mean number of clients increases to 12.3 and the 25th and 75th percentiles is two and thirteen which is an increase of at least 50 percent in the number of clients in a given city-industry. This example shows how the inclusion of private companies alongside public companies could have a meaningful impact on the identification of a city level industry specialist. I empirically examine whether a city level industry specialist measure, using private and public clients, improves upon the public industry specialist measure. Accordingly, I hypothesize the following:

> HYPOTHESIS 2. *Measuring city industry specialist auditors using private and public clients will lead to better identification of industry specialist than using only public client data.*

[7] Recent audit studies (Beck, Francis, and Gunn 2018; Seavey, Imhof, and Westfall 2018; Beck, Gunn and Hallman 2019) are only including use only a city industry specialist control variable measure and leaving out the national specialist measure, making these studies more susceptible to measurement error from the effect of private client audits.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Measuring Private Clients

Prior industry specialist studies often ignore private clients due to data availability (Ferguson et al. 2003; Fung et al. 2012), though their exclusion may bias the market share proxy (Minutti-Meza 2013). While private firm financial statements are unobservable to researchers, a benefit plan audit is one service provided by audit firms to private clients that requires a public filing.[8] The Employee Retirement Income Security Act of 1974 (ERISA) requires companies (private or public) to have an external audit if the benefit plan exceeds 100 participants. Using companies publicly available employee benefit reports, I obtain the name, address, industry, benefit plan assets, and employee participants of the private company, as well as their auditor. I use benefit plan assets as a proxy for the relative size of the companies.[9] With these data, I estimate the private client market share for auditors using the within-market share proxy previously discussed.[10]

There are three noteworthy shortcomings associated with this identification method. First, the benefit plan auditor and the financial statement auditor do not always match. I test the extent of this issue by matching the public company filings to audit analytics. When a Big 4 firm audits the benefit plan of a public company, that firm is the financial statement auditor in 35,874 out of

[8] A commonly used database to examine private clients is Sageworks. Sageworks is an analytics software used by audit firms and banks provides researchers unidentified private companies and their financial information. A shortcoming to this dataset is the lack of use by Big 4 auditors and therefore is unable to shed light on the impact of private clients and audit pricing (Hope, Thomas, and Vyas 2017). In addition, the data does not allow for identification of the audit firm and client.

[9] With respect to public companies, benefit plan assets has an 81 percent correlation with total assets in Compustat.

[10] To test the reasonableness of this data and identification method, I construct the public industry specialist measure at both the local and national level using the benefit plan filings and find that the measure accurately predicts the specialist designation compared to using Audit Analytics data 96 and 99 percent of the time, respectively.

36,100 cases or an accuracy rate of 99.4 percent.[11] However, there is still the situation in which a client chooses a separate auditor for the benefit plan. For example, EY may audit the financial statements, but a smaller auditor performs the benefit plan audit.[12] This mismatch between financial statement and benefit plan auditor introduces measurement error by possibly assigning a smaller firm the financial statement audit and, therefore, the industry specialist designation (if it occurs systematically throughout the sample). Second, the ERISA filing is not required for companies with less than 100 participants. With larger auditors being more likely to have a specialist designation, excluding these companies would unlikely affect the specialist measure.[13] In practice, large audit firms focus on more prominent companies that can afford higher audit fees as evident by the Big 4 market share of Fortune 1000 companies. In addition, the size of private clients is used in the market share proxy, which reduces the likelihood that smaller companies would bias the estimation. Third, the ERISA filing does not provide the location of the auditor; therefore, I assign the audit office based on the client location. This limitation occurs in past industry specialist studies (Francis et al. 1999; Ferguson et al. 2003; Francis et al. 2005). I test the error rate of assigning the audit office using the public company filings and find the auditor-office matches in 34,899 out of 36,100 cases or an accuracy rate of 96.7 percent. The 3.3 percent error rate aligns with that of Francis et al. (1999) and Francis et al. (2005).[14]

[11] Prentice, Bills, and Peters (2020) finds that when Big 4 firms audit public-client benefit plans, they are also the financial statement auditor 99 percent of the time further corroborating my dataset.
[12] Anecdotally, a practicing manager from the Big 4 said the following about performing both the benefit plan and financial statement audit: "The efficiencies gained from the overlap from the year end audit benefit both the client and the firm. The firm is able to take credit for controls tested and other work performed at year-end during the EBP audit, as well as rely on some of the work performed during the EBP audit at year end. In addition, additional work is performed at year end due to the EBP audit than would be done otherwise. This helps distribute the work in a more manageable way for the firm."
[13] While the audit market for private companies is less concentrated compared to the public market (Langli and Svanstrom 2014), the largest private companies are typically audited by a Big 4 firm (Oxera 2006).
[14] Francis et al. (1999) and Francis et al. (2005) report a 3% and 3.4% error rate, respectively.

3.2 Industry Specialist Measure

Prior research identifies the within-industry market share as the most widely used proxy for calculating auditor industry expertise (DeFond et al. 2000; Ferguson and Stokes 2002; Ferguson et al. 2003; Mayhew and Wilkins 2003; Francis et al. 2005; Basioudis and Francis 2007; Carson 2009; Cahan et al. 2011; Fung et al. 2012; Numan and Willekens 2012; Zerni 2012; Audousset-Coulier, Jeny, and Jiang 2016). Following Minutti-Meza (2013), I define industry market share as follows:

$$Marketshare_{ki} = \frac{\sum_{j=1}^{J} S_{kij}}{\sum_{i=1}^{I}\sum_{j=1}^{J} S_{kij}}, \qquad (1)$$

where $Marketshare_{ki}$ is the market share of auditor *i* in industry *k*, S_{kij} represents the total assets of client firm *j* in industry *k* audited by auditor *i*, *J* represents the number of clients that are served by audit firm *I* in industry *k*, and *I* is the number of audit firms in industry *k*. The five proxies for auditor private client industry specialization used in the first hypothesis are:

Private National Specialist	=	one for auditors who have the largest market share (using client benefit plan assets) in a given private 2-digit SIC industry and year at the U.S. national level and have more than 30% of the total market, and zero otherwise.
Private City Specialist	=	one for auditors who have the largest market share in a given private client industry and year at the U.S. city level, where city is defined as a Metropolitan Statistical Area (MSA) following the 2010 U.S. Census Bureau MSA definitions, and have more than 50% of the total market, and zero otherwise.
Both National and City Specialist	=	one for auditors who are both a national industry specialist and a city industry specialist, and zero otherwise.
National Specialist Only	=	one for auditors who are a national industry specialist but not a city industry specialist, and zero otherwise.
City Specialist Only	=	one for auditors who are not a national industry specialist but are a city industry specialist, and zero otherwise.

Following Ferguson et al. (2003) and Francis et al. (2005), I examine whether private industry expertise is present at either the firm-wide (national) or local (city) level for public

client audit pricing. Next, I assess whether private industry expertise is associated with higher public client audit quality by auditors who are either joint leaders at the national and office level for a specific industry or just a city or national leader only.

