Do social ties between external auditors and audit committee members affect audit quality?

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Abstract

We examine whether social ties between engagement auditors and audit committee members shape audit outcomes. Although these social ties can facilitate information transfer and help auditors mitigate management pressure to waive correction of detected misstatements, cozy interpersonal relations can undermine auditors' monitoring of the financial reporting process. We measure social ties by alma mater connections and audit quality by the propensity to render modified audit opinions, earnings restatements, regulatory sanctions in the event of accounting irregularities, and firm valuation. Our evidence implies that school ties between engagement auditors and audit committee members impair audit quality. In evidence supporting another prediction, we generally find that this relation is concentrated where social ties—evident in a connected audit committee member chairing the committee, having an accounting background, or graduating from the same school/department as an engagement auditor—are more salient. Consistent with favoritism stemming from social networks, we also report evidence suggesting that audit fees are higher in the presence of social ties between an engagement auditor and the audit committee with this impact concentrated in firms with particularly close auditor-audit committee social links. Collectively, our analysis lends support to the narrative that the negative implications—namely, worse audit quality and higher audit fees—of these social ties outweigh any benefits.

Key words: Social ties, External auditors, Audit committee

1. Introduction

A burgeoning literature documents that social networks influence economic agents' behavior and, in turn, economic outcomes in the context of corporate governance. External auditing has evolved into an important governance mechanism for reducing agency costs (Watts and Zimmerman 1986). In selecting outside auditors and overseeing the external audit function, the audit committee serves as a bridge between firm management and outside auditors. In this paper, we examine the importance of social ties between an engagement auditor and audit committee members to audit outcomes.[1]

As illustrated in Figure 1, firm management can affect external auditing by exerting influence over connected external auditors via linkage A or audit committee members via linkage B. A number of papers have investigated how the interpersonal links between firm management and external auditors (linkage A) affect audit outcomes. Lennox (2005), Menon and William (2004), and Baber et al. (2013) show that firm executives' affiliation with CPA firms stemming from their working experience impairs audit and earnings quality in the U.S. However, some research implies that such revolving door hiring practices do not threaten auditor independence and may even improve audit quality (Geiger et al. 2008; Naiker and Sharma 2009; Naiker et al. 2013). Additionally, Kwon and Yi (2012) document that social ties between external auditors and CEOs are associated with better accrual quality and higher audit fees in Korea.

<div align="center">Insert Figure 1 here.</div>

Partly motivated by the regulatory concern that reduced audit committee independence from management may negatively affect its effectiveness in monitoring the financial reporting process, there is considerable research examining whether audit committee members' formal ties, typically defined as financial/familial ties, with management (linkage B) influence audit

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[1] In this study, we use the term "engagement auditors" rather than "partners" to refer to the individual auditors who perform the audits and sign the audit reports. China diverges from most other countries in that the signatory auditors need not be partners. According to China's *Independent Auditing Standards No. 7 – Audit Report* (MOF 1995a), engagement auditors should sign the audit reports in order to clarify the responsibility of the audits conducted by them. In practice, individual auditors are explicitly accountable for audit reports issued in their names. For example, regulatory sanctions for discovered audit failures are always imposed on the individual signatory auditors involved (Chen et al. 2010; Gul et al. 2013).

committee oversight quality (e.g., Carcello and Neal 2000, 2003; Klein 2002; Bédard et al. 2004; Agrawal and Chadha 2005; Krishnan 2005; and Lennox and Park 2007). Generally, this line of research suggests that more independent audit committees are associated with better outcomes such as more conservative audit reporting, better financial reporting quality, and fewer internal control weaknesses. More recently, researchers have begun to examine how informal ties, including social connections between firm management and audit committee members, shape accounting transparency. Hwang and Kim (2012) and Bruynseels and Cardinaels (2013) report that such links are negatively associated with audit or financial reporting quality, indicating weaker oversight provided by audit committees in the presence of social network connections.

However, there is hardly any research on whether economic outcomes vary systematically with how external engagement auditors interact with audit committee members (via linkage C in Figure 1).[2] This issue is interesting as both external auditing and the audit committee are important governance structures intended to protect the integrity of firms' accounting numbers. Moreover, auditors may rely on information generated by audit committees in making audit decisions. For example, the Public Company Accounting Oversight Board (PCAOB) Auditing Standard No. 5 (AS5) encourages external auditors (EAs) to turn to the internal audit function (IAF) when the internal audit activities meet certain criteria and the EAs would find efficiencies in using their work (PCAOB 2007). This has been echoed by the PCAOB's recent adoption of Auditing Standard No. 16 (AS16), which further requires the auditor to obtain information relevant to the audit from the audit committee (PCAOB 2012). The importance of this issue has been reflected in a recent review article by Bame-Aldred et al. (2013: 253, emphasis in original):

> Research has begun answering several important questions related to the effects of EAs reliance on IAFs (e.g., litigation risk, audit efficiency, and audit fees). However, there is a paucity of research concerning the *effects* of EAs reliance on IAF in terms of external audit quality. Given the criticality of this effect, and the PCAOB's interest in determining the extent to which EAs reliance on IAF can either enhance or diminish audit quality, we encourage researchers to focus on this area in particular.

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[2] Poor data availability is at least partly behind research in this area remaining scarce. Data for the individual auditors handling the audit engagements and their demographic information are not publicly available in the U.S. or the vast majority of other countries. In this situation, data constraints prevent the identification of social networks between the engagement auditor and board members from public sources.

Similarly, in comprehensively surveying recent archival auditing research, DeFond and Zhang (2013: 6) observe that prior studies seldom examine demand-side factors, and call for more evidence on the role that auditor-audit committee interactions play in audit quality:

> [W]hile there is a thriving literature on the economic characteristics of audit committees, relatively little is known about whether or how audit committees actually affect the client's financial reporting function, or how they interact with the outside auditor.

Social ties between audit committee members and auditors could affect audit quality in one of two competing ways. On one hand, social ties could impede audit committee members and engagement auditors from exercising due diligence in their mutual monitoring during the external audit process, translating into lower quality audits. Intimacy between engagement auditors and audit committee members can also lead to auditors' unwarranted trust in information provided by audit committees, injecting unintentional bias into auditors' judgment and decision making. On the other hand, by enhancing the trust between audit committee members and engagement auditors, social ties can facilitate information transfer between the two parties and reduce errors in auditor judgment. In the presence of a supportive audit committee, the auditor is in a better position to resist client pressure to waive corrections when controversial issues in financial reporting arise, leading to better audits.

It follows that the question of whether audit quality would be enhanced or diminished by social ties between audit committee members and external auditors has to be tackled empirically. The Chinese market provides an opportune experimental setting to analyze this issue for several reasons. First, a *guanxi* (relationship or social-network oriented) culture has been prevalent in social life and business society throughout Chinese history (Hui and Green 1997; Tsang 1998). Accordingly, the role that social ties among individuals play in economic activities can be particularly strong (Xin and Pearce 1996), increasing the power of our tests. Second, engagement auditors are required to sign the audit report in China and are responsible for decision-making on significant matters in the audit process. Extensive recent research implies that audit outcomes are significantly influenced by the signing auditors in China (Chen et al. 2010; Firth et al. 2012a; Gul et al. 2013; He et al. 2013). Consequently, Chinese public firms provide a fertile testing ground for isolating whether social ties influence individual auditors' practices. Third, the biographic information on audit committee members is disclosed publicly in corporate annual reports, and signing auditors' names and their

demographic data can also be obtained from corporate annual reports and the China Institute of Certified Public Accountants (CICPA), respectively. We can identify the social ties between audit committee members and engagement auditors using their demographic data.

After recent research (e.g., Cohen et al. 2008, 2010; Hwang and Kim 2009; Fracassi and Tate 2012), we measure social ties with the alma mater links between engagement auditors and audit committee (AC) members.[3] Consistent with our first prediction, we find that AC-auditor school ties reduce the auditors' propensity to issue modified audit opinions (MAOs). Although MAOs are a direct outcome of the audit process, we confront concerns surrounding the validity of this audit quality measure by triangulating our analysis with two observable *ex post* outcomes that reflect whether the auditor issued an unqualified opinion on materially deficient financial statements: clients' earnings restatements and regulatory sanctions in the event of accounting irregularities.[4] Moreover, we consider whether the capital markets reward in the form of higher valuations firms that refrain from hiring auditors with social ties to the audit committee.[5] Evidence from examining accounting restatements, frauds, and firm valuations corroborates our MAO results, reinforcing the inference that school ties between engagement auditors and AC members undermine audit quality. In results lending support to another prediction, we also generally find that the importance of these school ties to audit quality is concentrated in firms with more salient links evident in a connected AC member

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[3] In China, at least two individual auditors are required to sign the audit reports issued to public companies. We consider all signatory auditors of an audit report in measuring the AC-auditor school ties because all signatory auditors are accountable for audit reports issued. This measurement is also consistent with prior China studies analyzing individual auditor level data (e.g., Chen et al. 2010; Firth et al. 2012a; Gul et al. 2013; He et al. 2013).

[4] In contrast to the auditor's opinion formulation, earnings-based measures for our purposes may suffer from amounting to the joint product of management and auditor decisions (e.g., Francis 2011). Given that the general earnings management construct is very difficult to reliably measure (e.g., Dechow et al. 1995, 2010; Guay et al. 1996; Healy and Wahlen 1999; Hribar and Collins 2002), we follow Ball's (2009) advice to avoid the limitations inherent in gauging earnings management with discretionary accruals by focusing on more extreme forms of corporate misreporting that violate generally accepted accounting principles (Miller 2006; Lennox et al. 2013). However, in an important downside, our three discrete dependent variables—namely, MAOs, restatements, and regulatory sanctions—may fail to reflect subtler within-GAAP variations in audit quality. In the other direction, the advantages of these proxies include that they more directly capture audit quality and admit only minimal measurement error (DeFond and Zhang 2013).

[5] Consistent with strict external monitoring narrowing outside investors' information asymmetry, prior research implies that firms that appoint high-quality auditors attract higher valuations (e.g., Fan and Wong 2005; Guedhami et al. 2013).

chairing the committee, having an accounting background, or having graduated from the same department/school as an engagement auditor. Additionally, in evidence consistent with favoritism triggered by the social network, we find that audit fee premiums are higher in the presence of AC-auditor school ties, especially when a connected AC member chairs the committee, has an accounting background, or receives their education from the same department/school as an engagement auditor.

This study advances our understanding of the determinants of audit committee oversight effectiveness. In some ways, the audit committee serves as a bridge between firm management and the external auditors. There is ample evidence on one side of this bridge with several papers focusing on the relation between the audit committee and management. In sharp contrast, we are not aware of any archival research exploring how social networks between engagement auditors and audit committee members operate on the other side of this bridge. Beasley et al. (2009) conduct extensive interviews with 42 audit committee members to examine their activities in six areas, including the external audit process. Complementing Beasley et al.'s interview approach, we provide archival evidence on how social network connections influence the interaction between audit committee members and engagement auditors in the financial reporting process. Naiker and Sharma (2009) find that the presence of former audit partners on the audit committee is associated with fewer internal control weaknesses. Our research differs from theirs in two main respects. First, we evaluate how the connection between a *current* engagement auditor and the audit committee impacts audit quality whereas Naiker and Sharma's (2009) analysis is based on potential connections between *former* audit partners and current audit teams. Second, in Naiker and Sharma's (2009) setting, the connections are forged through audit committee members' employment history in the audit firm, meaning that the effect can be attributed to superior knowledge and expertise acquired through these members' work experience. Given that our evidence is based on a more generic form of connection, school ties, it is constructive for isolating whether social links between external auditors and audit committee members shape audit quality.[6]

Our analysis also contributes to the public policy discourse. Considerable regulatory attention has been devoted to the importance of audit committee independence from firm

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[6] For example, our analysis avoids identification complications stemming from client knowledge of current audit strategies that can increase the likelihood that audits fail to detect misstatements.

management. In comparison, the independence of the audit committee from the outside auditor has largely been taken for granted in regulatory policy circles. Our large-sample evidence suggests that the informal personal ties between the audit committee and engagement auditors also matter.[7] In theory, such informal ties could strengthen or weaken audit quality. We show that, in terms of both audit quality and fees, the costs of social links between audit committee members and engagement auditors outweigh their benefits. Reflecting its first-order economic materiality, the presence of AC-auditor school ties translates into the likelihood of receiving an MAO falling by about 33% according to our coefficient estimates. These results are particularly relevant in light of auditing standard setters' call for external auditors' reliance on information provided by audit committees (e.g., PCAOB 2007; 2012). Our evidence also suggests that, apart from formal ties based on financial or familial affiliations, disclosure of informal ties between engagement auditors and audit committee members would benefit outside users in gauging the quality of audited financial reports.

