



# Do school ties between auditors and client executives influence audit outcomes? ☆



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## ABSTRACT

We identify connected auditors as those who attended the same university as the executives of their clients. Using manually collected data from China, we find that connected auditors are more likely to issue favorable audit opinions, especially for financially distressed clients. Moreover, companies audited by connected auditors report significantly higher discretionary accruals, are more likely to subsequently restate earnings downward, and have lower earnings response coefficients. Lastly, connected auditors earn higher audit fees. Collectively, our evidence suggests the impairment of audit quality when auditors and client executives have school ties and the presence of social reciprocity derived from school ties.

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## 1. Introduction

How social ties between economic agents such as financial analysts, investors, and corporate executives and directors affect business decisions has been an important question recently researched in the accounting and finance literature (e.g., Cohen et al., 2008, 2010; Fracassi and Tate, 2012; Hwang and Kim, 2009; Nguyen, 2012). Auditors play a crucial role in ensuring the quality of financial reports, a key information source for many important economic decisions. The interactive nature of the audit negotiation and verification process makes the audit setting a relevant one in which social ties are likely to influence auditors' and managers' decisions. Understanding whether and how social ties between the audit partners and executives of client firms impact decision making and ultimately affect audit outcomes is of great interest to academics, investors, and regulators. However, the existing literature has been limited to settings where audit clients employ former partners of the accounting firm as senior managers or directors (Baber et al., 2014; Geiger et al., 2008; Lennox, 2005; Menon and Williams, 2004).

Social ties can take many forms and those arising from sharing an educational link are one form that could potentially affect the decision making process. In our study, we focus on school ties in analyzing and understanding the effect of social

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connections between audit partners and client firms on audit outcomes. We expect the educational institutions attended by individuals to form an effective basis for social ties for several reasons. First, if two individuals attended the school at the same time, personal bonds might get established via interaction on campus. Second, if the individuals attended the same university/campus at different times, they may have common interests or backgrounds that help foster ties later, via alumni associations or donation programs. Third, the school might offer unique imprinting due to the type and quality of its education. Such imprinting bonds the alumni together, allowing them to interact with the values of the school (Massa and Simonov, 2011). Therefore, we operationalize school ties by identifying individuals who attended the same universities for undergraduate or graduate degrees as having school ties, without requiring them to have attended the school at the same periods, at the same campuses, or for the same majors.

Compared with connections created through prior employment examined in prior studies (Lennox, 2005; Lennox and Park, 2007; Menon and Williams, 2004; Naiker and Sharma, 2009), school ties can be a better proxy for social connections to test precisely their effect on decision making in the audit setting. As noted in the abovementioned studies, documented evidence of impaired audit quality when former accounting firm partners are executives of client firms can be explained by (1) compromised independence, induced by the “cozy” relationship between accounting firms and their former employees, and (2) the superior knowledge and ability of affiliated executives with prior experience at the audit firm (Lennox, 2005). Given that an auditor's trust of a client derived from a past work relationship co-exists with the client's intimate knowledge of the audit firm's audit testing methodology obtained from previous employment, we are unable to draw unambiguous conclusions about the impact of social connections on audit outcomes based on these studies. Using school ties allows us to overcome such a concern.

We focus on the Chinese audit market, where data for both the identities of signing auditors and their education information are obtainable. There are other benefits of using the Chinese setting beyond data availability. First, the impact of social ties is likely to be more pronounced when the market is relatively inefficient and the legal system and enforcement are weaker (Allen et al., 2005). In such an environment, due to higher transaction costs in the marketplace, economic agents tend to rely more on alternative non-market channels such as social ties to conduct business. China's economy is characterized by weak law enforcement and the pervasiveness of transactions based on connections rather than arm's-length principles. Anecdotal evidence suggests that school ties play an important role in the relationship-based economic environment in China.<sup>1</sup> We thus expect this setting would allow us to examine the impact of school ties with relatively high statistical power. Second, China has a much less concentrated audit market than in developed countries (DeFond et al., 2000; Wang et al., 2008). Such a market structure makes the auditors more likely to succumb to managerial pressure to retain clients.

Using Chinese non-financial firms listed in the A-share market between 2006 and 2011 as our sample, we find that 511 (out of 5,040), or 10.14%, of the sample firm-years have at least one top executive (CEO, CFO, or board chairperson) who has a school tie with one of the signing auditors. Regression results show that when school ties exist between auditors and executives, the probability of a clean audit opinion or a less severe modified audit opinion (MAOs) is higher. In addition, higher reported discretionary accruals and higher audit fees are more likely. A propensity score matching (PSM) approach, which considers the endogeneity arising from the choice of individual auditors, generates consistent results. We also explore within-firm variations and document that changes in the auditor–executive relationships are followed by changes in audit quality and audit fees in the expected direction.

Further analyses show that connected auditors are also more likely to issue clean opinions in a subsample of financially distressed companies. Moreover, firms audited by connected auditors exhibit lower earnings response coefficients (ERCs) and have a greater likelihood of subsequent downward restatements than firms audited by non-connected auditors. Taken together, our results suggest that auditor–executive school ties undermine audit quality. Accordingly, the higher audit fee enjoyed by connected auditors does not represent greater audit effort or audit quality. Rather, it represents auditor–executive reciprocation. Our findings corroborate the evidence from prior studies that the demand for high-quality financial reporting in China is typically low (Piotroski and Wong, 2012). Given the pressure to retain and attract clients and the relatively low litigation risk environment, it is perhaps not surprising that Chinese auditors can be tempted to compromise their independence and curry favor with management (DeFond et al., 2000; Wang et al., 2008).

Our study contributes to the literature in a couple of ways. First, we contribute to the literature on the role of social networks in accounting and finance by documenting the effect of school ties on audit outcomes. Independence is a key element for a monitoring mechanism to function. Prior studies examine the effect of social ties on monitoring in the boardroom and show that social ties between directors and executives compromise director independence and thus impair the effectiveness of board monitoring (e.g., Bruynseels and Cardinaels, 2014; Fracassi and Tate, 2012; Hwang and Kim, 2009). We focus on another important monitoring mechanism, namely, external auditors. Our findings suggest that social ties between auditors and managers may act as a catalyst for them to build up a collusive relationship, which is detrimental to the effectiveness of auditor monitoring.

Second, our paper also contributes to the emerging literature that examines the variation in audit quality across individual auditors (e.g., Carcello and Li, 2013; Goodwin and Wu, 2014; Gul et al., 2013). There have been calls for researchers to

<sup>1</sup> For example, in 2011, several Nankai University alumni were convicted of providing classified macroeconomic data and were sentenced to jail. These alumni worked at the Financial Research Institute of the People's Bank of China, securities companies, and asset management companies (see <http://finance.sina.com.cn/china/20120502/023011962670.shtml>, in Chinese). In addition, in the recent anti-corruption crackdown at the China National Petroleum Corporation, three of the four former executives under investigation were alumni of the Southwest Petroleum University (see <http://finance.sina.com.cn/chanjing/gsnews/20130828/023916582348.shtml>, in Chinese).

push audit quality analysis from the audit firm or office level down to the individual auditor level (DeFond and Francis, 2005; DeFond and Zhang, 2014; Francis, 2011). It is increasingly important to understand how individual auditor characteristics determine audit quality, given that in recent years many countries have either proposed (e.g., the U.S.) or required (e.g., countries in the European Union) the disclosure of the engagement auditor's identity. Our study also echoes the call of Gul et al. (2013) for research on the effect of individual auditor characteristics such as social ties on audit quality by documenting that individual auditors' school ties with executives impair audit quality.

The rest of the paper is organized as follows. Section 2 discusses the institutional background and develops testable hypotheses. Section 3 describes the measures, research design, and sample. Section 4 reports and discusses our hypothesis testing. Section 5 discusses additional analyses and Section 6 concludes the paper.

## 2. Institutional background and hypothesis development

### 2.1. Institutional background

#### 2.1.1. Financial reporting incentives of Chinese listed firms

The majority of Chinese firms have controlling shareholders that are either governments or wealthy individuals/families (Chen et al., 2013), which gives rise to conflicts of interest between minority shareholders and controlling shareholders (and their appointed executives). Because investor protection is weak in China (Allen et al., 2005), controlling shareholders tend to divert resources from the firms to themselves typically via connected party transactions (Berkman et al., 2011; Jiang et al., 2010; Jian and Wong, 2010). To conceal rent-seeking behavior from the minority shareholders, controlling shareholders have a strong incentive to obscure financial statements and remain opaque (Leuz et al., 2003; Piotroski and Wong, 2012).

Controlling shareholders have the incentive and ability to directly monitor firms' managers. Instead of relying on accounting information publicly reported to the market, controlling shareholders can use private channels to measure and assess managerial performance (Ball et al., 2000). This lowers the demand for high-quality financial reports in terms of control and monitoring. Moreover, in a relationship-based society such as China, many of the business transactions of listed firms are conducted through personal or political connections rather than based on arm's-length contracts, which also limits the contracting demand for credible and high-quality audited accounting information.

In addition, given that the China Securities Regulatory Commission (CSRC) applies bright-line accounting-based regulatory criteria to screen firms for public offerings and delisting, Chinese listed firms have strong incentives to manage reported earnings to meet these specific targets (e.g., Aharony et al., 2000; Chen and Yuan, 2004; Haw et al., 2005; Kao et al., 2009).<sup>2</sup> Subject to the pressure of achieving these earnings targets to access the equity market, managers are well motivated to request an auditor that does not challenge their discretionary reporting decisions.

The foregoing discussion suggests that listed firms in China have strong incentives to manage earnings and consequently have a low demand for independent auditors. Consistent with this argument, prior studies (e.g., Wang et al., 2008; Yang, 2013) show that the Big N along with the largest domestic audit firms obtain a fairly low market share in China, compared with the Big N in most other major markets.

#### 2.1.2. Incentives for auditors

Most domestic Chinese audit firms were established during the 1980s and most were sponsored by and affiliated with government agencies or publicly funded universities before 1998 (DeFond et al., 2000). In 1998, the Chinese government launched the disaffiliation program to force these government-affiliated auditors to divorce themselves both financially and operationally from government agencies or universities. In the mid-1990s, China also adopted new auditing standards that follow international auditing standards. Despite these reforms, the 10 largest audit firms audit only 20–30% of publicly listed companies in China (Gul et al., 2013; Wang et al., 2008). Thus, the Chinese audit market is much more dispersed in contrast to the oligopolistic market structure in the U.S. The supply of audit services in China is thus more competitive than that in the U.S. and auditors face great pressure to retain clients and attract new ones (Chan et al., 2006; DeFond et al., 2000; Wang et al., 2008; Yang, 2013).

Dye (1993) argues that auditor independence arises from reputation and litigation concerns. Although China may be less litigious than the U.S. and some other Western countries, the litigation risk is not negligible (Chen et al., 2010; Firth et al., 2012). In case of audit failure, certified public accountants (CPAs) and audit firms suffer from not only harsh regulatory penalties imposed by the CSRC (Chan and Wu, 2011; CSRC, 2014), but also significant damage to their reputation in the form of client loss or audit fee discount (Gao et al., 2013; He et al., 2013).

As discussed above, despite the low demand for high audit quality in China, as gatekeepers of financial reporting quality, auditors have an incentive to provide high-quality audit to reduce litigation/regulatory costs and protect their reputations. On the other hand, facing fierce competition in the audit market, they could succumb to managerial pressure. Therefore, we expect that school ties could shape these incentives and affect audit outcomes.

<sup>2</sup> For example, Chinese firms that experience losses for three consecutive years will be delisted. Firms are required to attain an average ROE of no less than 6% in the previous three years to obtain permission to offer seasoned equity offerings.

## 2.2. Hypothesis development

School experience is a precious source of social interaction. Attendance at the same university engenders proximity among students, establishes and reinforces common views, and creates long-lasting bonds by promoting social networks. People typically enjoy better mutual understanding and greater comfort when interacting with those with similar characteristics and experiences (McPherson et al., 2001). School ties would therefore facilitate information transfer between economic agents due to reduced information gathering costs, leading to better decision making (Kalmijn and Flap, 2001). More interactions and greater comfort between individuals also allow connected agents to better communicate subtle and sensitive information (Granovetter, 2005). Consistent with these arguments, prior studies find that social networks enhance value in mutual fund investments (Cohen et al., 2008), analyst recommendations (Cohen et al., 2010), venture capital investments (Hochberg et al., 2007), corporate investments (Schmidt, 2015), and financing decisions (Engelberg et al., 2012). In an audit setting, managers can be more forthcoming in communicating a firm's business model and strategies, specific transactions and accounts, as well as internal control system attributes with auditors with school ties. In addition, school ties may allow the auditors to access in-depth information about managers, including their managerial abilities, risk preferences, personality traits, and incentives, which in turn enables them to better evaluate audit risk. Such information sharing lowers audit risk, particularly detection risk, given the same level of inherent and control risk. This view suggests that school ties may improve audit quality for a given level of audit effort, leading to higher audit quality.