To examine H2, I construct a city specialist measure using both public and private filings and I construct a city specialist measure using only public data. I expect the addition of private companies to the public companies to provide a stronger measure of a city industry specialist. Since the city specialist measure is dependent on a smaller grouping of companies in a given MSA-industry, the inclusion of private companies could reduce measurement error of correctly identifying an industry specialist. The two measures for this analysis are:

Private and Public City Specialist	=	one for auditors who have the largest market share in a given private client industry and year at the U.S. city level, where city is defined as a Metropolitan Statistical Area (MSA) following the 2010 U.S. Census Bureau MSA definitions, and have more than 50% of the total market, and zero otherwise. I construct this measure using the benefit plan filings for both private and public clients.
Public City Specialist	=	one for auditors who have the largest market share in a given private client industry and year at the U.S. city level, where city is defined as a Metropolitan Statistical Area (MSA) following the 2010 U.S. Census Bureau MSA definitions, and have more than 50% of the total market, and zero otherwise. I construct this measure using public filings in Audit Analytics.

3.3 Misstatement Model

The first output-based measure of audit quality that I utilize is material misstatements. Prior research suggests that misstated financial statements, as revealed through subsequent restatements, are a clear indication of a lower quality audits (Christensen, Glover, Omer, and Shelley 2016) and they exhibit a strong association with PCAOB inspection findings (Aobdia 2019). I define a misstatement equal to one for years in which the annual financial statements are subsequently restated, and zero otherwise. Following prior research, I regress misstatements

using a logistic regression on the variable of interest, *SPECIALIST*, and other misstatement determinants as follows:

$$MISSTATE_{it} = \beta_0 + \beta_1 SPECIALIST + \beta X_i + IndFE + YearFE + \varepsilon_{it} \quad (2)$$

MISSTATE equals one if financial statements in the current year contain a misstatement (as revealed subsequently through restatement announcements), and zero otherwise. $SPECIALIST$ refers to either *PRIV_NATIONAL_EXP*, *PRIV_CITY_EXP*, *PRIV_NATIONAL_EXP_ONLY*, *PRIV_CITY_EXP_ONLY*, *BOTH_PRIV_CITY_NAT_EXP*, *PRIVATE_PUBLIC_CITY_EXP*, and *PUBLIC_CITY_EXP*. For H1, I follow prior literature and independently examine the national and city measures prior to the joint national and city test. H1 predicts that industry knowledge from private companies provides value through higher audit quality of a firm's public clients. H2 predicts that the measure using both private and public data will better specify industry specialist than a measure using only public data. In addition to industry and year fixed effects, I identify and control for audit firm and client characteristics commonly included in prior studies that analyze restatements (e.g., Francis et al. 2013). See Appendix A for a list of all control variables and their specific definitions and measurement.[15]

3.4 Discretionary Accruals Model

My second output-based measure of audit quality is performance-adjusted discretionary accruals (Kothari, Leone, and Wasley 2005). I estimate discretionary accruals for each firm using the following cross-sectional ordinary least squares regression by two-digit SIC industry and year, requiring at least 10 observations per regression:

[15] To minimize the effect of outliers, all continuous variables in equations (2) through (4) are winsorized at 1% and 99%.

$$\frac{TA_{it}}{A_{it-1}} = \beta_1(\frac{1}{A_{it-1}}) + \beta_2(\frac{(\Delta S_{it}-\Delta AR_{it})}{A_{it-1}}) + \beta_3(\frac{PPE}{A_{it-1}}) + \beta_3(\frac{ROA_{it-1}}{A_{it-1}}) + \varepsilon_{it} \quad (3)$$

where *TA* equals total accruals using the indirect cash flow method (i.e., income before extraordinary items less cash flows from operations); *A* equals total assets; *ΔS* equals the change in total sales from prior year; *ΔAR* equals the change in accounts receivable from the prior year; and *PPE* equals net property, plant, and equipment; and *ROA* equals net income. Consistent with prior research (e.g., Reynolds and Francis 2000; Francis and Yu 2009), I take the absolute value of the difference of these residuals to capture the magnitude of opportunistic reporting (*AB_ACCRUALS*). With this measure, I then estimate the following model:

$$AB\_ACCRUALS_{it} = \beta_0 + \beta_1 SPECIALIST + \beta\, X_i + IndFE + YearFE + \varepsilon_{it} \quad (4)$$

where *SPECIALIST*, the variable of interest, refers to the test variables presented earlier. Consistent with my misstatement analysis, I expect that industry knowledge from private companies provides value through higher audit quality of a firm's public clients as well increase the measurement accuracy of industry specialist when used in conjunction with public client data. I follow prior industry specialist research (Reichelt and Wang 2010; Minutti-Meza 2013; Audousset-Coulier, Jeny, and Jiang 2016) and include control variables that have been shown to influence discretionary accruals. Consistent with Reichelt and Wang (2010), I exclude year and industry fixed effects since abnormal accruals are estimated by two-digit SIC category and by year.

CHAPTER FOUR

RESULTS

4.1 Sample Selection

I employ two samples to examine H1 and eight samples for H2. Table 1 presents the sample construction of for each of the ten samples. I begin each sample with all Audit Analytics and Compustat observations in the U.S. from fiscal year 2000 (2003 for the misstatement sample) to 2015 with nonmissing fees, MSA codes, and SIC codes. Next, I remove observations with missing values of model variables as well as financial and regulated firms. Following prior literature, I remove observations with non-Big 4 auditors (Ferguson et al. 2003; Francis et al. 2005).[16] Lastly, I remove observation located in MSA-industry-fiscal year combinations with less than 3 observations. This leads to a final sample of 16,467 and 21,193 firm-year observations for the misstatement and accruals models to examine the effect of private-industry specialist on public client audit quality. The sample changes when examining H2 since the MSA-industry-fiscal year combination varies depending on the measure. Similar to the private industry specialist test, I require a minimum of three observations; however, this cutoff varies on whether the measure includes both private and public clients or just public or private. The initial test examining whether the addition of private clients increases the accuracy of specialist identification versus public clients is restricted to MSA-Industry combinations with at least one private client. This leads to a sample of 20,311 (25,759) firm-year observations for the

[16] Prior industry specialist studies eliminate these clients to achieve a cleaner test of specialization separate from a possible Big 4 effect (Balsam et al. 2003; Krishnan 2003). The results in this study are consistent if these observations are included.

misstatement (accruals) test on the joint public and private specialist measure in Column (1) of Table 7 (8) and a sample of 16,484 (20,984) firm-year observations for misstatement (accruals) test on the public only specialist measure in column (2). Next, I relax the requirement in order to compare the measures that are most likely to be used in audit studies. This leads to a sample of 23,424 (29,508) firm-year observations for the misstatement (accruals) test on the joint public and private specialist measure in column (3) of Table 7 (8) and a sample of 19,593 (24,733) firm-year observations for misstatement (accruals) test on the public only specialist measure in column (4) of Table 7 (8).