From a policy standpoint, our research also coarsely informs the debate on whether compelling audit firms to divulge the identity of the engagement auditor would improve accounting transparency. For example, the PCAOB (2013) in the U.S. has proposed mandating this disclosure, which is already required under the European Union's Eighth Company Law Directive (2006).[8] Although it would be premature to draw firm policy conclusions at this early stage—particularly when relying on evidence from another country with, for example, far different public and private enforcement institutions governing auditor discipline (e.g., Allen et al. 2005; Chen et al. 2007; Jiang et al. 2010; He et al. 2013)—our results lend some initial support

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[7] Focusing on the individual auditor level may be highly relevant to protecting *auditor* independence. For example, even when there are no independence complications at the office or firm level, engagement auditors may experience independence threats (e.g., Chen et al. 2010). Similarly, a client may be material to the compensation or career concerns of an engagement auditor even when that client is immaterial from an office or firm level perspective (Cohen and Trompeter 1998; Moore et al. 2006; Nelson 2006). Additionally, prior research stresses that the close nature of their interactions can be conducive to clients inappropriately influencing engagement auditors' judgments (Hackenbrack and Nelson 1996; Bazerman et al. 1997). Finally, the greater accountability that accompanies identifying the engagement auditor may lower the incidence of engagement auditors succumbing to client pressure in negotiations on proposed audit adjustments (DeZoort et al. 2006).

[8] In reproposing amendments to its audit standards that would require audit firms to disclose the engagement partner's identity, the PCAOB (2013) summarized its rationale. Linking to our focus on individuals' social histories, Martin Baumann, PCAOB Chief Auditor and Director of Professional Standards, highlighted that: "Over time, investors will benefit from knowing the identity of the engagement partner and being able to obtain an understanding of an engagement partner's history when evaluating the audit."

to the intuition that revealing the identity of the engagement auditor would provide valuable information to the capital markets.[9]

In response to calls for research on this issue (e.g., DeFond and Francis 2005; Nelson and Tan 2005; Church et al. 2008; Francis 2011), recent evidence implies that audit outcomes hinge on individual auditor characteristics (e.g., Carey and Simnett 2006; Chi et al. 2009; Zerni 2012; Carcello and Li 2013; Gul et al. 2013; Knechel et al. 2013a, 2013b).   Our analysis extends this research to include the role of social connections between the engagement auditor and audit committees, helping to empirically clarify whether audit quality varies with "the socioeconomic characteristics of audit partners and audit team members" (DeFond and Zhang 2013: 85).[10] This evidence may benefit audit firms eager to improve their performance by, for example, reallocating their quality control resources to ensure that auditors with alma mater social ties to audit committee members are reassigned to other clients (Francis and Michas 2013; Knechel et al. 2013b).

The rest of this paper is organized as follows.   In the next section, we develop the motivation for our testable predictions.   Section 3 describes the research methods.   Section 4 covers the sample and data used in the analysis.   Section 5 outlines the empirical evidence and Section 6 concludes.

2. Hypothesis development

2.1 Social networks and economic efficiency

The embeddedness theory developed by Granovetter (1985) emphasizes the importance of social relations in analyzing economic activities in modern industrial society.   However, by atomizing economic agents' behavior, classical and neo-classical economics do not consider these social relations in depth.   Indeed, research on how social networks influence corporate governance has only gained momentum in recent years.   Generally, this line of the literature

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[9] Besides the potential policy implications for other jurisdictions, China's experience with identifying engagement auditors is interesting in its own right given the importance of the country's capital markets.

[10] In additional motivation for our research questions, DeFond and Zhang (2013: 97) call for research that "[identifies] new audit committee characteristics that have important implications for audit quality. This would essentially build on the current literature that examines the personal and social characteristics of board members in the governance literature more generally."

suggests that social networks can enhance or jeopardize economic efficiency, depending on the research setting.

Since much information about economic activities can be subtle and difficult to verify, concrete social relations generate trust between people and encourage cooperation (Granovetter 2005). In the context of corporate governance, Engelberg et al. (2012) show that the presence of interpersonal links between firm and bank managers leads to cheaper loan financing; moreover, the connected deal is followed by better future firm performance, suggesting that social networks improve monitoring by facilitating the exchange of information between lenders and borrowers. Similarly, Schmidt (2009) finds that stronger social connections between CEOs and independent board directors are associated with higher bidder announcement returns during mergers and acquisitions when the company has greater demand for boards' advisory services. Reinforcing the presence of better information flow between socially connected individuals, Cohen et al. (2008, 2010) document that Wall Street money managers and financial analysts benefit from their social ties with managers of public firms.

Although social networks facilitate information sharing between economic agents, board directors could exploit their information advantages to help firm management but at the expense of shareholders, resulting in inferior corporate governance. For example, socially connected boards tend to award CEOs higher compensation and to lower the pay- or turnover-performance sensitivity (Subrahmanyam 2008; Hwang and Kim 2009; Nguyen 2012); social ties between corporate executives and the board or audit committee members are associated with worse earnings management (Krishnan et al. 2011; Hwang and Kim 2012) and elevate the probability of engaging in financial misconduct (Chidambaran et al. 2012); and social ties between CEOs and board directors lead to lower firm valuation and more value-destroying investments (Fracassi and Tate 2012). Although Schmidt (2009) documents the benefits of a friendly board during mergers and acquisitions, he also finds that, when there is a greater need for board monitoring, firms with stronger CEO-board social connections make poor merger and acquisition decisions. Relatedly, despite the superior performance of connected mutual fund managers and financial analysts (Cohen et al. 2008, 2010), Cai et al. (2012) find that the transfer of privileged information via social ties has an adverse impact on shareholder wealth in the form of higher trading costs. Collectively, these studies suggest that board performance in monitoring and disciplining the CEO falls in the presence of social ties.

2.2 Social networks between engagement auditors and audit committee members

Prior research on social networks implies that connections between engagement auditors and audit committee members can have both positive and negative implications for audit quality. This tension underlying whether these social ties are, on balance, better or worse for audit quality helps motivate our research.

In one direction, social ties enhance trust and facilitate information flows between individuals. In the audit setting, the audit committee possesses specific knowledge of the company's accounting system, internal control environment, and even possible violations of laws or regulations. Although such knowledge would help the auditor to improve their performance, the information could be sensitive and difficult to transmit. It is well recognized in social science that social networks enable people to discuss sensitive issues that would otherwise not be shared (e.g., Sias and Cahill 1998; Gibbons 2004). In the presence of personal connections, audit committee members are likely to be candid with engagement auditors, sharing and discussing significant matters related to the audit and the financial statements. In a field study, Rennie et al. (2010) find that client management representative's openness of communication is essential to the efficient and effective conduct of an audit. In a similar vein, the auditor's trust in audit committee members who are socially connected with them would enable the auditor to obtain the audit committee's insights and information about important transactions and managers' incentives, leading to higher audit quality.

Another channel through which social networks may positively affect quality is the audit committee's support of the external auditor in the event that controversial issues in financial reporting arise. Previous studies generally suggest that audit committees that are more independent from management are associated with better audit or financial reporting quality. One explanation is that an independent audit committee could help alleviate management pressure by supporting the auditor's position in proposing audit adjustments or issuing a going-concern report (Carcello and Neal 2000). Since the audit committee is responsible for appointing auditors, a more independent audit committee also shields auditors from dismissal after making audit decisions that are unfavorable to management (Carcello and Neal 2003). Conceivably, interpersonal links between audit committee members and engagement auditors are likely to strengthen this positive impact. Mapping into DeAngelo's (1981) theory characterizing audit quality as the joint probability that the auditor will detect (competence)

and report (independence) material accounting omissions or misstatements, social connections between the audit committee and engagement auditors may improve audit quality by stimulating information flows and protecting auditor independence.

In the other direction, like a double-edged sword, cozy interpersonal relations can be detrimental to monitoring and governance according to some prior social network research. Extending this argument to the audit setting, the auditor's personal attachment to the audit committee may lead to a substandard audit for the following reasons.

First, the audit committee serves as the firm's primary interface with the external auditor. It is the committee's duty to supervise the firm's internal audit system, to review its internal control system and financial reports, and to oversee the external audit. Being well acquainted with audit committee members, an auditor could be reluctant—whether consciously or unconsciously—to challenge internal audit or control procedures or financial reporting policies since a negative opinion on these matters is likely to damage their social links. Likewise, social pressures could also undermine the audit committee's oversight over the external audit. Although the negative effects of concessions will unfold gradually, the consequences of "not being nice" to a friend are likely to be immediate. Psychology studies find that most people are far more concerned about immediate effects of their actions (e.g., Loewenstein 1996), suggesting that the auditor or audit committee are likely to refrain from challenging each other when they are closely connected. Along these lines, Nelson (2006: 31) stresses: "From a social perspective, auditors may feel pressure not to disappoint or harm clients (who may be friends or former colleagues)…"

Second, when sharing a common social background, auditors and audit committee members are more likely to develop homophily, i.e., an affinity for similar others. While homophily fosters mutual understanding and communications between parties (Bhowmik and Rogers 1971), it also engenders favoritism bias, i.e., a tendency to interpret similar people's actions or information in a favorable way (Uzzi 1996). Such a bias can lower the auditor's professional skepticism, resulting in them overly relying on audit evidence collected from familiar individuals. Behavioral auditing research suggests that trust plays an important role in the auditor's judgment, although this may leave them vulnerable to becoming overly

sympathetic to clients.[11]   For example, auditor-subjects choose a less rigorous audit strategy when manager-subjects exhibit more trust-attracting behavior (King 2002).   Similarly, auditors who are more trusting of others are less likely to pay attention to audit evidence suggesting aggressive reporting (Rose 2007).   In the audit process, the auditor obtains information from the audit committee that could be critical to their judgment and opinion formation.   The favoritism bias arising from social ties can lead to auditors' unwarranted trust in information provided by audit committees, translating into unintentional bias in auditors' judgment and reporting decisions.   Consequently, social ties with the audit committee could impede the auditor from implementing a more rigorous audit process or conducting the audit with due professional care.

2.3 Hypotheses

It remains an empirical question whether the positive or negative aspects of social connections between engagement auditors and the audit committee dominate in shaping audit quality.[12]   We largely for expositional convenience predict that these social ties translate into lower audit quality, although some prior research on social networks implies that this relation could run in the other direction (both hypotheses are stated in alternate form):

H_1: Audit quality is worse in the presence of social ties between engagement auditors and audit committee members.

We operationalize the construct of social networks as school ties.   People that select the same schools are likely to have common interests or backgrounds, and the school education could have further instilled some common thoughts or beliefs into their minds.   They also have opportunities to interact with each other through alumni activities.   It follows that educational

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[11] Relationships that foster a common identity between auditors and their clients may undermine the auditor's independence.   Psychology research on "minimal group paradigm" has shown that it is straightforward to develop a group identity that results in persons favoring their fellow group members (e.g., Tajfel and Turner 1986).   Moreover, Thompson (1995) finds that even superficial affiliations with a partisan can translate into persons interpreting ambiguous information in a manner that supports the partisan's interests.   Indeed, Moore et al. (2006) stress that after auditors encode information from a partisan's perspective, they tend to perceive ambiguous data in ways that are consistent with client preferences (see also Babcock et al. 1995 and Thompson and Loewenstein 1992).

[12] Another perspective holds that social connections may be irrelevant to audit quality if the audit firm's quality control structures, including training programs and policies designed to recruit and retain capable personnel, leave individual auditors with hardly any scope to exercise discretion (e.g., Gul et al. 2013).

background is an effective basis for individuals to develop social networks and form homophily (Cohen et al. 2008). We test the above hypothesis by examining whether the AC-auditor school ties influence audit quality measures.

