Associations, Networks, and Alliances: Equipping Small Audit Firms with Big Resources

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Draft: January 2014

We thank Nate Cannon, Cory Cassell, Brant Christensen, Jacob Haislip, James Hansen, James Myers, Adam Olson, Gary Peters, workshop participants at the University of Arkansas, and those in attendance at the 2013 BYU Accounting Symposium for helpful comments and suggestions. We also thank Dillon Mathews and Kellen Polley for assisting with data collection. Linda Myers gratefully acknowledges financial support from the Garrison/Wilson Chair at the University of Arkansas.

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ABSTRACT

In this study, we examine the benefits of membership in an accounting firm association, network, or alliance (collectively referred to as 'an association'). Associations provide member accounting firms with access to the expertise of professionals from other member firms, joint conferences and technical trainings, assistance in developing niche practices, and assistance in dealing with staffing and geographic limitations. We expect these benefits to result in higher quality audits and higher audit fees (or audit fee premiums). Using a sample of small audit firms and hand-collected data on association memberships, we find that member firms conduct higher quality audits than nonmember firms, where audit quality is proxied for by Public Company Accounting Oversight Board inspection deficiencies, misstatements, absolute discretionary accruals, and positive discretionary accruals. We also find that audit fees are higher for clients of member firms than for clients of nonmember firms, suggesting that clients are willing to pay an audit fee premium to engage association member audit firms. Finally, we find that member firm audits are of similar quality to Big 4 audits, but member firm clients pay lower fee premiums than Big 4 clients. Our findings should be of interest to regulators when evaluating resource constraints at small audit firms because they suggest that association membership might assist small audit firms in overcoming barriers to auditing large audit clients. In addition, our findings should be of interest to audit committees when making auditor selection decisions, and to investors and accounting researchers when using audit firm identity as a signal of audit quality.

1. Introduction

Regulators often debate the sufficiency of competition in the audit market (e.g., GAO 2003; SEC 2005; GAO 2008; PCAOB 2011), charging that audit market concentration could reduce incentives for the leading audit firms to provide "high quality and innovative" audit services (ACAP 2008, VIII: 2-3). To address this concern, the *Advisory Committee on the Auditing Profession to the U.S. Department of the Treasury* (ACAP) recommends that regulators take actions to enable small audit firms to become viable suppliers of large company audits (ACAP 2008). Testimony provided to the ACAP suggests that small audit firms are restricted in their ability to audit large public companies because "companies with operations in multiple countries need auditing firms with global resources and technical and industry expertise to deal with an increasingly complex business and financial reporting environment" (ACAP 2008, VIII: 2).

Large accounting firms offer their audit teams national access to technical accounting consultants, staff in multiple locations, and audit efficiencies resulting from unified nationwide training. These firms can charge a fee premium and can offer their clients additional resources in the form of up-to-date, nationally-prepared technical accounting bulletins, as well as expert recommendations on accounting and reporting matters which are based on their experience with a large portfolio of other clients in a variety of industries. In this paper, we examine whether small audit firm membership in an accounting firm association, network, or alliance (which we collectively refer to as 'an association') affects audit quality and audit pricing because the benefits provided by accounting firm associations (e.g., technical resources and international staff exchanges) could allow small audit firms to offer services similar to those offered by larger audit firms.

Accounting firm associations are autonomous organizations in which all audit firm members are independent in legal name and legal structure. Thus, their audit opinions carry their individual audit firm names (rather than the association name) and their legal liability cannot be passed onto other members of the association. For example, *Meaden & Moore* and *Rothstein Kass & Company PC* are independent audit firm members of the association *AGN International*, and each signs its respective name when opining on financial statements. Association members pay annual fees, ranging from a few thousand dollars to a hundred thousand dollars per year, to belong to an association, and these fees are typically set as a flat amount, a percentage of audit revenues, or both. In return, members can access resources provided by the association itself and by other association members. These resources can include expertise on technical accounting matters, joint training opportunities, recommendations about best practices, and benchmarking data, as well as access to a network of reliable audit firms that can be used to outsource audit work. In addition to access to resources, association membership provides member audit firms with a brand that can be used for marketing purposes. For example, *Meaden & Moore* state on their website:[1]

> As a member of AGN International, Meaden & Moore is directly connected to a worldwide network of accounting and business management experts. Our employees hold leadership positions within the organization, and they actively participate in the organization's worldwide programs. Through AGN International, we consult and partner with more than 200 independent accounting and consulting firms that share our goal—provide the highest level of service and expertise to our clients.

Although small audit firms performed approximately 50 percent of all public company audits completed from 2000 through 2012, they have received little attention in the academic

[1] Retrieved on January 6, 2014 from http://www.meadenmoore.com/AboutUs/AGN.html.

literature.[2] Most research that distinguishes between large (typically, Big N) and small audit firms focus on differences between these groups. This research finds that the small audit firm market is more competitive than the large audit firm market (e.g., Simunic 1980; Ghosh and Lustgarten 2006),[3] and suggests that small audit firms provide lower quality audits (DeFond and Jiambalvo 1991; Teoh and Wong 1993; Becker et al. 1998; Nelson et al. 2002; Hammersley et al. 2008; Lennox and Pittman 2010). We contribute to this literature by providing evidence about differences *amongst* small audit firms.

Understanding differences in audit quality within the small audit firm market segment is important because small audit firms are important for competition in the audit industry.[4] In response to increased regulation and litigation risk resulting from the collapse of *Arthur Andersen LLP* and the enactment of SOX, Big 4 auditors dropped higher-risk clients from their portfolios, causing a shift in demand towards second-tier and small audit firms (Hogan and Martin 2009; Chang et al. 2010; Cassell et al. 2012, 2013). At the same time, lower-quality small audit firms exited the public audit market, further constraining the supply of audit firms (Read et al. 2004; DeFond and Lennox 2011).

Because accounting firm associations provide access to resources that would otherwise be unavailable to small audit firms, we expect audit quality to be higher for clients of association-member audit firms than for clients of nonmember firms, and we expect clients to pay a premium to engage small auditors that belong to an accounting association (relative to

[2] Using the sample of audit opinions available from the Audit Analytics database from 2000 through 2012, we find that approximately 40 percent of public company audits were performed by non-Big N auditors in 2000 versus 57 percent in 2008 and 53 percent in 2012.

[3] Specifically, Ghosh and Lustgarten (2006) find more initial year audit fee discounting in their small audit firm sample than in their large audit firm sample. They argue, "[g]iven that price competition is known to be less intense in oligopolistic markets than in atomistic markets, we believe that market structure theory can explain why fee discounting is lower when larger audit firms compete for clients" (Ghosh and Lustgarten 2006, 333).

[4] In addition, investor confidence in small audit firms has increased following the enactment of the Sarbanes-Oxley Act of 2002 (SOX) (Chang et al. 2010).

those that are not association members).[5] We hand collect association membership lists from 2010 through 2012 and manually match the association member names from these lists to audit firm names in the Audit Analytics Opinions database. When comparing audit quality and fees of member firms with those of nonmember firms, we exclude the Big 4 audit firms because these firms maintain their own international networks and all of their U.S. offices operate as part of one legal entity. We also exclude second-tier audit firms (i.e., those that are annually inspected by the Public Company Accounting Oversight Board (PCAOB)) as well as audit firms that are the 'parents' of their own accounting associations (e.g., *Baker Tilly International*, *BDO Alliance*, *Grant Thornton International*, etc.).[6] Even after removing these larger audit firms and association 'parents', the remaining firms audit between 44.1 and 45.7 percent annually of all public companies in Audit Analytics during our sample period (2010 through 2012).

To determine whether the audit quality provided by association-member audit firms is higher than that provided by nonmember firms, we compare the PCAOB inspection findings for association-member firms with those for nonmember firms and we compare misstatement rates and discretionary accruals of association-member firm clients with those of nonmember firm clients. Using PCAOB inspection reports for small audit firms in our sample, 45 percent of which are association members, we find that member firms are less likely to receive accounting-related deficiencies (i.e., those relating to the client's application of Generally Accepted

[5] While we characterize any positive association between audit fees and association membership as a 'fee premium,' we recognize that a complementary explanation is that clients of association-member audit firms demand additional audit services. This argument is consistent with prior literature (e.g., Carcello et al. 2002; Abbott et al. 2003; Cao et al. 2012) that uses audit fees to proxy for the demand for audit services. Auditors respond to this increased demand with additional audit effort, which increases audit fees as well as the level of assurance provided. Note that a "distinguishing feature of audit fees… is that they are the outcome of both supply and demand factors. Auditors cannot unilaterally charge higher fees for additional effort unless there is a corresponding increase in client demand for the additional effort" (DeFond and Zhang 2013, 28).

[6] For example, we include all of the members of the association *Baker Tilly International* but exclude the audit firm *Baker Tilly* (after which the association is named). Note that not all associations have a 'parent' audit firm (e.g., *AGN International*, *DFK International*, and *The Leading Edge Alliance*).

Accounting Principles (GAAP)) and audit-related deficiencies (i.e., those based on audit methodology issues related to Generally Accepted Auditing Standards (GAAS)) than nonmember firms. Using a sample of small audit firm clients, 68 to 69 percent of which engage an association-member audit firm, we find that clients of member firms report fewer misstatements, less extreme absolute discretionary accruals, and lower positive discretionary accruals than do clients of nonmember firms. Moreover, these results are robust to the use of smaller samples of client size-matched observations and of audit firm size-matched observations. Collectively, these results suggest that small audit firms that belong to an accounting firm association provide higher quality audits than do small audit firms that are not association members.

Because our study is motivated in part by calls to increase audit firm competition through the use of small audit firms to audit larger clients (ACAP 2008), we next compare the audit quality provided by member firms, Big 4 audit firms, and nonmember firms. Here we find that both association member clients and Big 4 clients report less extreme absolute discretionary accruals than do nonmember clients, and after matching on client size, we find that the probability of misstating annual financial statements and the absolute value of the discretionary accruals of member clients and Big 4 clients are similar. In addition, because ACAP (2008) specifically discusses the need to increase the supply of audit firms available to audit large public companies, we further restrict our sample to member clients in the largest size quartile and size-matched Big 4 clients. We continue to find that the probability of misstatement and the absolute value of discretionary accruals of member clients and Big 4 clients are similar. Collectively, these results suggest that association membership can provide small audit firms with access to the resources needed to provide high quality audits to large public companies.

To determine whether clients are willing to pay a fee premium to engage small auditors that belong to accounting associations, we compare the audit fees paid by association-member audit firm clients with those paid by nonmember firm clients. Using a sample of small audit firm clients, 66 percent of which are audited by association-member audit firms, and after controlling for other factors that affect audit pricing, we find that association member clients pay significantly higher audit fees than do nonmember firm clients. To determine whether this fee premium is comparable to the Big 4 premium documented in prior literature (Simunic 1980; Palmrose 1986; Francis and Simon 1987; Ettredge and Greenberg 1990; Ettredge et al. 2007), we also compare the audit fees paid by member firm clients and nonmember clients with those paid by Big 4 clients. Here we find that association member clients pay more than nonmember clients, but still pay less than Big 4 clients. Again, our inferences are robust to the use of smaller samples of client size-matched observations and of audit firm size-matched observations.

Our findings contribute to prior literature in several ways. First, we provide institutional evidence about the practice of association membership amongst small audit firms. Second, we contribute to the literature on audit market competition by providing evidence on the effects of a competitive factor that is unique to small audit firms – membership in an accounting firm association. Third, we contribute to the audit quality literature by providing information about an important determinant of the level of audit quality provided by small audit firms and we link this to the resources provided by association membership. Understanding the benefits of association membership is important as regulators search for ways to assist small audit firms in better serving large audit clients (ACAP 2008), and our findings suggest that association membership could provide small audit firms with the resources to do this. Finally, our findings

should be of interest to audit committees when making auditor selection decisions, and to investors when using audit firm identity as a signal of audit quality.