[INSERT TABLE 1]

4.2 Tests of Private Industry Expertise

Table 2 presents the descriptive statistics for the H1 analysis of private industry expertise and public client audit quality. Panel A documents the number of national and city industry specialist across each of the Big 4 audit firms. Using the discretionary accruals sample, EY leads all audit firms with the most national and city specialist designations while KPMG is fourth (excluding Arthur Anderson which is only present in the first years of the sample). Table 2, Panel B and C presents the descriptive statistics for the misstatement and discretionary accruals sample, respectively. Clients of national-level specialists (*PRIV_NATIONAL_EXP)* in the misstatement sample (accruals) represent 11.9 (14.1) percent of the sample or 1,967 (2,989) firm-year observations out of 16,467 (21,193). Clients of city-level specialists (*PRIV_CITY_EXP*) represent 11.6 (12.2) percent of the sample or 1,910 (2,578) firm-year observations for the misstatement (accruals) sample. Compared to prior research, there are fewer

private industry specialist than public industry specialist.[17] The more competitive nature (i.e. more clients and auditors) in the private client marketplace increases the difficulty of achieving a specialist designation. The joint national and city specialist measure, (*BOTH_PRIV_CITY_NAT_EXP*), occurs at rate of 2.7 and 3.1% for the misstatement and accruals sample, respectively. With respect to the dependent variable, *MISSTATE*, the rate of misstatements in the sample is 11.7% which is comparable to previous studies (Francis et al. 2013). Furthermore, the mean level of *ABS_ACCRUALS* in the sample is 0.084. With regards to the client control variables, the average firm size is $681 and $527 million for the misstatement and accruals sample, respectively.

[INSERT TABLE 2]

Table 3 presents the misstatement results for the private industry specialist and public client audit quality analysis. Following prior literature (Reichelt and Wang 2010; Minuti-Meza 2013), I examine the national and city specialist measures separately. Column (1) documents a negative and significant association for *PRIV_NATIONAL_EXP* (p-value=0.03) suggesting the knowledge obtained from private clients at the firm level is associated with lower restatements. Column (2) presents the results for the private city specialist measure. I find a negative and significant coefficient for *PRIV_CITY_EXP* measure (p-value < 0.01) providing evidence that private industry knowledge at the local office level is associated with lower misstatements. Lastly, column (3) documents a negative and significant relationship between joint national and

[17] For example, Reichelt and Wang (2010) and Minuti-Mezza (2013) find that 11.6 and 10.8 percent of the accruals sample are audited by national specialist and 35 and 33.9 percent are audited by city specialists, respectively. Since these two studies include non-big audit firms, the percentages are not directly comparable. When I add in Non-Big 4 observations to the sample, the national specialists represent 8.8 percent and the city specialist represent 9 percent. When comparing these percentages to previous studies, it is evident that both national and city private specialist occurs less often. More importantly, the private city specialist occurs at less than one third of the time as public industry specialist. Since the private specialist measure is constructed using a separate sample, there is no mechanical relationship with the public clients that occurs when using public data to construct the public measure.

city private industry specialist (p-value < 0.01) and misstatements. These results are also economically significant. For example, I find that the odds of misstatement are 17.9 (24.8) percent lower for a client audited by a national (city) specialist to one without such expertise. More importantly, I find that that the odds of misstatement for clients audited by a joint national and city specialist are 47.3 percent lower. These results provide evidence that private client industry experts are associated with higher audit quality for the firm's public clients.

[INSERT TABLE 3]

Table 4 presents the discretionary accruals results for the private industry specialist and public client audit quality. Consistent with previous analysis, I independently examine the national and city specialist measures. Column (1) documents a negative and significant association for *PRIV_NATIONAL_EXP* (p-value=0.02) suggesting the knowledge obtained from private clients at the firm level is associated with lower discretionary accruals. Column (2) presents the results for the private city specialist measure. I find a negative and significant coefficient for *PRIV_CITY_EXP* measure (p-value < 0.01) providence evidence that private industry knowledge at the local office level is associated with discretionary accruals. Lastly, column (3) documents a negative and significant relationship between joint national and city private industry specialist (p-value < 0.01) and discretionary accruals. These results are also economically significant. Clients audited by a national (city) specialist results in an estimated decrease in discretionary accruals of approximately 0.40 (0.50) percent of assets. Given that the median ROA in this sample is 3.07 percent of assets, this is equivalent to 12.9 (16.2) percent of income. Furthermore, I find that clients audited by a joint national and city specialist result in an estimated decrease of 0.80 percent of assets or 25.8 percent of income. These results, in conjunction with misstatement analysis, suggest that clients served by auditors with industry

expertise in the private market are associated with higher audit quality as evidenced by lower incidence of misstatements and discretionary accruals.

[INSERT TABLE 4]

4.3 Tests of Combined Private and Public Industry Expertise

This section examines whether combining private and public clients for industry specialist designations improves upon the public company measure used commonly in the literature. Since the previous section documents that industry knowledge obtained from private companies has value for public company audits, I expect the addition of this data will improve upon the overall measure. I restrict the analysis to city specialists since the local level is where private companies are most likely to have an influence alongside public companies.[18] Table 5 presents the number of specialist designation when using both private and public data and public data only overall and by industry. The percent difference column documents the percentage of observations where the two specialist designations do not come to the same conclusion. For example, if an industry has 50 observations and the two specialist measures match in 40 of the observations, this would equate to a 20 percent change. With regards to the overall sample, 20 percent of observations have different outcomes when using the joint private and public specialist measure versus the public measure. There is considerable variation by industry. For example, there are six industries where both measures reach the same conclusions (i.e. 100 percent match). On the other hand, there are four industries where 50 percent or more

[18] Even though private companies audited by Big 4 firms can be large relative to public companies, it would be very difficult to change national specialist designations since in totality, public companies are larger than private companies at the firm level. In untabulated analysis, I find small difference between national specialist designations using joint private and public data versus public data alone.

observations reach different conclusions. This table provides initial evidence on the importance of including private companies when using the overall industry specialist measure in audit quality studies.

[INSERT TABLE 5]

Table 6 presents the descriptive statistics for the combined private and public industry specialist analysis. Panel A compares the number of city industry specialist using both private and public data to public data only for each of the Big N audit firms. Using the discretionary accruals sample, EY leads all audit firms with the most national and city specialist designations while KPMG is fourth (excluding Arthur Anderson, which is only present in the first years of the sample). Table 2, Panel B and C presents the descriptive statistics for the misstatement and discretionary accruals sample, respectively. Clients of city-level specialists using both private and public data (*PRIVATE_PUBLIC_CITY_EXP)* represent 30.6 (29.6) percent of the sample or 7,161 (8,728) firm-year observations out of 23,424 (29,508) for the misstatement (discretionary accruals) sample. The public data only measure (*PUBLIC_CITY_EXP*) represents 32.1 (31.7) percent of the sample or 6,296 (7,830) firm-year observations for the misstatement (accruals) sample. When comparing the two measures, the rate of identification is higher for *PUBLIC_CITY_EXP* suggesting that when including private company data, some firms lose their specialist designation. With respect to the dependent variable, *MISSTATE*, the rate of misstatements in the sample is 11.3% which is comparable to previous studies (Francis et al. 2013). Furthermore, the mean level of *ABS_ACCRUALS* in the sample is 0.086. With regards to the client control variables, the average firm size is $661 and 529 million for the misstatement and accruals sample, respectively.