In a standard approach for improving identification (e.g., Rajan and Zingales 1998), we next consider whether the role that social links between engagement auditors and the audit committee plays in audit quality varies systematically with the importance of these ties.   More specifically, we expect to observe that the impact of social ties rises when a connected audit committee member chairs the committee, has an accounting background, or graduated from the same school or department as an engagement auditor.   It follows that alma mater ties will matter more to audit quality in these situations, leading to our second prediction:

H_2: The negative audit quality impact of social ties between engagement auditors and audit committee members will be larger when these ties are more salient.

3. Empirical methods

3.1 Social ties and auditor reporting behavior

To test the importance of social ties between audit committee members and engagement auditors to audit quality, we examine auditors' propensity to issue modified audit opinions to clients. Compared with measures based on attributes of audited financial statements (e.g., abnormal accruals or earnings response coefficients), the audit opinion represents a more direct measure of audit quality since it is directly under the auditor's control (DeFond and Zhang 2013).   Prior research suggests that MAOs have reasonable power to capture variation in audit quality in various research settings in China.[13]   Accordingly, we follow this research by relying on auditors' propensity to render MAOs to gauge audit quality.   China's Independent Auditing Standards specify four types of audit opinions—namely, unqualified, qualified,

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[13] This stream of empirical research examines the impact of: new auditing standards on auditor independence (DeFond et al. 2000); auditors' response to clients' earnings management behavior triggered by accounting-based regulations (Chen et al. 2001); local government ownership on auditors' reporting decisions (Chan et al. 2006; Wang et al. 2008); improvement in the legal and institutional environment on audit reporting for economically important clients (Chen et al. 2010); changes in audit firm size due to mergers on auditor independence (Chan and Wu 2011); and audit firm organization legal form on auditors' reporting behavior (Firth et al. 2012b).

disclaimer, and adverse—and stipulate that explanatory notes can be used with unqualified opinions when necessary. We classify auditors' reports into two categories: (i) clean reports; and (ii) MAOs that comprise unqualified opinions with explanatory notes, qualified opinions, and disclaimers.[14]

It is worth noting that our MAO measure differs from the going-concern modified opinions (GCOs) typically used in the U.S. auditing literature. Focusing on financially distressed clients, a GCO-based analysis examines how auditors evaluate whether there is doubt surrounding their clients' ability to continue as a going-concern. However, the bankruptcy risk for Chinese public firms is virtually zero — since listing status is quite valuable, controlling shareholders routinely bail out financially distressed listed firms before they reach insolvency (Peng et al. 2011). As far as we know, no Chinese public firm to date has filed for bankruptcy. Another important difference between the U.S. and China is that a modified opinion due to GAAP violations is permissible in China. In practice, MAOs could be issued to highly profitable firms that have questionable accounting practices (see, e.g., Chen et al. 2001; Chen and Yuan 2004). Consequently, audit opinions in China reflect not only auditors' evaluation of clients' financial condition, but also their judgment on the fairness of the financial statements. It follows that measuring audit quality with MAOs—we later report statistics supporting that there is ample variation in this proxy—suits our research setting.

Audit quality jointly stems from an auditor's competence and independence according to DeAngelo's (1981) theory. In our testing ground, issuing an MAO means that the auditor is able to discover and report material accounting misstatements, implying that a higher propensity to render a MAO can usually be interpreted as reflecting higher audit quality. As stressed in the previous section, social ties between AC members and engagement auditors may influence audit outcomes in one of two competing ways. On one hand, the closer relationship suggests that AC members are more forthcoming in sharing information about the firm's accounting system with auditors. More efficient information transmission between AC and

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[14] No client firm in our sample has received an adverse opinion from their auditor. Although the CICPA interprets unqualified opinions with explanatory notes in a manner similar to the "emphasis of matter" in U.S. GAAS, this type of audit report is often issued in lieu of a qualified opinion in China, and previous China-based studies (cited in the preceding footnote) all consider it as a form of audit opinion modification. The CSRC also treats unqualified opinions with explanatory notes the same as qualified opinions in disclosure requirements.

auditors should enable the latter to detect irregularities or breaches in the audit process, leading to a higher likelihood of issuing MAOs. Alternatively, auditors are better able to withstand client pressure to issue a clean opinion when they are backed by a socially-connected AC. This could be particularly important in the Chinese context since MAOs can be quite costly to client management: the stock market reacts negatively to firms' receipt of MAOs (Chen et al. 2000), firm managers must explain the underlying reasons for an MAO in the annual report (CSRC 2001a), and the stock exchanges also consider the nature of audit opinions in their delisting decisions.[15] On the other hand, intimacy between engagement auditors and AC members deters them from challenging each other's work, reducing the prospect of discovering irregularities or violations of laws/regulations. Connections can also foster auditors' unwarranted trust with information provided by the AC, biasing auditors' judgment and decision making. As a result, an acquiescent auditor could issue a clean opinion when an MAO is warranted.

In short, social connections between AC members and engagement auditors could affect auditors' propensity to issue MAOs through their impact on auditor competence or independence, although the net impact remains an empirical question. To examine which effect ultimately dominates, we estimate the following logistic regression model (client firm and time subscripts are omitted for simplicity):

$$MAO = \alpha + \beta_1 ACT + \beta_2 MGT\_Chair/CEO + \beta_3 MGT\_Other + \gamma C_i + \delta_t + \zeta_k + \varepsilon, \qquad (1)$$

where *MAO* is an indicator variable that is equal to one for a modified opinion, and zero otherwise; *ACT* is an indicator that is assigned the value one if at least one AC member has school ties with at least one of the engagement auditors, and zero otherwise; *MGT_Chair/CEO* is an indicator variable that is equal to one if the CEO or board chair has school ties with one of the engagement auditors; *MGT_Other* is an indicator variable that is set to one if at least one of the top managers (including board directors other than CEO, board chair, or audit committee members) has school ties with one of the engagement auditors, and zero otherwise;[16] C_i is a

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[15] According to China's Company Law and related regulations (CSRC 2001b), a listed firm that has incurred losses in the previous three years must report a profit with a clean audit opinion in the current year to avoid being delisted by the stock exchange.

[16] We define *MGT_Other* in this way so that this category and *ACT* are mutually exclusive. All AC members must sit on the board. If *MGT_Other* includes AC members that have educational networks

vector of client and auditor characteristics that may affect audit quality; δ_t and ζ_k are year and industry fixed effects, respectively; and ε is the regression error term.

After extensive prior social network research, we consider auditors to be socially connected with committee members if they have a common college education background. Our key experimental variable is *ACT*. Consistent with the above intuition, if auditor competence is sufficiently enhanced through more effective communications and more efficient information sharing between engagement auditors and AC members, then the coefficient on *ACT* would be positive. In contrast, if auditor independence is sufficiently impaired due to the social connections, then the coefficient on *ACT* would be negative. In all estimations, we control for the school ties between engagement auditors and firms' top managers and other board directors given that Kwon and Yi (2012) report that these social ties affect audit quality. In our data, *ACT* is mildly positively correlated with both *MGT_Chair/CEO* ($\rho = 0.122$) and *MGT_Other* ($\rho = 0.212$), likely reflecting the influence of educational networking among firm managers, AC members, and auditors over the choice of auditors or formation of ACs.[17] We therefore control for these two variables so that *ACT* captures the incremental effect of auditors' social connections with AC members.[18]

We focus on estimating the impact of observable AC-auditor social links on audit quality. Consistent with previous research on social networks and governance, the *ACT* variable is specified as exogenous in model (1). One concern is the potentially endogenous relation between audit quality and the presence of socially connected auditors such as audit committees tending to appoint low-quality but connected auditors. Although such an endogeneity concern is valid for many auditing studies, it is worth noting that both the AC member and auditors are hired by the company rather than by each other.[19] Another difference is that

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with engagement auditors, this variable will be highly correlated with *ACT*, resulting in the regressions suffering from multicollinearity complications.

[17] For example, Lennox and Park (2007) show that having an officer who is an alumnus of an audit firm greatly increases the probability of selecting the officer's former audit firm over alternative audit firms.

[18] *ACT* is a dichotomous variable. However, we also re-estimate the regressions with a continuous variable, defined as the number of committee members that have school ties with one of the engagement auditors. Untabulated results based on this alternative measure are consistent with those reported in the paper.

[19] According to the CSRC's rules, the AC nominates the external auditor. However, the auditor appointment decision must be approved at the shareholder's meeting. As the ownership of listed firms

auditor selection by client companies occurs at the audit firm level whereas our analysis is based on individual auditors who conduct the engagements.   As far as we can tell, there is no reason to expect audit firms to assign individual auditors with particular attributes (e.g., more aggressive) to audit companies where AC-auditor school ties exist.   Finally, and perhaps more importantly, one advantage of school tie data is that the formation of interpersonal connections via education predates the audits by a long time, i.e., the observed school ties between AC members and engagement auditors are largely pre-determined.   For the above reasons, any bias stemming from endogeneity is not likely to pose a material threat to our empirical evidence.

To analyze the impact of social ties with different types of AC members under the prediction in H$_2$, we also replace *ACT* with these test variables:

ACT_Chair = An indicator variable that is equal to one if the AC chair has school ties with one of the engagement auditors, and zero otherwise.

ACT_NChair = An indicator variable that is set to one if one of the AC members other than the chair has school ties with one of the engagement auditors, and zero otherwise.

ACT_ACC = An indicator variable that is equal to one if at least one of the AC members with accounting background (including accounting professors, public accountants, or CFOs from another firm) has school ties with one of the engagement auditors, and zero otherwise.

ACT_NACC = An indicator variable that takes the value one if at least one of the AC members without an accounting background has school ties with one of the engagement auditors, and zero otherwise.

ACT_Dept = An indicator variable that is equal to one if at least one of the AC members and one of the engagement auditors are from the same department/school, and zero otherwise.

ACT_NDept = An indicator variable that is equal to one if at least one of the AC members have school ties with one of the engagement auditors, but none of them are

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in China is concentrated, the appointment decision on auditors is effectively made by the large shareholder (who also typically manages the company).   We confirm this through private communication with a practitioner who chairs the ACs of several listed firms in China.   He also suggested that, in practice, AC members work closely with auditors on audit planning, audit adjustments, and other important audit matters.

from the same department/school, and zero otherwise.

Since an AC chair likely plays a more important role than other AC members in monitoring the financial reporting process, we predict in H_2 that the impact of social ties will be concentrated in *ACT_Chair*. DeFond et al. (2005) document that AC members with accounting expertise outperform other members in monitoring, suggesting that the audit quality impact will be isolated in *ACT_ACC* relative to *ACT_NACC*.[20] Finally, we consider whether there is any overlap in the department/school attended by the AC members and engagement auditors. By reinforcing the connections between AC members and engagement auditors, common experience in the same department/school strengthens the importance of school ties. In another way to examine the prediction in H_2, we expect to observe that the role that alma mater links play to be concentrated in *ACT_Dept* rather than *ACT_NDept*.

We follow prior Chinese auditing research by controlling for this set of client and audit characteristics (e.g., DeFond et al. 2000; Chen et al. 2001): *Big4* (an indicator variable for observations that are audited by an international Big 4 auditor); *Top10* (an indicator variable for observations that are audited by a domestic top 10 auditor, ranked by the number of listed clients in the year under study); *LTA* (the natural logarithm of client's total assets at the fiscal year end); *Leverage* (the ratio of total liabilities to total assets); *Loss* (an indicator variable for negative net income); *ROA* (net income divided by total assets at the fiscal year end); *Liquidity* (the ratio of current assets to current liabilities); *REC* (net accounts receivables divided by total assets at the fiscal year end); and *INV* (inventories divided by total assets at the fiscal year end). Since large auditors are usually more competent or more independent (DeAngelo 1981; DeFond et al. 2000; Wang et al. 2008; Chan and Wu 2011), we expect coefficients on *Big4* and *Top10* to be positive. Since auditors are more likely to issue MAOs when clients have higher audit risks, we expect the coefficients on *Leverage*, *Loss*, *REC*, and *INV* to be positive and those on *LTA*, *ROA*, and *Liquidity* to be negative.