On the other hand, with a common social bond, the actions of socially connected people tend to be governed by communal norms that promote mutual caring and trust (Silver, 1990). Violation of the communal norms leads agents to derive disutility, either self-imposed (e.g., guilt) or imposed by others (e.g., disapproval or a bad reputation; Elster, 1989). Consistent with this line of argument, prior studies find that social connections can impair the function of monitoring mechanisms such as boards of directors (e.g., Bruynseels and Cardinaels, 2014; Hwang and Kim, 2009). As discussed earlier, controlling shareholders in Chinese listed firms have strong incentives to manage their earnings either to meet regulatory criteria or to expropriate minority shareholders. Managers, as representatives of the controlling shareholders, have a great tendency to form a collusive alliance with the auditors. The auditors, who face fierce competition in retaining clients and attracting new ones, are likely to compromise their independence under managerial pressure. Consequently, a collusive relation could be mutually beneficial for the managers and auditors. The communal norms and resultant mutual trust shared by connected auditors and managers lower collusion costs. Therefore, we expect that school ties can work as a catalyst for the collusion and connected auditors' independence can be undermined as a result.

In light of these competing arguments, we develop the following non-directional hypothesis.

**H1.** School ties between the signing auditor and the top executives of the client firm do not affect the quality of an audit engagement.

Our next hypothesis regards audit fees. An audit fee premium can be compensation for extra audit efforts and residual audit risk; it can also represent non-competitive rents (DeFond and Zhang, 2014). Since connected auditors can acquire more information about the firm's business operations, specific transactions and accounts, internal control system as well as managerial abilities and quality, we expect that school ties can enable connected auditors to better evaluate audit risk and reduce audit effort, thereby leading to lower audit fees. On the other hand, the sociology literature predicts a generalized reciprocity between in-group members (Yamagishi and Kiyonari, 2000). In the audit context, such reciprocity can affect audit fees. A friendly auditor is more likely to issue a favorable audit opinion and/or waive audit adjustments, producing a sense of obligation on the management side to return a more generous audit contract and allow the auditor to earn higher audit fees. Based upon the above arguments, we develop the following non-directional hypothesis.

**H2.** School ties between the signing auditor and the top executives of the client firm do not affect the audit fee of an audit engagement.

## 3. Measures, research design, and sample

### 3.1. Measures and research design

We estimate the following regression model to test our hypotheses:

$$\text{Audit quality}/\text{Ln}(\text{Fee}) = \alpha + \beta \text{Match} + \gamma \text{Controls} + \varepsilon. \quad (1)$$

Auditor reports and audited financial statements are two observable audit outcomes. Accordingly, we measure audit quality by auditors' propensities to issue clean audit opinions, as well as clients' discretionary accruals. Consistent with the vast literature on audit fee studies following the seminal work of Simunic (1980), we take the logarithmic transformation of the audit fee.

Audit opinions in China include unqualified opinions, unqualified opinions with explanatory notes, and qualified and disclaimed or adverse opinions. Chinese auditing standards (Ministry of Finance, 1995) require auditors to issue qualified (disclaimed or adverse) opinions for (1) Generally Accepted Accounting Principles (GAAP) violations, (2) scope limitations, and (3) inconsistencies in applying accounting standards. Chinese auditing standards also allow auditors to use qualified opinions or even

unqualified opinions with explanatory notes to indicate financial distress or going-concern issues (Chan et al., 2006; Chen et al., 2000). Following prior China-related auditing research (e.g., DeFond et al., 2000; Gul et al., 2013), we define modified opinions to include adverse, disclaimed, and qualified opinions and unqualified opinions with explanatory notes. Since different types of modified opinions suggest different levels of severity in accounting irregularities, we define an ordered audit opinion variable  $AO$  with a value from zero to three to represent disclaimed opinions, qualified opinions, unqualified opinions with explanatory notes, and clean opinions, respectively.<sup>3</sup> A greater propensity to issue a clean opinion indicates lower professional skepticism and potential lack of independence. Therefore, a higher value of  $AO$  indicates lower audit quality.

We measure discretionary accruals in two different ways. One is based on the following performance-adjusted accrual model (Kothari et al., 2005, hereafter K LW) to decompose total accruals into normal and discretionary components:

$$TACC_t = a_0 + a_1 1/TAST_t + \beta_1 \Delta Sales_t + \beta_2 PPE_t + \beta_3 ROA_t + \varepsilon, \quad (2)$$

where  $TACC_t$  is total accruals in year  $t$ , defined as the difference between operating income and operating cash flow;  $\Delta Sales_t$  is growth in sales from years  $t-1$  to  $t$ ;  $PPE_t$  represents the gross value of fixed assets in year  $t$ ; and  $ROA_t$  is operating income.<sup>4</sup> All the above variables are deflated by the average of the beginning and ending total assets,  $TAST_t$ , in year  $t$ . Following the suggestion of K LW, we include a constant intercept term in the model.

Alternatively, we use a modified version of the Dechow and Dichev (2002, DD hereafter) model suggested by McNichols (2002) to estimate abnormal working capital accruals. Dechow et al. (2011) and Jones et al. (2008) suggest that this model is more powerful at detecting accounting fraud or misrepresentation. The model specifies working capital accruals as a function of lagged, current, and future operating cash flows, as well as sales growth and the level of fixed assets, as follows:

$$\Delta WC_t = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta Sales_t + \beta_5 PPE_t + \varepsilon, \quad (3)$$

where  $\Delta WC_t$  is working capital accruals in year  $t$ , computed as operating income before depreciation and amortization, minus operating cash flows;  $CFO_{t-1}$ ,  $CFO_t$ , and  $CFO_{t+1}$  represent operating cash flows in years  $t-1$ ,  $t$ , and  $t+1$ , respectively; and  $\Delta Sales_t$  and  $PPE_t$  are defined the same as above. We scale all variables by the average of the beginning and ending total assets in year  $t$  to reduce heteroscedasticity.

We estimate both models (2) and (3) cross-sectionally for every industry-year combination. Following the CSRC's industry classification scheme, we use the two-digit code for the manufacturing sector and the one-digit code for other sectors and require at least 10 observations in an industry-year to estimate the regression. The residuals of each model are identified as discretionary accruals. We use  $DACC$  (K LW) and  $DACC$  (DD) to denote the residuals based on models (2) and (3), respectively. We focus on the signed measure of discretionary accruals because auditor litigation risk is greater in the presence of income-increasing earnings management (e.g., Heninger, 2001; Lys and Watts, 1994) and auditors work harder to detect income-increasing misstatements than income-decreasing misstatements (Barron et al., 2001).

Our main test variable, *Match*, in Model (1) equals one if any of the client company's top executives has a common alma mater with either of the signing auditors and zero otherwise. Specifically, this variable indicates whether any of them attended the same universities for either undergraduate or graduate degrees, regardless of having attended the school in the same periods, on the same campuses, or for the same majors. Similar to Lennox (2005), Lennox and Park (2007), and Menon and Williams (2004), we consider a team of top executives, including the board chair, CEO, and CFO, who are likely to significantly influence financial reporting. We expect a positive and significant coefficient for *Match* in Model (1) if connected auditors apply higher thresholds for issuing modified or more severe modified opinions or allow more income-increasing discretionary accruals.

For control variables in Model (1), we include client company financial characteristics such as leverage (*LEV*), the presence of loss (*Loss*), operating cash flow (*OCF*), growth (*Q*), size (*Ln(Size)*), and listing age (*Age*). We also control for several institutional factors that are found to affect financial reporting incentives and audit quality in China. Specifically, we include a variable to indicate whether a firm is state controlled (*SOE*), a variable to indicate whether a firm has issued H-shares in the Hong Kong stock markets (*HSHR*), a variable indicating the presence of B-shares, which were originally issued to and owned by foreign investors and traded in domestic markets (*BSHR*),<sup>5</sup> and the marketization index of Fan et al. (2011) of the provinces in which the client firm is located (*MarketIndex*) to control for cross-sectional variation in local institutions.

We also control for a number of auditor characteristics. We use a variable to indicate a Big 4 audit firm (*BIG4*) and an annual percentile rank variable for the audit firm's ranking in terms of client total assets (*AFRANK*).<sup>6</sup> Wang et al. (2008) show that auditors in China are more lenient toward client companies in the same region. Accordingly, we include a variable to indicate whether an audit firm is located in the same province (or region with provincial status) as the client (*NLOCAL*). We also add a dummy variable to control for whether any of the signing auditors is new to this audit engagement (*INITTENURE*), because auditors are found to provide lower-quality audits in the early years of tenure (e.g., Chen et al., 2008; Geiger and

<sup>3</sup> No adverse audit opinion is issued in our sample.

<sup>4</sup> Under Chinese GAAP, financial expenses are reported above the operating income in income statements. Throughout this paper, we adjust operating income by adding financial expenses back to the reported operating income so that the operating income variable is unaffected by financing activities.

<sup>5</sup> The Chinese government allowed domestic investors to hold and trade B-shares in 2001. Thus, during our sample period, B-shareholders can be domestic or foreign investors. In contrast, H-shares are issued and traded in Hong Kong markets and are heavily owned by foreign institutional investors.

<sup>6</sup> While the China-based auditing literature generally assumes large audit firms offer higher audit quality, there is no consensus over the measurement of quality. We therefore use a continuous ranking variable rather than a dichotomous one, such as the top four, eight, or 10 audit firms. Considering the rapid growth of the Chinese audit market, we rank audit firms based on annual cross-sectional data.



Raghunandan, 2002). Since the relative importance of a client to an auditor can impact audit quality (Chen et al., 2010), we control for client importance at the signing auditor level (*CI*) in Model (1). Since executives' affiliation with the incumbent audit firm impairs audit quality, as discussed earlier, it is essential for us to control for this revolving door effect. We create a dummy to indicate whether any of the executives has worked in the incumbent audit firm (*MGTAFFCPA*). To the extent that people attending the same school might also come from the same province, we try to differentiate the school tie effect from the common hometown effect. We include an indicator variable (*Hometown*) that equals one if any of the executives and any of the signing auditors graduated from local universities located in the same province and zero otherwise.<sup>7</sup> If an executive or auditor graduates from these local universities, he or she has a high likelihood of being from this province. Since we do not have hometown information, we use this measure to indicate whether the executive and auditor are likely to come from the same province. Lastly, we include year and industry indicators to control for their fixed effects.

When the dependent variable in Model (1) is audit opinion, we further control for the current ratio (*CR*), account receivables (*AR*), inventory (*INV*), profitability (*ROE*), related-party lending (*RPTLEND*), and stock performance during the fiscal year (*RET*) because these characteristics may affect audit opinion decisions (Gul et al., 2013; Wang et al., 2008). When the dependent variable in Model (1) is the audit fee, we also include a dummy (*Interim*) to indicate whether the semi-annual report is audited and a dummy (*MAO*) to indicate the existence of an MAO. Since interim auditing and MAOs are typically associated with greater audit effort, we expect audit fees to be positively associated with *Interim* and *MAO*.

The Appendix contains detailed variable definitions. Since the school tie variable could persist for a client firm over time, in the spirit of Petersen (2009), we report the regression results based on standard errors clustered at the client firm level.

### 3.2. Sample and descriptive statistics

We begin with the population of Chinese non-financial firms listed in the A-share market between 2006 and 2011 ( $n=10,749$ ) and obtain financial statement data and stock market data from the China Stock Market and Accounting Research (CSMAR) database. We then delete: (1) 52 observations missing necessary financial statement data to compute the variables used in the empirical tests, (2) 70 observations missing information to identify the types of ultimate controlling shareholders, and (3) 328 observations missing stock market data. This leaves us with a sample size of 10,299 firm-year observations. Chinese auditors are required to sign audit reports to identify who is responsible for the audit, in accordance with Chinese auditing standards (Ministry of Finance, 1995). We manually collect audit opinions and the identities of audit firms and signing auditors from annual reports. Data on individual auditors' educational background are obtained from the enquiry system compiled by the China Institute of Certified Public Accountants (CICPA) at <http://cmis.cicpa.org.cn>. As for the collection of data on the top executives, we first refer to the WIND and CSMAR databases, where we are able to retrieve the educational background information for about 41.2% of our sample observations. For those whose educational information is not obtainable from WIND or CSMAR, we search online, via Sina Finance or the Baidu search engine. We then drop 4,284 observations that do not disclose top management's school information and 293 observations that do not disclose the names of signing auditors. To increase the feasibility of school matching, we compile a list of universities from which the signing auditors in our sample graduated. We then restrict our sample to firm-years for which at least one of the top executives obtained a degree from one of these schools, resulting in a final sample of 5,040 firm-years, representing 1,315 unique firms.<sup>8</sup>

In our sample, 511 firm-years, or 10.14% of total observations, have at least one top executive who shares a common educational experience with (at least) one of the signing auditors. Untabulated results show that the proportion of public firms that hire connected auditors is relatively stable across years, ranging from 9.22% in 2010 to 11.02% in 2008. When we conduct a simulation based on the bootstrap method to assess the random likelihood of connection, we find our observed connection likelihood of 10.14% is statistically higher than the random likelihood at the 0.1% level.<sup>9</sup>

Panel A of Table 1 lists the distribution of the top 10 academic institutions with the most connected auditor-executive pairs.<sup>10</sup> As shown in Panel A, the university with the largest number of connected executives and auditors is Xiamen University, followed by Zhejiang University and the Shanghai University of Finance and Economics. Each of these universities contributes about 10% to the connection cases. Panel B reports the top 20 academic institutions that graduated most of the signing auditors (i.e., CPAs) and executives in our sample. Specifically, we sort all universities that appear in our

<sup>7</sup> Local universities are affiliated with and administered by provincial governments and mainly admit students from the local province. The other type of universities, or national universities, are affiliated with and administered by central ministries, mainly the Ministry of Education in China. Such national universities recruit students from around the country according to plans set up by the central government. A good way to understand the difference between national and local universities in China is to compare the percentage of students from Massachusetts between Harvard University and the University of Massachusetts in Boston. We classify national and local universities based on school information available from Baidu Baike, an online, collaboratively built encyclopedia in Chinese.