[INSERT TABLE 6]

Table 7 presents the misstatement results for the joint private and public industry specialist versus public only measures. Columns (1) and (3) present the results for the joint analysis while columns (2) and (4) presents the public only measure. I restrict the sample in columns (1) and (2) to MSA-Industry combination with at least one private client since this is where I would expect to see different results. I relax this restriction in column (3) and (4) in order to examine the measures in a sample most likely to be used in other audit quality studies. I find a negative and significant coefficient on *PRIVATE_PUBLIC_CITY_EXP* (p-value = 0.01) and an insignificant coefficient on *PUBLIC_CITY_EXP* in column (1) and (2), respectively. In the expanded sample, I find a negative and significant coefficient on *PRIVATE_PUBLIC_CITY_EXP* (p-value < 0.01) and an insignificant coefficient on *PUBLIC_CITY_EXP* in columns (3) and (4), respectively. These results suggest the inclusion of private data improves upon the identification of city industry specialist.[19]

[INSERT TABLE 7]

Table 8 presents the discretionary accruals results of the joint private and public industry specialist versus public only measure. Column (1) and (3) present the results for the joint analysis while column (2) and (4) presents the public only measure. Similar to the previous analysis, I restrict the sample in columns (1) and (2) to MSA-Industry combinations with at least one private clients and then relax this restriction in column (3) and (4). I find a negative and significant coefficient on *PRIVATE_PUBLIC_CITY_EXP* (p-value < 0.01) and an insignificant coefficient on *PUBLIC_CITY_EXP* in Columns (1) and (2), respectively. In the expanded

[19] The baseline result for the public only measure is insignificant which is a consistent finding in recent audit quality studies (Bills, Swanquist, and Whited 2016; Gunn and Michas 2018; Seavey, Imhof, and Westfall 2018; Beck, Gunn and Hallman 2019).

sample, I find a negative and significant coefficient on *PRIVATE_PUBLIC_CITY_EXP* (p-value < 0.01) and a negative and significant coefficient on *PUBLIC_CITY_EXP* (p-value = 0.016) in column (3) and (4), respectively. These results suggest the inclusion of private data improves upon the identification of city industry specialist. Even though *PRIVATE_PUBLIC_CITY_EXP* and *PUBLIC_CITY_EXP* in the expanded sample provide consistent results, their economic significance differs considerably. The joint measure results in an estimated decrease in discretionary accruals of approximately 0.50 percent of assets compared to 0.30 percent for the public only measure. Given that the median ROA in this sample is 2.93 percent of assets, this is equivalent to 17 (10) percent of income. This equates to an additional 66.5 percent decrease using the joint private and public specialist measure over the public data only measure. Overall, the results presented in Table 7 and 8 provide consistent evidence that the inclusion of private client data improves upon the identification of industry specialist when examining public company audit quality.

[INSERT TABLE 8]

CHAPTER FIVE

ROBUSTNESS AND ADDITIONAL ANALYSES

5.1 Audit Fees Analysis

Prior studies find a fee premium when an auditor is either a national, city or joint national and city specialist (Ferguson et al. 2003; Francis et al. 2005). Similarly, Gunn and Michas (2018) find a fee premium for joint multinational and country specialist in situations when there is also an association with higher audit quality. When investigating audit fees as an alternative measure of audit quality, I find a positive and significant coefficient on *PRIV_NATIONAL_EXP* and *BOTH_PRIV_CITY_NAT_EXP* equating to a 5 and 9.4 percent increase in audit fees.[20] I do not find evidence of premium for *PRIV_CITY_EXP*. I conclude that auditors can earn a fee premium by possessing national, as well as joint national/city expertise. For the city measurement analysis, I find consistent evidence across all four tests for the *PRIVATE_PUBLIC_CITY_EXP* and *PUBLIC_CITY_EXP*; however, the economic importance is reduced when including the private client data. Minuti-Meza (2013) points out the potential issue when using client data, such as audit fees, to construct a measure and then regress that measure on audit fees. While my results still find a statistical significance for a city specialist and audit fees, the diminishing economic significance suggests there is a potential mechanical relationship when using public client data alone.

[20] For the audit fee test, I follow Audousset-Coulier, Jeny, and Jiang (2016) and include common control variables that are strongly correlated with audit fees. All estimations have exceedingly high adjusted R2 (>84%), suggesting the model has high explanatory power concerning audit fees and all control variables are statistically significant and in the expected direction from prior literature (Francis et al. 2005; Hay, Knechel, and Wong 2006).

5.2 Propensity-Score Matching

Prior studies document the potential for selection bias in that clients that choose to be audited by an auditor with private industry expertise may exhibit firm-specific characteristics that are correlated with both this choice and the outcome variable (Lawrence, Minutti-Meza, and Zhang 2011; Minutti-Meza 2013; DeFond, Erkens, and Zhang 2017). In order to alleviate this concern, I perform propensity score matching to reduce the potential that clients and auditors are matching on observable variables. Following Shipman, Swanquist, and Whited (2017), I include all control variables and fixed effects from the primary analysis as matching variables. I re-perform my tests for H1and find consistent results for *PRIV_NATIONAL_EXP*, *PRIV_CITY_EXP*, and *BOTH_PRIV_CITY_NAT_EXP* with all measures significant at $p < 0.10$.[21]

Minutti-Meza (2013) provides evidence on how industry specialist measures are subject to econometric bias because the client characteristics can be correlated with the measure itself leading to a confounding effect. This econometric problem is less likely to be present in the private measure since those measures are constructed using a separate sample and then regressed on public client data. In my primary analysis, I find that the inclusion of private data strengthen the identification of industry specialists. Since this data is unlikely to be correlated with public clients, it could reduce the measure's relationship with client characteristics. In untabulated analysis, I find that *PRIVATE_PUBLIC_CITY_EXP* remains significant for both the reduced and expanded sample in the misstatement and discretionary accruals tests. Furthermore, the *PUBLIC_CITY_EXP* measure is insignificant in both samples of the misstatement analysis as

[21] The caliper distance varies from 0.02 to 0.001 in order to achieve strong covariate balance among all control variables in each regression.

well as the reduced sample for the discretionary accruals. For the expanded sample, the *PUBLIC_CITY_EXP* measure remains marginally significant (p-value = 0.09). This results suggests that the inclusion of private data yields a stronger overall industry specialist measure that is more robust to propensity score matching than a measure using public client data solely.

5.3 Alternative Measure of Auditor Industry Leadership

Prior studies measure industry specialist by auditor dominance (Mayhew and Wilkins 2003; Reichelt and Wang 2010). This definition requires the market leader to have at least 10 percent greater market share than the second largest industry leader. In essence, a sufficiently larger market share than the second largest industry leader ensures that the industry leader is in fact dominant. In untabulated analysis, I require each of the measures from industry specialist auditors to have at least a 10 percent market advantage. For H1, the *PRIV_NATIONAL_EXP*, *PRIV_CITY_EXP*, and *BOTH_PRIV_CITY_NAT_EXP* measures are either consistent or stronger than the primary results. Furthermore, the H2 results reach the same conclusions; however *PUBLIC_CITY_EXP* is no longer significant in the expanded sample. These results provide additional evidence that private industry expertise is important both on a standalone basis and a joint basis with public client data.