3.2 Social ties and ex post audit outcomes

Although a higher propensity to render non-clean opinions is typically interpreted as

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[20] Other research implying that better audit outcomes accompany accounting-related financial expertise on the audit committee includes Krishnan (2005), Krishnan and Visvanathan (2008), and Dhaliwal et al. (2010).

evidence of high quality auditing in the literature, Fogel-Yaari and Zhang (2013) cast doubt on this conclusion.[21]   Specifically, they show that the auditors who issue relatively more GCOs are more likely to make Type I errors (a GCO for a client that does not file for bankruptcy after the issuance of the audit opinion), whereas the auditors' propensity to issue GCOs is not significantly associated with the rates of Type II errors (a clean opinion issued to a client that subsequently files for bankruptcy).   In our setting, it is possible that social ties with AC members enhance auditors' trust of client's financial reporting policies.   As a result, auditors are less likely to disagree with management over the application of accounting principles or estimates.   To the extent that management choice is appropriate, enhanced trust reduces Type I errors.[22] Alternatively, supported by the AC, socially tied auditors are in a better position to persuade management to make audit adjustments in order to ensure that the financial statements comply with GAAP.   In either event, social connections reduce the need for an auditor to issue an MAO.   This suggests that the negative relationship between AC-auditor social ties and the propensity to issue MAOs may not mean compromised auditor independence.

The *ex ante* disagreements between auditors and client management over accounting issues or audit adjustments cannot be observed from publically available data.   However, we can analyze two observable *ex post* outcomes: clients' earnings restatements and regulatory sanctions in the event of accounting irregularities.   Prior research has shown that these two outcome variables are associated with auditor attributes.   For example, Lennox and Pittman (2010) find that Big N clients are less likely to commit fraudulent financial reporting and Francis et al. (2013) document that larger Big N offices have fewer client restatements.   Using Chinese data, Gul et al. (2013) document that individual auditors with more aggressive styles are more likely to be sanctioned by regulators for audit failure and financial statements originally audited by aggressive individual auditors are more likely to be restated.   An advantage of using these

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[21] In another upside stemming from focusing on Chinese public firms as our testing ground, we largely avoid identification complications in which a higher incidence of modified opinions reflects excessively conservative auditors protecting their interests by avoiding costly civil litigation, which may undermine audit quality (Thoman 1996; Deng et al. 2012; DeFond and Zhang 2013).

[22] For example, management may have a lower estimate of bad debt allowance, which is appropriate given the debtor's creditworthiness.   If the auditor believes that bad debt allowance is underestimated and thus modifies the audit opinion and, *ex post*, accounts receivables are collected on time, a Type I error in auditing reporting occurs.

ex post outcomes as audit quality metrics is that they unambiguously reflect accounting problems and thus low-quality audits (Dechow et al. 2010).[23]   Most importantly, in our setting, such an analysis helps to clarify whether the observed association between AC-auditor ties and the propensity to issue MAOs reflects errors in auditor judgment and decision making.[24] Specifically, there are six possible scenarios, as follows:

		Ex ante association between school ties and MAOs	
		Positive	Negative
Ex post association between	Positive	(1) Correct decision	(2) Type II errors
school ties and	No	(3) Type I errors	(4) Correct decision
restatements/frauds	Negative	(5) Type I errors	(6) Correct decision

   In both scenarios (1) and (6), auditors have made correct decisions since the propensity to issue MOAs is consistent with the *ex post* occurrence of restatements/frauds. The auditor's decision is also correct in scenario (4): given that rates of restatements or frauds are not higher for audits done by connected auditors, fewer MAOs reduce the costs to both clients and auditors.   We are particularly interested in scenario (2): if socially connected auditors less frequently issue MAOs and, *ex post*, there are more restatements made by clients or frauds detected by regulators for observations that are audited by such auditors, then the evidence suggests Type II errors and supports impaired audit quality due to school ties between auditors and AC members.   As for scenarios (3) and (5), i.e., more MAOs issued by socially connected auditors but the likelihood of restatements or frauds is not higher for audits performed by such

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[23] As stressed earlier, public firms in China virtually never go bankrupt. We have also examined the association between abnormal accruals and AC-auditor school ties but find no consistent evidence (results not tabulated). However, examining more extreme forms of irregularities such as restatements and frauds is consistent with practitioners' view, as suggested by the PCAOB (2011: 37):

> Information gathered through the Board's oversight activities indicates that abnormal accruals do not appear to be a good measure of audit quality. Specifically, PCAOB staffs have found no direct statistical relationship between the size of an abnormal accrual and the probability that inspections staff would detect an audit failure.

Moreover, in their survey of public company CFOs in the U.S., Dichev et al. (2013: 17) report that these executives perceive that audit committees only become important in fairly extreme situations with one participant stressing: "the audit committee sets the general tone…They can ask some intelligent questions and my guess is that a well-functioning audit committee is going to keep the big collapse from happening. But I don't think they can do much about small variations in earnings quality."

[24] Continuing the previous bad debt allowance example, if management's estimate of allowance is appropriate from the *ex post* point of view, then the firm should be less likely to restate earnings or be sanctioned by regulators for problematic accounting in subsequent years.

auditors, while it is theoretically possible, we believe it is far less likely to occur because auditors are likely to lose the engagement by over-issuing MAOs inappropriately.

We employ the following logistics models to test whether restatements or accounting frauds are related to the AC-auditor social connections:

$$Restatement = \alpha + \beta_1 ACT + \beta_2 MGT\_Chair/CEO + \beta_3 MGT\_Other + \gamma C_i + \delta_t + \zeta_k + \varepsilon, \text{ and} \tag{2}$$

$$Fraud = \alpha + \beta_1 ACT + \beta_2 MGT\_Chair/CEO + \beta_3 MGT\_Other + \gamma C_i + \delta_t + \zeta_k + \varepsilon, \tag{3}$$

where *Restatement* is an indicator variable that is equal to one if earnings in the current year are restated in subsequent years, and zero otherwise; *Fraud* is an indicator variable that is set to one if the firm is subsequently sanctioned by the CSRC or MOF (the Ministry of Finance) due to financial misrepresentation in the current year, and zero otherwise;[25] *ACT*, *MGT_Chair/CEO*, and *MGT_Other* are defined as before; C_i includes the following client and auditor characteristics that may affect the incidence of restatements or accounting frauds: *Big4*, *Top10*, *LTA*, *Leverage*, *ROA*, and *Loss*, all of which are defined as before; δ_t and ζ_k are year and industry fixed effects, respectively; and ε is the regression error term.

Finally, we triangulate the above *ex post* audit outcomes with a valuation analysis. To the extent that AC-auditor school ties undermine audit quality, it follows that the worse information asymmetry accompanying these links will translate into a lower valuation. In contrast, if AC-auditor school ties sufficiently enhance information sharing between AC members and engagement auditors according to investor perceptions (i.e., information asymmetry falls with these connections), then these ties should be positively reflected in the firm's valuation. In exploring whether AC-auditor school ties affect firm value, we measure firm value with *Tobin's Q* after Fan and Wong (2005) in this model:

$$Tobin's\ Q = \alpha + \beta_1 ACT + \beta_2 MGT\_Chair/CEO + \beta_3 MGT\_Other + \gamma C_i + \delta_t + \zeta_k + \varepsilon, \tag{4}$$

where *Tobin's Q* is defined as the market value of common equity plus the book value of debt divided by total assets at the end of the year; *ACT*, *MGT_Chair/CEO*, and *MGT_Other* are

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[25] Both the CSRC and the MOF have the authority to sanction firms for problematic accounting practices. The MOF is in charge of all accounting affairs in China, while the CSRC is empowered to handle accounting and disclosure issues related to publicly traded companies.

defined as before; and C_i includes the following factors that may affect firm valuation: *Big4*, *Top10*, *LTA*, *ROA*, *Liquidity*, and *Leverage*, all of which are defined as before. After recent research (e.g., Jiang et al. 2010; Guedhami et al. 2013), we also include *Growth* and *CAPEXP* as control variables. *Growth* is the difference between sales of the current and the prior year divided by prior year sales and *CAPEXP* is the ratio of capital expenditures over total assets at the end of year. δ_t and ζ_k are year and industry fixed effects, respectively, and ε is the regression error term.

4. Sample and data

Our sample period covers 2004 to 2010. The practice of setting up audit committees among Chinese listed firms largely began in 2002 when the China Securities Regulatory Commission (CSRC, the equivalent of the U.S. SEC) promulgated the *Code of Corporate Governance for Listed Companies* in August 2002. The Code suggests that corporate boards can form audit committees following the resolutions of shareholders' meetings. Although the proportion of firms that have established audit committees has increased steadily since then, our sample period starts in 2004 because the disclosure on the background information of their directors, including the audit committee members, is quite sparse before 2004. Our primary data source is the China Stock Market and Accounting Research Data Base (CSMAR). In total, there are 11,143 A-share firm-year observations between 2004 and 2010 in CSMAR.[26] Among these observations, we exclude: (i) 4,052 observations that do not have or do not disclose audit committees; and (ii) 93 observations that have missing values for financial statement variables used in the multivariate regression analysis. After imposing these screens, our final sample consists of 6,998 firm-year observations.

We downloaded the profiles of firms' executives and board directors (this includes AC members since only board directors are eligible to serve on the committee) from CSMAR. From these profiles, we manually collected their school information for their junior college,

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[26] A-shares in the Shanghai and Shenzhen stock exchanges refer to those issued to domestic investors. A total of 114 firms since 1992 have been authorized to issue B-shares to foreign investors. The B-share firms are not included in the sample because their regulatory environments are considerably different from those of A-share firms. For example, until 2007, B-share firms were required to prepare an additional set of financial statements for foreign investors according to International Accounting Standards, and to be audited by an international audit firm.

undergraduate, and postgraduate education. In cases in which there is no education background information contained in an executive's or a director's profile, we assume that he/she does not have any college education.

We retrieve data on regulatory sanctions from CSMAR against sample firms for misconduct. CSMAR provides data on enforcement actions taken by the CSRC and MOF for corporate misconduct. Consistent with Hung et al. (2013), we only retain enforcements related to financial misrepresentation.[27] Consequently, the nature of the frauds examined in the current study is similar to that of those identified from the Accounting and Auditing Enforcement Releases (AAERs) in the U.S.-based literature (e.g., Lennox and Pittman 2010). We hand collect restatement data from firms' annual reports. Specifically, we reviewed the "Material Accounting Errors" section of footnotes to the financial statements and identified corrections for earnings or shareholders' equity in prior years. After Wang and Wu (2012) and Gul et al. (2013), we excluded restatements arising from changes in accounting standards or government tax rules, or mergers and acquisitions since such restatements are clearly not caused by intentional errors. Since the footnote database in CSMAR ranges to 2011 when we downloaded the data in August 2013, we follow Francis et al. (2013) by truncating the sample period for the restatement analysis at year 2008, so that there is adequate time for the restatements of prior financials to occur, ensuring that we can reliably classify restating and non-restating firms.[28],[29]

As stipulated by China's *Independent Auditing Standards No. 7 – Audit Report* and related practice guidelines issued in 1995 (MOF 1995a and 1995b), engagement auditors must sign the audit reports in order to clarify the responsibility for the audits performed. Typically, an audit report is signed by two auditors: one is relatively junior and mainly administers the fieldwork,

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[27] Specifically, we keep the following categories of corporate misconduct compiled by CSMAR: (1) fabricating profits; (2) overstating assets; (3) delaying disclosures; (4) false statements; (5) material omissions; (6) expropriation of corporate assets by the large shareholders; and (7) fraudulent IPOs. Misconduct such as market manipulation, inside trading, or violations of laws and regulations that are not directly related to financial presentation are excluded from our analysis.

[28] The results are qualitatively identical if we focus on the 2004-2010 timeframe in this analysis.

[29] We do not restrict the sample period for the fraud analysis because CSMAR updates the enforcement data on a daily basis. We downloaded the data in December 2012 by which time most of the enforcements against misconducts in 2010 (the final year of our sample period) can be observed. Nonetheless, all of our core evidence is materially insensitive to excluding the 2010 observations from the analysis.

and the other is relatively senior and mainly performs the review work. To improve the transparency of the public accounting profession, the Chinese Institute of Certified Public Accountants (CICPA) since 2009 has disclosed public accountants' demographic information through an on-line enquiry system at http://cmis.cicpa.org.cn. We collect signatory auditors' education information from this system.