<sup>8</sup> An alternative sampling scheme is to keep the observations without executive or auditor school information and assume no auditor-executive school ties among them. The results based on this alternative sampling scheme are qualitatively similar to those presented below.

<sup>9</sup> We adopt different assumptions in the bootstrapping method. One approach assumes that the client first selects the audit firm and then selects the signing auditor and another approach relaxes the assumption. The mean (maximum) likelihoods based on 999 iterations are 0.069 and 0.025 (0.076 and 0.032), respectively, for the above two approaches.

<sup>10</sup> We identify 720 connections. This number is larger than 511 because a firm-year observation can have more than one connection. For example, auditor A, the chairperson, and the CEO are all from institution X and, at the same time, auditor B and the CFO are from institution Y. In such a case, we would identify three connections.

**Table 1**

Distribution of schools.

Panel A: Top 10 educational institutions with the most connected auditor–executive pairs ( $n=720$ auditor–executive pairs)				
Rank	Institutions	%		
1	Xiamen University (厦门大学)	10.42		
2	Zhejiang University (浙江大学)	9.72		
3	Shanghai University of Finance and Economics (上海财经大学)	9.58		
4	Hunan University (湖南大学)	6.67		
5	Northeastern University of Finance and Economics (东北财经大学)	5.69		
6	Zhongnan University of Economics and Law (中南财经政法大学)	5.00		
7	Sun Yat-Sen University (中山大学)	4.58		
8	Xi'an Jiaotong University (西安交通大学)	4.03		
9	Southwestern University of Finance and Economics (西南财经大学)	3.33		
10	Renmin University of China (中国人民大学)	3.06		

  

Panel B: Top 20 schools with highest $R(SCH)$ value				
Rank	Institutions	$R(SCH_{MGT})$	$R(SCH_{CPA})$	$R(SCH)$
1	Shanghai University of Finance and Economics (上海财经大学)	98.8	100.0	99.4
2	Renmin University of China (中国人民大学)	99.5	98.9	99.2
3	Xiamen University (厦门大学)	99.3	98.5	98.9
4	Zhongnan University of Economics and Law (中南财经政法大学)	98.0	99.8	98.9
5	Hunan University (湖南大学)	97.8	99.4	98.6
6	Xi'an Jiaotong University (西安交通大学)	99.1	96.8	98.0
7	Sun Yat-Sen University (中山大学)	98.6	96.6	97.6
8	Fudan University (复旦大学)	99.4	95.8	97.6
9	Zhejiang University (浙江大学)	99.8	95.4	97.6
10	Northeastern University of Finance and Economics (东北财经大学)	96.3	98.7	97.5
11	Central University of Finance and Economics (中央财经大学)	95.8	99.2	97.5
12	Party School of the Central Committee of C.P.C. (中共中央党校)	98.9	95.6	97.3
13	Southwestern University of Finance and Economics (西南财经大学)	96.0	98.3	97.2
14	Jiangxi University of Finance and Economics (江西财经大学)	96.6	97.7	97.1
15	Shanghai Jiao Tong University (上海交通大学)	99.2	94.1	96.6
16	Hangzhou Dianzi University (杭州电子科技大学)	93.6	97.9	95.7
17	Wuhan University (武汉大学)	97.9	93.5	95.7
18	Capital University of Economics and Business (首都经济贸易大学)	93.7	97.3	95.5
19	Northeastern University (东北大学)	98.2	91.8	95.0
20	Nanjing University (南京大学)	96.8	92.6	94.7

The variable  $R(SCH_{MGT})$  and  $R(SCH_{CPA})$  represent the percentile rankings of universities based on the number of executives ( $MGT$ ) and auditors ( $CPA$ ), respectively, these universities graduate in our sample. The term  $R(SCH)$  is the average of  $R(SCH_{MGT})$  and  $R(SCH_{CPA})$  taken for each school.

sample into percentile ranks based on the number of executives and auditors these universities graduate, referred to as  $R(SCH_{MGT})$  and  $R(SCH_{CPA})$ , respectively. For each school, we take the average of these two ranks and label it  $R(SCH)$ . A higher  $R(SCH)$  value for a school means that the school educates more managers and auditors in our sample. We report the top 20 schools with the highest  $R(SCH)$  values. When a client's executives graduate from one of these schools, the chance of them having connections with auditors is higher since such schools have more alumni and a wider social network. Therefore, in a way, this is a distribution of universities whose graduates are *ex ante* most likely to form auditor–executive school ties in our sample. Consistent with this notion, the top 10 institutions in Panel A with the most observed school connections largely overlap the top 10 institutions in Panel B with the greatest probability of potential school connections. As further discussed in Section 4.2, we include  $\sum R(SCH)$  as one of the predictors in the propensity score model to control for the *ex ante* probability of having any school connection.<sup>11</sup>

Table 2 presents the difference in dependent variables, as well as all of the previously described independent variables between the subsample of companies that employ connected auditors and the subsample of companies that do not. Panel A1 reports the distribution of audit opinions in the two subsamples. In the subsample with school ties, only 3.33% ( $=1-96.67\%$ ) of firm–years received MAOs, compared to 6.27% ( $=1-93.73\%$ ) in the subsample without school ties. Moreover, less than 0.80% of firm–years in the former subsample received qualified or more severe opinions, whereas the corresponding statistic for the latter subsample is 2.14%. The difference in the frequency distribution of audit opinion types between the two groups is significant ( $\chi^2=7.781$ ,  $p=0.051$ ). These findings suggest that connected auditors are less likely to issue MAOs and, if they do, the types of modification tend to be less severe. Panel A2 reports and compares the means and medians of discretionary accruals as measured by  $DACC(KLW)$  and  $DACC(DD)$ , as well as those of the logarithm of audit fees for the two subsamples. While the difference in the means (medians) of  $DACC(KLW)$  between the two subsamples is not statistically

<sup>11</sup> We assign each executive the value of  $R(SCH)$  of his or her graduating school and compute  $\sum R(SCH)$  as the sum of the  $R(SCH)$  scores of a firm's executive team.

**Table 2**  
Descriptive statistics of variables.

Panel A: Audit outcomes						
A1. Audit opinions						
	Match=0 (n=4,529)		Match=1 (n=511)			
AO=0	0.93		0.20			
=1	1.21		0.59			
=2	4.13		2.54			
=3	93.73		96.67			
Total	100.00%		100.00%			
$\chi^2=7.781^*$						
A2. Discretionary accruals and audit fees						
Variables	Match=0 [n=4,504 for DACC and 3,804 for Ln(Fee)]		Match=1 [n=504 for DACC and 436 for Ln(Fee)]		Difference	
	Mean	Median	Mean	Median	t-Statistics	Z-Statistics
DACC (KLW)	0.000	−0.002	0.005	0.005	−1.462	−1.307
DACC (DD)	0.005	0.005	0.011	0.009	−2.173**	−1.746*
Ln(Fee)	13.255	13.122	13.371	13.235	−3.546***	−3.975***
Panel B: Independent variables						
Variables	Match=0 (n=4,529)		Match=1 (n=511)		Difference	
	Mean	Median	Mean	Median	t-Statistics	Z-statistics
B1. Client-related characteristics						
CR	2.293	1.340	1.928	1.340	2.688***	1.892*
AR	0.094	0.068	0.096	0.068	−0.528	−0.364
INV	0.172	0.132	0.180	0.132	−1.092	−0.871
RPTLEND	0.014	0.000	0.011	0.000	1.536	−0.313
ROE	0.059	0.084	0.069	0.084	−0.919	−0.737
OCF	0.049	0.048	0.049	0.048	−0.104	−0.643
Loss	0.098	0.000	0.092	0.000	0.422	0.422
LEV	0.502	0.500	0.520	0.500	−1.397	−1.952*
RET	0.096	0.052	0.090	0.052	0.306	0.569
Q	0.060	−0.003	0.023	−0.003	1.715*	1.682*
Ln(MV)	22.026	21.879	22.064	21.874	−0.708	−0.477
Ln(TAST)	21.716	21.530	21.818	21.651	−1.558	−1.749*
Age	9.439	9.791	9.401	9.791	0.160	−0.002
SOE	0.574	1.000	0.636	1.000	−2.691***	−2.689***
BSHR	0.063	0.000	0.055	0.000	0.739	0.703
HSHR	0.051	0.000	0.033	0.000	2.040**	1.738*
MarketIndex	0.738	0.750	0.756	0.750	−1.268	−1.347
B2. Auditor-related characteristics						
BIG4	0.088	0.000	0.078	0.000	0.714	0.714
AFRANK	0.724	0.792	0.756	0.836	−2.984***	−3.959***
NLOCAL	0.425	0.000	0.247	0.000	8.737***	7.793***
CI	0.328	0.241	0.334	0.235	−0.456	0.014
INITTENURE	0.618	1.000	0.571	1.000	2.031**	2.030**
MGTAFFCPA	0.011	0.000	0.037	0.000	−3.041***	−4.746***
Hometown	0.230	0.000	0.550	1.000	−13.956***	−15.560***
MAO	0.063	0.000	0.033	0.000	3.376***	2.662***
Interim	0.070	0.000	0.067	0.000	0.273	0.273

See the Appendix for the definitions of all the variables. All continuous variables are winsorized at the first and 99th percentiles of their respective annual distributions. The *t*- and Z-statistics are obtained from the *t*- and Wilcoxon tests that compare the two-sample differences in the mean and median values, respectively. The superscripts \*\*\*, \*\*, and \* indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

significant, the mean (median) of DACC (DD) is 0.6% (0.4%) higher, on average, for the subsample with school ties, with a *t*-value (Z-value) of 2.173 (1.746). The mean (median) of the audit fee is RMB 70,500 (RMB 60,000), rounded to increments of 500, higher for the subsample with school ties, with a *t*-value (Z-value) of 3.546 (3.975). Panel B shows the differences in the independent variables. There is no discernible difference for most client-related characteristics except that companies with connected auditors have a lower current ratio (CR), less growth (Q), higher state ownership (SOE), and a smaller proportion of dual listings in the Hong Kong stock market (HSHR). For auditor-related characteristics, we find connected auditors to be larger (AFRANK), more likely to be located in the same province/municipal city (NLOCAL), less likely to be in the initial year of engagement with their client firms (INITTENURE), and more likely to have clients' executives who are former employees (MGTAFFCPA) and who graduate from the same local universities (Hometown).



**Table 3**

Regression analysis of the effect of school ties on audit outcomes.