CHAPTER SIX

CONCLUSION

6.1 Conclusion

This study investigates audit quality in the U.S. audit market and determines whether accounting firms leverage private client industry expertise in their public client engagements. Using a U.S. dataset of private companies to generate the auditor's within-industry market share, I hypothesize and find that auditors' national and city industry expertise obtained from private clients is related to the quality of an auditor's public client audits. Furthermore, I find that the inclusion of private client data with public client data strengthens the identification and robustness of the city industry specialist measure commonly employed in audit quality studies. This study enhances the understanding of auditor specialization and, how audit firms leverage their private clients to enhance their knowledge acquisition and expertise.

Using financial misstatements (subsequently revealed through restatements) and performance adjusted discretionary accruals as inverse proxies for audit quality, I find that private industry specialist at the individual national and city level as well a joint national and city are associated with lower misstatements and lower absolute discretionary accruals for the public client audits. These results suggest that industry knowledge from private companies provides value to an audit firm's public clients through lower incidence of misstatements and lower earnings management. In subsequent analysis, I empirically examine whether the addition of private clients alongside public client enhances the city specialist measure over the public client only measure commonly employed in audit research studies. I find evidence that an overall specialist measure including both private and public companies is empirically and economically stronger than a standalone public client industry measure.

Overall, the combined evidence from this study suggests that private auditor industry specialization, measured using the auditor's within-industry market share, is an essential factor in the audit quality of audit firm's public engagements. Building upon the literature, this study provides evidence of a differentiation among audit firms based on their knowledge acquisition and reputation from serving their private clients. The new measure including both private and public clients improves upon the commonly used specialist measure in the literature in both economic significance and robustness to propensity score matching. This study is subject to limitations surrounding the ERISA dataset. First, the method of assigning private clients and their financial statement auditors leads to an underreporting of engagements for larger audit firms. Second, the dataset excludes all private clients with fewer than 100 employees. These limitations induce some measurement error in assigning specialist designations and would bias against findings results.

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APPENDIX A
Variable Definitions

Dependent Variable:	
RESTATEMENT	an indicator variable set equal to 1 if financial statements in the current year contain a misstatement (as revealed subsequently through restatement announcements), and 0 otherwise;
ABS_ACCRUALS	the absolute value of performance adjusted discretionary accruals, following Kothari et al. (2005);
Variables of Interest:	
PRIV_NATIONAL_EXP	an indicator variable equal to 1 for auditors who have the largest market share (using client benefit plan assets) in a given private 2-digit SIC industry and year at the U.S. national level and have more than 30% of the total market, and 0 otherwise;
PRIV_CITY_EXP	an indicator variable equal to 1 for auditors who have the largest market share in a given private client industry and year at the U.S. city level, where city is defined as a Metropolitan Statistical Area (MSA) following the 2010 U.S. Census Bureau MSA definitions, and have more than 50% of the total market, and 0 otherwise;
PRIV_NATIONAL_EXP_ONLY	an indicator variable equal to 1 for auditors who are a national industry specialist but not a city industry specialist, and 0 otherwise;
PRIV_CITY_EXP_ONLY	an indicator variable equal to 1 for auditors who are not a national industry specialist but are a city industry specialist, and 0 otherwise;
BOTH_PRIV_CITY_NAT_EXP	an indicator variable equal to 1 for auditors who are both a national industry specialist and a city industry specialist, and 0 otherwise;
PRIVATE_PUBLIC_CITY_EXP	an indicator variable equal to 1 for auditors who have the largest market share in a given client industry and year at the U.S. city level, where market share includes both private and public clients and city is defined as a Metropolitan Statistical Area (MSA) following the 2010 U.S. Census Bureau MSA definitions, and have more than 50% of the total market, and 0 otherwise. This measure is constructed using benefit plan filings;
PUBLIC_CITY_EXP	an indicator variable equal to 1 for auditors who have the largest market share in a given public client industry and year at the U.S. city level, where city is defined as a Metropolitan Statistical Area (MSA) following the 2010 U.S. Census Bureau MSA definitions, and have more than 50% of the total market, and 0 otherwise. This measure is constructed using Audit Analytics;

APPENDIX A (Continued)

Control Variables:

AUDIT_FEES	the total amount of audit fees charged to a client by their external auditor in year *t*. This variable is log-transformed in all regression analyses;
AUDITOR_CHG	an indicator variable equal to 1 if a client changed its auditor from year *t*-1 to year t, and 0 otherwise;
CASHFLOW	operating cash flow scaled by lagged total assets;
CFO_VOL	standard deviation of operating cash flow (scaled by lagged total assets) from *t*-2 to *t*;
CH_EMPLOYEES	the percentage change in a client's number of employees less the percentage change in total assets from year *t*-1 to year *t*;
CH_INVENTORY	the percentage change in a client's inventory balance from year *t*-1 to year *t*;
CH_NET_INCOME	the percentage change in a client's net income amount from year *t*-1 to year *t*;
ISSUE	an indicator variable equal to 1 if a firm issued new equity or debt during year t, and 0 otherwise;
LEVERAGE	a firm's total liabilities scaled by total assets in year *t*;
LIT	an indicator variable equal to 1 if SIC code is 2833–2836, 3570–3577, 7370–7374, 3600–3674, 5200–5961, and 0 otherwise;
LOSS	an indicator variable equal to 1 if a client has negative net income, and 0 otherwise;
MB	market value of equity to book value of equity;
MW	an indicator variable set equal to 1 if the firm received a material weakness in year *t*;
MW_{t-1}	an indicator variable set equal to 1 if the firm received a material weakness in year *t*-1;
NAS	the total nonaudit fees charged to a client during year *t* scaled by the total amount of audit and nonaudit fees charged to the client;
NON_AUDIT_FEES	the total amount of nonaudit fees charged to a client by their external auditor in year *t*. This variable is log-transformed in all regression analyses;
OFFICE_SIZE	the total number of clients audited by an auditor office during year *t*;
ROA	earnings before extraordinary items divided by total assets;
SEC_FAR	an indicator variable equal to 1 if a client's headquarters are not located in the same Metropolitan Statistical Area as a Securities and Exchange Commission regional office, and 0 otherwise.
SIZE	a firm's total assets in year *t*. This variable is log-transformed in all regression analyses.
TOT_ACC_SC	the value of a firm's net income less cash flows from operations, all scaled by total assets in year t.
$TOT\_ACC\_SC_{t-1}$	the value of a firm's net income less cash flows from operations in *t*-1, all scaled by total assets in year *t*-1;

TABLES

TABLE 1
Sample Construction

Sample for Private ISP Analysis	Restatement Sample	Accruals Sample
Audit Analytics and Compustat observations in the U.S. from fiscal year 2000 (2003 for Restatement Sample) to 2015 with nonmissing fees, MSA codes, and SIC codes	73,435	89,456
Less: Observations with missing values of model variables	(17,199)	(28,467)
Less: Financial and regulated firms	(13,726)	(15,512)
Less: Observations with non-Big 4 auditors	(13,026)	(13,548)
Less: MSA-industry-fiscal year combinations less than 3 observations	(13,017)	(10,736)
Final Sample for Table 3 and 4	**16,467**	**21,193**