Table 1, Panel A shows the time-series distribution of our sample observations, partitioned into two groups by *ACT*. In about 18% of sample firm-years, AC members are connected to engagement auditors through a common education background. The relative frequencies of observations with AC-auditor school ties range from 20.23% in 2008 to 16.59% in 2010. In Panel B, we report the distribution of sample observations by industry and social ties. Consistent with the CSRC industry classification scheme, we use the two-digit code for the manufacturing sector and one-digit code for other sectors. The relative frequencies of observations are fairly evenly spread between the two groups of observations partitioned by *ACT*, suggesting that there is no major clustering of school ties between engagement auditors and AC members in certain industries. In any event, we include year and industry fixed effects in all estimations to control for their effects, if any, on the dependent variables.

Insert Table 1 here.

The descriptive statistics for the regression variables used in the study are reported in Table 2. To mitigate the undue influence of outlying observations and potential coding errors in, for example, the CSMAR database, we winsorize the continuous variables at the 1st and 99th percentiles. The statistics for *ACT_Num* suggest that the number of AC members that are socially related to engagement auditors ranges from zero to five, and there is also meaningful variation in the variables that partition *ACT* by the types of AC members (i.e., *ACT_Chair*, *ACT_ACC*, and *ACT_Dept*). Only about 1.2% of the observations are audited by engagement auditors who have school ties with the firm's CEO/Chair, evident in the mean of *MGT_Chair/CEO*, while the percentage of observations in which engagement auditors are socially tied to other top executives is much higher at 9.3%, as shown by the mean of *MGT_Other*. The means of *MAO*, *Restatement*, and *Fraud* reveal that, for our sample, about 7.6% of the observations have received MAOs from their auditors, 11.4% of the observations need to correct their prior earnings or shareholders' equity in subsequent periods, and 2.5% of the observations are punished by regulators or stock exchanges because of financial

misrepresentation. Turning to the independent variables, the means of *Big4* and *Top10* indicate that about 6.3% and 43.4% of sample firms are audited by the international Big N and domestic Top 10 auditors, respectively. The statistics for the other independent variables suggest that they are reasonably distributed with some degrees of variation.

Insert Table 2 here.

5. Empirical results

5.1 Social ties and auditor reporting behavior

Table 3 reports the results of the MAO regressions. To correct for potential serial correlation and heteroskedasticity in the pooled cross-sectional data, we use the Z/*T*-statistics based on the Huber/White/sandwich estimator (clustered) for variance throughout the paper (Wooldridge 2002). In the regressions reported in Columns (1) to (3), we separately include the three variables measuring engagement auditors' school ties with AC members, the Chair/CEO, and other top managers, respectively. We find that the coefficients on *ACT* and *MGT_Chair/CEO* are significantly negative at the 1% and 10% levels, respectively, while the coefficient on *MGT_Other* fails to load. In other words, these results imply that a common education background between the engagement auditors and AC members or CEO/Chair reduces the likelihood of MAOs, although school ties between engagement auditors and other top managers has no perceptible impact on the auditors' reporting behavior. In Column (4), we include all three social link variables in the same regression and find that the coefficient on *ACT* continues to be significantly negative at the 1% level whereas the one on *MGT_Other* remains statistically indistinguishable from zero. Moreover, the *MGT_Chair/CEO* coefficient becomes insignificant at conventional levels after the inclusion of the other two social tie variables, suggesting that the negative effect of *MGT_Chair/CEO* is subsumed by those of *ACT* and/or *MGT_Other*. For the control variables, the coefficients all have the predicted signs except that the coefficient on *Liquidity* does not load and the coefficient on *INV* is significantly negative.[30]

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[30] Although the negative association between *INV* and *MAO* runs opposite to our prediction, this result is consistent with Wang et al. (2008) and Gul et al. (2013). One plausible explanation is that inventory build-up may convey positive signals to auditors if this is driven by an increase in customer demand.

To evaluate the economic importance of the regression results, we consider the odds ratio estimates for changing the independent variables by one unit, using the estimates from the fully specified model in Column (4). For *ACT*, the odds ratio estimate is 0.665, suggesting that an observation with AC-auditor school ties has nearly 67% of the chance of receiving a MAO as an observation without such ties. From an economic standpoint, this impact is highly material. The evidence in Table 3 implies that AC-auditor school ties lower the incidence of auditors' issuing MAOs to clients. To analyze the prediction in H_2 that the role that social ties play in shaping audit quality varies with their importance, we replace *ACT* with a set of variables that capture AC member types. The results are presented in Table 4. In Column (1), we focus on whether anyone on the AC shares alma mater ties with an engagement auditor. We find that the coefficient on *ACT_Chair* is significantly negative (at the 5% level) whereas the one on *ACT_NChair* is insignificant. In examining whether having an accounting background matters in Column (2), we estimate a negative and statistically significant (at the 1% level) coefficient on *ACT_ACC*. In sharp contrast, *ACT_NACC* fails to load in this regression. DeFond et al. (2005) observe that AC members with an accounting background are perceived to be better at monitoring the financial reporting process. Our evidence lends support to the intuition that the detrimental impact of school ties on audit quality is concentrated in AC members with an accounting background. A likely reason is that AC members with an accounting background have more say in committee deliberations; i.e., the influence of social networks on audit quality mainly works through these AC members. Next, we isolate whether AC-auditor connections play a more prominent role when an AC member and an engagement auditor attended the same department/school during their college education. Reinforcing our other evidence on the prediction in H_2, the results tabulated in Column (3) include that only *ACT_Dept* enters negatively (at the 5% level); *ACT_NDept* is irrelevant to the auditors' propensity to render a MAO according to this analysis.[31] This evidence supports the argument that tighter social connections evident in an overlap in the department/school attended by the AC members and engagement auditors exert a larger impact on audit quality.[32]

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[31] In Column (3), the sample size is smaller because we drop observations where we cannot identify engagement auditors' or AC members' department/school information.

[32] Nevertheless, in untabulated F-tests, we find no significant difference between *ACT_Chair* and

5.2 *Social ties and ex post audit outcomes*

Results in the prior section suggest that AC-auditor school ties reduce the incidence of MAOs, especially when the AC members have more salient social ties to engagement auditors. Although this evidence is more consistent with the impaired auditor independence narrative, less frequent MAOs could also stem from lower rates of Type I errors due to the enhanced trust between firm management and auditors. To explore this alternative explanation, we now turn to the analysis of *ex post* audit quality measures based on accounting restatements and fraud.

Regression results involving earnings restatements are reported in Table 5. When the three school tie variables—namely *ACT*, *MGT_Chair/CEO*, and *MGT_Other*—are sequentially included in the regression models in Columns (1) to (3), we find that the coefficient on *ACT* (*MGT_Chair/CEO*) is positive and statistically significant at the 1% (10%) level. However, only the positive relation with *ACT* survives when all three school tie variables are included in the same model in Column (4). We again derive the odds ratios, based on regression estimates in Column (4), to evaluate economic impact according to the coefficient estimates. Reflecting its first-order economic importance, the odds ratio of 1.357 for *ACT* indicates that the odds of correcting earnings or shareholders' equity in subsequent years for observations where AC-auditor school ties are present are 0.357 times larger than those for observations where such ties are absent. Turning to the control variables, the auditor size variable, *Big4*, is significantly positive, which is consistent with prior theory and evidence implying that large brand-name auditors provide stricter external monitoring. *Loss* increases the chance that current financial statements are corrected later.

Insert Table 5 here.

In Table 6, we further partition observations with AC-auditor school ties into subgroups by the types of AC members. Consistent with expectations, when connected observations are partitioned by AC chair position or whether the AC members and engagement auditors are

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ACT_NChair (χ^2 = 0.00, p = 0. 99) or between *ACT_Dept* and *ACT_NDept* (χ^2 = 0.07, p = 0.79). The difference between *ACT_ACC* and *ACT_NACC* is marginally significant (χ^2 = 2.86, p = 0. 09).

from the same department/school, the coefficients on *ACT_Chair* and *ACT_Dept* are significantly positive while the coefficients on *ACT_NChair* and *ACT_NDept* are statistically insignificant and smaller than their counterparts.   This evidence implies that the impact of school ties tends to be concentrated where engagement auditors are connected with AC chairs or had joined the same department/school as AC members during their college education.[33] However, the coefficients on both *ACT_ACC* and *ACT_NACC* are significantly positive and there is no significant difference between them (χ^2 = 1.17, *p* = 0.279).   Accordingly, we find no evidence that AC members' accounting background shapes the link between AC-auditor school ties and the probability of restatement.

<u>Insert Table 6 here.</u>

We next explore whether the auditor's school ties with ACs influence the likelihood of financial misrepresentations that are caught by regulators.   The regression results are shown in Table 7.   In our sample, there is no sanctioned observation where the Chair/CEO has school ties with engagement auditors.   We therefore drop *MGT_Chair/CEO* from the estimation because it is impossible to compute the maximum likelihood values of the coefficient on this variable (i.e., there is a complete separation problem in estimation).   The coefficients on *ACT* are significantly positive in Columns (1) and (3), whereas the coefficients on *MGT_Other* are small in magnitude and statistically indistinguishable from zero.   The odds ratios suggest that, compared with observations that are free from AC-auditor school ties, the odds of being sanctioned by regulators due to problematic accounting/disclosure practices for observations with such ties are larger by 1.70 times.   Among the control variables, firms that are audited by the Big 4 auditors (*Big4*) or more profitable (*ROA*) are significantly less likely to be punished by regulators for fraudulent financial reporting.   Other control variables do not explain the incidence of accounting frauds.

<u>Insert Table 7 here.</u>

The regressions in Table 8 analyze how types of AC members affect the role that school ties with engagement auditors play in the probability of accounting frauds.   In Columns (1) and (2), we find that the impact is concentrated where the connected AC member is the chair of the

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[33] Nevertheless, in untabulated *F*-tests, we find no significant difference between *ACT_Chair* and *ACT_NChair* (χ^2 = 0.06, *p* = 0. 813) or between *ACT_Dept* and *ACT_NDept* (χ^2 = 0.11, *p* = 0.735).

committee or has an accounting background. Inconsistent with expectations, we find no empirical support for the prediction under H_2 that the importance of AC-auditor school connections to fraudulent financial reporting hinges on whether the AC members and auditors went to the same department/school during their college education.[34]

<div align="center">Insert Table 8 here.</div>

5.3 Social ties and firm value

Our evidence implies that school ties between engagement auditors and audit committee members impair audit quality. This could lead to higher information asymmetry that engenders a lower firm valuation in the capital markets. We explore whether AC-auditor school ties reduce firm value in Table 9. We find that the coefficients on *ACT* are significantly negative at the 5% level in Models 1 and 4, while the coefficients on *MGT_Chair/CEO*, and *MGT_Other* fail to load. Economically, the coefficient magnitude on *ACT* is almost equivalent to that on *Top10*; i.e., the adverse valuation impact of AC-school ties is close to that of appointing a non-Top 10 domestic auditor. This evidence implies that a common education background between the engagement auditors and AC members reduces firm valuation, although school ties between engagement auditors and the CEO/Chair or other top managers has no perceptible impact on firm value.