Variables	(1) $y=AO$		(2) $y=DACC(KLW)$		(3) $y=DACC(DD)$		(4) $y=Ln(Fee)$	
	Coefficients	Z-statistics	Coefficients	t-Statistics	Coefficients	t-Statistics	Coefficients	t-Statistics
<b>Match</b>	<b>0.615*</b>	<b>1.806</b>	<b>0.004*</b>	<b>1.869</b>	<b>0.006**</b>	<b>2.163</b>	<b>0.046*</b>	<b>1.720</b>
CR	0.185	1.459					−0.005*	−1.720
AR	−0.613	−0.594					0.058	0.466
INV	1.958**	1.990					−0.225***	−2.998
RPTLEND	−5.500***	−3.814					0.116***	2.775
ROE	1.108***	4.883					0.485***	2.638
OCF	−0.935	−1.048	−0.739***	−75.608	−0.094***	−7.985	−0.062	−1.613
Loss	−1.389***	−6.980	−0.037***	−12.768	−0.075***	−18.629	−0.011	−0.126
LEV	−1.428***	−3.274	0.000	−0.035	−0.036***	−4.646	0.029	1.135
RET	0.267	1.187						
Q	−0.929***	−4.597	0.006***	2.753	0.010***	3.508	0.096***	3.705
Ln(Size)	0.837***	4.974	0.007***	7.611	0.011***	8.976	0.341***	24.649
Age	−0.043*	−1.850	0.000	−1.605	0.000	−0.133	0.004*	1.688
SOE	0.121	0.497	−0.002	−1.133	−0.005**	−1.997	−0.122***	−4.779
BSHR	−0.033	−0.085	−0.001	−0.332	0.005	1.025	0.196***	4.147
HSR	−0.767	−0.985	−0.006	−1.573	−0.012***	−2.602	0.272***	2.815
MarketIndex	−0.147	−0.396	−0.005**	−2.018	0.003	0.959	0.158***	4.672
BIG4	−0.615	−1.060	−0.008**	−2.281	−0.004	−0.931	0.615***	10.172
AFRANK	−0.421	−0.984	−0.001	−0.209	0.006	1.490	0.236***	5.661
NLOCAL	0.190	0.900	−0.001	−0.763	0.003	1.321	−0.044**	−2.023
CI	−0.997***	−3.106	−0.004	−1.548	−0.002	−0.568		
INITTENURE	0.125	0.857	0.002**	2.007	0.000	−0.181	−0.034***	−3.031
MGTAFFCPA	12.412***	25.070	−0.015***	−3.153	0.003	0.438	0.006	0.097
Hometown	0.103	0.448	0.001	0.464	−0.001	−0.363	0.034*	1.699
MAO							0.069*	1.789
Interim							−0.006	−0.262
Intercept 0	−13.047***	−3.746	−0.143***	−6.836	−0.213***	−8.340	5.722***	18.836
Intercept 1	−11.210***	−3.225						
Intercept 2	−9.997***	−2.861						
Year/industry fixed effects	Yes		Yes		Yes		Yes	
Pseudo-/Adj. $R^2$	19.05%		73.44%		24.31%		66.05%	
N	5,040		5,008		5,008		4,240	

This table presents the regressions results for the full sample. The column (1) regression is estimated as an ordered logit model and other regressions are estimated by the method of ordinary least squares. The term  $Ln(Size)$  is  $Ln(MV)$  for columns (1)–(3) and  $Ln(TAST)$  for column (4). See the Appendix for the definitions of all the variables. Standard errors are clustered at the client firm level. The superscripts \*\*\*, \*\*, and \* indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

#### 4. Hypothesis testing

In this section, we first report and discuss the regression analyses to test the hypothesis of the school tie effect on audit outcomes, including audit opinions and discretionary accruals, as well as on audit fees. Then we describe the procedures and discuss the results of the PSM analysis and change tests to explore within-firm variations. Lastly, we conduct a number of robustness tests to further elevate the confidence of our inferences.

##### 4.1. Regression analysis

Table 3 reports the estimates for Model (1). Column (1) shows the effect of school ties on audit opinions. The coefficient of *Match* is 0.615 and significant at the 10% level ( $Z$ -stat.=1.806). The marginal effect suggests that an observation with an auditor–executive school tie has about a 2.09% greater chance of receiving a clean or less serious audit opinion than an observation without such a tie, holding all other variables at their means. Benchmarked against the proportion of non-clean opinions among observations without school ties (6.27%), the effect of *Match* on auditors' propensity to issue clean or less severe opinions is economically significant. Consistent with [Lennox \(2005\)](#), we document a positive coefficient for *MGTAFFCPA*, suggesting that the auditor is also more likely to issue a clean or less severe modified opinion when executives are affiliated with the incumbent audit firm through past work experience. More importantly, after controlling for this format of social tie, we find our school tie effect to still be statistically and economically significant.<sup>12</sup>

<sup>12</sup> The effect of *MGTAFFCPA* is statistically ( $F$ -stat.=366.16) and economically greater than that of *Match*. This is not surprising, given that executives' intimate knowledge of the audit testing procedures obtained via prior employment also helps them to avoid unfavorable audit opinions.

**Table 4**  
PSM method.

Panel A: Predicting the formation of auditor–executive ties					
Variables	(1)		(2)		
	Selection model		The covariate means of the matched sample		
	Coefficients	Z/ $\chi^2$ -Statistics	Match=0	Match=1	t/ $\chi^2$ -Statistics
AR	1.081*	1.733	0.100	0.097	0.505
RPTLEND	−2.651*	−1.834	0.011	0.011	0.114
Age	−0.025**	−2.290	9.561	9.437	0.378
SOE	0.402***	3.359	0.661	0.635	0.854
HSHR	−0.748***	−2.579	0.034	0.034	0.000
AFRANK	0.808***	3.387	0.750	0.756	−0.425
NLOCAL	−0.930***	−7.527	0.245	0.249	−0.146
MGTCPAExp	0.448*	1.954	0.055	0.055	0.000
$\Sigma R(SCH)$	0.473***	11.122	2.275	2.319	−0.550
City fixed effects	Yes***	$\chi^2 = 158.408$			$\chi^2 = 5.117$
Industry fixed effects	Yes***	$\chi^2 = 56.497$			$\chi^2 = 15.130$
Intercept	−3.938***	−15.094			
Pseudo- $R^2$		8.48%			
N		5,040	507	507	

  

Panel B: Between-group differences in audit outcomes <sup>a</sup>					
Variables	Match=0		Match=1		Difference
	Mean	Median	Mean	Median	
AO=0		1.78		0.20	
=1		0.79		0.59	
=2		4.14		2.56	
=3		93.29		96.65	
Total		100.00%		100.00%	
$\chi^2 = 8.725^{**}$					

  

Variables	Match=0		Match=1		Difference	
	Mean	Median	Mean	Median	t-Statistics	Z-Statistics
DACC (KLW)	−0.004	−0.006	0.005	0.005	−1.951*	−2.287**
DACC (DD)	0.001	0.001	0.011	0.009	−2.377**	−2.155**
Ln(Fee)	13.279	13.181	13.370	13.262	−1.828*	−2.117**

In Column (1) of Panel A, the dependent variable is *Match* and the regression is a logit model. The variable *MGTCPAExp* is a dummy that takes the value of one for executives who have working experience in a public accounting firm (not necessarily the incumbent audit firm);  $\Sigma R(SCH)$  is the sum of the *R(SCH)* score of a firms' executives. To obtain *R(SCH)* for each executive, we first rank all universities from which the executives and auditors in our sample graduate, referred to as *R(SCH<sub>MGT</sub>)* and *R(SCH<sub>CPA</sub>)*, respectively. Then, for each school, we take the average of these ranks as *R(SCH)*. A higher *R(SCH)* value for a school means that the school educates more managers and auditors in our sample. An executive therefore takes the value of *R(SCH)* of his/her graduating school. For a firm that has higher  $\Sigma R(SCH)$  value, its managers graduate from schools that graduate higher number of executives and auditors. City fixed effects is the dummy variable for the top 20 cities with at least one school with the highest *R(SCH)* scores. See the Appendix for the definitions of other variables. In Column (2) of Panels A and B, the *t*-, *Z*- and  $\chi^2$ -statistics are obtained from the *t*- and  $\chi^2$ -tests that compare the two-sample differences in the mean values, median values, and frequencies, respectively. The superscripts \*\*\*, \*\*, and \* indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

<sup>a</sup> The sample sizes are 507, 499, and 358, respectively, for both the control and treatment groups, in *AO*, two *DACC* variables, and *Ln(Fee)*.

We report the effect of school ties on discretionary accruals in columns (2) and (3) of Table 3. The estimated coefficients of the *Match* variable are 0.004 and 0.006, with *t*-values of 1.869 and 2.163, respectively, for the *DACC* (KLW) and *DACC* (DD) models, suggesting that firms audited by connected auditors report significantly higher discretionary accruals. To put the coefficients into economic perspective, since the sample mean value of the operating return on assets (operating income scaled by total assets) is 5.89% (untabulated), earnings audited by connected auditors would be about 10% higher in relative terms than those audited by auditors not connected to client executives via school ties, based on the *DACC* (DD) model. We also use a Tobit model to estimate censored regressions separately for income-increasing and income-decreasing discretionary accruals. Untabulated results suggest that the coefficient estimate for a positive *DACC* (KLW) (*DACC* (DD)) is 0.006 (0.005), which is statistically significant at the 5% (10%) level. The corresponding coefficient in the regression with a negative *DACC* (KLW) (*DACC* (DD)) is 0.001 (0.002), which is not significant at the conventional level. Therefore, the effect of school ties is more pronounced when discretionary accruals are income increasing. Together, these results suggest that school ties impair audit quality, particularly by allowing firms to report more income-increasing discretionary accruals.

Column (4) of Table 3 reports the results of audit fees. We find that the coefficient of *Match* is significantly positive (coefficient=0.046, *t*=1.720), suggesting a fee premium of about 5% ( $=e^{0.046} - 1$ ) when auditors and executives are connected with school ties. This evidence is inconsistent with the efficient information exchange argument, where connected auditors charge lower audit fees since less effort is expended. Instead, the fee premium enjoyed by connected auditors is more consistent with the social norm of reciprocity, whereby connected auditors are less likely to challenge client

management on financial reporting issues due to the mutual trust and caring induced by school ties and, reciprocally, management is willing to pay higher audit fees.<sup>13</sup>

#### 4.2. PSM sample

In the previous section, we employ regression analysis by including observable covariates that affect the audit quality/fee and the auditor–executive connection. However, regression analysis imposes assumptions about the structure of associations and the underlying distributions of these covariates. Alternatively, we adopt a PSM approach to address the endogeneity arising from the choice of connected auditors due to differences in observable covariates. We first build a propensity score model using a logit regression that estimates the presence of an auditor–executive connection, with the dependent variable equal to one if such a connection is present and zero otherwise. As there is no prior study to guide us in building such a model, we start with all the independent variables that are described in Section 3. Caliendo and Kopeinig (2008) suggest that only variables that are unaffected by participation should be included in the propensity score model. We thus exclude the variables related to observed individual auditor characteristics (*CI*, *INITTENURE*, *MAO*, and *MGTAFPCPA*) because they are apparently an outcome of participation. We include a variable to indicate whether the executives of the firm have any past CPA firm work experience (*MGTCPAExp*). Although the PSM method does not require the use of instrumental variables, we consider the following variables that are likely exogenous to audit outcomes.

First, we consider that the schools from which executives and signing auditors graduate may affect the *ex ante* probability of having any school connections. As explained in the discussion of Table 1, Panel B, we compute a value of  $R(SCH)$  for each school that appears in our sample, where a higher  $R(SCH)$  value indicates that the school educates more managers and auditors.<sup>14</sup> An executive is assigned the value of  $R(SCH)$  of his or her graduating school and we compute  $\sum R(SCH)$  as the sum of the  $R(SCH)$  scores of a firm's executive team. A firm has a higher  $\sum R(SCH)$  score if its managers graduate from schools that educate greater numbers of executives and auditors and is thus expected to have a higher probability of forming auditor–executive school ties. Second, we consider a set of indicators for the top 20 cities where the schools with the highest  $R(SCH)$  scores are located. Firms headquartered in such cities are more likely to have auditor–executive alignments with school ties, since students graduating from these schools are likely to start their career in these cities. In addition, we control for year and industry fixed effects in the model. Augurzy and Schmidt (2001) and Bryson et al. (2002) argue that the inclusion of insignificant covariates in the propensity score model gives rise to high variance, which, in turn, can violate the common support condition, especially for small samples. Therefore, we use the backward selection approach to arrive at a parsimonious propensity score model. The final model contains predictors with statistical significance of at least 10%.

The selection model estimation is reported in column (1) of Table 4, Panel A. Consistent with the univariate comparison shown in Table 2, firms with state ownership and those that have issued shares exclusively to domestic investors are more likely to select connected auditors. The connection is more (less) prevalent among those that employ large (non-local) audit firms and managers' prior working experience in the auditing industry increases the odds of employing an alumni auditor. Unsurprisingly,  $\sum R(SCH)$  and the set of indicators for cities where universities with higher  $R(SCH)$  are located are strong predictors of the likelihood of having connected auditors. Firms with higher account receivables and fewer related-party lendings are also more likely to have auditor–executive school ties.