Sample for Public and Private ISP Analysis	Restatement Sample	Accruals Sample
Audit Analytics and Compustat observations in the U.S. from fiscal year 2000 (2003 for Restatement Sample) to 2015 with nonmissing fees, MSA codes, and SIC codes	73,435	89,456
Less: Observations with missing values of model variables	(17,199)	(28,467)
Less: Financial and regulated firms	(13,726)	(15,512)
Less: Observations with non-Big 4 auditors	(13,026)	(13,548)
Less: MSA-industry-fiscal year combinations less than 3 observations	(6,060)	(2,421)
Final Sample for Table 7 and 8 (Column 3)	**23,424**	**29,508**
Less: MSA-industry-fiscal year combinations without Private Companies	(3,113)	(3,749)
Final Sample for Table 7 and 8 (Column 1)	**20,311**	**25,759**

Sample for Public ISP Analysis	Restatement Sample	Accruals Sample
Audit Analytics and Compustat observations in the U.S. from fiscal year 2000 (2003 for Restatement Sample) to 2015 with nonmissing fees, MSA codes, and SIC codes	73,435	89,456
Less: Observations with missing values of model variables	(17,199)	(28,467)
Less: Financial and regulated firms	(13,726)	(15,512)
Less: Observations with non-Big 4 auditors	(13,026)	(13,548)
Less: MSA-industry-fiscal year combinations less than 3 observations	(9,891)	(7,196)
Final Sample for Table 7 and 8 (Column 4)	**19,593**	**24,733**
Less: MSA-industry-fiscal year combinations without Private Companies	(3,109)	(3,749)
Final Sample for Table 7 and 8 (Column 2)	**16,484**	**20,984**

TABLE 2

Descriptive Statistics

Panel A: Incidence of Private Client Industry Expertise by Audit Firm (N=18,526)

	PRIV_NATIONAL_EXP		***PRIV_CITY_EXP***	
Audit Firm	**N**	**%**	**N**	**%**
Deloitte	619	20.7%	699	27.1%
EY	1,416	47.4%	788	30.6%
KPMG	334	11.2%	523	20.3%
PwC	620	20.7%	562	21.8%
Arthur Anderson	0	0.0%	6	0.2%
Total	2,989	100%	2,578	100%

Panel B: Summary Statistics for the Misstatements Sample

Variable	N	Mean	STD	P25	P50	P75
MISSTATE	16,467	0.117	0.321	0.000	0.000	0.000
PRIV_NATIONAL_EXP	16,467	0.119	0.324	0.000	0.000	0.000
PRIV_CITY_EXP	16,467	0.116	0.320	0.000	0.000	0.000
PRIV_NATIONAL_EXP_ONLY	16,467	0.092	0.290	0.000	0.000	0.000
PRIV_CITY_EXP_ONLY	16,467	0.089	0.285	0.000	0.000	0.000
BOTH_PRIV_CITY_NAT_EXP	16,467	0.027	0.162	0.000	0.000	0.000
LEVERAGE	16,467	0.203	0.221	0.003	0.151	0.318
TOT_ACC_SC	16,467	-0.072	0.113	-0.100	-0.054	-0.020
MB	16,467	3.068	5.081	1.312	2.171	3.703
ROA	16,467	-0.020	0.209	-0.026	0.037	0.077
LOSS	16,467	0.316	0.465	0.000	0.000	1.000
SIZE	16,467	6.524	1.826	5.260	6.440	7.755
ISSUE	16,467	0.946	0.226	1.000	1.000	1.000
CH_INVENTORY	16,467	0.044	0.343	-0.087	0.003	0.107
CH_NET_INCOME	16,467	-0.117	4.091	-0.671	-0.010	0.395
CH_EMPLOYEES	16,467	-0.060	0.330	-0.119	-0.026	0.065
MW	16,467	0.057	0.231	0.000	0.000	0.000
MW_{t-1}	16,467	0.045	0.207	0.000	0.000	0.000
AUDIT_FEES	16,467	14.044	1.128	13.296	14.006	14.766
NON_AUDIT_FEES	16,467	11.467	3.370	10.888	12.183	13.282
AUDITOR_CHG	16,467	0.028	0.166	0.000	0.000	0.000
NAS	16,467	0.181	0.156	0.056	0.146	0.269
SEC_FAR	16,467	0.448	0.497	0.000	0.000	1.000
OFFICE_SIZE	16,467	70.897	79.435	18.000	38.000	83.000

TABLE 2 (Continued)

Panel C: Summary Statistics for the Discretionary Accruals Sample

Variable	N	Mean	STD	P25	P50	P75
ABS_ACCRUALS	21,193	0.084	0.109	0.023	0.052	0.103
PRIV_NATIONAL_EXP	21,193	0.141	0.348	0.000	0.000	0.000
PRIV_CITY_EXP	21,193	0.122	0.327	0.000	0.000	0.000
PRIV_NATIONAL_EXP_ONLY	21,193	0.108	0.311	0.000	0.000	0.000
PRIV_CITY_EXP_ONLY	21,193	0.089	0.285	0.000	0.000	0.000
BOTH_PRIV_CITY_NAT_EXP	21,193	0.033	0.178	0.000	0.000	0.000
LEVERAGE	21,193	0.201	0.222	0.002	0.144	0.319
$TOT\_ACC\_SC_{t-1}$	21,193	-0.089	0.175	-0.111	-0.058	-0.020
MB	21,193	2.953	4.916	1.208	2.063	3.600
ROA	21,193	-0.053	0.303	-0.049	0.031	0.073
LOSS	21,193	0.360	0.480	0.000	0.000	1.000
SIZE	21,193	6.268	1.898	4.977	6.199	7.565
CFO_VOL	21,193	0.070	0.098	0.020	0.039	0.077
LIT	21,193	0.469	0.499	0.000	0.000	1.000
CASHFLOW	21,193	0.055	0.189	0.020	0.085	0.145

See Appendix A for all variable definitions.

TABLE 3
Auditor Private Client Industry Expertise and Misstatements

	DV = *MISSTATE*		
Variables	(1)	(2)	(3)
PRIV_NATIONAL_EXP	**-0.197****		
	[-1.865]		
PRIV_CITY_EXP		**-0.285*****	
		[-2.652]	
PRIV_NATIONAL_EXP_ONLY			-0.119
			[-1.025]
PRIV_CITY_EXP_ONLY			-0.205*
			[-1.702]
BOTH_PRIV_CITY_NAT_EXP			**-0.640*****
			[-2.991]
LEVERAGE	0.402**	0.391**	0.392**
	[2.321]	[2.259]	[2.264]
TOT_ACC_SC	-0.491	-0.504	-0.501
	[-1.452]	[-1.489]	[-1.479]
MB	-0.016***	-0.016***	-0.015***
	[-2.984]	[-2.986]	[-2.929]
ROA	0.682***	0.691***	0.686***
	[2.819]	[2.856]	[2.831]
LOSS	0.226***	0.226***	0.224***
	[2.659]	[2.655]	[2.632]
SIZE	0.087*	0.087**	0.087*
	[1.959]	[1.965]	[1.957]
ISSUE	0.287**	0.294**	0.290**
	[1.968]	[2.010]	[1.983]
CH_INVENTORY	-0.023	-0.025	-0.024
	[-0.292]	[-0.312]	[-0.310]
CH_NET_INCOME	0.002	0.002	0.002
	[0.303]	[0.303]	[0.323]
CH_EMPLOYEES	0.105	0.104	0.104
	[1.142]	[1.130]	[1.138]
MW	1.139***	1.148***	1.144***
	[11.501]	[11.598]	[11.552]
MW_{t-1}	-0.025	-0.025	-0.027
	[-0.174]	[-0.180]	[-0.193]
AUDIT_FEES	-0.074	-0.074	-0.072
	[-1.056]	[-1.059]	[-1.034]
NON_AUDIT_FEES	0.002	0.001	0.002
	[0.103]	[0.091]	[0.105]
AUDITOR_CHG	-0.195	-0.205	-0.200
	[-1.216]	[-1.277]	[-1.242]
NAS	0.268	0.273	0.275
	[0.957]	[0.975]	[0.981]
SEC_FAR	-0.186**	-0.179**	-0.177**
	[-2.166]	[-2.084]	[-2.064]