<div align="center">Insert Tables 9 and 10 here.</div>

To analyze whether the role that social ties play in shaping firm valuation varies with their importance, we replace variable *ACT* with a set of variables delineating AC member types. The results are shown in Table 10. In Column (1), we focus on whether anyone on the AC shares alma mater ties with an engagement auditor. We find that the coefficient on *ACT_Chair* is significantly negative (at the 5% level) whereas the one on *ACT_NChair* is insignificant. In examining whether having an accounting background matters in Column (2), we estimate a negative and statistically significant (at the 5% level) coefficient on *ACT_ACC*. In sharp contrast, *ACT_NACC* is irrelevant to firm valuation according to this regression. In other words, our evidence suggests that the detrimental impact of school ties on firm value is

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[34] The Chi-square statistics (*p*-values) from the F-tests for the differences in regression coefficients are as follows: 0.27 (0.600) for *ACT_Chair* vs. *ACT_NChair*; 1.11 (0.293) for *ACT_ACC* vs. *ACT_NACC*; and 0.48 (0.486) for *ACT_Dept VS* vs. *ACT_NDept*.

concentrated in AC members with an accounting background.   Next, we isolate whether alma mater connections matter more when an AC member and an engagement auditor attended the same department/school during their college education.   The results in Column (3) show that the coefficient on *ACT_Dept* is significantly negative (at the 1% level) while the one on *ACT_NDept* fails to load.   This evidence supports the argument that tighter social connections evident in an overlap in the department/school attended by the AC members and engagement auditors exert a larger impact on firm valuation.[35]

5.4 *Do auditors charge higher fees from friendly reporting?*

Thus far, our evidence suggests that engagement auditors are less likely to issue MAOs to clients in the presence of AC-auditor alma mater links.   Although it is possible that such a tendency reduces the rates of Type I errors and hence improves audit quality, findings from accounting restatements and frauds suggest the otherwise: the socially connected auditors are less apt to issue MAOs when such opinions are warranted, indicating higher rates of Type II errors.   Reinforcing these results, we also estimate a negative relation between AC-auditor connections and firm valuation.   Collectively, our evidence implies that school ties between engagement auditors and AC members impair audit quality.

Next, we focus on helping to empirically clarify why social ties between auditors and AC members lead to relatively lax monitoring.   One possibility is that the connected auditors collude with AC members by allowing aggressive financial reporting.   This collusion argument suggests that acquiescent auditors are likely compensated in the form of an audit fee premium for their lenient audit reporting.   We therefore estimate this model to examine whether audit fees vary systematically with AC-auditor school ties:

$$Fee = \alpha + \beta_1 ACT + \beta_2 MGT\_Chair/CEO + \beta_2 MGT\_Other + C_i + \delta_t + \zeta_k + \varepsilon, \tag{5}$$

where *Fee* is the natural logarithm of annual audit fees;[36] *ACT*, *MGT_Chair/CEO*, and

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[35] In untabulated F-tests, we find no significant difference between *ACT_Chair* and *ACT_NChair* ($\chi^2 = 0.71$, $p = 0.40$) or between *ACT_Dept* and *ACT_NDept* ($\chi^2 = 0.03$, $p = 0.87$).   The difference between *ACT_ACC* and *ACT_NACC* is marginally significant ($\chi^2 = 2.77$, $p = 0.09$).

[36] Picconi and Reynolds (2013) stress that the standard audit fee model where the natural logarithm of audit fees is regressed on fee determinants could be mis-specified.   In untabulated analysis, we re-specify the dependent variable in this regression as the natural logarithm of audit fees scaled by total assets and find that our core evidence reported below persists.

MGT_Other are defined as before; C_i includes these potential determinants of audit fees: *Big4*, *Top10*, *MAO*, *LTA*, *ROA*, *Liquidity*, *Leverage*, *REC*, *INV*, and *Loss*, all of which are defined as before; δ_t and ζ_k are year and industry fixed effects, respectively; and ε is the regression error term. We expect the coefficients on *Big4* and *Top10* to be positive stemming from the superior reputation or expertise of large auditors. We also expect *LTA* to have a positive coefficient because large firms are usually more complex, requiring auditors to exert more effort on these engagements. *MAO*, *Leverage*, *REC*, *INV*, and *Loss* are expected to have positive coefficients since larger values in these variables indicate higher audit risks, whereas *Liquidity* and *ROA* are expected to load with negative coefficients since they mitigate audit risks.

Table 11 reports the audit fee model results. In the first three columns where the school tie variables are entered successively, we observe that the coefficients on these variables are all positive, suggesting higher audit fees in the presence of educational networks between engagement auditors and firm managers and directors. However, only *ACT* is significantly different from zero (at the 5% level) when all three school connection variables are included in the same regression. Most of the coefficients on the control variables load with the expected signs, except that the coefficients on *ROA* and *Loss* are not statistically significant and that on *INV* is significantly negative (which is consistent with the results from the *MAO* regression, suggesting that higher levels of inventory is not perceived as an indicator for audit risks). When we replace the *ACT* variable with finer partitions according to the types of AC members in Table 12, we find that the importance of school ties to audit fees is isolated where the connection is forged through AC chairs, AC members with an accounting background, or AC members from the same department/school as the engagement auditors. These cross-sectional variations lend support to the intuition that the impact of social ties is concentrated where AC members play an influential role in the committees or the connection is strengthened by common experience in the same department/school.[37]

<u>Insert Tables 11 and 12 here.</u>

Taken at face value, the fee premium commanded by socially connected auditors is consistent with the collusion argument. However, in terms of economic significance, the

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[37] The Chi-square statistics (*p*-values) from the *F*-tests for the differences in regression coefficients are as follows: 0.27 (0.601) for *ACT_Chair* vs. *ACT_NChair*; 0.21 (0.644) for *ACT_ACC* vs. *ACT_NACC*; and 3.48 (0.06) for *ACT_Dept* vs. *ACT_NDept*.

importance of AC-auditor social ties to audit fees is fairly small.   The coefficient of 0.03 on *ACT* in Table 11 implies that, holding other things constant, fees are about 3.05% (= $e^{0.03}$ – 1) higher in the presence of AC-auditor school ties.   Given that the mean audit fee for our sample is about RMB 519,177 yuan, this difference translates into a higher fee of about RMB 15,811 yuan, which is hardly material from an economic standpoint.[38]   Since regulatory sanctions against audit failure in public firms can be harsh in China—such sanctions could include the revocation of practice licenses and even imprisonment (DeFond et al. 2000; Chan and Wu 2011)—it is hard to accept that an auditor would risk audit failure for such a small monetary gain.   The collusion explanation of lax monitoring offered by socially tied auditors thus does not appear to be plausible.

We believe that our evidence is more consistent with the social norm of reciprocity.   In social psychology, reciprocity refers to "responding to a positive action with another positive action, rewarding kind actions," and is "considered as a strong determining factor of human behavior" (Wikipedia).   This theory has been introduced into the auditing literature to explain auditor behavior.[39]   In our setting, the higher audit fees in the presence of AC-auditor school ties are consistent with favoritism triggered by social networks.   Kwon and Yi (2012) suggest that audit fees are higher when CEOs are socially connected with engagement auditors because "friends with money (i.e., CEOs) offer their friends in the social networks (i.e., auditors) a very lucrative contract term (i.e., audit fee premiums) simply based on favoritism."   Likewise, AC members may approach firm management and negotiate a more favorable audit fee arrangement when they are connected with engagement auditors.   The reciprocity theory predicts that a small favor can produce a sense of obligation to provide a larger return favor because "from a young age people are taught to return favors and to disregard this teaching will lead to the social stigma of being an ingrate" (Wikipedia).   The fee premium, albeit

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[38] To put this difference into perspective, the mean starting monthly salary for Chinese bachelor graduates in 2010 is RMB 2,815 yuan (http://finance.people.com.cn/n/2012/0801/c1004-18643862.html).

[39] Drawing on the reciprocity theory, experimental studies show that clients are more willing to accept significant proposed audit adjustments after auditors demonstrate to the clients that they have waived some trivial audit adjustment items (Sanchez et al. 2007), and auditors tend to reduce the magnitude of audit adjustments when the client management have conceded by resolving some immaterial misstatements (Hatfield et al. 2010).   Using archival data, Christensen et al. (2013) find that auditors offer first-year discounts for audits provided to new clients where audit committee members are well connected and could be important for auditors to develop their clientele; and consistent with the reciprocal behavior explanation, auditors are able to leverage audit committee connections to attract new clients.

immaterial in an economic sense, may lead auditors to feel obligated to act positively toward their clients when audit contractual terms are more favorable. As such, school ties with AC members lead to unconscious errors in auditors' judgment and decision making. More specifically, auditors are less likely to adopt an independent attitude and exercise professional skepticism, which leads to a less rigorous audit process and reduces their ability to detect material misstatements in financial reporting.[40]

6. Conclusions

As the liaison between the company's management and its external auditor, the audit committee plays an important role in overseeing the financial reporting process. In examining the importance of social connections, extant research has predominantly focused on whether audit committee members' formal or informal ties with firm management influence financial reporting quality. Despite auditing standard setters' recent emphasis on external auditors' reliance on information provided by audit committees (e.g., PCAOB 2007; 2012) and calls for research on the economic implications of the interactions between audit committees and outside auditors (e.g., DeFond and Zhang 2013), this line of research seldom considers the impact of connections between the audit committee and engagement auditors on financial reporting.

To help bridge this gap, we investigate whether alma mater connections between engagement auditors and audit committee members shape audit outcomes in China, where the biographic information on audit committee members and signing auditors are available and the guanxi (networking) culture prevails in socioeconomic activities. We argue that AC-auditors social ties could affect audit quality in one of two competing ways. In one direction, social ties facilitate information flows between the AC and auditor and protect auditor independence from management, leading to higher quality audits. In the other direction, AC-auditor social ties could impede the auditor from exercising due care and even inject unintentional bias into auditors' judgment and decision making when conducting the audit, resulting in lower quality audits.

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[40] This may suggest that auditors are irrational given, for example, that substandard audits will ultimately tarnish auditor reputation. However, a sense of obligation with reciprocity can help an auditor to develop and continue relationships with AC members, thereby increasing the likelihood of attracting more clients from the social network in the future.

Our empirical findings suggest that the costs of social connections between the audit committee and engagement auditor outweigh their potential benefits. Specifically, we estimate that the likelihood of receiving modified audit opinions for observations where AC-auditor school ties are present is about 33% times smaller than that for observations where such ties are absent. Moreover, financial statements originally audited by connected engagement auditors are more likely to be restated and AC-auditor school ties are associated with a higher incidence of regulatory sanctions for committing accounting fraud. These results lend support to the intuition that the lower propensity to issue non-clean opinions represents higher Type II error rates in connected auditors' decision-making. This evidence is corroborated by a valuation analysis—we find that investors discount share prices of firms where auditors and AC members are connected—suggesting that investors perceive that audit quality suffers when auditors are socially linked to their client's audit committee. Consistent with favoritism triggered by the social network, we also document that audit fees are higher in the presence of social ties between an engagement auditor and the audit committee. Finally, we show that the above findings are generally concentrated in situations where AC-auditor social links are expected to be more salient, namely among firms where a connected AC member chairs the committee, has an accounting background, or went to the same department/school as the engagement auditor. This cross-sectional variation pattern reinforces the inference that social networks between AC members and engagement auditors undermine audit quality.

Our research has several policy and practical implications. First, our findings suggest that financial report users would benefit from the disclosure of the identity of the engagement auditor. This information would enable users to spot the interpersonal links between the engagement auditor and AC members, putting them in a better position to gauge the audit quality impact. Our valuation analysis suggests that Chinese investors rely on such information in pricing securities. This evidence is relevant to the discourse on the PCAOB's (2013) proposal calling for the disclosure of audit partner identity in the U.S., although research on another country's auditing institutions naturally should be interpreted with caution from a policy perspective.

Second, whether audit committee members and the outside auditors are independent from each other has largely been overlooked in regulatory circles. Our analysis indicates that audit

committee members cannot be presumed to be independent from outside auditors, and the cozy interpersonal relations between these two parties can significantly jeopardize audit quality. Accordingly, it would be constructive for regulators to consider the role that informal personal ties play when setting policies surrounding the independence of audit committees and external auditors. Also, our evidence suggests that it would be prudent for regulators to devote more resources toward scrutinizing companies that are audited by connected auditors.

Finally, for practitioners eager to strengthen corporate governance, they should beware of the detrimental effect of social networks in the context of external auditing when developing firm-level governance structures. For public accounting firms attempting to improve their performance, the message from our study is that personal ties between engagement auditors and client audit committee members should be taken into account in the allocation of their scarce quality control resources and the assignment of individuals to audit engagements.