To satisfy the common support condition (Caliendo and Kopeinig, 2008), we discard 4 (110) observations from the connection (non-connection) group, whose propensity scores fall outside the common range of the two groups (i.e., between 0.009 and 0.696). We then use nearest-neighbor matching to match each of the 507 observations from the connection group (i.e., treatment group) with the one with the closest propensity score from the non-connection group (control group). This procedure results in 507 pairs of treatment and control group observations. The mean (median) propensity scores for the treatment and matched control groups are 0.198 (0.152) and 0.193 (0.152), respectively. The difference in neither the mean nor the median is statistically significant. Since the matching is conditional on the propensity score but not on the relevant covariates, we check whether the matching procedure is able to balance the distribution of the relevant covariates. In column (2) of Table 4, Panel A, we report the mean differences of the relevant covariates between the treatment and control samples. There is no significant difference in the mean values in any of the covariates or in the frequency distributions by city and industry between the treatment and control groups. The inferences from the Wilcoxon test of the median values are similar (untabulated). Thus, the covariates are well balanced between the treatment and control groups.<sup>15</sup>

<sup>13</sup> To obtain further evidence that the audit fee premium enjoyed by connected auditors is due to social reciprocity, we also include the discretionary accrual (*DACC* (KLW) or *DACC* (DD)) and its interaction with *Match* in the audit fee model. In untabulated results, we find that, for audit engagements without school ties, discretionary accruals are negatively associated with audit fees, suggesting that, generally, unconnected auditors do earn higher fees for high financial reporting quality. In contrast, the association is reversed for observations with school ties, which indicates the possibility of paying higher fees for lower audit quality in the case of matched observations.

<sup>14</sup> We report the top 20 universities with the highest  $R(SCH)$  in Table 1, Panel B.

<sup>15</sup> To further assure covariate balance, we examine whether the covariates can explain the outcome variable *Match* in a logit model estimated on the matched sample (Sianesi, 2004). Supporting the covariate balance between the treatment and control groups, none of the covariates are statistically significant and the  $\chi^2$ -test on the joint significance of all covariates is insignificant ( $p=0.997$ ).

**Table 5**  
Within-firm variations.

Variables	(1) $y = \Delta O$		(2) $y = \Delta ACC$ (KLW)		(3) $y = \Delta ACC$ (DD)		(4) $y = \ln(Fee)$	
	Coefficients	Z-Statistics	Coefficients	t-Statistics	Coefficients	t-Statistics	Coefficients	t-Statistics
Panel A: Change model								
$\Delta Match$	0.390**	2.092	0.006	1.601	0.007*	1.742	0.032**	2.387
Pseudo-/Adj. $R^2$	5.51%		54.84%		14.26%		13.50%	
N	4,003		3,961		3,961		3,128	
Panel B: Change model by direction of change								
$\Delta Match^+$	0.555	1.636	0.011*	1.751	0.008	1.401	0.051***	2.742
$\Delta Match^-$	-0.222	-0.756	-0.002	-0.331	-0.005	-0.944	-0.015	-0.795
Pseudo-/Adj. $R^2$	5.52%		54.85%		14.24%		13.54%	
N	4,003		3,961		3,961		3,128	
Panel C: Change model by reason of change								
$\Delta Match^{CPA}$	0.368	1.375	0.014**	2.580	0.009*	1.653	0.031**	1.960
$\Delta Match^{EXE}$	0.662	1.215	-0.018	-1.270	0.004	0.291	0.049	1.536
$\Delta Match^{CPA*EXE}$	-0.677	-0.910	-0.002	-0.101	-0.011	-0.702	-0.049	-1.156
Pseudo-/Adj. $R^2$	5.51%		54.93%		14.23%		13.45%	
N	4,003		3,961		3,961		3,128	

The term  $\Delta Match$  measures the change in the *Match* status. It takes on values of -1, zero, and one, respectively, for cases of a change from having a connection in year  $t-1$  to not having any connection in year  $t$ , cases of no change in the *Match* status between years  $t-1$  and  $t$ , and cases of a change from not having any connection in year  $t-1$  to having a connection in year  $t$ . The term  $\Delta Match^+$  is an indicator for cases of a change from not having any connection in year  $t-1$  to having a connection in year  $t$ . The term  $\Delta Match^-$  is an indicator for cases of a change from having a connection in year  $t-1$  to not having any connection in year  $t$ . The term  $\Delta Match^{CPA}$  is equal to  $\Delta Match$  if the change is caused by a change of signing auditor. The term  $\Delta Match^{EXE}$  is equal to  $\Delta Match$  if the change is caused by a change of executives. Standard errors are clustered at the client firm level. The superscripts \*\*\*, \*\*, and \* indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Next, we perform univariate tests of the differences in audit quality and audit fees between the treatment and control groups to provide a direct estimator of the treatment effects (Minutti-Meza, 2013; Zhao, 2004). Table 4, Panel B, reports the results. In the treatment group, only 3.35% (=1–96.65%) of firm-years received MAOs, compared to 6.71% (=1–93.29%) in the control group. Among MAOs, less than 0.80% of firm-years in the treatment group received qualified or more severe opinions, whereas the corresponding statistic for the control group is 2.57%. The difference in the frequency distribution of audit opinion types between the two groups is significant ( $\chi^2=8.725$ ,  $p=0.033$ ). The treatment group has statistically larger (income-increasing) discretionary accruals ( $t$ -value of 1.951 and 2.377 for *DACC* (KLW) and *DACC* (DD), respectively) and audit fees ( $t$ -value of 1.828) than the control group. The results from the PSM sample therefore confirm those generated from our full-sample regression analysis. We also re-estimate the multivariate regressions of audit quality and audit fee models using this matched sample and obtain significant coefficients for *Match* at the 10% or lower levels, with expected signs across all models. For brevity, we do not tabulate these results.

#### 4.3. Change analyses

In this subsection, we employ change analyses to explore the effect of within-firm variation on connection status. The change specifications naturally control for firm-specific characteristics that are constant over time, thereby reducing the possibility of bias due to correlated omitted variables. In particular, we regress changes in audit quality and audit fees on changes in the *Match* variable ( $\Delta Match$ ) and changes in all the control variables, except for *Age* and *BSHR*. The year-to-year change in the *Age* variable is always equal to one, whereas no firm in our sample experienced any change in their B-share listing status. In our sample, 352 cases exhibit changes in connection status, of which exactly half (176 cases) are changes from not having a connection to having one. Table 5, Panel A, reports the effects of change of the auditor-executive connection status on audit quality and audit fees. As shown,  $\Delta Match$  is positively associated with an increase in the likelihood of issuing a clean or less severe modified opinion ( $p < 0.05$ ), an increase in *DACC* (DD) ( $p < 0.1$ ), as well as an increase in audit fees ( $p < 0.05$ ). When we separate the changes according to their direction, that is, changes from not having a connection to having one ( $\Delta Match^+$ ) and vice versa ( $\Delta Match^-$ ), we find, as presented in Panel B, that all changes are associated with changes in audit outcomes in the expected direction, although only changes from not having a connection to having one (i.e.,  $\Delta Match^+$ ) are statistically significant for changes in *DACC* (KLW) and in audit fees. This suggests that the positive associations between changes in auditor-executive connections and audit outcomes are mainly driven by the establishment of school ties rather than by their severance. This is probably because the mutual trust and reciprocity can spill over to the rest of the audit team, even when the connected auditor departs; or successor auditors do not challenge the previous audit outcomes in the short run. To differentiate the reasons for change, we also separate changes into executive changes ( $\Delta Match^{EXE}$ ), signing auditor changes ( $\Delta Match^{CPA}$ ), or both ( $\Delta Match^{CPA*EXE}$ ). A total of 242 cases involve only

**Table 6**  
Informativeness of audit opinions.

Variables	(1) Clients without financial distress		(2) Clients with financial distress	
	Coefficients	Z-statistics	Coefficients	Z-statistics
Panel A: Clients' financial conditions determined by the <i>ex ante</i> measure of Altman $Z_{ChinaScore}$				
<b>Match</b>	<b>0.285</b>	<b>0.232</b>	<b>0.889**</b>	<b>2.333</b>
CR	−0.013	−0.272	0.194	0.743
AR	−1.899	−0.569	−0.750	−0.653
INV	6.193*	1.654	1.691	1.624
RPTLEND	−1.921*	−0.408	−5.100***	−3.101
ROE	2.966***	1.110	0.876***	3.738
OCF	−2.807***	−0.716	−1.077	−1.161
Loss	−104.500***	−76.394	−1.019***	−4.888
LEV	−2.766***	−1.998	−1.093***	−2.701
RET	−0.067	−0.121	0.282	0.973
Q	−1.130*	−1.650	−1.016***	−4.275
Ln(MV)	1.150**	2.466	0.684***	3.450
Age	−0.138**	−2.375	−0.010	−0.309
SOE	−0.346	−0.438	0.312	1.161
BSHR	8.427***	5.841	−0.371	−0.915
HSR	6.472***	5.714	−1.040	−1.144
MarketIndex	−0.987	−0.788	−0.071	−0.176
BIG4	−1.389	−1.048	−0.759	−1.018
AFRANK	−1.361	−0.802	−0.617	−1.374
NLOCAL	−0.039	−0.087	0.363	1.473
CI	−1.736	−1.641	−1.192***	−2.989
INITTENDURE	0.840	1.642	0.088	0.502
MGTAFFCPA	5.824***	4.140	10.648***	13.677
Hometown	0.432	0.790	0.037	0.138
Intercept 0	−13.767	−1.484	−10.476**	−2.546
Intercept 1	−	−	−8.684**	−2.126
Intercept 2	−	−	−7.498*	−1.825
Year/industry fixed effects	Yes		Yes	
Pseudo- $R^2$	3.70%		34.13%	
N	2,461		1,285	
Panel B: Clients' financial conditions determined by the <i>ex post</i> measure of $Status_{t+2}$				
<b>Match</b>	<b>0.358</b>	<b>0.802</b>	<b>1.090**</b>	<b>2.008</b>
CR	0.040	0.698	−0.025	−0.146
AR	−1.651	−1.118	−0.929	−0.664
INV	1.211	0.939	2.100*	1.697
RPTLEND	−7.373***	−4.293	−2.998	−1.568
ROE	1.980***	3.792	0.392	1.545
OCF	−2.203	−1.529	−0.976	−0.893
Loss	−0.636*	−1.818	−0.765**	−2.521
LEV	−2.663***	−4.193	−0.812**	−2.206
RET	0.755**	2.455	0.233	0.560
Q	−1.104***	−4.560	−0.804**	−2.569
Ln(MV)	0.852***	4.136	0.359	1.432
Age	−0.049*	−1.810	0.014	0.272
SOE	−0.277	−0.832	0.525	1.419
BSHR	0.541	1.080	−0.615	−1.012
HSR	0.508	0.557	−1.658	−1.664
MarketIndex	−0.784	−1.608	0.166	0.268
BIG4	−1.013*	−1.751	−1.152	−1.100
AFRANK	−0.027	−0.047	−1.280*	−1.866
NLOCAL	0.311	1.181	0.481	1.369
CI	−1.365***	−3.299	−0.388	−0.649
INITTENDURE	−0.038	−0.168	0.274	1.041
MGTAFFCPA	10.526***	23.831	13.305***	10.110
Hometown	0.321	1.146	−0.020	−0.051
Intercept 0	−10.526**	−2.478	−5.199	−0.970
Intercept 1	−8.564**	−2.012	−3.168	−0.591
Intercept 2	−6.096	−1.415	−2.110	−0.393
Year/industry fixed effects	Yes		Yes	
Pseudo- $R^2$	6.57%		39.37%	
N	4,665		375	

This table presents ordered logit regression results for sub-samples conditional on *ex ante* and *ex post* financial distress measures. The Altman  $Z_{ChinaScore} = 0.517 - 0.460x_6 + 9.320x_7 + 0.388x_8 + 1.158x_9$ , where  $x_6$  is total liabilities/total assets,  $x_7$  is net profit/average total assets,  $x_8$  is working capital/total assets, and  $x_9$  is retained earnings/total assets. Firm-years that have a  $Z_{ChinaScore}$  value greater than 0.9 (lower than 0.5) are classified as financial healthy (distressed), following Altman et al. (2010). The variable  $Status_{t+2}$  is an indicator for observations that received an ST mark from stock exchanges or whose stocks were delisted in year  $t+2$ . Firm-years that take a value of zero (one) in  $Status_{t+2}$  are classified as financial healthy (distressed). See the Appendix for the definitions of all the other variables. Standard errors are clustered at the client firm level. The superscripts \*\*\*, \*\*, and \* indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.