We discuss the institutional features of accounting firm associations and develop our predictions in Section 2. Section 3 describes our sample and research design. We present our results in Section 4, and conclude with a summary and discussion in Section 5.

2. Background and Development of Predictions

Resource dependency theory suggests that companies enter into business alliances to overcome competitive barriers that exist because of insufficient resources at the company level (Pfeffer and Salancik 1978). Accounting firm associations provide small audit firms with an opportunity to overcome resource constraints by providing them with access to the resources of other association members and of the association itself. These resources can assist member audit firms with audit inputs (e.g., technical skills and staffing), help them to gain visibility with potential audit clients, and improve quality control.

CCH publishes an annual listing of association members, along with details about membership counts and the costs of membership.[7] In Table 1, we use the services data from CCH (2011) to categorize the key resources available to association members and provide the percentage of associations that offer these respective resources. More than 50 percent of associations provide member conferences and meetings, members' only intranet, networking and information exchanges, continuing professional education, assistance in developing niche areas,

[7] According to its website (http://www.cch.com/), *CCH* is a part of *Wolters Kluwer* and is a leading provider of customer-focused tax, accounting, and audit information, as well as software and services for professionals in accounting firms and corporations.

special interest group podcasts, webcasts, and teleconferences, international staff exchange programs, general client newsletters, and international referrals.

Member conferences and meetings, members' only intranet, and networking exchanges provide members with opportunities to learn 'best practices' from other member firms and to gain quick access to resources from outside of the firm. Continuing professional education, technical manuals, and software tools provide additional training and access to technical solutions that may not be available locally. These resources are disseminated from either the association or from other members. For example, Glenn Wallmark, a Partner at *Lucas Horsfall Murphy & Pindroh*, states, "[o]ne of the most important aspects of MSI [Global Alliance] membership is the resource base it provides. The fact that you can pick up the phone and call around the US and around the globe to get a question answered is a tremendous benefit. For those of us who used to be part of international firms, this one factor really makes me feel as connected as ever."[8] In addition, according to our discussions with the managing partner of a firm that belongs to *PKF North America*, her firm regularly participates in association-wide training to learn about 'best practices' and to gain expertise. It also uses the association's intranet, daily emails, and monthly conference calls to get immediate feedback on current audit or tax issues and to fulfill staffing needs.

Niche client newsletters and special interest group podcasts, webcasts, and teleconferences allow member firms to access and disseminate information about current issues unique to specific industries or market segments. International staff exchange programs allow local member firms to service clients with international operations, and recruiting assistance

[8] Retrieved on January 6, 2014 from *MSI Global*'s website (http://www.msiglobal.org/about-msi-global-alliance/testimonials/Accountants). Also see "The net worth of your network" in *AccountingToday.com* (August 1, 2013).

helps member firms attract employees. International referrals provide access to growth opportunities, and client newsletters and proprietary research increase brand awareness for member firms and for the association. Finally, formal peer review programs offer unique opportunities to strengthen the ongoing quality control efforts of member firms.

The resources provided by association membership allow member firms to overcome resource constraints that could otherwise prevent small audit firms from auditing large public companies. According to the ACAP, a key reason for competition problems in the audit industry is that small audit firms are generally ill-equipped to handle large public company audits (ACAP 2008, VIII: 4):

> The Committee considered testimony regarding the reasons that smaller auditing firms are unable or unwilling to enter the large public company audit market. Challenges facing these firms' entry into this market typically include the following: lack of staffing and geographic limitations on both the physical span of their practices and experience and expertise with global auditing complexities; inability to create global networks necessary to serve global clients, due to lack of auditing firms abroad to act as potential partners; the need for greater technical capability and industry specialization; lack of name recognition and reputation; and limited access to capital.

Association benefits such as international staff exchanges, access to technical resources from other association members, assistance in developing niche areas, and efforts by the association to increase brand awareness assist member firms in overcoming these barriers. For example, *Machen, McChesney & Chastain*'s website states (emphasis added):[9]

> In November 2001, Machen, McChesney & Chastain became an independent member of the BDO Seidman Alliance. This Alliance is a nationwide association of independently owned local and regional accounting firms that share a dedication to exemplary client service. *As a member of this alliance, the firm has expanded capabilities and is qualified to provide all of the services offered by any major international accounting firm.*

[9] Retrieved on January 6, 2014 from http://www.mmcfirm.com/about/history.asp.

In this study, we empirically examine two potential benefits of membership in an accounting firm association: i) improved audit quality and ii) client-perceived differentiation (as evidenced by audit fee premiums).

Audit firms have incentives to maintain high audit quality because the reputational costs and financial costs of audit failures can be high (e.g., audit failures can result in loss of clients (Huang and Scholz 2012) and litigation costs (Carcello and Palmrose 1994; Palmrose and Scholz 2004)). Thus, member firms should use the resources provided by the association (e.g., access to technical resources from other association members, assistance with niche practices, staff exchange programs for other geographic locations, and peer reviews) in order to improve audit quality. To examine whether these member benefits actually result in higher audit quality, we compare audit quality proxies of member firms' clients and nonmember firms' clients. We predict that the audit quality of association member firm clients should exceed that of nonmember firm clients and following prior literature, we proxy for audit quality using PCAOB inspection deficiencies (Abbott et al. 2013; Christensen et al. 2013; Gunny and Zhang 2013), misstatements, which are subsequently revealed by financial statement restatements (Kinney et al. 2004; Carcello et al. 2011; Cao et al. 2012), and discretionary accruals (Choi et al. 2010; Reichelt and Wang 2010).

Clients (companies) also have incentives to demand high audit quality because of costs associated with audit failures (e.g., negative stock price reactions (Palmrose et al. 2004; Myers et al. 2013), a higher cost of capital (Hribar and Jenkins 2004; Graham et al. 2008), management and board turnover (Srinivasan 2005; Desai et al. 2006), and decreases in executive compensation (Burks 2010)). Association members can differentiate themselves from other small accounting firms by using the association brand to signal high *ex ante* audit quality. In

addition, association members can use the brand to signal their ability to compete with large audit firms in terms of service provision. If companies perceive that member firms provide higher audit quality than nonmember firms, they should be willing to pay audit fee premiums for the increased level of assurance provided by the member auditor. Thus, we predict that, all else equal, clients of member firms will pay higher audit fees than clients of nonmember firms.

3. Sample and Research Design

3.1 SAMPLE

We collect data on association memberships from 2010 through 2012 using the listings of associations disclosed in the *Annual Directory of CPA Firm Associations and Networks*, published annually by *CCH* and *CPA Practice Management Forum*, and using the *Top 30 Accounting Networks and Associations*, published annually by *Accountancy Age*. Specifically, we contacted each of the 48 associations in our sample to obtain membership lists for each year in our sample period (2010 through 2012). For those that did not provide membership lists, we retrieved the publicly available lists of members from the association websites.[10] We then manually matched the accounting firm member names from the associations or their websites to the audit firm names in the Audit Analytics Opinions database.

Our association member sample does not include the Big 4 audit firms because these firms maintain their own international networks and because all of their U.S. offices operate as part of one legal entity. As reported in Table 2, Panel A, using all audits available in the Audit Analytics Opinions database, non-Big 4 auditors performed 49.6 percent of all public company audits from 2000 through 2012, and performed between 52.9 and 55.8 percent of all public

[10] We retrieved information from association websites between October and December of each year to ensure consistent collection of annual memberships.

company audits during our sample period. These audits represent between 4.3 and 8.8 percent of audit fees, 2.1 and 8.2 percent of total fees, and 1.1 and 2.6 percent of assets audited. We do not include second-tier audit firms (i.e., non-Big 4 audit firms that are annually inspected by the PCAOB) in our association member sample because these firms are subject to different quality control and review procedures. Finally, we remove audit firms that are the 'parents' of their own associations (i.e., firms after which an accounting firm association is named, including *Baker Tilly International*, *BDO Alliance*, *Grant Thornton International*, etc.) because these firms are large enough to start their own associations and our intended focus is on small accounting firms.[11] As reported in Table 2, Panel B, non-Big 4, non-second-tier, and non-'parent' audit firms perform 39.8 percent of all public company audits in Audit Analytics from 2000 through 2012, and perform between 44.1 and 45.7 percent of all public company audits during our sample period. These audits represent between 2.1 and 4.4 percent of audit fees, 1.0 and 4.1 percent of total fees, and 0.6 and 1.1 percent of client assets audited. Despite having a small market share, small audit firms are important to regulators because they represent the majority of firms in the audit market (DeFond and Lennox 2011).[12]

We provide a list of associations and descriptive statistics on the size of each association in Table 3. Using the number of public company clients to measure association size, *The Leading Edge Alliance* is the largest association in our sample. Using the total number of members (both national and international) to measure association size, *CPAConnect* is the largest

[11] However, in untabulated analyses, we find that our inferences are robust to including 'parent' audit firms in the sample.

[12] For more information about current regulator activities in the small business market segment, refer to the Securities and Exchange Commission's Office of Small Business Policy (http://www.sec.gov/info/smallbus/reachsec.htm), the PCAOB's Forum on Auditing in the Small Business Environment (http://pcaobus.org/Featured/Pages/SmallBusinessForums.aspx), and the Financial Accounting Standard Board's Small Business Advisory Committee (http://www.fasb.org/jsp/FASB/Page/SectionPage&cid=1218220151740).

association in 2010, *Kreston International* is the largest in 2011, and *PrimeGlobal* is the largest in 2012. Finally, using the number of members in the U.S., *CPAConnect* is the largest in 2010 and 2011, and *BDO Seidman Alliance* is the largest in 2012.

To perform our audit firm-level analyses using PCAOB inspection reports, we hand collect 321 inspection reports issued from January 2010 through September 2013 for non-Big 4, non-second-tier, and non-'parent' audit firms. These firms are subject to PCAOB inspections at least once every three years and may therefore be inspected more than once in our sample period.[13] After eliminating observations with missing data, our final sample consists of 252 inspection reports.

To perform our company-level analyses using misstatements, discretionary accruals, and audit fees, we begin with the 2,986 client-year observations in the Audit Analytics Opinions database from 2010 through 2012 that are audited by non-Big 4, non-second-tier, and non-'parent' auditors with matching Compustat identifiers and greater than one million dollars in total assets in fiscal years *t* and *t*-1. For misstatement tests, we remove observations that lack AuditAnalytics Opinions data for fiscal year *t*+1 (so that misstatements have time to be revealed through subsequent restatements). For tests using discretionary accruals and audit fees, we follow Francis et al. (2005) and Reichelt and Wang (2010) and remove observations in financial industries (SIC codes 6000 through 6999). Following Reichelt and Wang (2010), we minimize the impact of outliers on our results by winsorizing continuous variables at ±1 percent and, for all models using ordinary least squares (OLS) regression, removing observations with studentized residuals greater than 3.0. After removing observations missing data necessary to calculate our control variables, our sample consists of 1,869 company-year observations for

[13] See Rule 4003, "Frequency of Inspections," available at http://pcaobus.org/Rules/PCAOBRules/Pages/Section_4.aspx#rule4003.

misstatement tests, 1,543 company-year observations for discretionary accruals tests, and 1,949 company-year observations for audit fee premium tests. We describe our sample selection process in greater detail in Table 4.