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Figure 1 The relationship among firm management, external auditor, and audit committee
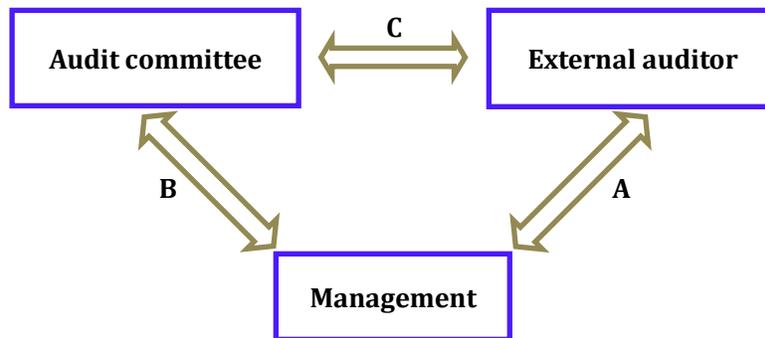
Table 1 Sample distribution

Panel A. Distribution by year

Year	$ACT = 1$	$ACT = 0$	Total	Percentage
2004	77	328	405	19.01%
2005	105	461	566	18.55%
2006	123	548	671	18.33%
2007	186	800	986	18.86%
2008	261	1,029	1,290	20.23%
2009	255	1,167	1,422	17.93%
2010	275	1,383	1,658	16.59%
Total	1,282	5,716	6,998	18.32%

Panel B. Distribution by industry

Industry	N	$ACT = 1$	$ACT = 0$
Farming, Forestry, Animal Husbandry, and Fishing	154	1.56%	2.34%
Mining	132	1.09%	2.06%
Food and Beverage	272	3.59%	3.95%
Textile, Apparel, Fur and Leather	289	5.23%	3.88%
Furniture Manufacturing	25	0.86%	0.24%
Paper and Allied Products; Printing	132	1.40%	1.99%
Petroleum, Chemical, Plastics, and Rubber Products	737	9.91%	10.67%
Electronics	296	4.68%	4.13%
Metal and Non-metal	620	8.97%	8.83%
Machinery, Equipment, and Instrument Manufacturing	1,146	14.59%	16.78%
Medicine and Biological Products	475	5.54%	7.07%
Other Manufacturing	60	0.47%	0.94%
Utilities	317	4.37%	4.57%
Construction	146	2.26%	2.05%
Transportation and Warehousing	295	5.46%	3.94%
Information Technology	449	5.15%	6.70%
Wholesale and Retail Trades	463	9.67%	5.93%
Banking and Financial Institutions	8	0.00%	0.14%
Real Estate	373	5.85%	5.21%
Public Facilities and Other Services	197	2.96%	2.78%
Communication and Cultural Industries	54	0.39%	0.86%
Conglomerates	358	6.01%	4.92%
Total	6,998	100.00%	100.00%

The sample includes all A-share companies that have established audit committees, after excluding observations with missing values in variables necessary for multivariate regression analysis. *ACT* is equal to one if at least one of audit committee member has school ties with one of the engagement auditors, and zero otherwise.

Table 2 Descriptive statistics

Variable	Mean	Median	Min.	Max.	Std. Dev.	N
ACT	0.183	0.000	0.000	1.000	0.387	6,998
ACT_Num	0.226	0.000	0.000	5.000	0.525	6,998
ACT_Chair	0.128	0.000	0.000	1.000	0.334	6,998
ACT_NChair	0.056	0.000	0.000	1.000	0.229	6,998
ACT_ACC	0.143	0.000	0.000	1.000	0.350	6,998
ACT_NACC	0.041	0.000	0.000	1.000	0.197	6,998
ACT_Dept	0.095	0.000	0.000	1.000	0.294	6,748
ACT_NDept	0.057	0.000	0.000	1.000	0.233	6,748
MGT_Chair/CEO	0.012	0.000	0.000	1.000	0.110	6,998
MGT_Other	0.093	0.000	0.000	1.000	0.290	6,998
MAO	0.076	0.000	0.000	1.000	0.265	6,998
Restatement	0.114	0.000	0.000	1.000	0.318	3,918
Fraud	0.025	0.000	0.000	1.000	0.155	6,998
Big4	0.063	0.000	0.000	1.000	0.242	6,998
Top10	0.434	0.000	0.000	1.000	0.496	6,998
LTA	21.509	21.400	18.493	25.057	1.218	6,998
Leverage	0.540	0.519	0.068	2.529	0.313	6,998
Loss	0.113	0.000	0.000	1.000	0.317	6,998
ROA	0.027	0.030	-0.382	0.225	0.076	6,998
Liquidity	1.646	1.217	0.113	10.948	1.628	6,998
REC	0.095	0.070	0.000	0.416	0.090	6,998
INV	0.174	0.138	0.000	0.747	0.155	6,998
Fee	13.160	13.122	11.983	15.009	0.559	5,891
Tobin's Q	2.571	1.935	0.883	13.612	2.030	6,760
Growth	0.245	0.146	-0.771	5.162	0.676	6,760
CAPEXP	0.053	0.037	-0.074	0.273	0.060	6,760

Variable definitions:

ACT = An indicator variable that is equal to one if at least one of AC members has school ties with one of the engagement auditors, and zero otherwise.

ACT_Num = The number of committee members that have school ties with one of the engagement auditors.

ACT_Chair = An indicator variable that is equal to one if AC chair has school ties with one of the engagement auditors, and zero otherwise.

ACT_NChair= An indicator variable that is equal to one if one of AC members other than chair has school ties with one of the engagement auditors, and zero otherwise.

ACT_ACC = An indicator variable that is equal to one if at least one of AC members with accounting background (including accounting professors, public accountants, or CFOs from another firm) has school ties with one of the engagement auditors, and zero otherwise.

ACT_NACC = An indicator variable that is equal to one if at least one of AC members without accounting background has school ties with one of the engagement auditors, and zero otherwise.

ACT_Dept = An indicator variable that is equal to one if at least one of AC members and one of the

engagement auditors are from the same department/school, and zero otherwise

ACT_NDept = An indicator variable that is equal to one if at least one of AC members have school ties with one of the engagement auditors, but none of them are from the same department/school, and zero otherwise.

MAO = An indicator variable that is equal to one for observations where auditors modify audit opinions (including unqualified opinions with explanatory notes, qualified, and disclaimed), and zero otherwise.

Restatement = An indicator variable that is equal to one if earnings in the current year are restated in subsequent years, and zero otherwise.

Fraud = An indicator variable that is equal to one if the observation is subsequently sanctioned by the CSRC, MOF, or stock exchanges due to accounting frauds or accounting irregularities in the current year, and zero otherwise.

Big4 = An indicator variable for observations that are audited by the international Big 4 auditors.

Top10 = An indicator variable for observations that are audited by the domestic top 10 auditors, ranked by the number of listed clients in the year of interest.

LTA = Natural logarithm of client's total assets at the fiscal year end.

Leverage = Ratio of total liabilities to total assets.

Loss = An indicator variable for negative net income.

ROA = Net income divided by total assets at the fiscal year end.

Liquidity = Ratio of current assets to current liabilities.

REC = Net accounts receivables divided by total assets at the fiscal year end.

INV = Inventories divided by total assets at the fiscal year end).

Fee = Natural logarithm of annual audit fees.

Tobin's Q = Market value of common equity plus book value of debt divided by total assets at the end of the year.

Growth = The difference between sales of the current and the prior year divided by prior year sales.

CAPEXP = The ratio of capital expenditures over total assets at the end of year.

All the continuous variables are winsorized at the 1st and 99th percentile.

Table 3 Analysis of audit reporting behavior

Variables	(1)	(2)	(3)	(4)
ACT	-0.468***			-0.408**
	(-2.72)			(-2.38)
MGT_Chair/CEO		-1.739*		-1.485
		(-1.96)		(-1.58)
MGT_Other			-0.240	-0.048
			(-0.96)	(-0.19)
Big4	1.280***	1.297***	1.291***	1.283***
	(3.62)	(3.67)	(3.64)	(3.62)
Top10	0.295**	0.274**	0.280**	0.287**
	(2.32)	(2.16)	(2.21)	(2.26)
LTA	-0.857***	-0.870***	-0.863***	-0.861***
	(-11.04)	(-11.25)	(-11.17)	(-11.08)
Leverage	3.852***	3.920***	3.861***	3.900***
	(9.87)	(10.05)	(9.91)	(10.00)
Loss	1.043***	1.037***	1.037***	1.044***
	(5.11)	(5.09)	(5.10)	(5.11)
ROA	-3.811***	-3.789***	-3.857***	-3.752***
	(-3.85)	(-3.81)	(-3.89)	(-3.79)
Liquidity	0.008	0.017	0.013	0.012
	(0.11)	(0.24)	(0.19)	(0.17)
REC	1.217*	1.162	1.183*	1.189*
	(1.69)	(1.63)	(1.66)	(1.65)
INV	-2.679***	-2.662***	-2.649***	-2.680***
	(-3.91)	(-3.90)	(-3.90)	(-3.91)
Constant	14.731***	14.915***	14.808***	14.777***
	(8.92)	(9.10)	(9.04)	(8.96)
Pseudo R²	0.451	0.451	0.450	0.452
N	6,998	6,998	6,998	6,998

The dependent variable is MAO, an indicator variable for modified audit opinions. All independent variables are defined in Table 2.

The numbers in parentheses are Z-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4 Analysis of audit reporting behavior by the types of audit committee members

Variables	(1)	(2)	(3)
ACT_Chair	-0.404**		
	(-2.00)		
ACT_NChair	-0.416		
	(-1.42)		
ACT_ACC		-0.568***	
		(-2.76)	
ACT_NACC		0.007	
		(0.03)	
ACT_Dept			-0.535**
			(-2.21)
ACT_NDept			-0.436
			(-1.50)
MGT_Chair/CEO	-1.485	-1.546*	-2.409***
	(-1.58)	(-1.67)	(-2.97)
MGT_Other	-0.048	-0.035	0.022
	(-0.19)	(-0.14)	(0.09)
Big4	1.283***	1.282***	1.358***
	(3.62)	(3.63)	(3.80)
Top10	0.287**	0.293**	0.326**
	(2.26)	(2.29)	(2.50)
LTA	-0.861***	-0.861***	-0.887***
	(-11.08)	(-11.08)	(-11.00)
Leverage	3.900***	3.910***	4.032***
	(9.97)	(10.04)	(9.60)
Loss	1.044***	1.040***	1.000***
	(5.11)	(5.08)	(4.73)
ROA	-3.752***	-3.777***	-3.903***
	(-3.78)	(-3.81)	(-3.80)
Liquidity	0.012	0.015	0.020
	(0.17)	(0.22)	(0.29)
REC	1.188	1.183	1.007
	(1.64)	(1.64)	(1.36)
INV	-2.680***	-2.653***	-2.433***
	(-3.91)	(-3.89)	(-3.56)
Constant	14.777***	14.743***	15.194***
	(8.96)	(8.96)	(8.91)
Pseudo R²	0.452	0.453	0.463
N	6,998	6,998	6,748

The dependent variable is *MAO*, an indicator variable for modified audit opinions. All independent variables are defined in Table 2.