**Table 7**  
Further analyses of earnings quality.

Panel A: Analysis of ERCs			Panel B: Analysis of earnings restatements		
Variables	Coefficients	t-Statistics	Variables	Coefficients	t-Statistics
<i>UE</i>	0.474***	2.773	<b><i>Match</i></b>	<b>0.596**</b>	<b>2.418</b>
<i>Match</i>	−0.009***	−2.981	<i>CR</i>	0.018	0.270
<b><i>UE*Match</i></b>	<b>−0.211**</b>	<b>−2.092</b>	<i>AR</i>	0.560	0.647
<i>Loss</i>	−0.008***	−2.767	<i>INV</i>	0.316	0.443
<i>UE*Loss</i>	−0.135	−1.138	<i>RPTLEND</i>	1.482	0.995
<i>MagUE</i>	−0.002	−1.269	<i>ROE</i>	0.280	0.914
<i>UE*MagUE</i>	−0.074***	−2.900	<i>OCF</i>	−0.864	−0.828
<i>Beta</i>	−0.003***	−2.916	<i>Loss</i>	0.559***	2.637
<i>UE*Beta</i>	−0.021	−0.432	<i>LEV</i>	−0.046	−0.181
<i>BM</i>	0.004***	3.708	<i>Q</i>	0.038	0.177
<i>UE*BM</i>	0.006	0.161	<i>Ln(MV)</i>	−0.136	−1.161
<i>Size</i>	−0.002	−1.615	<i>Age</i>	−0.002	−0.100
<i>UE*Size</i>	0.039	1.044	<i>SOE</i>	0.152	0.731
<i>BIG4</i>	0.001	0.316	<i>BSHR</i>	−0.225	−0.584
<i>UE*BIG4</i>	−0.010	−0.090	<i>HSHR</i>	−0.951	−1.320
<i>AFRANK</i>	−0.002	−0.495	<i>MarketIndex</i>	−0.673**	−2.445
<i>UE*AFRANK</i>	−0.059	−0.307	<i>BIG4</i>	−1.111**	−2.040
<i>NLOCAL</i>	0.000	−0.163	<i>AFRANK</i>	−0.859	−2.409
<i>UE*NLOCAL</i>	−0.010	−0.120	<i>NLOCAL</i>	−0.278	−1.404
			<i>CI</i>	1.110***	4.232
			<i>INITTENURE</i>	−0.073	−0.456
			<i>MGTAFPCPA</i>	−10.487***	−28.458
			<i>Hometown</i>	−0.177	−0.935
			<i>MAO</i>	0.860***	3.165
Intercept	0.010*	1.683	Intercept	0.263	0.105
Year/industry fixed effects	Yes		Year/industry fixed effects	Yes	
Adj./Pseudo-R <sup>2</sup>	1.68%		Adjusted R <sup>2</sup>	6.10%	
N	4,406		N	3,114	

The dependent variable in Panel A is  $CAR_{[-2,+2]}$ , cumulative market-adjusted stock returns from trading day  $-2$  to  $+2$ , where day 0 is the earnings announcement day. The variable *UE* is unexpected earnings measured as earnings in Q4 of year  $t$  less earnings in Q4 in year  $t-1$ , scaled by the market value of equity at the end of day  $-3$ ; *Beta* is estimated by the market model fitting on daily returns for 120 trading days before the  $[-2,+2]$  window; *Size* is the log of the market value at the end of day  $-3$ ; *BM* is the book-to-market value of equity at the end of day  $-3$ ; and *MagUE* is the absolute value of *UE*. All the continuous control variables in both panels are standardized (to have zero mean and unit standard deviation) to facilitate the interpretation of the coefficients. The dependent variable in Panel B is an indicator variable equal to one for observations that have downward restatements in subsequent years and zero otherwise. The regression is estimated as a logit model for the sample period 2006–2009. See the Appendix for the definitions of the other variables. Standard errors are clustered at the client firm level. The superscripts \*\*\*, \*\*, and \* indicate two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

signing auditor changes, 30 cases involve only executive changes, and 80 cases involve both changes. The results reported in Panel C suggest that it is when signing auditors change and become connected with the incumbent executives that audit outcomes change. However, we should be cautious in interpreting the results, given the low test power for the subgroups.

#### 4.4. Robustness tests

We control for differences in observable covariates in empirical tests based on the PSM approach, as discussed in Section 4.2. To account for the possibility that the endogeneity is caused by unobservable variables, we also use a Heckman procedure by including the inverse Mills ratio (*IMR*) in Model (1). The *IMR* is calculated from the same propensity score model specification (but using a probit model) in which  $\Sigma R(SCH)$  and fixed city effects serve as exogenous variables that satisfy exclusion criteria. Untabulated results show that the coefficient of *Match* becomes statistically stronger after we control for *IMR*, except in the regression with *DACC* (*KLW*) as the dependent variable, which becomes insignificant.

We also estimate client firm fixed effect regressions to control for unobservable omitted time-invariant firm-specific factors. Compared to the change specification, the fixed effect estimator could be more efficient if the error term were homoscedastic and serially uncorrelated (Wooldridge, 2013). To obtain a meaningful interpretation, when fitting the fixed effect models, we require all sample firms to have variations in *Match* over time, that is, each client firm in these test samples has to have at least one change in the status of *Match*. After accounting for the effects of fixed firm attributes on audit quality or fees, we obtain statistically significant coefficients with the predicted signs for the *Match* variable for all four regressions except for that with the dependent variable *DACC* (*DD*) (untabulated).

Our main variable *Match* is a dichotomous variable indicating whether school ties exist between any one of the executives and signing auditors. We further test whether a continuous variable of *Match* that theoretically takes on a value from zero to six (six being the upper limit of potential matches between the three executives and two auditors) is also linearly associated with audit quality and audit fees. Untabulated results show positive and statistically significant estimated

coefficients for this continuous variable of *Match* in all four regressions. The *t*-*Z*-statistics are typically greater when using the continuous variable (except for the *DACC* (DD) measure), indicating that the number of school connections among the engagement auditors and client executives better explains the audit outcomes.

In addition, we run annual regressions following Fama and MacBeth (1973) and obtain qualitatively the same inference as that from the previous tests, with the results holding consistently over time.

## 5. Additional analyses

In this section, we first provide further evidence on the audit quality by connected auditors. We then conduct cross-sectional analyses with respect to auditor characteristics to advance our understanding of the effect of school ties.

### 5.1. Informativeness of audit opinions and the quality of earnings

An MAO might not necessarily be equivalent to a high-quality audit: An auditor may falsely issue either a modified opinion when a clean one is appropriate or a clean opinion when a modified one is warranted. One could argue that school ties between executives and auditors can facilitate more efficient information exchange by allowing otherwise difficult-to-communicate information about company prospects to be conveyed to connected auditors, enabling them to provide a more accurate audit opinion. According to this argument, connected auditors may be less likely to issue “false” modified opinions than their counterparts and therefore their audit opinions are more informative about client firms’ future performance. Therefore, it is important to further examine whether modified opinions issued by connected auditors are more informative.

As discussed earlier, Chinese auditing standards require auditors to use modified opinions to indicate concern about financial distress or going concerns. We therefore examine whether audit opinions are informative conditional on both *ex ante* and *ex post* measures of financial distress. *Ex ante* measures do not suffer from the self-fulfilling prophecy effect of modified opinions, since having a modified opinion could lead to failure (e.g., precluding the ability to raise capital), whereas the *ex post* realization of negative events is less subject to measurement errors in assessing the informativeness of audit opinions (Willenborg and McKeown, 2001). We measure *ex ante* distress based on the  $Z_{\text{ChinaScore}}$  of Altman et al. (2010) and classify firm-years that have a  $Z_{\text{ChinaScore}}$  value greater than 0.9 (lower than 0.5) as financially healthy (distressed).<sup>16</sup> The variable  $\text{Status}_{t+2}$  is a proxy for the *ex post* measure of distress/delisting, that is, firms that received an ST mark from stock exchanges or whose stocks were delisted in year  $t+2$ .<sup>17</sup> A firm receives an ST mark if it has incurred losses for three consecutive years. Jiang et al. (2010) suggest that ST status can be regarded as a comparable measure of financial distress in China. We exclude six “voluntary” delisting cases due to merger and acquisition activities or the listing of their parent firms’ stocks. We use  $t+2$  because ST/delisting decisions in year  $t+2$  are based on firm accounting performance in year  $t+1$  and therefore it is appropriate to employ the status in year  $t+2$  to examine the informativeness of audit opinions in year  $t$ .

We use subsamples instead of a pooled sample with interactions to test the informativeness of audit opinions.<sup>18</sup> Panel A of Table 6 contains the subsample regression results using an *ex ante* measure of financial distress. As presented in column (2), the estimated coefficients of *Match* are positive and significant only when the firms are financially distressed based on the *ex ante* measure. This means that connected auditors are more likely to issue clean opinions even though the financial characteristics indicate distress. However, in the subsample that does not indicate financial distress, school ties between auditors and executives do not significantly increase the propensity for auditors to issue clean opinions. The evidence thus does not support the argument that school ties facilitate efficient information sharing. Panel B reports the subsample regression results using an *ex post* measure of financial distress. Qualitatively similar results are obtained. Overall, the results in Table 6 do not support the argument that a higher probability of clean opinions issued by connected auditors indicates more informative audit reporting, while they are consistent with the impairment of audit quality when firms’ executives are socially connected to the engagement auditors.<sup>19</sup>

<sup>16</sup> Specifically, we follow Altman et al. (2010) to compute the  $Z_{\text{ChinaScore}}$  using the following formula:  $0.517 - 0.460x_6 + 9.320x_7 + 0.388x_8 + 1.158x_9$ , where  $x_6$  is the asset liability ratio (total liabilities/total assets),  $x_7$  is the rate of return on total assets (net profit/average total assets),  $x_8$  is the ratio of working capital to total assets (working capital/total assets), and  $x_9$  is the ratio of retained earnings to total assets (retained earnings/total assets). Altman et al. (2010) recommend cutoffs of 0.5 and 0.9 to identify distressed and healthy firms, respectively. When we separately test the intermediate subsample with  $Z_{\text{ChinaScore}}$  between 0.5 and 0.9, the coefficient of *Match* is 0.005 and statistically insignificant, suggesting these observations behave similarly to those that are financially healthy. Alternatively, if we classify this subsample as either financially healthy or distressed, the results are similar to those reported in Table 6, Panel A.

<sup>17</sup> According to China’s Company Law and related regulations, the stocks of a listed firm that incurred losses in the previous three years should be delisted by the stock exchange. To warn investors about the delisting risk, stock exchanges assign the Special Treatment, or ST, mark to a firm that has had two consecutive annual losses or a negative book value of equity. The trading of ST stocks is subject to a daily price up/down limit of 5%.

<sup>18</sup> We do not use pooled sample to conduct these tests because such an approach assumes that the coefficients of control variables and residual distributions do not vary significantly between the two subsamples. Using the method introduced by Allison (1999), we reject such an assumption ( $p < 0.001$ ) for subsamples classified by either *ex ante* or *ex post* financial distress measure, described below.

<sup>19</sup> In addition to a delisting event, we also identify two alternative *ex post* measures to test for the informativeness of audit opinions: one indicative of extremely poor future accounting performance—that is, in year  $t+1$ , a firm’s industry-adjusted operating return on assets (operating income divided by the average of beginning and ending total assets) is in the lowest decile of the entire population of listed firms that year—and the other indicative of financial distress—that is, in year  $t+1$ , the firm has negative working capital, suffers bottom-line losses, or has negative shareholder equity. We obtain qualitatively

As previously discussed, school ties potentially enhance information sharing between auditors and executives and, as a result, managers could be in a better position to signal firm future prospects with accruals (Subramanyam, 1996). In that case, higher discretionary accruals reported by firms hiring connected auditors do not necessarily suggest that the earnings quality of such firms is lower. To shed further light on this, we conduct two supplemental analyses on earnings quality. Following Baber et al. (2014), our first supplemental test is based on ERCs. Here, we are interested in whether earnings audited by connected auditors are perceived to be less credible and thus are incorporated into share prices to a lesser extent (Teoh and Wong, 1993). Table 7, Panel A, reports the results of ERC analysis. We regress  $CAR_{[-2,+2]}$  (cumulative market-adjusted stock returns from trading day  $-2$  to day  $+2$ , where day 0 is the earnings announcement day) on  $UE$  (unexpected earnings measured as earnings in Q4 of year  $t$  less earnings in Q4 in year  $t-1$ , scaled by the market value of equity at the beginning of day  $-2$ ).<sup>20</sup> To test whether ERCs differ between connected and non-connected observations, we add *Match* and the interaction term  $UE*Match$  and a few other terms that could also affect the ERCs while correlated with our main test variables (Teoh and Wong, 1993).<sup>21</sup> As shown, the coefficient of  $UE*Match$  is negative and significant at the 5% level, suggesting that the ERCs are lower for firm-years audited by connected auditors.