3.2 AUDIT QUALITY – PCAOB INSPECTION REPORTS

As discussed in Section 2, we expect the audit quality provided by association member audit firms to be of higher quality than that provided by nonmember firms. Following Abbott et al. (2013), Christensen et al. (2013), and Gunny and Zhang (2013), we use PCAOB inspection deficiencies to proxy for low audit quality at the audit firm level. PCAOB inspection deficiencies can be categorized as either GAAP deficiencies (i.e., the audit failed to identify errors in the application of GAAP) or GAAS deficiencies (i.e., the audit procedures failed to comply with GAAS). Following prior literature, we separately estimate the probability of receiving at least one GAAP deficiency (*GAAP_DEFICIENCY*) and of receiving at least one GAAS deficiency (*GAAS_DEFICIENCY*) where sample observations are the unique inspection reports. Based on our discussions with audit professionals and with a former member of the PCAOB, all audits completed since the previous inspection (i.e., in the 'inspection period') are subject to review. Thus, we construct our control variables for audit firm size and client complexity using audit firm-level data averaged over the inspection period. Our model is as follows:

$$\begin{aligned} DEFICIENCY_{jt} = {} & \lambda_0 + \lambda_1 MEMBER\_D_{jt} + \lambda_2 OFFICES_{jt} + \lambda_3 PARTNERS_{jt} \\ & + \lambda_4 PUBLIC\_CLIENTS_{jt} + \lambda_5 TOTAL\_FEES_{jt} + \lambda_6 FIRST\_INSPECTION_{jt} \\ & + \lambda_7 AVG\_CLIENT\_SIZE_{jt} + \lambda_8 FOREIGN\_D_{jt} + \lambda_9 BROKER\_DEALER_{jt} \\ & + \lambda_{10} STOCK\_EXCHANGE_{jt} + \lambda_j YEAR_{jt} + \varepsilon_{jt} \end{aligned} \quad (1)$$

where *DEFICIENCY* is a GAAP deficiency (*GAAP_DEFICIENCY*) or a GAAS deficiency (*GAAS_DEFICIENCY*), *YEAR* represents year fixed effects for the fiscal year in which

inspection fieldwork is completed, *j* and *t* represent audit firm and inspection report fiscal year indicators, respectively, and all other variables are as defined in Appendix A.

We estimate Equation (1) using logistic regression and robust standard errors that are clustered at the audit firm level. Our primary variable of interest is an accounting association member indicator variable, *MEMBER_D*, equal to one if the audit firm appears on at least one of the associations' membership lists in the year of the inspection report, and zero otherwise. We control for the size of the audit firm (*OFFICES*, *PARTNERS*, *PUBLIC_CLIENTS*, *TOTAL_FEES*), whether the firm has been previously inspected by the PCAOB (*FIRST_INSPECTION*), the average size of the clients audited during the inspection period (*AVG_CLIENT_SIZE*), and client complexity (*FOREIGN_D*). In addition, because 95 percent of recent PCAOB inspections of broker-dealers' auditors found deficiencies,[14] we control for whether the auditor completed broker-dealer audits during the inspection period (*BROKER_DEALER*). Finally, Abbott et al. (2013) suggest that the quality of corporate governance is lower for clients that trade on Pink Sheets or on the Over the Counter Bulletin Board (OTCBB) because these exchanges do not have the same audit committee standards as the three major exchanges, so we control for the percentage of clients registered on a major U.S. stock exchange (*STOCK_EXCHANGE*).

3.3 AUDIT QUALITY – MISSTATEMENTS

Following prior literature (e.g., Kinney et al. 2004; Cao et al. 2012) we use misstatements, which are subsequently revealed through restatements, to proxy for low audit

[14] The Dodd-Frank Act of 2010 gave the PCAOB the authority to inspect broker-dealer audits (including privately-held broker-dealers). While this inspection process and the results of this process are separate from the PCAOB's inspections of financial statement audits, we include an indicator for broker-dealer audits because the PCAOB may also increase scrutiny of the financial audits of broker-dealer clients. See "PCAOB Finds Continuing Problems with Most Broker-Dealer Audits" in *AccountingToday* (August 19, 2013) at http://www.accountingtoday.com/news/PCAOB-Finds-Continuing-Problems-Broker-Dealer-Audits-67775-1.html.

quality at the client level. We estimate the following model to determine whether the probability of misstatement is lower for association member firm clients than for nonmember firm clients:

$$\begin{aligned} MISSTATE_{it} = {} & \beta_0 + \beta_1 MEMBER_{it} + \beta_2 LTA_{it} + \beta_3 ROA_{it} + \beta_4 LEV_{it} + \beta_5 LOSS_{it} + \beta_6 GC_{it} \\ & + \beta_7 MKTBK_{it} + \beta_8 LN\_BUS\_SEG_{it} + \beta_9 FINANCING_{it} + \beta_{10} FOREIGN_{it} \\ & + \beta_{11} ACQUISITION_{it} + \beta_{12} AR\_IN_{it} + \beta_{13} 404AUDIT_{it} + \beta_{14} SHORT\_TENURE_{it} \\ & + \beta_{15} FIRMSIZE_{it} + \beta_{16} MKTSHR_{it} + \beta_j IND_{it} + \beta_k YEAR_{it} + \varepsilon_{it} \end{aligned} \quad (2a)$$

where *IND* represents industry fixed effects for the company's two-digit SIC code,[15] *YEAR* represents year fixed effects for the company's fiscal year end, *i* and *t* represent company (client) and fiscal year indicators, respectively, and all other variables are as defined in Appendix A.

The dependent variable in Equation (2a) is a misstatement indicator variable (*MISSTATE*), set equal to one if the company files a restatement in year *t*+1 or *t*+2, and zero otherwise.[16] Our primary variable of interest is an accounting association member client indicator variable, *MEMBER*, set equal to one when the company's audit firm appears on one of the associations' membership lists during the year, and zero otherwise. We estimate Equation (2a) using logistic regression and use robust standard errors that are clustered at the company level.

Our control variables derive from those in Cao et al. (2012).[17] We control for the size of the company, proxied for by the log of total assets (*LTA*), the company's profitability and

[15] Because *MISSTATE* is a dichotomous variable, we suppress industry fixed effects for those industries in which there is no cross-sectional variation in the dependent variable because no companies in the industry misstate during our sample period. These companies remain in the sample and are included in the intercept. Alternatively, in untabulated analyses, we remove all industry fixed effects and include an indicator variable set equal to one if the company is in a highly litigious industry, following Francis et al. (1994) (SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, or 7370-7374), and zero otherwise. Our inferences are robust to using this alternative specification.

[16] In Table 6, we require our misstatement sample to have one year of subsequent data in AuditAnalytics so that the misstatement can be revealed by a restatement. In untabulated analyses, we require two years of subsequent data, resulting in a reduced sample of 942 company-year observations. Again, our inferences are robust to using this alternative specification.

[17] We exclude control variables for corporate governance and stock return volatility because these data are unavailable for many of the small companies in our sample. Similarly, we do not control for the natural log of audit fees and of nonaudit fees because of sample attrition. However, in untabulated analyses, we find that our inferences

financial condition, proxied for by return on assets (*ROA*), leverage (*LEV*), the presence of losses (*LOSS*), the receipt of a going concern opinion (*GC*), and the company's market-to-book ratio (*MKTBK*). We control for company complexity, proxied for by the number of business segments (*LN_BUS_SEG*), the issuance of new equity or debt financing (*FINANCING*), foreign operations (*FOREIGN*), the amount of acquisition activity (*ACQUISITION*), and the proportion of assets in receivables or inventory (*AR_IN*). We also control for whether the auditor opined on the effectiveness of internal controls (*404AUDIT*) and for the length of the auditor-client relationship (*SHORT_TENURE*).[18] Finally, we control for the size of the auditor, proxied for by the number of publicly traded clients audited (*FIRMSIZE*), and the auditor's industry expertise based on city-level market share (*MKTSHR*). Similar to Cao et al. (2012), we do not make directional predictions for our control variables.

3.4 AUDIT QUALITY – DISCRETIONARY ACCRUALS

Following prior literature (e.g., Choi et al. 2010; Reichelt and Wang 2010), we also proxy for audit quality at the client level using the absolute value of discretionary accruals, because more extreme values of discretionary accruals suggest that more aggressive financial reporting decisions were made by management and allowed by the auditor, and using positive discretionary accruals. We calculate discretionary accruals using the modified Jones model (Jones 1991; Dechow et al. 1995) for all non-financial companies available in Compustat, and

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are robust when we use a reduced sample with available audit fee and nonaudit fee data. Finally, in addition to the control variables in Cao et al. (2012), we include *404AUDIT*, *SHORT_TENURE*, and *FIRMSIZE*.

[18] While prior studies typically include an indicator variable for the receipt of an auditor opinion stating a material weakness in internal controls over financial reporting, our sample includes smaller companies without mandatory auditor attestation on the strength of internal controls. Therefore, we include an indicator variable for whether the auditor has opined on the strength of internal controls because companies with auditor attestation on the strength of internal controls will be subject to different audit procedures than those without. *SHORT_TENURE* is an indicator variable set equal to one if the length of the auditor-client relationship to date is three years or less because Johnson et al. (2002) find evidence of lower audit quality in the first three years of auditor tenure. We use this dichotomous measure of tenure rather than a continuous tenure measure (as in Myers et al. (2003)) because we do not know in which year the auditor first audited the client.

estimate OLS regressions by two-digit industry and year, retaining only those industry-years with a minimum of 10 observations.[19] We follow Badertscher (2011), motivated by Kothari et al. (2005), and calculate performance-matched discretionary accruals as the difference between company *i*'s discretionary accruals and the median discretionary accruals for companies in the same decile-rank of return on assets by two-digit industry-year.[20]

We estimate the following model to determine whether discretionary accruals of member firm clients are less extreme than those of nonmember firm clients:

$$\begin{aligned} ABSPMDA_{it} = {} & \delta_0 + \delta_1 MEMBER_{it} + \delta_2 MVE_{it} + \delta_3 ROA_{it} + \delta_4 LEV_{it} + \delta_5 CURR_{it} + \delta_6 CFO_{it} \\ & + \delta_7 SDCFO_{it} + \delta_8 LOSS_{it} + \delta_9 MKTBK_{it} + \delta_{10} LIT_{it} + \delta_{11} Z_{it} + \delta_{12} TACCR\_LAG_{it} \\ & + \delta_{13} 404AUDIT_{it} + \delta_{14} SHORT\_TENURE_{it} + \delta_{15} FIRMSIZE_{it} + \delta_{16} MKTSHR_{it} \\ & + \delta_k YEAR_{it} + \varepsilon_{it} \end{aligned} \quad (3a)$$

where *YEAR* represents year fixed effects for the company's fiscal year end, *i* and *t* represent company and fiscal year indicators, respectively, and all other variables are as defined in Appendix A.

The dependent variable in Equation (3a) is the absolute value of performance-matched discretionary accruals (*ABSPMDA*). We estimate Equation (3a) for the full sample and for the subset of companies with positive discretionary accruals. Similar to Equation (2a), our primary variable of interest is *MEMBER*. We estimate Equation (3a) using OLS regression and use robust standard errors that are clustered at the company level.

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[19] To calculate discretionary accruals, we use the following model: $TA_{it}/A_{it-1} = \delta_1(1/A_{it-1}) + \delta_2((\Delta S_{it} - \Delta AR_{it})/A_{it-1}) + \delta_3(PPE_{it}/A_{it-1}) + u_{it}$, where: *TA* = total accruals using the indirect cash flow method from Hribar and Collins (2002) (income before extraordinary items minus operating cash flows from continuing operations); *A* is equal to total assets; ΔS is equal to the change in total sales revenue from the prior year; ΔAR is equal to the change in accounts receivable from the prior year; *PPE* is equal to net property, plant, and equipment; u_{it} is equal to discretionary accruals; and *i* and *t* are company and year indicators, respectively. In untabulated analyses, we find that our inferences are robust to requiring a minimum of 20 observations per industry-year.

[20] In untabulated analyses, we find that our inferences remain unchanged if we use Kothari et al.'s (2005) method of estimating performance-adjusted discretionary accruals with lagged *ROA* in the accruals model as follows: $TA_{it}/A_{it-1} = \delta_1(1/A_{it-1}) + \delta_2((\Delta S_{it} - \Delta AR_{it})/A_{it-1}) + \delta_3(PPE_{it}/A_{it-1}) + \delta_4(NI_{it-1}/A_{it-1}) + u_{it}$, where *NI* is equal to net income and all other variables are as previously defined.