TABLE 3 (Continued)

OFFICE_SIZE	-0.001	-0.001	-0.001
	[-1.222]	[-1.230]	[-1.170]
INTERCEPT	-1.454*	-1.440*	-1.427*
	[-1.825]	[-1.808]	[-1.792]
Observations	16,467	16,467	16,467
Pseudo R2	0.051	0.051	0.052
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes

***, **, * indicates significance at the 0.01, 0.05, and 0.10 levels, respectively, using one-tailed tests on predicted test variables and two-tailed tests on all other variables. Standard errors are clustered at the client level. I present exact z-statistics in parentheses for test variables. See Appendix A for all variable definitions.

TABLE 4
Auditor Private Client Industry Expertise and Discretionary Accruals

	DV = *ABS_ACCRUALS*		
Variables	(1)	(2)	(3)
PRIV_NATIONAL_EXP	**-0.004****		
	[-2.036]		
PRIV_CITY_EXP		**-0.005****	
		[-2.523]	
PRIV_NATIONAL_EXP_ONLY			-0.004
			[-1.568]
PRIV_CITY_EXP_ONLY			-0.004**
			[-1.983]
BOTH_PRIV_CITY_NAT_EXP			**-0.008****
			[-2.388]
LEVERAGE	0.005	0.005	0.005
	[1.185]	[1.173]	[1.172]
TOT_ACC_SC$_{t-1}$	-0.015*	-0.015*	-0.015*
	[-1.775]	[-1.756]	[-1.783]
MB	0.000**	0.000**	0.000**
	[2.230]	[2.236]	[2.232]
ROA	-0.140***	-0.139***	-0.140***
	[-14.240]	[-14.219]	[-14.231]
LOSS	0.020***	0.020***	0.020***
	[7.866]	[7.868]	[7.867]
SIZE	-0.002***	-0.002***	-0.002***
	[-4.125]	[-4.085]	[-4.114]
CFO_VOL	0.225***	0.225***	0.225***
	[10.709]	[10.688]	[10.700]
LIT	0.010***	0.010***	0.010***
	[6.671]	[6.706]	[6.566]
CASHFLOW	0.113***	0.113***	0.113***
	[8.517]	[8.501]	[8.518]
INTERCEPT	0.054***	0.054***	0.054***
	[12.363]	[12.308]	[12.419]
Observations	21193	21193	21193
Adjusted R2	0.248	0.248	0.248

***, **, * indicates significance at the 0.01, 0.05, and 0.10 levels, respectively, using one-tailed tests on predicted test variables and two-tailed tests on all other variables. Standard errors are clustered at the client level. I present exact t-statistics in parentheses for test variables. See Appendix A for all variable definitions.

TABLE 5
Comparison of Public Only Measure and Private and Public Measure

Industry	N	Public Only Measure	Public and Private Measure	% Diff
ALL	29,508	7,606	8,728	20%
1	25	9	9	0%
10	98	50	26	43%
12	58	39	29	28%
13	1387	151	146	0%
14	13	6	1	54%
15	172	108	108	0%
16	16	13	13	0%
17	30	9	11	27%
20	742	269	355	27%
22	39	15	13	5%
23	178	73	73	0%
24	59	5	14	19%
25	103	6	50	49%
26	276	59	170	42%
27	415	74	172	31%
28	4124	1561	1588	16%
29	179	41	78	23%
30	275	98	99	40%
31	75	17	11	32%
32	161	53	96	40%
33	436	128	194	30%
34	386	115	140	21%
35	2198	701	792	17%
36	3138	592	568	18%
37	830	239	345	26%
38	2478	780	873	14%
39	300	66	69	30%
40	6	0	3	50%
42	256	35	139	45%
50	823	262	258	33%
51	468	113	173	30%
53	38	21	21	0%
54	119	14	49	38%
55	243	11	127	54%
56	408	138	180	28%
57	141	49	77	34%
58	546	144	233	30%
59	742	205	209	30%
70	98	30	54	37%
72	83	27	32	20%
73	5139	722	580	14%
75	2	0	1	50%
78	129	33	21	37%
79	376	112	104	32%
80	729	189	212	25%
82	113	64	64	0%
83	23	0	2	9%
87	835	160	146	24%

Note: This table presents the comparison between the city specialist measure constructed using public data only and the measure using public and private data. Industry is based on two-digit SIC code. The *% Diff* represents the percentage of firm-year observations where the two measures reach different conclusions.

TABLE 6
Descriptive Statistics

Panel A: Incidence of Private and Public Client Industry Expertise and Public Client Industry Expertise by Audit Firm

	PRIVATE_PUBLIC_CITY_EXP **(N=29,508)**		***PUBLIC_CITY_EXP*** **(N=24,733)**	
Audit Firm	**N**	**%**	**N**	**%**
Deloitte	1551	17.8%	1280	41.6%
EY	3509	40.2%	3162	16.8%
KPMG	1289	14.8%	953	12.5%
PwC	2277	26.1%	2113	27.8%
Arthur Anderson	102	1.2%	98	1.3%
Total	8728	100%	7606	100%

Panel B: Summary Statistics for the Misstatements Sample

Variable	N	Mean	STD	P25	P50	P75
MISSTATE	23,424	0.113	0.317	0.000	0.000	0.000
PUBLIC_CITY_EXP	19,593	0.321	0.467	0.000	0.000	1.000
PRIVATE_PUBLIC_CITY_EXP	23,424	0.306	0.461	0.000	0.000	1.000
LEVERAGE	23,424	0.207	0.222	0.004	0.159	0.323
TOT_ACC_SC	23,424	-0.075	0.124	-0.103	-0.055	-0.020
MB	23,424	3.074	4.986	1.298	2.161	3.703
ROA	23,424	-0.038	0.244	-0.042	0.035	0.076
LOSS	23,424	0.336	0.472	0.000	0.000	1.000
SIZE	23,424	6.495	1.848	5.207	6.442	7.763
ISSUE	23,424	0.945	0.228	1.000	1.000	1.000
CH_INVENTORY	23,424	0.052	0.408	-0.092	0.000	0.110
CH_NET_INCOME	23,424	-0.135	3.867	-0.662	-0.013	0.402
CH_EMPLOYEES	23,424	-0.066	0.358	-0.127	-0.027	0.067
MW	23,424	0.054	0.226	0.000	0.000	0.000
MW_{t-1}	23,424	0.043	0.203	0.000	0.000	0.000
AUDIT_FEES	23,424	13.995	1.115	13.255	13.952	14.710
NON_AUDIT_FEES	23,424	11.271	3.519	10.699	12.059	13.194
AUDITOR_CHG	23,424	0.028	0.166	0.000	0.000	0.000
NAS	23,424	0.174	0.155	0.051	0.137	0.259
SEC_FAR	23,424	0.502	0.500	0.000	1.000	1.000
OFFICE_SIZE	23,424	65.140	75.899	16.000	37.000	75.000