In the second analysis, we investigate the effect of school ties on the likelihood of earnings restatements. Financial restatements clearly indicate the presence of accounting errors and can therefore be a relatively precise measure of financial reporting quality (DeFond and Zhang, 2014). We manually collect restatement data from the “Material Accounting Errors” section of financial statement footnotes compiled by CSMAR and exclude those restatements due to changes in accounting standards or government tax rules, mergers and acquisitions, and other issues unrelated to accounting irregularities. We use firm-year observations up to fiscal year 2009 in this analysis because restatements potentially made to the financial statements of fiscal years 2010 and 2011 are largely not yet observable.<sup>22</sup> Panel B of Table 7 reports the results. This analysis includes 3,114 firm-years, of which 329 and 2,785 are audited by connected and non-connected auditors, respectively. This sample comprises 222 downward restatements and 89 upward restatements. Similar to our focus on directional discretionary accruals, we are mainly interested in downward restatements, which indicate that accounting numbers in the year concerned were overstated. The results in Table 7, Panel B, show that the coefficient of *Match* is 0.596 and significant at the 5% level, suggesting that accounting numbers in firm-years audited by connected auditors are more likely to be overstated. Such an effect is also economically significant: The marginal effect suggests that the chance of restating earnings downward in subsequent years is 3.63% higher for observations with school ties between auditor and executives compared to those without such ties, holding other variables at their means. When we focus on the upward restatements, untabulated results show that school ties are unrelated to the probability of such restatements.

To the extent that discovering and reporting (positive) accounting errors can be construed as high audit quality, we further test if the connected auditors are more or less likely to discover and report positive accounting errors. We partition downward restatements based on the connectedness of auditors. Among the 222 downward restatements, 31 cases had original financial statements audited by connected auditors. Among these, 12, or about 39%, of the restatements were disclosed when non-connected auditors were in place. There are 191 cases whose original financial statements were audited by non-connected auditors. Among these, six, or about 3%, of the restatements were discovered when connected auditors were in place. The difference in the frequency distribution between the two groups is highly significant ( $\chi^2=90.25$ ,  $p<0.001$ ). This suggests that connected auditors are much less likely to discover and report income-increasing accounting errors than non-connected auditors are.

Collectively, these results indicate that earnings audited by connected auditors are perceived to be of lower quality by the market and experience more downward restatements in the future, supporting the argument that auditor-executive ties undermine financial reporting quality.

## 5.2. Cross-sectional analyses

To obtain more insight into the school tie effects on audit outcomes, we next investigate whether these effects vary by auditor characteristics. First, big auditors are perceived to provide higher audit quality because of their higher reputational cost (DeAngelo, 1981) and greater investment in auditing technologies (Craswell et al., 1995). Ample empirical evidence

(footnote continued)

similar results; that is, *Match* increases propensities to issue clean opinions when modified opinions are warranted but does not increase propensities to issue clean opinions when the firms are not in financial distress.

<sup>20</sup> We use unexpected earnings in Q4 because earnings in Q1 to Q3 are unaudited and the identities of the signatory auditors are unknown when the earnings in these quarters were announced.

<sup>21</sup> When *UE* is interacted with the control variables, its coefficient measures its effect on *CAR* when all the control variables take on zero values. Some control variables (e.g., *Size* and *Beta*) do not have a natural zero value, making the interpretation of regression coefficients difficult. We therefore demean the continuous variables (to have zero mean and unit standard deviation) so that the coefficient of *UE* can be interpreted as the ERC for the average sample firm.

<sup>22</sup> Based on the restatement data between 2001 and 2005, the gap between the year when accounting irregularities are committed and the year they are discovered and financials are consequently restated is 1.73 years. Accordingly, the majority of the possible restatements to the 2010 and 2011 financial data will be announced in 2012 or later. When we collected restatement data for this study, the most recent fiscal year with financial statement footnote data available from CSMAR was 2011.

supports such arguments.<sup>23</sup> Based on this line of the literature, we predict that the adverse impact of school ties on audit quality could be mitigated in Big 4 or other large audit firms. Second, when the auditors and clients are located in the same place, they are more likely to have face-to-face social interactions (not limited to those in the audit process) that enhance social bonding. In contrast, when a non-local audit firm is hired, we expect the bonding between executives and connected auditors to be weaker due to geographic distance. We thus expect school ties to have a less significant impact on audit quality if the connected auditors are non-local. Third, if auditor competence (due to a lack of client-specific knowledge) is lower in the initial audit engagement (Chen et al., 2008; Geiger and Raghunandan, 2002), it would further exacerbate the negative effect of school ties on audit quality.

We include the interaction terms *BIG4\*Match*, *TQAF\*Match*, *NLOCAL\*Match*, and *INITTENURE\*Match* in the regressions to test the predictions as discussed above. The variable *TQAF* takes the value of one if the client is audited by an audit firm with total assets audited ranked in the top quartile. We use this binary indicator instead of the rank variable (*AFRANK*) to indicate audit firm size so that its effect can be easily compared with the effects of *BIG4* and *NLOCAL*, which are both binary indicators.<sup>24</sup> For the other control variables, we do not include the interaction terms of these variables with these auditor characteristics because doing so hampers the interpretation of the interaction variables of interest.<sup>25</sup> Consistent with our expectations, untabulated results show that the effect of school ties on audit quality is mitigated in firm-years audited by a Big 4 firm and by geographic distance between executives and auditors, while the initial audit engagement further exacerbates the adverse effect of school ties on audit quality. When we compare the effects of these auditor characteristics on the relation between *Match* and audit outcomes, we find that the mitigating effect of audit firm size on audit quality is stronger for international Big 4 firms than for domestic big audit firms (*TQAF*) or non-local auditors (*NLOCAL*). There is no significant difference between the moderating effects of *TQAF* versus *NLOCAL*.

## 6. Conclusion

In this study, we identify the common educational link between signing auditors and client firm executives and examine how such school ties affect audit quality and audit fees. Our prediction is unclear *ex ante*, since the common educational link can facilitate efficient information sharing among in-group members, as well as create favoritism and facilitate collusion among them. Using Chinese data from 2006 to 2011, we find that school ties between signing auditors and firm executives impair audit quality, measured by auditor propensity to issue clean or less severe MAOs and discretionary accruals. Connected auditors also charge higher audit fees. We also find that the effect of auditor–executive ties on the propensity to issue favorable audit opinions is more pronounced among financially distressed clients and firms with connected auditors have lower ERCs and are more likely to have subsequent downward restatements. Such evidence collectively suggests that the mutual caring and trust derived from school ties facilitates collusion between auditors and managers, which eventually impairs audit quality. Based on sociology theories, our study is the first empirical investigation of how school ties shape audit outcomes. Our study therefore has bearings on auditing research as well as socioeconomic research from the perspective of auditing.

For investors, regulators, and managers, our study highlights the importance of being aware of the potential threat to auditor independence arising from school ties. As part of an effort to improve auditor independence, the Sarbanes–Oxley Act imposes a mandatory one-year cooling off period before a member of an audit engagement team can be employed by the audit team's client in key financial positions. Our results suggest that other forms of social ties between auditors and client executives, particularly school ties, also impair auditor independence. Our findings therefore alert shareholders and boards of directors about the potential adverse effect of appointing a connected external auditor. The results from our ERC test suggest that investors do discount the earnings that are audited by connected auditors. Therefore, the mandated disclosure of such affiliation could be informative for investors in assessing audit and financial reporting quality.

Despite the potential positive effect of social ties on more efficient information sharing, prior studies, mostly U.S. based, have generally found that social ties among economic agents weaken monitoring mechanisms in governance. Our findings from the auditing setting are consistent with and confirm the findings in these studies. Nevertheless, given the relationship-based nature of the Chinese economy and its weak legal environment, caution must be exercised in generalizing our findings to other economies. Recently, the Public Company Accounting Oversight (PCAOB) proposed to amend its auditing standards to require audit firms to disclose the names of the engagement partners (PCAOB, 2011, 2013). If such a proposed amendment is implemented, we foresee future opportunities for researchers to analyze how school ties influence audit outcomes in the U.S. setting. In addition, research on the impact of other forms of social ties—such as workplace relations and club membership—their relative importance, and possible interaction effects among them in the auditing setting would enable us to obtain a more complete picture of how social ties can affect audit outcomes.

<sup>23</sup> See DeFond and Zhang (2014) for a summary of U.S. studies and Chan and Wu (2011), DeFond et al. (2000), and Wang et al. (2008) for evidence from Chinese market.

<sup>24</sup> The variables *BIG4* and *TQAF* are modestly negatively correlated (Spearman correlation coefficient = −0.048,  $p < 0.01$ ), consistent with the fact that the Big 4 do not dominate the Chinese audit market (e.g., Wang et al. 2008).

<sup>25</sup> We also interact *Big4*, *TQAF*, *NLOCAL*, and *INITTENURE* with all the control variables that are significant at the 10% level or lower in Table 4 and include them in the regression. The results are qualitatively the same.

## Appendix. Variable definitions

Variables	Definitions
AFRANK	Annual percentile rankings of audit firm size, measured as the natural logarithm of the total audited assets (in millions of RMB) of the listed clientele.
Age	Number of years a company has been listed.
AO	Equals zero to three for disclaimers or adverse opinions, qualified opinions, unqualified opinions with explanatory notes, and clean opinions, respectively.
AR	Accounts receivable intensity, computed as the ending balances of accounts receivable divided by total assets at the end of the year.
BIG4	Indicator for Big 4 auditors.
BSHR	Indicator for firms that have issued B-shares.
CI	Client importance at the individual auditor level, measured as client size $Ln(TAST_i)$ divided by the client portfolio size of an individual auditor, $\sum_{k=1}^m \sum_{i=1}^l LnTAST_i$ , where $i$ is the number of clients audited by auditor $k$ in a particular year and $m$ is the number of auditors signing the audit reports.
CR	Current ratio, computed as current assets divided by current liabilities at the end of the year.
DACC (DD)	Discretionary accruals estimated by the DD model.
DACC (KLW)	Discretionary accruals estimated by the KLW model.
Hometown	Indicator for firms where any of the executives and any of the signing auditors graduated from local universities located in the same province.
HSHR	Indicator for firms that have issued H-shares.
INITTENURE	Indicator for firms where any of the signing auditors is in his or her first year of tenure.
Interim	Indicator for firms whose interim (semi-annual) reports are audited.
INV	Inventory intensity, computed as the ending balances of inventories divided by total assets at the end of the year.
LEV	Leverage ratio, computed as total liabilities divided by total assets at the end of the year.
$Ln(Fee)$	The natural logarithm of annual audit fees.
$Ln(MV)$	Natural logarithm of the year-end market value of shareholder equity (expressed in RMB at the beginning of 2006).
$Ln(Size)$	Defined as either $Ln(TAST)$ or $Ln(MV)$ .
$Ln(TAST)$	Natural logarithm of year-end total assets (expressed in RMB at the beginning of 2006).
Loss	Indicator for bottom-line losses.
MAO	Indicator for having received an MAO, where MAOs include unqualified opinions with explanatory notes, qualified opinions, and disclaimers or adverse opinions.
MarketIndex	Decile ranking (0–9, divided by 9) of the marketization index of Fan et al. (2011) of the provinces in which the firm is located. We use ranking because the data are available only up to 2010 and we apply the ranking to year 2011 based on the premise that the cross-province rankings change very little over time.
Match	Indicator for whether one of the client firm's top executives has a common alma mater with any of the signing auditors.
MGTAFFCPA	Indicator for firms where any of the executives was previously affiliated with the incumbent auditor.
NLOCAL	Indicator for firms headquartered in a province where the incumbent audit firm does not have a practice office. We determine the locations of practice offices according to the office addresses on the audit reports issued by the audit firm or its predecessors (in case the firm merged with other audit firms) in the current and all previous years.
OCF	Operating cash flows divided by the average of beginning and ending total assets.
Q	Year-end Tobin's $q$ adjusted by the market median, where Tobin's $q$ is computed as the sum of the book value of total debts and market value of shareholder equity, divided by the book value of total assets.
RET	Market-adjusted stock returns during the year.
ROE	Core operating net income divided by the average of beginning and ending shareholder equity.
RPTLEND	Total lendings to related parties divided by total assets at the end of the year.
SOE	Indicator for firms that are ultimately controlled by the government.
TQAF	An indicator for observations audited by audit firms that are in the top quartile group sorted by total assets audited.

## References

- Aharony, J., Lee, C.W.J., Wong, T.J., 2000. Financial packaging of IPO firms in China. *Journal of Accounting Research* 38 (1), 103–126.
- Allen, F., Qian, J., Qian, M., 2005. Law, finance, and economic growth in China. *Journal of Financial Economics* 77 (1), 57–116.
- Allison, P., 1999. Comparing logit and probit coefficients across groups. *Sociological Methods & Research* 28 (2), 186–208.
- Altman, E.I., Zhang, L., Yen, J., 2010. Corporate financial distress diagnosis model and application in credit rating for listing firms in China. *Frontiers of Computer Science in China* 4 (2), 220–236.
- Augurzky, B., Schmidt, C., 2001. The propensity score: a means to an end. Discussion Paper No. 271. IZA.
- Baber, W.R., Krishnan, J., Zhang, Y., 2014. Investor perceptions of the earnings quality consequences of hiring an affiliated auditor. *Review of Accounting Studies* 19 (1), 69–102.
- Ball, R., Kothari, S.P., Robin, A., 2000. The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics* 29 (1), 1–52.
- Barron, O., Pratt, J., Stice, J.D., 2001. Misstatement direction, litigation risk, and planned audit investment. *Journal of Accounting Research* 39 (3), 449–462.
- Berkman, H., Cole, R.A., Fu, J., 2011. Political connections and minority-shareholder protection: evidence from securities-market regulation in China. *Journal of Financial and Quantitative Analysis* 45 (6), 1391–1417.
- Bruynseels, L., Cardinaels, E., 2014. The audit committee: management watchdog or personal friend of the CEO. *The Accounting Review* 89 (1), 113–145.
- Bryson, A., Dorsett, R., Purdon, S., 2002. The use of propensity score matching in the evaluation of labour market policies. Working Paper No. 4. Department for Work and Pensions.