Our control variables derive from those in Reichelt and Wang (2010).[21] We control for company size, proxied for by the market value of equity (*MVE*), and the company's profitability and financial condition, proxied for by the return on assets (*ROA*), leverage (*LEV*), the current ratio (*CURR*), the level and volatility of cash flow from operations (*CFO* and *SDCFO*), the presence of losses (*LOSS*), and the company's market-to-book ratio (*MKTBK*). We also control for litigation risk (*LIT*), bankruptcy risk (*Z*), and the prior year's total accruals (*TACCR_LAG*). We control for whether the auditor opined on internal controls (*404AUDIT*), auditor tenure (*SHORT_TENURE*), the number of publicly traded clients audited (*FIRMSIZE*), and auditor industry expertise (*MKTSHR*). Following Reichelt and Wang (2010), we do not make directional predictions for our control variables.

3.5 COMPARING AUDIT QUALITY OF ASSOCIATION MEMBER AUDITORS AND BIG 4 AUDITORS

Our analyses thus far are designed to test whether, *among* small audit firms, the benefits of association membership allow member firms to perform higher quality audits than nonmember firms. Because our study is motivated in part by calls to increase audit firm competition through the use of small audit firms to audit larger clients (ACAP 2008), we next examine whether the benefits provided by association membership allow association member audit firms to perform audits that are comparable in quality to those provided by the Big 4 audit

[21] The only differences between our control variables and those in Reichelt and Wang (2010) are that we use a dichotomous measure of tenure (i.e., an indicator for three years or less) rather than a continuous tenure measure (as in Myers et al. (2003)) because we do not know in which year the auditor first audited the client, and we include *ROA*, *CURR*, *404AUDIT*, *FIRMSIZE*, and *YEAR* in our model. Finally, because industry expertise is a control variable in our study, and not the primary variable of interest, we use only one measure of industry expertise (*MKTSHR*). In untabulated analyses, we find that our inferences are robust to the inclusion of industry fixed effects (*IND*).

firms by comparing misstatement rates and the discretionary accruals of association member clients, nonmember clients, and Big 4 clients.[22]

We expand the sample used to estimate Equations (2a) and (3a) to include clients of Big 4 audit firms, and we modify the equations to include an indicator variable (*BIG4*) equal to one if the client engages a Big 4 auditor, and zero otherwise. The models are as follow:[23]

$$\begin{aligned} MISSTATE_{it} = {} & \alpha_0 + \alpha_1 MEMBER_{it} + \alpha_2 BIG4_{it} + \alpha_3 LTA_{it} + \alpha_4 ROA_{it} + \alpha_5 LEV_{it} + \alpha_6 LOSS_{it} + \alpha_7 GC_{it} \\ & + \alpha_8 MKTBK_{it} + \alpha_9 LN\_BUS\_SEG_{it} + \alpha_{10} FINANCING_{it} + \alpha_{11} FOREIGN_{it} \\ & + \alpha_{12} ACQUISITION_{it} + \alpha_{13} AR\_IN_{it} + \alpha_{14} 404AUDIT_{it} + \alpha_{15} SHORT\_TENURE_{it} \\ & + \alpha_{16} MKTSHR_{it} + \alpha_j IND_{it} + \alpha_k YEAR_{it} + \varepsilon_{it} \end{aligned} \quad (2b)$$

$$\begin{aligned} ABSPMDA_{it} = {} & \eta_0 + \eta_1 MEMBER_{it} + \eta_2 BIG4_{it} + \eta_3 MVE_{it} + \eta_4 ROA_{it} + \eta_5 LEV_{it} + \eta_6 CURR_{it} \\ & + \eta_7 CFO_{it} + \eta_8 SDCFO_{it} + \eta_9 LOSS_{it} + \eta_{10} MKTBK_{it} + \eta_{11} LIT_{it} + \eta_{12} Z_{it} \\ & + \eta_{13} TACCR\_LAG_{it} + \eta_{14} 404AUDIT_{it} + \eta_{15} SHORT\_TENURE_{it} + \eta_{16} MKTSHR_{it} \\ & + \eta_k YEAR_{it} + \varepsilon_{it} \end{aligned} \quad (3b)$$

where *IND* represents industry fixed effects for the company's two-digit SIC code, *YEAR* represents year fixed effects for the company's fiscal year end, *i* and *t* represent company and fiscal year indicators, respectively, and all other variables are as defined in Appendix A. The sample is comprised of 7,248 client-year observations when estimating Equation (2b) and of 6,953 client-year observations when estimating Equation (3b).

Finally, to assess whether association member firms could be equipped to audit large companies, we re-estimate Equations (2b) and (3b) using only the largest quartile of clients in our sample. The untabulated results are discussed in Section 4.

3.6 AUDIT FEE PREMIUM

[22] Prior literature suggests that the Big 4 audit firms provide higher quality audits than do smaller audit firms (DeFond and Jiambalvo 1991; Teoh and Wong 1993; Becker et al. 1998; Nelson et al. 2002; Hammersley et al. 2008; Lennox and Pittman 2010). Because all Big 4 firms receive PCAOB inspection report deficiencies in each year of our study, PCAOB inspection reports measure cross-sectional variation in audit quality only among smaller audit firms (Abbott et al. 2013; Gunny and Zhang 2013). Thus, we do not use PCAOB inspection reports to measure audit quality when comparing association member and Big N audit firms.

[23] Equations (2b) and (3b) omit *FIRMSIZE* because variance inflation factors (VIFs) are greater than 10 when both *FIRMSIZE* and *BIG4* are included in the model. However, the inferences do not change when we include *FIRMSIZE* in the model.

If companies perceive that audit quality provided by association member audit firms is greater than that provided by nonmember firms, we expect that they should be willing to pay a fee premium for the increased level of assurance provided by the member auditor. We use multivariate analyses, controlling for risk and effort proxies used in prior literature, to determine whether association member firms are able to charge higher audit fees than nonmember firms. Our empirical model is as follows:

$$\begin{aligned} LAFEES_{it} = {} & \gamma_0 + \gamma_1 MEMBER_{it} + \gamma_2 LTA_{it} + \gamma_3 LN\_BUS\_SEG_{it} + \gamma_4 CATA_{it} + \gamma_5 QUICK_{it} + \gamma_6 LEV_{it} \\ & + \gamma_7 ROI_{it} + \gamma_8 LOSS_{it} + \gamma_9 GC_{it} + \gamma_{10} FOREIGN_{it} + \gamma_{11} DECYE_{it} + \gamma_{12} 404AUDIT_{it} \\ & + \gamma_{13} SHORT\_TENURE_{it} + \gamma_{14} FIRMSIZE_{it} + \gamma_{15} MKTSHR_{it} + \gamma_j IND_{it} + \gamma_k YEAR_{it} \\ & + \varepsilon_{it} \end{aligned} \quad (4a)$$

where *IND* represents industry fixed effects for the company's two-digit SIC code, *YEAR* represents year fixed effects for the company's fiscal year end, *i* and *t* represent company and fiscal year indicators, respectively, and all other variables are as defined in Appendix A.

The dependent variable for Equation (4a) is the natural log of audit fees (*LAFEES*). As with Equations (2a) and (3a), our primary variable of interest is *MEMBER*. We estimate Equation (4a) using OLS regression and use robust standard errors clustered at the company level.

Our control variables derive from prior literature (e.g., Simunic (1980), Francis et al. (2005), and Dao et al. (2012)). We control for client size (*LTA*), business complexity (*LN_BUS_SEG*), risks associated with the client's financial condition (*CATA*, *QUICK*, and *LEV*), profitability (*ROI* and *LOSS*), the receipt of a going concern opinion (*GC*), the presence of foreign operations (*FOREIGN*), and the premium associated with work performed in peak busy season (*DECYE*). We also control for whether the auditor opines on the strength of internal controls over financial reporting (*404AUDIT*) since this requires additional audit effort, the tenure of the auditor-client relationship (*SHORT_TENURE*) because audit pricing may differ in

the early years of an audit engagement (Dao et al. 2012), the number of publicly traded clients audited (*FIRMSIZE*) because prior literature documents a fee premium for large auditors, and the auditor's industry expertise (*MKTSHR*) because clients may be willing to pay a premium to industry-expert auditors. Our directional predictions on the signs of the control variables follow Francis et al. (2005).

3.7 COMPARING AUDIT FEE PREMIUMS FOR ASSOCIATION MEMBER AUDITORS AND BIG 4 AUDITORS

To compare any audit fee premium received by member audit firms with that received by Big 4 auditors, we modify Equation (4a) to include an indicator variable (*BIG4*) equal to one if the client engages a Big 4 auditor, and zero otherwise. The model is as follows:[24]

$$\begin{aligned} LAFEES_{it} = {} & \theta_0 + \gamma_1 MEMBER_{it} + \theta_2 BIG4_{it} + \theta_3 LTA_{it} + \theta_4 LN\_BUS\_SEG_{it} + \theta_5 CATA_{it} \\ & + \theta_6 QUICK_{it} + \theta_7 LEV_{it} + \theta_8 ROI_{it} + \theta_9 LOSS_{it} + \theta_{10} GC_{it} + \theta_{11} FOREIGN_{it} \\ & + \theta_{12} DECYE_{it} + \theta_{13} 404AUDIT_{it} + \theta_{14} SHORT\_TENURE_{it} + \theta_{15} MKTSHR_{it} \\ & + \theta_j IND_{it} + \theta_k YEAR_{it} + \underline{\varepsilon}_{it} \end{aligned} \quad (4b)$$

where *IND* represents industry fixed effects for the company's two-digit SIC code, *YEAR* represents year fixed effects for the company's fiscal year end, *i* and *t* represent company and fiscal year indicators, respectively, and all other variables are as defined in Appendix A. We expand the sample used to estimate Equation (4a) to include clients of Big 4 audit firms, resulting in a sample of 8,688 client-year observations.

4. Results

We separately tabulate descriptive statistics, univariate analyses, and multivariate analyses for each of our models.

4.1 AUDIT QUALITY – PCAOB INSPECTIONS

[24] Equation (4b) omits *FIRMSIZE* because VIFs are greater than 10 when both *FIRMSIZE* and *BIG4* are in the model. However, our inferences do not changes when *FIRMSIZE* is included in the model.

In Table 5, Panel A, we present descriptive statistics for the full sample of audit firms used to estimate Equation (1) as well as results from tests of differences in means between member audit firms and nonmember audit firms. Approximately 45 percent of audit firms in the sample used to estimate Equation (1) are association members. We find that member audit firms are less likely to receive PCAOB inspection GAAP deficiencies (*GAAP_DEFICIENCY*) and PCAOB inspection GAAS deficiencies (*GAAS_DEFICIENCY*) than are nonmember audit firms. In addition, member audit firms are larger than nonmember audit firms in terms of the number of offices (*OFFICES*), the number of partners (*PARTNERS*), and total fees (*TOTAL_FEES*), but they audit a comparable number of publicly traded clients (*PUBLIC_CLIENTS*). Moreover, member firms are less likely to be subject to their first PCAOB inspection (*FIRST_INSPECTION*) during our sample period, suggesting that they have been registered with the PCAOB for longer than nonmember firms on average. Finally, the average member firm client is larger (*AVG_CLIENT_SIZE*) and more complex (*FOREIGN_D*) and is more likely to be listed on a large stock exchange (*STOCK_EXCHANGE*) than is the average nonmember firm client.