TABLE 6 (Continued)

Panel C: Summary Statistics for the Discretionary Accruals Sample

Variable	N	Mean	STD	P25	P50	P75
ABS_ACCRUALS	29,508	0.086	0.114	0.023	0.051	0.102
PUBLIC_CITY_EXP	24,733	0.317	0.465	0.000	0.000	1.000
PRIVATE_PUBLIC_CITY_EXP	29,508	0.296	0.456	0.000	0.000	1.000
LEVERAGE	29,508	0.207	0.223	0.004	0.155	0.326
$TOT\_ACC\_SC_{t-1}$	29,508	-0.086	0.162	-0.112	-0.058	-0.020
MB	29,508	2.982	4.916	1.208	2.073	3.617
LOSS	29,508	0.370	0.483	0.000	0.000	1.000
SIZE	29,508	6.271	1.903	4.952	6.222	7.591
ROA	29,508	-0.062	0.300	-0.063	0.029	0.073
CFO_VOL	29,508	0.077	0.116	0.021	0.041	0.082
LIT	29,508	0.433	0.496	0.000	0.000	1.000
CASHFLOW	29,508	0.041	0.221	0.012	0.084	0.146

See Appendix A for all variable definitions

TABLE 7

Auditor Private and Public Client City Industry Expertise vs. Public Client City Industry Expertise and Misstatements

	DV = *MISSTATE*			
Variables	(1)	(2)	(3)	(4)
PRIVATE_PUBLIC_CITY_EXP	**-0.173****		**-0.169****	
	[-2.286]		**[-2.404]**	
PUBLIC_CITY_EXP		**-0.098**		**-0.110**
		[-1.276]		**[-1.530]**
LEVERAGE	0.494***	0.629***	0.491***	0.604***
	[3.184]	[3.719]	[3.347]	[3.828]
TOT_ACC_SC	-0.514*	-0.735**	-0.323	-0.504*
	[-1.729]	[-2.294]	[-1.167]	[-1.702]
MB	-0.015***	-0.010**	-0.014***	-0.010**
	[-2.904]	[-2.220]	[-2.713]	[-2.128]
ROA	0.681***	0.889***	0.504**	0.664***
	[3.194]	[3.841]	[2.536]	[3.115]
LOSS	0.188**	0.216**	0.164**	0.187**
	[2.476]	[2.523]	[2.313]	[2.383]
SIZE	0.062	0.046	0.073*	0.061
	[1.557]	[1.026]	[1.929]	[1.454]
ISSUE	0.173	0.193	0.133	0.136
	[1.373]	[1.325]	[1.144]	[1.029]
CH_INVENTORY	-0.021	-0.015	-0.040	-0.035
	[-0.331]	[-0.262]	[-0.737]	[-0.665]
CH_NET_INCOME	-0.004	-0.006	-0.003	-0.004
	[-0.727]	[-0.899]	[-0.537]	[-0.691]
CH_EMPLOYEES	0.107+	0.120+	0.051	0.054
	[1.305]	[1.387]	[0.717]	[0.727]
MW	1.109***	1.076***	1.160***	1.141***
	[12.335]	[10.872]	[13.897]	[12.633]
MW_{t-1}	0.002	0.026	-0.002	0.013
	[0.017]	[0.191]	[-0.017]	[0.103]
AUDIT_FEES	-0.033	-0.063	-0.038	-0.063
	[-0.525]	[-0.870]	[-0.630]	[-0.933]
NON_AUDIT_FEES	0.004	0.011	0.009	0.016
	[0.300]	[0.777]	[0.770]	[1.265]
AUDITOR_CHG	-0.151	-0.107	-0.129	-0.092
	[-1.056]	[-0.665]	[-0.976]	[-0.628]
NAS	0.247	0.096	0.266	0.137
	[0.990]	[0.345]	[1.141]	[0.534]
SEC_FAR	-0.160**	-0.151*	-0.202***	-0.203**
	[-2.061]	[-1.740]	[-2.790]	[-2.533]
OFFICE_SIZE	-0.001	-0.001	-0.001	-0.001
	[-1.401]	[-1.265]	[-1.445]	[-1.277]

TABLE 7 (Continued)

INTERCEPT	-1.783**	-1.069	-1.322	-1.031
	[-2.460]	[-1.361]	[-1.513]	[-1.124]
Observations	20,311	16,484	23,424	19,593
Pseudo R2	0.056	0.057	0.057	0.058
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes

***, **, * indicates significance at the 0.01, 0.05, and 0.10 levels, respectively, using one-tailed tests on predicted test variables and two-tailed tests on all other variables. Standard errors are clustered at the client level. I present exact z-statistics in parentheses for test variables. See Appendix A for all variable definitions.

TABLE 8

Auditor Private and Public Client City Industry Expertise vs. Public Client City Industry Expertise and Discretionary Accruals

	DV = *ABS_ACCRUALS*			
Variables	(1)	(2)	(3)	(4)
PRIVATE_PUBLIC_CITY_EXP	**-0.005*** **		**-0.005*** **	
	[-3.013]		**[-3.610]**	
PUBLIC_CITY_EXP		**-0.002**		**-0.003** **
		[-1.144]		**[-2.130]**
LEVERAGE	0.003	0.006	0.008**	0.012***
	[0.636]	[1.197]	[2.044]	[2.650]
TOT_ACC_SC$_{t-1}$	-0.025***	-0.027***	-0.032***	-0.036***
	[-3.054]	[-3.019]	[-4.084]	[-4.240]
MB	0.000**	0.000**	0.001***	0.001***
	[2.543]	[2.286]	[2.988]	[2.715]
ROA	-0.131***	-0.125***	-0.128***	-0.120***
	[-14.273]	[-13.119]	[-14.864]	[-13.435]
LOSS	0.017***	0.017***	0.017***	0.017***
	[7.502]	[6.618]	[7.936]	[7.112]
SIZE	-0.002***	-0.002***	-0.002***	-0.002***
	[-3.644]	[-2.799]	[-3.795]	[-3.075]
CFO_VOL	0.231***	0.210***	0.239***	0.221***
	[12.656]	[11.057]	[15.236]	[13.752]
LIT	0.011***	0.012***	0.009***	0.010***
	[7.255]	[7.363]	[6.258]	[6.231]
CASHFLOW	0.092***	0.076***	0.095***	0.080***
	[7.278]	[5.695]	[8.375]	[6.630]
INTERCEPT	0.053***	0.053***	0.051***	0.052***
	[13.544]	[12.368]	[14.348]	[13.324]
Observations	25,759	20,984	29,508	24,733
Adjusted R2	0.236	0.231	0.230	0.224

***, **, * indicates significance at the 0.01, 0.05, and 0.10 levels, respectively, using one-tailed tests on predicted test variables and two-tailed tests on all other variables. Standard errors are clustered at the client level. I present exact t-statistics in parentheses for test variables. See Appendix A for all variable definitions.