- Caliendo, M., Kopeinig, S., 2008. Some practical guidance for the implementation of propensity score matching. *Journal of Economic Surveys* 22 (1), 31–72.
- Carcello, J.V., Li, C., 2013. Costs and benefits of requiring an engagement partner signature: recent experience in the United Kingdom. *The Accounting Review* 88 (5), 1511–1546.
- Chan, K.H., Lin, K., Mo, P., 2006. A political-economic analysis of auditor reporting and auditor switches. *Review of Accounting Studies* 11 (1), 21–48.
- Chan, K.H., Wu, D., 2011. Aggregate quasi rents and auditor independence: evidence from audit firm mergers in China. *Contemporary Accounting Research* 28 (1), 175–213.
- Chen, C.-Y., Lin, C.-J., Lin, Y.-C., 2008. Audit partner tenure, audit firm tenure, and discretionary accruals: does long auditor tenure impair earnings quality? *Contemporary Accounting Research* 25 (2), 415–445.
- Chen, J.P., Su, X., Zhao, R., 2000. An emerging market's reaction to initial modified audit opinions: evidence from the Shanghai Stock Exchange. *Contemporary Accounting Research* 17 (3), 429–455.
- Chen, K., Yuan, H., 2004. Earnings management and capital resources allocation: evidence from China accounting-based regulations of right issues. *The Accounting Review* 79 (3), 645–665.
- Chen, S., Sun, S., Wu, D., 2010. Client importance, institutional improvements, and audit quality in China: an office and individual auditor level analysis. *The Accounting Review* 85 (1), 127–158.
- Chen, Z., Ke, B., Yang, Z., 2013. Minority shareholders' control rights and the quality of corporate decisions in weak investor protection countries: a natural experiment from China. *The Accounting Review* 88 (4), 1211–1238.
- China Securities Regulatory Commission (CSRC), 2014. List of CPAs and audit firms that are penalized by CSRC between 2007 and 2013 (in Chinese). Available at ([http://www.csrc.gov.cn/pub/zjhpublicofsz/gongg\\_7069/201402/t20140207\\_243505.htm](http://www.csrc.gov.cn/pub/zjhpublicofsz/gongg_7069/201402/t20140207_243505.htm)).
- Cohen, L., Frazzini, A., Malloy, C., 2008. The small world of investing: board connections and mutual fund returns. *Journal of Political Economy* 116 (5), 951–979.
- Cohen, L., Frazzini, A., Malloy, C., 2010. Sell-side school ties. *Journal of Finance* 65 (4), 1409–1437.
- Craswell, A.T., Francis, J.R., Taylor, S.L., 1995. Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics* 20 (3), 297–322.
- DeAngelo, L., 1981. Auditor size and auditor quality. *Journal of Accounting and Economics* 3 (3), 183–199.
- Dechow, P., Dichev, I., 2002. The quality of accruals and earnings: the role of accrual estimation errors. *The Accounting Review* 77 (Suppl.), 35–59.
- Dechow, P., Ge, W., Larson, C., Sloan, R., 2011. Predicting material accounting misstatements. *Contemporary Accounting Research* 28 (1), 17–82.
- DeFond, M.L., Francis, J.R., 2005. Audit research after Sarbanes-Oxley. *Auditing: A Journal of Practice and Theory* 24 (Suppl.), 5–30.
- DeFond, M.L., Wong, T.J., Li, S., 2000. The impact of improved auditor independence on audit market concentration in China. *Journal of Accounting and Economics* 28 (3), 269–305.
- DeFond, M.L., Zhang, J., 2014. A review of archival auditing research. *Journal of Accounting and Economics* 58, 275–326.
- Dye, R.A., 1993. Auditing standards, legal liability, and auditor wealth. *Journal of Political Economy* 101 (5), 887–914.
- Elster, J., 1989. Social norms and economic theory. *Journal of Economic Perspectives* 3 (4), 99–117.
- Engelberg, E., Gao, P., Parsons, C.A., 2012. Friends with money. *Journal of Financial Economics* 103 (1), 169–188.
- Fama, E., MacBeth, J., 1973. Risk, return, and equilibrium: empirical tests. *Journal of Political Economy* 81 (3), 607–636.
- Fan, G., Wang, X., Zhu, H., 2011. The Marketization Index in China: The 2011 Report on the Relative Process of Marketization of Each Region. The Economic Science Press (in Chinese).
- Firth, M., Mo, P., Wong, R., 2012. Auditors' organizational form, legal liability, and reporting conservatism: evidence from China. *Contemporary Accounting Research* 29 (1), 57–93.
- Fracassi, C., Tate, G.A., 2012. External networking and internal firm governance. *Journal of Finance* 67 (1), 153–194.
- Francis, J.R., 2011. A framework for understanding and researching audit quality. *Auditing: Journal of Practice and Theory* 30 (2), 125–152.
- Gao, Y., Jamal K., Liu Q., Luo L., 2013. Does reputation discipline Big 4 audit firms? Working paper. Available at: <http://dx.doi.org/10.2139/ssrn.1633724>.
- Geiger, M.A., Lennox, C., North, D.S., 2008. The hiring of accounting and financing officers from audit firms: how did the market react? *Review of Accounting Studies* 13 (1), 55–86.
- Geiger, M.A., Raghunandan, K., 2002. Auditor tenure and audit reporting failures. *Auditing: A Journal of Practice & Theory* 21 (1), 67–78.
- Goodwin, J., Wu, D., 2014. Is the effect of industry expertise on audit pricing an office-level or a partner-level phenomenon? *Review of Accounting Studies* 19 (4), 1532–1578.
- Granovetter, M., 2005. The impact of social structure on economic outcomes. *Journal of Economic Perspectives* 19 (1), 33–50.
- Gul, F.A., Wu, D., Yang, Z., 2013. Do individual auditors affect audit quality? Evidence from archival data. *The Accounting Review* 88 (6), 1993–2023.
- Haw, I., Qi, D., Wu, D., Wu, W., 2005. Market consequences of earnings management in response to security regulations in China. *Contemporary Accounting Research* 22 (1), 95–140.
- He, X., Pittman J., and Rui O., 2013. Reputational implications for partners after a major audit failure: evidence from China. Working paper. Available at: <http://dx.doi.org/10.2139/ssrn.2013104>.
- Heninger, W.G., 2001. The association between auditor litigation and abnormal accruals. *The Accounting Review* 76 (1), 111–126.
- Hochberg, Y., Jungqvist, A., Lu, Y., 2007. Whom you know matters: venture capital networks and investment performance. *Journal of Finance* 62 (1), 251–301.
- Hwang, B.-H., Kim, S., 2009. It pays to have friends. *Journal of Financial Economics* 93 (1), 138–158.
- Jian, M., Wong, T.J., 2010. Propping through related party transactions. *Review of Accounting Studies* 15 (1), 70–105.
- Jiang, G., Lee, C., Yue, H., 2010. Tunneling through intercorporate loans: the China experience. *Journal of Financial Economics* 98 (1), 1–20.
- Jones, K., Krishnan, G.V., Melendrez, K.D., 2008. Do models of discretionary accruals detect actual cases of fraudulent and restated earnings? An empirical analysis. *Contemporary Accounting Research* 25 (2), 499–531.
- Kalmijn, M., Flap, H., 2001. Assortative meeting and mating: unintended consequences of organized settings for partner choices. *Social Force* 79 (4), 1289–1312.
- Kao, J., Wu, D., Yang, Z., 2009. Regulations, earnings management, and post-IPO performance: the Chinese evidence. *Journal of Banking and Finance* 33 (1), 63–76.
- Kothari, S., Leone, A., Wasley, C., 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39 (1), 163–197.
- Lennox, C.S., 2005. Audit quality and executive officers' affiliations with CPA firms. *Journal of Accounting and Economics* 39 (2), 201–231.
- Lennox, C.S., Park, C.W., 2007. Audit firm appointments, audit alumni, and audit committee independence. *Contemporary Accounting Research* 24 (1), 235–258.
- Leuz, C., Nanda, D., Wysocki, P.D., 2003. Earnings management and investor protection: an international comparison. *Journal of Financial Economics* 69 (3), 505–527.
- Lys, T., Watts, R.L., 1994. Lawsuits against auditors. *Journal of Accounting Research* 32 (3), 65–93.
- Massa, M., Simonov, A., 2011. Is college a focal point of investor life? *Review of Finance* 15 (4), 757–797.
- McNichols, M., 2002. Discussion of the quality of accruals and earnings: the role of accrual estimation errors. *The Accounting Review* 77 (Suppl.), 61–69.
- McPherson, M., Smith-Lovin, L., Cook, J.M., 2001. Birds of a feather: homophily in social networks. *Annual Review of Sociology* 27, 415–444.
- Menon, K., Williams, D., 2004. Former audit partners and abnormal accruals. *The Accounting Review* 79 (4), 1095–1118.
- Ministry of Finance of the People's Republic of China, 1995. Independent Auditing Standards No. 7: Audit Report (in Chinese).
- Minutti-Meza, M., 2013. Does auditor industry specialization improve audit quality? *Journal of Accounting Research* 51 (4), 779–817.
- Naiker, V., Sharma, D.S., 2009. Former audit partners on the audit committee and internal control committee. *The Accounting Review* 84 (2), 559–587.
- Nguyen, D.-B., 2012. Does the Rolodex matter? Corporate elite's small world and the effectiveness of boards of directors. *Management Science* 58 (2), 236–252.

- Petersen, M., 2009. Estimating standard errors in finance panel data sets: comparing approaches. *Review of Financial Studies* 22 (1), 435–480.
- Piotroski, J., Wong, T.J., 2012. Institutions and information environment of Chinese listed firms. In: Fan, J., Morck, R., Yeung, B. (Eds.), *Capitalizing China*, University of Chicago Press, Chicago, U.S.
- Public Company Accounting Oversight Board (PCAOB), 2011. Improving the Transparency of Audits: Proposed Amendments to PCAOB Auditing Standards and Form 2, PCAOB Release No. 2011–007; PCAOB Rulemaking Docket Matter No. 29, October 11, 2011.
- Public Company Accounting Oversight Board (PCAOB), 2013. Improving the Transparency of Audits: Proposed amendments to PCAOB Auditing Standards to Provide Disclosure in the Auditor's Report of Certain Participants in the Audit, PCAOB Release No. 2013–009; PCAOB Rulemaking Docket Matter No. 29, December 4, 2013.
- Schmidt, B., 2015. Costs and benefits of friendly boards during mergers and acquisitions. *Journal of Financial Economics* 117 (2), 424–447.
- Sianesi, B., 2004. An evaluation of the active labour market programmes in Sweden. *Review of Economics and Statistics* 86 (1), 133–155.
- Silver, A., 1990. Friendship in commercial society: eighteenth-century social theory and modern sociology. *American Journal of Sociology* 95 (6), 1474–1504.
- Simunic, D., 1980. The pricing of audit services: theory and evidence. *Journal of Accounting Research* 18 (1), 161–190.
- Subramanyam, K.R., 1996. The pricing of discretionary accruals. *Journal of Accounting and Economics* 22 (1–3), 249–281.
- Teoh, S.H., Wong, T.J., 1993. Perceived auditor quality and the earnings response coefficient. *The Accounting Review* 68 (2), 346–366.
- Wang, Q., Wong, T.J., Xia, L., 2008. State ownership, the institutional environment, and auditor choice: evidence from China. *Journal of Accounting and Economics* 46 (1), 112–134.
- Willenborg, M., McKeown, J., 2001. Going-concern initial public offerings. *Journal of Accounting and Economics* 30 (3), 279–313.
- Wooldridge, J.M., 2013. *Introductory Econometrics: A Modern Approach*, 5th ed South-Western/Cengage Learning.
- Yamagishi, T., Kiyonari, T., 2000. The group as the container of generalized reciprocity. *Social Psychology Quarterly* 63 (2), 116–132.
- Yang, Z., 2013. Do political connections add value to audit firms? Evidence from IPO audits in China. *Contemporary Accounting Research* 30 (3), 891–921.
- Zhao, Z., 2004. Using matching to estimate treatment effects: data requirements, matching metrics, and Monte Carlo evidence. *Review of Economics and Statistics* 86 (1), 91–107.