We present the results from estimating Equation (1) in Table 5, Panel B. The dependent variables are *GAAP_DEFICIENCY* and *GAAS_DEFICIENCY* in Columns (1) and (2), respectively. For each model, the area under the receiver operating characteristic (ROC) curve is greater than 0.70 (at 0.831 and 0.780, respectively), suggesting that the model fit is good (Hosmer and Lemeshow 2000). In each column, we find a negative and significant coefficient on *MEMBER_D* (p-values $\leq$ 0.01 and 0.05, respectively), suggesting that member audit firms are less likely to receive PCAOB inspection deficiencies, measured using either GAAP deficiencies or GAAS deficiencies, than are nonmember audit firms. We also find that the probability of

receiving a GAAP deficiency is higher for audit firms with fewer partners, more clients subject to inspection, and for firms with a smaller percentage of clients traded on large stock exchanges. The probability of receiving a GAAS deficiency is higher for audit firms with fewer partners and more clients subject to inspection.

4.2 AUDIT QUALITY – MISSTATEMENTS

In Table 6, Panel A, we present descriptive statistics for the full sample of companies used to estimate Equation (2a) as well as results from tests of differences in means between companies that engage association member audit firms and companies that engage nonmember audit firms. These univariate tests reveal that companies engaging member audit firms are less likely to misstate their annual financial statements (*MISSTATE*) than are companies engaging nonmember audit firms. We also find that companies engaging member audit firms are larger (*LTA*), are less likely to report losses (*LOSS*) or receive going concern opinions (*GC*), have a higher percentage of assets in receivables and inventory (*AR_IN*), are more likely to have their auditor opine on the strength of internal controls (*404AUDIT*), and are less likely to be in the early years of the auditor-client relationship (*SHORT_TENURE*). Finally, member audit firms are larger in that they audit a greater number of clients (*FIRMSIZE*) and they have more industry expertise (*MKTSHR*) relative to nonmember audit firms.

We present the results from estimating Equation (2a) in Table 6, Panel B. The model fit is good with an area under ROC curve of 0.715. Controlling for other determinants of financial statement misstatements, we find a negative and significant coefficient on *MEMBER* (p-value $\leq$ 0.01), suggesting that clients of association member audit firms are significantly less likely to misstate their annual financial statements than are clients of nonmember audit firms. In addition, companies are more likely to misstate when they report losses, receive going concern opinions,

and make larger acquisitions in the year, and are less likely to misstate when they engage a larger auditor.

4.3 AUDIT QUALITY – PERFORMANCE-MATCHED DISCRETIONARY ACCRUALS

In Table 7, Panel A, we present descriptive statistics for the full sample of companies used to estimate Equation (3a) as well as results from tests of differences in means between companies that engage association member audit firms and companies that engage nonmember audit firms. We find that clients of association member audit firms report less extreme performance-matched discretionary accruals (*ABSPMDA*), for either the full sample of observations or for the subsample comprised of positive discretionary accruals, than do clients of nonmember audit firms. In addition, clients of member firms are larger (*MVE*), are more likely to be from litigious industries (*LIT*), are more likely to engage their auditor to attest to the quality of internal controls (*404AUDIT*), and are less likely to be in the early years of the auditor-client relationship (*SHORT_TENURE*). Consistent with results in Tables 5 and 6, in this sample, member audit firms are larger than nonmember firms (*FIRMSIZE*).

We present the results from estimating Equation (3a) in Table 7, Panel B. We use the full sample in Column (1) and the reduced sample consisting of only observations with positive performance-matched discretionary accruals in Column (2). Controlling for other determinants, we find a negative and significant coefficient on *MEMBER* in both columns (p-values ≤ 0.01), suggesting that clients of association member auditors report less extreme discretionary accruals, measured in absolute value, as well as lower positive discretionary accruals than do clients of nonmember auditors. In addition, larger companies and companies reporting losses, with higher bankruptcy risk, and engaging auditors with more industry expertise report less extreme and lower positive discretionary accruals, while companies with more variability in cash flows and

higher total accruals at the beginning of the year report more extreme and higher positive discretionary accruals.

Overall, the results in Tables 6 and 7 suggest that association member audit firms provide higher audit quality than do nonmember audit firms. Next, we compare the audit quality provided by association members with that provided by the Big 4 audit firms as well as with nonmember audit firms.

4.4 COMPARING AUDIT QUALITY OF ASSOCIATION MEMBER AUDITORS AND BIG 4 AUDITORS

In Table 8, Panel A, we present descriptive statistics for the full sample of companies used to estimate Equation (2b) as well as results from a test of differences in the mean of *MISSTATE* for clients of association member firms versus clients of Big 4 firms. In univariate analyses, we find that companies that engage Big 4 auditors are more likely to report misstatements (*MISSTATE*) than are companies that engage association member audit firms. For brevity, we do not tabulate descriptive and univariate statistics for control variables.[25]

In Table 8, Panel B, we tabulate results from estimating Equation (2b) but for brevity, we suppress results for the control variables. Column (1) includes the full sample but Column (2) omits clients of nonmember firms and uses a matched sample design to compare misstatements made by clients of association member audit firms with those made by clients of Big 4 audit firms. Specifically, we match each association member client with the Big 4 client most similar in terms of size (*LTA*), without replacement, using a caliper distance of 0.03 (following Lawrence et al. (2011)). After controlling for company and auditor characteristics in Equation

[25] In untabulated analyses, we find that clients of Big 4 auditors are larger (*LTA*), more financially stable (*ROA*, *LOSS*, and *GC*), have higher market-to-book ratios (*MKTBK*), face greater complexity (*LN_BUS_SEG*, *FOREIGN*, and *ACQUISITION)*, are more likely to have the auditor opine on the strength of internal controls (*404AUDIT*), and have longer auditor-client relationships (*SHORT_TENURE*) than clients of association member firms. In addition, Big 4 audit firms have more industry expertise (*MKTSHR*) than association member firms.

(2b), we find a negative and significant coefficient on *MEMBER* and an insignificant coefficient on *BIG4* in Column (1) (p-values ≤ 0.01 and > 0.10, respectively), suggesting that clients of association member auditors are significantly less likely to misstate their annual financial statements than are clients of small, non-association member audit firms or clients of Big 4 audit firms. However, in Column (2), after matching on company size, we find that the coefficient on *MEMBER* is not significantly different from zero (p-value > 0.10), suggesting that the quality of audits provided to similarly-sized clients by association member firms versus Big 4 firms is similar.[26]

In Table 9, Panel A, we present descriptive statistics for the full sample of companies used to estimate Equation (3b) as well as results from a test of differences in the mean of *ABSPMDA* for clients of association member firms and clients of Big 4 firms. Univariate analysis reveals that clients of Big 4 auditors report less extreme discretionary accruals (*ABSPMDA*) than do clients of member audit firms. Again, for brevity, we do not tabulate descriptive and univariate statistics for control variables.[27]

In Table 9, Panel B, we tabulate results from estimating Equation (3b) but for brevity, we suppress results for the control variables. Similar to Table 8, Panel B, we include the full sample in Column (1), and in Column (2), we omit clients of nonmember firms and use a client size-matched sample design to compare discretionary accruals reported by clients of association member audit firms with those reported by clients of Big 4 audit firms. After controlling for

[26] Here, Big 4 clients are the base group so their misstatements are represented by the intercept. Note, however, that because the area under the ROC curve (of 0.657 and 0.671, respectively) in Columns (1) and (2) suggests that the fit for Equation (2b) is poor (Hosmer and Lemeshow 2000), these results should be relied upon with caution.

[27] In untabulated analyses, we find that clients of Big 4 auditors are larger (*MVE*), more financially stable (*ROA, CFO, SDCFO, LOSS, Z*), have higher market-to-book ratios (*MKTBK*), are more likely to be from litigious industries (*LIT*), are more likely to have the auditor opine on the strength of internal controls (*404AUDIT*), and have longer auditor-client relationships (*SHORT_TENURE*) than clients of association member firms. In addition, Big 4 audit firms have more industry expertise (*MKTSHR*) than association member firms.

company and auditor characteristics in Equation (3b), we find negative coefficients on both *MEMBER* and *BIG4* in Column (1), suggesting that clients of association member auditors and clients of Big 4 audit firms report less extreme discretionary accruals than do clients of small, non-association member audit firms. The coefficient on *BIG4* is smaller than the coefficient on *MEMBER*, and a test of inequality between *MEMBER* and *BIG4* is significant, suggesting that clients of Big 4 audit firms report higher quality accruals than do clients of association member audit firms. However, after controlling for client size in a matched sample design in Column (2), we find that the coefficient on *MEMBER* is not significantly different from zero (p-value > 0.10), suggesting that clients of association member audit firms report accruals that are similar in quality to those reported by clients of Big 4 audit firms.[28]

Because ACAP (2008) specifically mentions the need to increase competition for large public clients, we re-estimate Equations (2b) and (3b) using only the largest quartile of companies audited by association member audit firms and a size-matched sample of Big 4 audit clients. The size of clients served by member audit firms in this restricted sample ranges from $196 million to 2.7 billion in market capitalization with a median market capitalization of $358 million.[29] In untabulated analyses, we find that our inferences are consistent with those from results in Tables 8 and 9, Panel B, Column (2).

Collectively, these results provide initial evidence suggesting that association membership may be a viable solution to provide small audit firms with the resources necessary to audit some large public companies. Since the size of clients served by association member firms is still relatively small, however, generalizing these results to all large clients would be inappropriate.

[28] Here, Big 4 clients are the base group so their accruals are represented by the intercept.
[29] This suggests that the restricted sample should represent many but not the largest of audit clients.

4.5 AUDIT FEE PREMIUM

In Table 10, Panel A, we present descriptive statistics for the full sample of companies used to estimate Equation (4a) as well as results from tests of differences in means between companies that engage association member audit firms and companies that engage nonmember audit firms. These univariate tests reveal that association member clients pay higher audit fees (*LAFEES*) than nonmember clients. We also find that the clients of member firms are larger (*LTA*), have a higher percentage of current assets to total asset (*CATA*) and are less likely to have foreign operations (*FOREIGN*), are more likely to have their auditor opine on the strength of internal controls (*404AUDIT*), and are less likely to be in the early years of the auditor-client relationship (*SHORT_TENURE*). In this sample, we continue to find that member audit firms are larger than nonmember firms (*FIRMSIZE*).

We present the results from estimating Equation (4a) in Table 10, Panel B. After controlling for company and auditor characteristics, we find a positive and significant coefficient on *MEMBER* (p-value ≤ 0.01), suggesting that clients of association member auditors pay higher audit fees than do clients of nonmember auditors. In addition, companies pay higher fees when they are larger, have a higher percentage of current assets to total assets, are in poor financial health, are more complex, have the auditor to opine on the strength of internal controls, and engage larger auditors.

4.6 COMPARING AUDIT FEE PREMIUMS FOR ASSOCIATION MEMBER AUDITORS AND BIG 4 AUDITORS

In Table 11, Panel A, we present descriptive statistics for the full sample of companies used to estimate Equation (4b) as well as results from a univariate test of the difference in means of *LAFEES* for clients of association member firms versus clients of Big 4 firms. We find that

clients of Big 4 auditors pay higher audit fees (*LAFEES*) than do clients of member audit firms. For brevity, we suppress the descriptive and univariate statistics for control variables.[30]

In Table 11, Panel B, we tabulate results from estimating Equation (4b) but for brevity, we suppress results for the control variables. Similar to Tables 8 and 9, Panel B, Column (1) includes the full sample and Column (2) omits nonmember firms and uses a matched sample design to compare the fees paid by association member audit firms with those paid by Big 4 audit firms. After controlling for company and auditor characteristics, we find that the coefficients on both *MEMBER* and *BIG4* are positive and significant (p-values ≤ 0.01), suggesting that clients of nonmember audit firms pay lower audit fees than clients of either association member audit firms or Big 4 audit firms. In addition, the coefficient on *MEMBER* is smaller than the coefficient on *BIG4* and the F-test for the difference between the coefficients is significant, suggesting that clients of association member firms pay lower premiums than do clients of Big 4 audit firms. This interpretation is confirmed by the results in the matched sample test in Column (2), where the coefficient on *MEMBER* is negative and significant (p-value ≤ 0.01).[31]

4.7 ADDITIONAL ANALYSES

4.7.1 Related to client size

As is the case with all studies examining the association between auditor characteristics and audit quality, our results thus far could be related to underlying client characteristics that influence the client's decision about the type of audit firm to engage. Because Lawrence et al.