The numbers in parentheses are Z-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5 Analysis of earnings restatement

Variables	(1)	(2)	(3)	(4)
ACT	0.334***			0.305**
	(2.64)			(2.38)
MGT_Chair/CEO		0.739*		0.560
		(1.91)		(1.43)
MGT_Other			0.127	-0.009
			(0.70)	(-0.05)
Big4	-1.313***	-1.321***	-1.337***	-1.306***
	(-3.56)	(-3.59)	(-3.62)	(-3.54)
Top10	-0.171	-0.154	-0.158	-0.166
	(-1.55)	(-1.40)	(-1.44)	(-1.51)
MAO	0.649***	0.628***	0.618***	0.657***
	(3.27)	(3.18)	(3.12)	(3.31)
LTA	0.040	0.050	0.046	0.043
	(0.74)	(0.92)	(0.84)	(0.80)
Leverage	0.268	0.258	0.266	0.261
	(1.61)	(1.55)	(1.60)	(1.57)
ROA	-1.276	-1.281	-1.241	-1.307
	(-1.45)	(-1.45)	(-1.40)	(-1.48)
Loss	0.605***	0.608***	0.619***	0.596***
	(3.00)	(3.01)	(3.07)	(2.96)
Constant	-2.177*	-2.334**	-2.261*	-2.239*
	(-1.84)	(-1.97)	(-1.90)	(-1.89)
Pseudo R²	0.091	0.090	0.089	0.092
N	3,918	3,918	3,918	3,918

The dependent variable is *Restatement*, an indicator variable for observations where earnings in the current year are restated in subsequent years. All independent variables are defined in Table 2. The numbers in parentheses are Z-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6 Analysis of earnings restatement by the types of audit committee members

Variables	(1)	(2)	(3)
ACT_Chair	0.322**		
	(2.22)		
ACT_NChair	0.264		
	(1.22)		
ACT_ACC		0.237*	
		(1.68)	
ACT_NACC		0.522**	
		(2.17)	
ACT_Dept			0.343**
			(2.16)
ACT_NDept			0.254
			(1.09)
MGT_Chair/CEO	0.565	0.540	0.843**
	(1.44)	(1.37)	(2.18)
MGT_Other	-0.007	-0.007	0.016
	(-0.04)	(-0.04)	(0.09)
Big4	-1.306***	-1.310***	-1.278***
	(-3.54)	(-3.54)	(-3.44)
Top10	-0.167	-0.161	-0.186*
	(-1.51)	(-1.45)	(-1.65)
MAO	0.656***	0.654***	0.580***
	(3.31)	(3.31)	(2.84)
LTA	0.043	0.044	0.030
	(0.80)	(0.81)	(0.55)
Leverage	0.263	0.256	0.314*
	(1.58)	(1.54)	(1.89)
ROA	-1.298	-1.340	-1.102
	(-1.47)	(-1.52)	(-1.27)
Loss	0.598***	0.592***	0.626***
	(2.97)	(2.94)	(3.08)
Constant	-2.240*	-2.257*	-1.994*
	(-1.89)	(-1.90)	(-1.65)
Pseudo R²	0.092	0.092	0.089
N	3,918	3,918	3,773

The dependent variable is *Restatement*, an indicator variable for observations where earnings in the current year are restated in subsequent years. All independent variables are defined in Table 2.

The numbers in parentheses are Z-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7 Analysis of accounting fraud

Variables	(1)	(2)	(3)
ACT	0.534***		0.530***
	(2.75)		(2.69)
MGT_Other		0.174	0.022
		(0.64)	(0.08)
Big4	-2.306**	-2.300**	-2.307**
	(-2.29)	(-2.29)	(-2.29)
Top10	0.089	0.107	0.089
	(0.54)	(0.66)	(0.54)
MAO	1.528***	1.481***	1.528***
	(6.10)	(5.86)	(6.08)
LTA	-0.048	-0.042	-0.048
	(-0.54)	(-0.47)	(-0.54)
Leverage	-0.232	-0.242	-0.232
	(-0.95)	(-1.00)	(-0.95)
ROA	-3.940***	-3.864***	-3.941***
	(-3.03)	(-2.98)	(-3.03)
Loss	-0.485	-0.468	-0.485
	(-1.43)	(-1.38)	(-1.43)
Constant	-1.139	-1.188	-1.138
	(-0.58)	(-0.60)	(-0.58)
Pseudo R^2	0.118	0.114	0.118
N	6,998	6,998	6,998

The dependent variable is *Fraud*, an indicator variable for observations that are subsequently sanctioned by the CSRC or MOF due to accounting frauds or accounting irregularities in the current year. All independent variables are defined in Table 2. In this analysis, we drop *MGT_Chair/CEO* because in our data, there is no sanctioned observation where Chair/CEO has school ties with engagement auditors and it is impossible to compute the maximum likelihood values of the coefficient on this variable.

The numbers in parentheses are Z-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8 Analysis of accounting fraud by the types of audit committee members

Variables	(1)	(2)	(3)
ACT_Chair	0.585***		
	(2.64)		
ACT_NChair	0.382		
	(1.10)		
ACT_ACC		0.627***	
		(2.95)	
ACT_NACC		0.179	
		(0.45)	
ACT_Dept			0.182
			(0.64)
ACT_NDept			0.481
			(1.43)
MGT_Other	0.035	0.024	0.216
	(0.13)	(0.09)	(0.77)
Big4	-2.302**	-2.293**	-2.263**
	(-2.29)	(-2.28)	(-2.26)
Top10	0.085	0.080	0.093
	(0.52)	(0.49)	(0.55)
MAO	1.528***	1.538***	1.633***
	(6.07)	(6.12)	(6.34)
LTA	-0.047	-0.048	0.003
	(-0.53)	(-0.54)	(0.03)
Leverage	-0.229	-0.236	-0.194
	(-0.94)	(-0.97)	(-0.80)
ROA	-3.923***	-3.911***	-3.443***
	(-3.01)	(-3.01)	(-2.67)
Loss	-0.480	-0.476	-0.428
	(-1.41)	(-1.40)	(-1.21)
Constant	-1.160	-1.119	-2.258
	(-0.59)	(-0.57)	(-1.13)
Pseudo R²	0.118	0.119	0.117
N	6,998	6,998	6,748

The dependent variable is *Fraud*, an indicator variable for observations that are subsequently sanctioned by the CSRC or MOF due to accounting frauds or accounting irregularities in the current year. All independent variables are defined in Table 2.

The numbers in parentheses are Z-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 9 Analysis of firm value

Variables	(1)	(2)	(3)	(4)
ACT	-0.093**			-0.091**
	(-2.24)			(-2.16)
MGT_Chair/CEO		-0.060		-0.016
		(-0.34)		(-0.09)
MGT_Other			-0.039	-0.012
			(-0.64)	(-0.20)
Big4	0.723***	0.723***	0.725***	0.723***
	(10.19)	(10.19)	(10.21)	(10.17)
Top10	0.109***	0.107***	0.107***	0.109***
	(2.85)	(2.81)	(2.80)	(2.85)
LTA	-0.839***	-0.840***	-0.840***	-0.839***
	(-33.77)	(-33.85)	(-33.77)	(-33.74)
Leverage	2.257***	2.262***	2.261***	2.257***
	(13.73)	(13.76)	(13.75)	(13.72)
ROA	4.906***	4.903***	4.903***	4.907***
	(9.26)	(9.26)	(9.25)	(9.26)
Liquidity	0.268***	0.269***	0.269***	0.268***
	(11.88)	(11.92)	(11.92)	(11.87)
GROWTH	0.019	0.019	0.019	0.019
	(0.57)	(0.58)	(0.58)	(0.57)
CAPEXP	1.263***	1.268***	1.270***	1.263***
	(3.67)	(3.68)	(3.69)	(3.67)
Constant	17.528***	17.539***	17.533***	17.528***
	(34.01)	(34.05)	(34.00)	(33.99)
Adjusted R^2	0.490	0.490	0.490	0.490
N	6,760	6,760	6,760	6,760

The dependent variable is *Tobin's Q*, market value of common equity plus book value of debt divided by total assets at the end of the year. All independent variables are defined in Table 2.

The numbers in parentheses are T-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich Estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 10 Analysis of firm value by the types of audit committee members

	(1)	(2)	(3)
ACT_Chair	-0.111**		
	(-2.34)		
ACT_NChair	-0.043		
	(-0.60)		
ACT_ACC		-0.094**	
		(-2.08)	
ACT_NACC		-0.079	
		(-0.92)	
ACT_Dept			-0.156***
			(-3.31)
ACT_NDept			-0.028
			(-0.41)
MGT_Chair/CEO	-0.021	-0.017	0.052
	(-0.12)	(-0.10)	(0.27)
MGT_Other	-0.015	-0.013	-0.019
	(-0.25)	(-0.20)	(-0.31)
BIG4	0.723***	0.723***	0.728***
	(10.17)	(10.17)	(10.20)
Top10	0.109***	0.109***	0.095**
	(2.86)	(2.85)	(2.47)
LTA	-0.839***	-0.839***	-0.833***
	(-33.75)	(-33.74)	(-33.57)
Leverage	2.256***	2.257***	2.317***
	(13.72)	(13.72)	(14.13)
ROA	4.902***	4.906***	5.093***
	(9.26)	(9.26)	(9.78)
Liquidity	0.268***	0.268***	0.274***
	(11.88)	(11.87)	(11.91)
GROWTH	0.019	0.019	0.019
	(0.58)	(0.57)	(0.57)
CAPEXP	1.267***	1.264***	1.138***
	(3.68)	(3.67)	(3.25)
Constant	17.532***	17.528***	17.382***
	(34.00)	(33.99)	(33.69)
Adjusted R^2	0.490	0.490	0.497
N	6,760	6,760	6,520

The dependent variable is *Tobin's Q*, market value of common equity plus book value of debt divided by total assets at the end of the year. All independent variables are defined in Table 2. The numbers in parentheses are T-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich Estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 11 Analysis of audit fees

Variables	(1)	(2)	(3)	(4)
ACT	0.034***			0.030**
	(2.74)			(2.32)
MGT_Chair/CEO		0.074**		0.055
		(2.09)		(1.52)
MGT_Other			0.026	0.015
			(1.60)	(0.85)
Big4	0.681***	0.680***	0.680***	0.680***
	(22.45)	(22.47)	(22.40)	(22.44)
Top10	0.113***	0.113***	0.113***	0.113***
	(11.21)	(11.26)	(11.27)	(11.24)
MAO	0.130***	0.129***	0.129***	0.131***
	(5.66)	(5.63)	(5.60)	(5.70)
LTA	0.296***	0.297***	0.296***	0.296***
	(53.03)	(53.20)	(53.08)	(53.07)
ROA	0.075	0.077	0.080	0.074
	(0.77)	(0.78)	(0.81)	(0.75)
Liquidity	-0.010**	-0.010***	-0.010***	-0.010**
	(-2.52)	(-2.60)	(-2.59)	(-2.53)
Leverage	0.108***	0.106***	0.108***	0.107***
	(5.31)	(5.21)	(5.28)	(5.25)
REC	0.066	0.073	0.071	0.067
	(0.99)	(1.09)	(1.06)	(1.00)
INV	-0.120***	-0.119***	-0.120***	-0.119***
	(-3.00)	(-2.97)	(-2.99)	(-2.97)
Loss	0.016	0.017	0.017	0.016
	(0.74)	(0.77)	(0.79)	(0.74)
Constant	6.687***	6.679***	6.688***	6.681***
	(53.43)	(53.38)	(53.47)	(53.39)
Adjusted R²	0.554	0.554	0.554	0.554
N	5,891	5,891	5,891	5,891

The dependent variable is *Fee*, Natural logarithm of annual audit fees. All independent variables are defined in Table 2.

The numbers in parentheses are T-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 12 Analysis of audit fees by the types of audit committee members

Variables	(1)	(2)	(3)
ACT_Chair	0.033**		
	(2.29)		
ACT_NChair	0.020		
	(0.94)		
ACT_ACC		0.032**	
		(2.30)	
ACT_NACC		0.020	
		(0.80)	
ACT_Dept			0.066***
			(3.93)
ACT_NDept			0.019
			(0.94)
MGT_Chair/CEO	0.056	0.056	0.047
	(1.56)	(1.56)	(1.26)
MGT_Other	0.015	0.015	0.019
	(0.88)	(0.86)	(1.05)
Big4	0.680***	0.680***	0.675***
	(22.44)	(22.43)	(21.60)
Top10	0.113***	0.113***	0.112***
	(11.22)	(11.22)	(10.91)
MAO	0.131***	0.131***	0.135***
	(5.71)	(5.71)	(5.80)
LTA	0.296***	0.296***	0.297***
	(53.07)	(53.07)	(51.98)
ROA	0.076	0.075	0.097
	(0.77)	(0.76)	(0.98)
Liquidity	-0.010**	-0.010**	-0.008**
	(-2.53)	(-2.53)	(-2.05)
Leverage	0.107***	0.107***	0.112***
	(5.26)	(5.26)	(5.45)
REC	0.067	0.067	0.096
	(1.00)	(1.00)	(1.40)
INV	-0.120***	-0.120***	-0.116***
	(-2.98)	(-2.98)	(-2.84)
Loss	0.016	0.016	0.016
	(0.75)	(0.74)	(0.72)
Constant	6.680***	6.681***	6.652***
	(53.38)	(53.39)	(51.78)
Adjusted R^2	0.554	0.554	0.555
N	5,891	5,891	5,684

The dependent variable is *Fee*, Natural logarithm of annual audit fees. All independent variables are defined in Table 2.

The numbers in parentheses are T-statistics correct for serial correlation and heteroskedasticity with the Huber/White/sandwich estimator (clustered) for variance. ***, **, and * suggest two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.