[30] In untabulated analyses, we find that Big 4 clients are larger (*LTA*), more financially stable (*ROI*, *LOSS*, *GC*), more complex (*LN_BUS_SEG*), more likely to have the auditor opine on the strength of internal controls (*404AUDIT*), and have longer auditor-client relationships (*SHORT_TENURE*) than association member clients. In addition, Big 4 audit firms have more industry expertise (*MKTSHR*) than association member firms.

[31] Here, Big 4 clients are the base group so their audit fees are represented by the intercept.

(2011) show that the primary company characteristic affecting the outcome of analyses related to auditor size and audit quality is company size,[32] we perform two additional tests.

First, in untabulated analyses, we re-estimate Equations (2a), (3a), and (4a) using a sample of companies audited by association member firms and a client size-matched control sample of companies audited by nonmember (small) audit firms. Specifically, we match each client of an association member audit firm with a client of a nonmember (small) audit firm, without replacement, using *LTA* and a caliper distance of 0.03 (following Lawrence et al. (2011)). We continue to find that clients of member audit firms are less likely to misstate their annual financial statements, report less extreme performance-matched discretionary accruals and smaller positive discretionary accruals, and pay higher audit fees than do clients of nonmember firms.

Next, as an additional test to control for client size effects, in untabulated analyses, we eliminate those observations in the largest quartile of client size (*LTA*) in our misstatement, discretionary accruals, and audit fee samples and re-estimate Equations (2a), (3a), and (4a). The inferences are consistent with those tabulated.

Overall, results from these analyses suggest that our prior results comparing association member audit firms and other small audit firms are not driven by client size.

4.7.1 Related to audit firm size

Next, to ensure that our results comparing association member audit firms and other small audit firms are not driven by the size of the audit firm, we perform three additional tests. First, in untabulated analyses, we re-estimate Equations (2a), (3a), and (4a) using a sample

[32] Specifically, Lawrence et al. (2011) explain that, in their analyses, matching on client size provides the same results as does propensity score matching. Because we cannot develop a propensity score matched model with a good fit, we rely on a client size-matched approach.

matched on audit firm size. Specifically, we match each client of an association member audit firm with a client of a nonmember firm, without replacement, using *FIRMSIZE* (i.e., the number of publicly traded clients audited) and a caliper distance of 0.03. We continue to find that clients of member audit firms are less likely to misstate their annual financial statements, report less extreme performance-matched discretionary accruals and smaller positive discretionary accruals, and pay higher audit fees than do clients of nonmember firms. Second, our inferences are unchanged if we measure *FIRMSIZE* as the log of total audit fees. Third, our inferences are unchanged if we eliminate observations in the top quartile of audit firm size and re-estimate Equations (2a), (3a), and (4a). The results from these additional analyses suggest that our main results comparing association member audit firms and other small audit firms are not driven by audit firm size.

5. Conclusion

Whether membership in an accounting firm association, network, or alliance (collectively referred to as 'an association') can provide important benefits and enable small audit firms to provide better quality audits is important if small auditors are a potential solution to concerns about a lack of competition in audit markets.[33] These concerns have lead the *Advisory Committee on the Auditing Profession to the U.S. Department of the Treasury* to recommend that regulators take actions to enable small audit firms to become viable suppliers of large company audits (ACAP 2008). We expect that improved access to resources should allow small audit

[33] Benefits that associations can provide to member firms include access to the expertise of partners and professionals who work for other members, joint conferences and technical trainings, assistance in developing niche practices, the ability to overcome staffing and geographic limitations, access to continuing professional education, recommendations about best practices, benchmarking data, and member referrals.

firms to conduct higher quality audits, and we expect clients to pay a premium to engage small auditors that belong to an association.

Using hand-collected data on association membership and a sample of companies audited by small audit firms, we find that association member audit firms are less likely to receive PCAOB inspection deficiencies than are nonmember audit firms, and clients of association member audit firms are less likely to misstate their annual financial statements and report less extreme absolute discretionary accruals and lower positive discretionary accruals than do clients of nonmember firms. Collectively, these findings suggest that association member audit firms provide higher quality audits than nonmember firms. We also find that clients of association member firms pay higher audit fees than clients of nonmember firms, suggesting that association membership benefits small auditors by allowing them to charge fee premiums. When comparing association member clients with a size-matched sample of Big 4 clients, we find that audits provided by association member firms are of similar quality to those provided by Big 4 firms, and that clients of member firms pay a lower fee premium than do clients of Big 4 firms. These findings should be of interest to regulators when evaluating the resource constraints at small audit firms and to audit committees when making auditor selection decisions.

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APPENDIX A

Variable Definitions

404AUDIT =	an indicator variable set equal to one if the auditor opines on the strength of the company's internal controls over financial reporting, and zero otherwise.
ABSPMDA =	the absolute value of performance-matched discretionary accruals (see Section 3 for further details).
ACQUISITION =	net cash flow from acquisitions divided by total assets.
AR_IN =	the sum of accounts receivable and inventory, divided by total assets.
AVG_CLIENT_SIZE =	the average of the total assets (from Compustat) held by all clients audited during the inspection period.
BIG4 =	an indicator variable set equal to one if the company is audited by a Big 4 auditor (*Deloitte*, *Ernst & Young*, *KPMG*, or *PwC*), and zero otherwise.
BROKER_DEALER =	an indicator variable set equal to one if the audit firm audited any clients in the two-digit SIC code 62 or 64 during the inspection period, and zero otherwise.
CATA =	current assets divided by total assets.
CFO =	operating cash flows divided by total assets.
CURR =	current assets divided by current liabilities.
DECYE =	an indicator variable set equal to one if the company has a December year end, and zero otherwise.
FINANCING =	long-term debt issuances plus the sale of common and preferred stock divided by total assets.
FIRMSIZE =	the natural log of the number of publicly traded clients audited by the company's audit firm during the year.
FIRST_INSPECTION =	an indicator variable set equal to one for the first PCAOB inspection of the audit firm, and zero otherwise.
FOREIGN =	an indicator variable set equal to one if the company has income from foreign operations, and zero otherwise.
FOREIGN_D =	an indicator variable set equal to one if any clients audited during the inspection period had foreign income (from Compustat), and zero otherwise.
GAAP_DEFICIENCY =	an indicator variable set equal to one if the auditor received a PCAOB inspection GAAP-related deficiency, and zero otherwise.
GAAS_DEFICIENCY =	an indicator variable set equal to one if the auditor received a PCAOB inspection GAAS-related deficiency, and zero otherwise.
GC =	an indicator variable set equal to one if the company received a going concern opinion in the year, and zero otherwise.
LAFEES =	the natural log of audit fees.
LEV =	long-term debt divided by total assets.
LIT =	an indicator variable set equal to one if the company operates in a high litigation risk industry, as defined by Francis et al. (1994) (i.e., in SIC codes 2833–2836, 3570–3577, 3600–3674, 5200–5961, and 7370–7370), and zero otherwise.

LN_BUS_SEG =	the natural log of (1 + the number of business segments).
LOSS =	an indicator variable set equal to one if the company reports a loss, and zero otherwise.
LTA =	the natural log of total assets.
MEMBER =	an indicator variable set equal to one if the company is audited by an audit firm that is a member of an accounting firm association during the year, and zero otherwise.
MEMBER_D =	an indicator variable set equal to one if the audit firm is a member of an association in the year of the inspection, and zero otherwise.
MISSTATE =	an indicator variable set equal to one if the company restates fiscal year *t*'s 10-K in fiscal year *t*+1 or *t*+2.
MKTBK =	market value of equity divided by book value of equity.
MKTSHR =	the auditor's market share, in the metropolitan statistical area, of all audit fees charged to companies in the 2-digit SIC-code industry.
MVE =	the natural log of market value of equity (CSHO x PRCL_F).
OFFICES =	the natural log of the number of audit firm offices, hand collected from the PCAOB inspection report.
PARTNERS =	the natural log of the number of audit partners in the audit firm, hand collected from the PCAOB inspection report.
PUBLIC_CLIENTS =	the natural log of the number of publicly traded clients audited, hand collected from the PCAOB inspection report.
QUICK =	current assets less inventories, divided by current liabilities.
ROA =	net income divided by total assets.
ROI =	earnings before interest and taxes divided by total assets.
SDCFO =	the standard deviation of (operating cash flows divided by total assets) from year *t*-4 through year *t*-1.
SHORT_TENURE =	an indicator variable set equal to one if the auditor-client tenure to date is three years or less, and zero otherwise.
STOCK_EXCHANGE =	the percentage of clients audited in the inspection period that are registered on the New York Stock Exchange, NASDAQ, or American Stock Exchange.
TACCR_LAG =	the absolute value of total accruals from continuing operations in year *t*-1 divided by total assets in year *t*-1.
TOTAL_FEES =	the total fees (from AuditAnalytics) charged for audits completed during the inspection period.
Z =	bankruptcy risk using Altman's (1968) z-score.

TABLE 1

Percentage of Associations that Offer Specific Resources

	%[1]
Resources Assisting with Audit Inputs	
Member conferences and meetings	100
Members' only intranet	98
Networking and information exchanges within specific peer groups	98
Continuing professional education for technical proficiency and for 'soft skills' (e.g., leadership, marketing)	87
Technical manuals, software, and other tools	36
Assistance in developing niche practices	69
Special interest group podcasts, webcasts, and teleconferences	80
International staff exchanges	67
Recruiting and human resources programs and assistance	36
Resources Assisting with Brand Awareness	
International referrals	80
General client newsletters and mailings	69
Niche client newsletters and mailings	44
Proprietary research and/or surveys that generate publicity for association members	33
Resources Assisting with Quality Control	
Formal peer review programs; among others	31

[1] These percentages are calculated using the services and associations listed in the *Annual Directory of CPA Firm Associations and Networks* (CCH 2011).

TABLE 2

Descriptive Statistics for Audits in Audit Analytics

Panel A: Percentage of Audits Performed by Non-Big N Auditors, 2000 through 2012

	Total Number of Opinions	% of Opinions	% of Audit Fees	% of Total Fees	% of Assets
2000	8,670	40.2	4.3	2.1	1.1
2001	8,738	43.6	4.7	2.5	1.2
2002	11,065	40.8	4.6	3.2	1.4
2003	10,832	41.8	4.7	3.9	1.5
2004	9,911	46.0	4.6	4.3	1.5
2005	9,578	49.7	6.6	6.4	2.3
2006	9,499	53.2	7.9	7.5	2.3
2007	9,633	56.5	8.8	8.2	2.4
2008	9,172	57.1	8.5	8.0	2.6
2009	8,742	57.1	8.2	7.7	2.6
2010	**8,297**	**55.8**	**7.6**	**7.0**	**2.2**
2011	**7,905**	**54.7**	**7.4**	**6.8**	**2.2**
2012	**7,463**	**52.9**	**7.1**	**6.4**	**2.2**
Total / Average	119,505	49.6	7.1	6.2	2.1

Panel B: Percentage of Audits Performed by Non-Big N, Non-Second-Tier, and Non-'Parent' Audit Firms, 2000 through 2012

	Total Number of Opinions	% of Opinions	% of Audit Fees	% of Total Fees	% of Assets
2000	8,670	33.3	2.1	1.0	0.6
2001	8,738	36.5	2.4	1.1	0.6
2002	11,065	32.8	2.3	1.5	0.5
2003	10,832	32.9	2.4	1.9	0.6
2004	9,911	36.9	2.1	1.9	0.7
2005	9,578	39.4	2.9	2.8	0.9
2006	9,499	41.8	3.5	3.4	1.0
2007	9,633	44.4	3.7	3.5	0.9
2008	9,172	44.9	3.7	3.5	1.0
2009	8,742	44.9	3.5	3.3	1.0
2010	**8,297**	**45.7**	**4.4**	**4.1**	**1.1**
2011	**7,905**	**44.4**	**4.4**	**4.0**	**1.1**
2012	**7,463**	**44.1**	**4.4**	**4.0**	**1.1**
Total / Average	119,505	39.8	3.4	3.0	0.9

Panel A presents the percentage of audits, in terms of count, fees, and client size, conducted by non-Big N auditors from 2000 through 2012. Panel B presents the percentage of audits conducted by non-Big N auditors, non-Second-Tier auditors, and non-association 'parent' audit firms. Second-Tier firms are those annually inspected by the PCAOB in our sample period that are not Big N auditors (i.e., *BDO, Crowe Horwath*, *Grant Thornton*, *MaloneBailey*, and *McGladrey & Pullen*), and 'parent' audit firms are audit firms after which accounting firm associations are named (i.e., *Baker Tilly*, *BDO*, *Crowe Horwath*, *Grant Thornton*, *Moore Stephens*, *Moss Adams*, *PKF*, *McGladrey & Pullen*, and *UHY LLP*). Our sample period, 2010 through 2012, is bolded and shaded.

TABLE 3

Accounting Firm Association Member Descriptive Statistics

	U.S. Public Companies Audited (Full Audit Analytics)			Total Members			U.S. Members		
Association Name[1]	**2010**	**2011**	**2012**	**2010**	**2011**	**2012**	**2010**	**2011**	**2012**
AGN International-North America	58	57	56	197	202	197	45	42	40
Alliott Group	1	1	1	168	169	165	26	26	25
Baker Tilly International	124	119	88	145	150	149	20	18	16
BDO Seidman Alliance	167	165	146	210	223	229	210	223	229
BKR International	12	17	24	143	144	147	44	45	46
Community Banking Advisory Network (CBAN)	73	62	47	19	17	16	19	17	16
CPA Associates International	9	9	11	144	150	149	52	54	55
CPA Auto Dealer Consultants Association (CADCA)	55	48	36	19	20	20	19	20	20
CPAConnect	20	17	16	245	240	224	245	240	224
CPAmerica International	25	23	20	81	79	81	81	79	81
CPASNET.COM	1	1	1	30	30	30	30	30	30
CPA-USA Network	13	9	8	32	25	20	31	25	20
DFK International/USA	94	82	64	210	202	203	25	23	23
Enterprise Worldwide	4	3	3	67	74	71	31	34	28
HLB International	122	104	89	188	186	202	18	18	18
IAPA	36	11	8	220	217	211	16	19	17
IGAF Worldwide[2]	156	166	.	125	134	.	36	39	.
INAA Group	11	10	11	57	57	61	6	6	6
INPACT Americas	3	2	3	29	27	28	27	25	26
Integra International	1	0	0	100	104	114	25	25	25
JHI	6	0	0	119	117	115	25	26	25
K S International	2	2	2	54	60	63	5	6	6
Kreston International	27	59	57	231	265	216	4	3	3
McGladrey Alliance	63	57	46	91	86	83	91	86	81
MGI	5	5	3	158	160	160	22	22	22
Moore Stephens North America	97	82	62	51	51	50	29	27	27
Morison International	11	6	4	80	83	95	3	3	4
MSI Global Alliance	81	80	74	244	24	245	50	24	50

National Alliance of Auto Dealer Advisors	7	6	2	12	11	12	12	11	12
Nexia International	68	53	31	185	185	240	20	20	20
PKF North America	48	108	106	87	95	95	73	74	72
Praxity	102	71	94	79	79	81	8	8	8
Premier International Associates	1	0	31	27	30	32	6	2	1
PrimeGlobal[2]	.	.	122	.	.	351	.	.	57
Russell Bedford International	132	129	88	83	1	84	9	8	7
The International Accounting Group (TIAG)	52	50	46	210	260	264	60	63	57
The Leading Edge Alliance	207	211	178	160	165	180	49	49	48
Western Association of Accounting Firms	6	5	4	11	10	10	11	10	10

[1] We omit the 'parent' firms and those firms bearing the 'parent' firm's name before counting the number of public clients in Audit Analytics audited by members of the association. The following associations did not have any members that audited public companies during our sample period: *CPA Manufacturing Services Association (MSA)*, *Firm Foundation*, *National CPA Health Care Advisors Association (HCAA)*, *Not-For-Profit Services Association (NSA)*, *Polaris International*, and *Real Estate & Construction Advisors Association (RECA). Crowe Horwath International*, *Grant Thornton International*, *The Moss Adams Connection*, and *UHY International* did not have any member firms that are not named after their 'parent' accounting firm association.

[2] *IGAF Worldwide* and *Polaris International* merged in 2012 to create *PrimeGlobal*. Based on *PrimeGlobal*'s website, *IGAF*'s membership base was primarily in North America, whereas *Polaris International*'s membership base was primarily in Europe.

TABLE 4
Sample Selection

Audit firm-level analyses

	Equation (1) Inspection Deficiencies
PCAOB inspection reports from January 2010 through September 2013 for non-Big 4, non-second-tier, and non-'parent' audit firms	321
Less: Observations missing Compustat data	22
Less: Observations missing audit firm data	47
Final Sample	252

Company-level analyses

	Equation (2a)	Equation (3a)	Equation (4a)
	Misstatements	Discretionary Accruals	Audit Fees
Company-years in Audit Analytics and Compustat from 2010 through 2012, audited by non-Big 4, non-Second-Tier and non-'parent' audit firms, and with greater than $1 million in total assets in *t* and *t*-1	2,986	2,986	2,986
Less: Observations without *t*+1 data in Audit Analytics	1,080	n/a	n/a
Less: Observations in financial industries (SIC codes 6000 through 6900)	n/a	961	961
Less: Observations with insufficient data	37	439	52
Less: Observations with studentized residuals greater than 3.0	n/a	43	24
Final Sample	1,869	1,543	1,949

TABLE 5

Association Membership and Audit Quality: PCAOB Inspection Deficiencies

Panel A: Variable Descriptives and Univariate Statistics, Equation (1)

	Full Sample			Tests of Difference in Means		
	Mean	SD	Median	Member	Nonmember	Tests of
		N = 252		N = 114	N = 138	Diff
GAAP_DEFICIENCY	0.560	0.497	1.000	0.404	0.688	***
GAAS_DEFICIENCY	0.163	0.370	0.000	0.053	0.254	***
MEMBER_D	0.452	0.499	0.000			
OFFICES	3.171	5.246	1.000	4.860	1.775	***
PARTNERS	18.131	38.230	6.000	30.491	7.920	***
PUBLIC_CLIENTS	15.528	19.437	7.000	16.693	14.565	
TOTAL_FEES	13.700	1.235	13.575	14.141	13.336	***
FIRST_INSPECTION	0.183	0.387	0.000	0.088	0.261	***
AVG_CLIENT_SIZE	3.114	2.433	3.024	3.912	2.454	***
FOREIGN_D	0.206	0.405	0.000	0.272	0.152	**
BROKER_DEALER	0.079	0.271	0.000	0.096	0.065	
STOCK_EXCHANGE	0.233	0.297	0.065	0.292	0.185	***

All variables are defined in Appendix A. We winsorize continuous variables by year at ±1%. *OFFICES*, *PARTNERS*, and *PUBLIC_CLIENTS* are not logged in this table for better interpretability. We conduct two sample t-tests using separate variances (i.e., Satterthwaite t-tests). ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel B: Multivariate Results, Equation (1)

		Column (1)		Column (2)	
Variables	Pred. Sign	GAAP Inspection Deficiency		GAAS Inspection Deficiency	
Constant		-1.340	(0.753)	2.936	(0.232)
MEMBER_D	-	-1.227	(0.007) ***	-0.631	(0.041) **
OFFICES	-	0.211	(0.367)	0.028	(0.460)
PARTNERS	-	-0.499	(0.053) *	-0.621	(0.002) ***
PUBLIC_CLIENTS	?	0.485	(0.070) *	0.756	(0.000) ***
TOTAL_FEES	+	-0.095	(0.607)	-0.268	(0.901)
FIRST_INSPECTION	+	0.164	(0.642)	0.482	(0.136)
AVG_CLIENT_SIZE	?	0.131	(0.309)	0.137	(0.158)
FOREIGN_D	+	-0.171	(0.610)	0.317	(0.213)
BROKER_DEALER	+	-0.270	(0.643)	-0.118	(0.586)
STOCK_EXCHANGE	-	-2.451	(0.063) *	-0.018	(0.488)
Year Fixed Effects		Included		Included	
Pseudo R^2		0.325		0.307	
Area Under ROC Curve		0.831		0.780	
N		252		252	

The dependent variable is the dichotomous variable *GAAP_DEFICIENCY* in Column (1) and *GAAS_DEFICIENCY* in Column (2). All variables are as defined in Appendix A. We estimate the model using logistic regression with robust standard errors clustered by audit firm. All continuous variables are winsorized by year at ± 1%. P-values are in parentheses. ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively, based on one (two) tailed tests when a prediction is (is not) made.

TABLE 6

Association Membership and Audit Quality: Misstatements

Panel A: Variable Descriptives and Univariate Statistics, Equation (2a)

	Full Sample			Test of Differences in Means		
	Mean	SD	Median	Member	Nonmember	Test of
		N = 1,869		N = 1,262	N = 607	Diff
MISSTATE	0.094	0.291	0.000	0.075	0.132	***
MEMBER	0.675	0.468	1.000			
LTA	4.043	2.016	3.857	4.227	3.660	***
ROA	-0.250	0.816	0.001	-0.232	-0.286	
LEV	0.120	0.239	0.027	0.119	0.122	
LOSS	0.485	0.500	0.000	0.468	0.519	**
GC	0.161	0.368	0.000	0.136	0.213	***
MKTBK	2.529	10.699	1.024	2.251	3.107	
LN_BUS_SEG	0.621	0.548	0.693	0.609	0.648	
FINANCING	0.181	0.375	0.013	0.174	0.196	
FOREIGN	0.146	0.353	0.000	0.147	0.145	
ACQUISITION	0.004	0.027	0.000	0.005	0.003	
AR_IN	0.360	0.269	0.336	0.378	0.322	***
404AUDIT	0.223	0.416	0.000	0.254	0.160	***
SHORT_TENURE	0.429	0.495	0.000	0.411	0.465	**
FIRMSIZE	2.720	1.153	3.091	2.934	2.277	***
MKTSHR	0.277	0.382	0.057	0.293	0.242	***

All variables are defined in Appendix A. We winsorize continuous variables by year at ±1%. We conduct two sample t-tests using separate variances (i.e., Satterthwaite t-tests). ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel B: Multivariate Results, Equation (2a)

Variables	Pred. Sign	*MISSTATE*	
Constant		-3.721	(0.000) ***
MEMBER	-	-0.484	(0.010) ***
LTA		0.140	(0.150)
ROA		-0.098	(0.470)
LEV		-0.276	(0.450)
LOSS		0.524	(0.030) **
GC		0.798	(0.010) ***
MKTBK		-0.007	(0.450)
LN_BUS_SEG		0.339	(0.130)
FINANCING		-0.026	(0.930)
FOREIGN		-0.218	(0.480)
ACQUISITION		7.358	(0.000) ***
AR_IN		-0.321	(0.510)
404AUDIT		-0.311	(0.290)
SHORT_TENURE		0.023	(0.910)
FIRMSIZE		-0.206	(0.020) **
MKTSHR		0.152	(0.610)

Industry Fixed Effects	Included
Year Fixed Effects	Included
Pseudo R^2	0.120
Area Under ROC Curve	0.715
N	1,869

The dependent variable is the dichotomous variable *MISSTATE*. All variables are as defined in Appendix A. We estimate the model using logistic regression with robust standard errors clustered by company. All continuous variables are winsorized by year at ± 1%. P-values are in parentheses. ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively, based on one (two) tailed tests when a prediction is (is not) made.

TABLE 7

Association Membership and Audit Quality: Performance-Matched Discretionary Accruals

Panel A: Variable Descriptives and Univariate Statistics, Equation (3a)

	Full Sample			Test of Difference in Means		
	Mean	SD	Median	Member	Nonmember	Test of
		N = 1,543		N = 1,071	N = 472	Diff
ABSPMDA	0.200	0.258	0.103	0.178	0.252	***
MEMBER	0.694	0.461	1.000			
MVE	3.141	1.563	3.212	3.236	2.927	***
ROA	-0.268	0.657	-0.042	-0.255	-0.299	
LEV	0.141	0.310	0.008	0.143	0.136	
CURR	4.038	7.256	1.882	4.123	3.846	
CFO	-0.116	0.416	0.003	-0.107	-0.137	
SDCFO	0.244	0.520	0.096	0.235	0.265	
LOSS	0.572	0.495	1.000	0.563	0.591	
MKTBK	2.326	8.505	1.227	2.341	2.292	
LIT	0.138	0.345	0.000	0.152	0.106	***
Z	-2.571	22.249	1.543	-2.234	-3.335	
TACCR_LAG	0.253	0.482	0.104	0.233	0.299	
404AUDIT	0.184	0.388	0.000	0.205	0.136	**
SHORT_TENURE	0.412	0.492	0.000	0.400	0.441	***
FIRMSIZE	2.703	1.139	2.996	2.884	2.291	***
MKTSHR	0.208	0.342	0.031	0.205	0.214	

All variables are defined in Appendix A. We winsorize continuous variables by year at ±1%. We conduct two sample t-tests using separate variances (i.e., Satterthwaite t-tests). ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel B: Multivariate Results, Equation (3a)

		Absolute Value of Performance-Matched Discretionary Accruals (*ABSPMDA*)			
	Pred.	Column (1)		Column (2)	
Variables	Sign	Full Sample		Positive Accruals Sample	
Constant		0.249	(0.000) ***	0.337	(0.000) ***
MEMBER	-	-0.048	(0.000) ***	-0.043	(0.005) ***
MVE		-0.022	(0.000) ***	-0.041	(0.000) ***
ROA		-0.197	(0.000) ***	0.085	(0.108)
LEV		-0.022	(0.386)	-0.030	(0.261)
CURR		0.002	(0.041) **	0.001	(0.222)
CFO		0.028	(0.497)	-0.267	(0.000) ***
SDCFO		0.056	(0.001) ***	0.041	(0.060) *
LOSS		-0.077	(0.000) ***	-0.072	(0.000) ***
MKTBK		0.000	(0.576)	0.000	(0.713)
LIT		-0.003	(0.843)	-0.010	(0.564)
Z		-0.001	(0.001) ***	-0.001	(0.004) ***
TACCR_LAG		0.090	(0.000) ***	0.093	(0.001) ***
404AUDIT		0.024	(0.132)	0.032	(0.108)
SHORT_TENURE		0.025	(0.027) **	0.021	(0.153)

FIRMSIZE	-0.007	(0.173)	-0.009	(0.128)
MKTSHR	-0.030	(0.050) **	-0.035	(0.044) **
Year Fixed Effects	Included		Included	
Adjusted R^2	0.437		0.328	
N	1,543		856	

The dependent variable is the absolute value of performance-matched discretionary accruals (*ABSPMDA*). We use the full sample in Column (1) and a sample with only positive performance-matched discretionary accruals in Column (2). All variables are as defined in Appendix A. We estimate each regression using OLS with robust standard errors clustered by company. All continuous variables are winsorized by year at ± 1%. P-values are in parentheses. ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively, based on one (two) tailed tests when a prediction is (is not) made.

TABLE 8

Association Membership and Audit Quality: Comparing with Big 4 Audit Firms Using Misstatements

Panel A: Univariate Statistics, Equation (2b)

	Full Sample			Test of Difference in Means		
	Mean	SD	Median	Member	Big4	Test of
	N = 7,248			N = 1,262	N = 5,379	Diff
MISSTATE	0.109	0.312	0.000	0.075	0.114	***

MISSTATE is defined in Appendix A. We conduct two sample t-tests using separate variances (i.e., Satterthwaite t-tests). ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel B: Multivariate Results, Equation (2b)

		MISSTATE			
		Column (1)			Column (2)
Variables	Pred. Sign	Full Sample		Pred. Sign	Matched Sample	
Constant		-2.496	(0.000) ***		-2.5340	(0.000) ***
MEMBER (α_1)	-	-0.560	(0.002) ***	?	-0.035	(0. 891)
BIG4 (α_2)	-	-0.131	(0.260)			
F-Test $\alpha_1 = \alpha_2$	?		(0.020) **			
Control Variables		Included			Included	
Industry Fixed Effects		Included			Included	
Year Fixed Effects		Included			Included	
Pseudo R^2		0.013			0.005	
Area Under ROC Curve		0.657			0.671	
N		7,248			1,698	

The dependent variable is *MISSTATE*. We use the full sample in Column (1) and a size-matched sample comprised of only clients of member audit firms and clients of Big 4 audit firms in Column (2). All variables are as defined in Appendix A. We estimate each regression using logistic regression with robust standard errors clustered by company. All continuous variables are winsorized by year at ± 1%. P-values are in parentheses. ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively, based on one (two) tailed tests when a prediction is (is not) made.

TABLE 9

Association Membership and Audit Quality: Comparing with Big 4 Audit Firms Using Performance-Matched Discretionary Accruals

Panel A: Univariate Statistics, Equation (3b)

	Full Sample			Test of Difference in Means		
	Mean	SD	Median	Member	Big4	Test of
	N = 6,953			N = 1,071	N = 5,410	Diff
ABSPMDA	0.098	0.141	0.050	0.170	0.072	***

ABSPMDA is defined in Appendix A and winsorized at ±1% to mitigate the influence of outliers. We conduct two sample t-tests using separate variances (i.e., Satterthwaite t-tests). ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel B: Multivariate Results, Equation (3b)

		Absolute Value of Performance-Matched Discretionary Accruals (*ABSPMDA*)				
		Full Sample			Matched Sample	
Variables	Pred. Sign	Column (1)		Pred. Sign	Column (2)	
Constant		0.161	(0.000) ***		0.079	(0.000) ***
MEMBER (η_1)	-	-0.049	(0.000) ***	?	0.006	(0.379)
BIG4 (η_2)	-	-0.069	(0.000) ***			
F-Test $\eta_1 = \eta_2$	?		(0.000) ***			
Control Variables		Included			Included	
Year Fixed Effects		Included			Included	
Adjusted R^2		0.341			0.282	
N		6,953			1,104	

The dependent variable is the absolute value of performance-matched discretionary accruals (*ABSPMDA*). We use the full sample in Column (1) and a sized-matched sample comprised of only clients of member audit firms and clients of Big 4 audit firms in Column (2). All variables are as defined in Appendix A. We estimate each regression using OLS with robust standard errors clustered by company. All continuous variables are winsorized by year at ± 1%. P-values are in parentheses. ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively, based on one (two) tailed tests when a prediction is (is not) made.

TABLE 10

Association Membership and Audit Fee Premiums

Panel A: Variable Descriptives and Univariate Statistics, Equation (4a)

	Full Sample			Test of Difference in Means		
	Mean	SD	Median	Member	Nonmember	Test of
		N = 1,949		N = 1,283	N = 666	Diff
LAFEES	11.738	0.785	11.744	11.885	11.455	***
MEMBER	0.658	0.474	1.000			
LTA	3.111	1.495	3.088	3.203	2.933	***
LN_BUS_SEG	0.764	0.475	0.693	0.777	0.740	
CATA	0.560	0.294	0.604	0.579	0.523	***
QUICK	3.210	6.185	1.304	3.294	3.049	
LEV	0.137	0.291	0.008	0.141	0.131	
ROI	-0.390	1.009	-0.062	-0.382	-0.405	
LOSS	0.589	0.492	1.000	0.582	0.601	
GC	0.198	0.398	0.000	0.206	0.182	
FOREIGN	0.239	0.426	0.000	0.207	0.299	***
DECYE	0.675	0.469	1.000	0.670	0.683	
404AUDIT	0.166	0.372	0.000	0.193	0.114	***
SHORT_TENURE	0.457	0.498	0.000	0.428	0.514	***
FIRMSIZE	2.698	1.132	2.996	2.877	2.353	***
MKTSHR	0.221	0.352	0.032	0.213	0.236	

All variables are defined in Appendix A. We winsorize continuous variables by year at ±1%. We conduct two sample t-tests using separate variances (i.e., Satterthwaite t-tests). ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel B: Multivariate Results, Equation (4a)

Variables	Pred. Sign	Audit Fees (*LAFEES*)	
Constant		9.855	(0.000) ***
MEMBER	+	0.269	(0.000) ***
LTA	+	0.368	(0.000) ***
LN_BUS_SEG	+	-0.001	(0.512)
CATA	+	0.463	(0.000) ***
QUICK	-	-0.023	(0.000) ***
LEV	+	0.128	(0.004) ***
ROI	-	-0.015	(0.181)
LOSS	+	0.136	(0.000) ***
GC	+	0.183	(0.000) ***
FOREIGN	+	0.102	(0.005) ***
DECYE	+	-0.005	(0.561)
404AUDIT	+	0.185	(0.000) ***
SHORT_TENURE	-	-0.016	(0.273)
FIRMSIZE	+	0.057	(0.000) ***

MKTSHR	+	-0.038	(0.788)
Industry Fixed Effects		Included	
Year Fixed Effects		Included	
Adjusted R^2		0.634	
N		1,949	

The dependent variable is the natural log of audit fees (*LAFEES*). All variables are as defined in Appendix A. We estimate each regression using OLS with robust standard errors clustered by company. All continuous variables are winsorized by year at ± 1%. P-values are in parentheses. ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively, based on one (two) tailed tests when a prediction is (is not) made.

TABLE 11

Association Membership and Audit Fees: Comparing with Big 4 Audit Firms

Panel A: Univariate Statistics, Equation (4b)

	Full Sample			Test of Difference in Means		
	Mean	**SD**	**Median**	**Member**	**Big 4**	**Test of**
		N = 8,688		**N = 1,283**	**N = 6,739**	**Diff**
LAFEES	13.635	1.386	13.778	11.893	14.177	***

LAFEES is defined in Appendix A and winsorized at ±1% to mitigate the influence of outliers. We conduct two sample t-tests using separate variances (i.e., Satterthwaite t-tests). ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Panel B: Multivariate Results, Equation (4b)

		Audit Fees (*LAFEES*)				
		Full Sample			**Matched Sample**	
Variables	**Pred. Sign**	**Column (1)**		**Pred. Sign**	**Column (2)**	
Constant		10.091	(0.000) ***		11.071	(0.000) ***
MEMBER (θ_1)	+	0.253	(0.000) ***	?	-0.702	(0.000) ***
BIG4 (θ_2)	+	0.756	(0.000) ***			
F-Test $\theta_1 = \theta_2$	?		(0.000) ***			
Control Variables		Included			Included	
Industry Fixed Effects		Included			Included	
Year Fixed Effects		Included			Included	
Adjusted R^2		0.877			0.693	
N		8,688			1,360	

The dependent variable is the natural log of audit fees (*LAFEES*). We use the full sample in Column (1) and a size-matched sample comprised of only clients of member audit firms and clients of Big 4 audit firms in Column (2). All variables are as defined in Appendix A. We estimate each regression using OLS with robust standard errors clustered by company. All continuous variables are winsorized by year at ± 1%. P-values are in parentheses. ***, **, and * represent significance at the 0.01, 0.05, and 0.10 levels, respectively, based on one (two) tailed tests when a prediction is (is not) made.