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The emergence of second-tier auditors in China: analysis of audit fee premium and audit quality*

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ABSTRACT

Strong government support for the growth of domestic audit firms has contributed to the emergence of second-tier auditors as an alternative to the Big 4 for Chinese listed companies in the post-2007 period. This paper examines audit fee and audit quality differences across the Big 4, second-tier auditors, and other small auditors. Controlling for auditor choice bias, we find the Big 4 earn a fee premium relative to second-tier auditors, although the audit quality between them is indistinguishable. Relative to other small auditors, however, second-tier auditors earn a fee premium that is accompanied by superior audit quality.

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Audit fee premium; audit quality; Big 4; second-tier auditors; Chinese listed companies

1. Introduction

Prior studies show that large audit firms provide better audit quality than their smaller counterparts, because they have better industry-related knowledge and accounting expertise (Dopuch and Simunic 1982). Large audit firms also have greater incentives to deliver better audit quality because their large client base subjects them to greater reputation risk, and their 'deep pockets' subject them to greater litigation risk (DeAngelo 1981; Dye 1993; Lennox 1999; DeFond and Zhang 2014). At the same time, it is costly for large audit firms to develop and maintain industry specialization and a brand name reputation, and to compensate they charge their clients an audit fee premium. Prior research has provided evidence of a Big N audit fee premium in the US, the UK, Australia, Hong Kong, and other developed economies, which is consistent with Big N auditors' delivery of high-quality audits (Palmrose 1986; Pong and Whittington 1994; Craswell, Francis, and Taylor 1995; DeFond, Francis, and Wong 2000; Chaney, Jeter, and Shivakumar 2004).

We expand this body of research using recent data from China. The Chinese audit market has undergone dramatic changes since 2007. First, since 2007, all listed companies have been required to adopt a new set of accounting standards, which was recognized by the International Accounting Standards Board (IASB) as having achieved 'substantial convergence' with International Financial Reporting Standards (IFRS; IASB 2006) and further recognized as the applicable financial reporting standards in other jurisdictions outside China, including European Union member countries and Hong Kong. A new set of auditing standards comparable to the International Standards on Auditing (ISA) has also been put into effect. China's adoption of IFRS and ISA led to the China Securities Regulatory

Commission's (CSRC) repeal of dual audit requirements¹ in September 2007. Second, the Chinese Institute of Certified Public Accountants (CICPA) announced a comprehensive strategy to accelerate the development of the country's accounting profession in 2007. The strategy's goal is to develop within a five- to ten-year period 10 large accounting firms capable of competing internationally and 100 firms of significant scale capable of serving large domestic companies. The State Council and the Ministry of Finance (MOF) formally endorsed CICPA's strategy in 2009. In the years since, the government has implemented a series of measures² designed to help domestic accounting firms to grow bigger and stronger and move into overseas markets.

Altogether, government support has helped domestic audit firms, particularly large ones, to achieve significant growth in size and market share. One of these firms, Ruihua, overtook Ernst & Young and KPMG in 2012 in terms of revenue, and is now ranked the third largest audit firm in China. When another domestic audit firm, Lixin, also surpassed Ernst & Young and KPMG in 2013, the two international firms lost their position among the Top 4 auditors in the Chinese market in terms of revenue.³ Furthermore, in December 2010, the MOF and CSRC approved eight large domestic audit firms, in addition to the Big 4, to conduct statutory audits on mainland-incorporated companies listed in Hong Kong (H-shares). The rapid growth of large domestic auditors has inevitably presented a challenge to Big 4 auditors, giving rise to significant questions concerning the audit fees the former charge their clients relative to the Big 4 and other non-Big 4 auditors and whether those fees correspond with differences in audit quality.

To date, much of the Chinese research in this area has focused on binary classifications of auditors: Big 4 vs. non-Big 4 (with large domestic auditors grouped together with small auditors) or Top 10 vs. non-Top 10 (with large domestic auditors grouped together with Big 4 auditors). In this paper, in contrast, we classify audit firms into three categories, namely Big 4, second-tier (the eight large domestic firms qualified to conduct H-share audits), and other, generally small, firms. We examine second-tier firms separately both because there is a lack of evidence specifically about them and because their emergence as 'brand-name' firms necessitates a re-examination of their audit fees and audit quality.

We first empirically examine whether the clients of Big 4 and second-tier auditors pay an audit fee premium. If they do, then we further investigate whether that premium is accompanied by delivery of higher quality audits. To proxy for audit quality, we measure clients' earnings quality in terms of earnings management and accounting conservatism. Heckman's two-stage model (Heckman) and the propensity score matching model (PSM) are used to control for auditor choice bias. We run separate regressions for the clients of Big 4 vs. second-tier auditors and those of second-tier vs. other auditors.

Using 7049 firm-year observations of A-share listed companies from 2008 to 2013, we find Big 4 auditors earn an audit fee premium relative to second-tier auditors, although there is no difference in audit quality between the two groups. In contrast, second-tier auditors are found to earn an audit fee premium relative to other small firms, but that premium is associated with superior audit quality. In addition, using data from 2003 to 2013 and a pre- vs. post-2007 design, we further examine changes in fee and quality differences among three types of auditors over time. Overall, our findings show that second-tier auditors in China have emerged as an alternative to the Big 4 for A-share listed companies. They provide the same level of audit quality without charging an audit fee premium.

This paper makes the following contributions to the literature. First, we provide empirical evidence on audit fee premiums and audit quality in an emerging economy. In contrast to developed audit markets, which are dominated by Big 4 firms, the Chinese audit market is highly competitive, particularly in the post-2007 period. Second, rather than using the Big 4 vs. non-Big 4 or Top 10 vs. non-Top 10 dichotomy, we classify auditors into three categories and examine the audit fees and audit quality of second-tier firms separately. Third, we provide empirical evidence in support of the Chinese government's endeavors to boost large domestic auditors' ability to compete with the Big 4.

The remainder of the paper is structured as follows. Section 2 develops our hypotheses. Section 3 describes the research design, construction of variables, and data sources. Section 4 presents and discusses the empirical results, and Section 5 concludes the paper.

2. Hypothesis development

2.1. Auditor size and audit fee premium

Prior research investigating the association between auditor size and audit fees shows that large audit firms charge their clients a higher audit fee (audit fee premium) than small audit firms. The presence of a Big N audit fee premium has been documented in a number of developed economies, including the US, the UK, Australia, and Hong Kong (Palmrose 1986; Pong and Whittington 1994; Craswell, Francis, and Taylor 1995; DeFond, Francis, and Wong 2000; Chaney, Jeter, and Shivakumar 2004; Campa 2013). That fee premium may be related to Big N auditors' delivery of superior audit quality or to monopoly pricing (DeFond and Zhang 2014). For example, Caneghem (2010) finds Big 4 auditors exerted a significantly positive effect on audit fee premiums among Belgian listed companies in 2007. Campa (2013) reports that Big 4 auditors levied a fee premium on UK listed firms in the 2005–2011 period, but finds no significant relationship between audit quality and auditor type. He argues that the fee premium results from the Big 4's dominance of the audit market.

In contrast to audit markets in developed economies, which are dominated by Big N auditors, the Chinese audit market is highly competitive, particularly since the emergence of second-tier auditors in the post-2007 period. The active participation of these domestic auditors has led to a reduced market share for the Big 4 and greater competition among auditors (Simunic and Wu 2009; Wang, O, and Iqbal 2009; Wang et al. 2011; Du and Zhou 2014; Leung and Liu 2015). The relatively competitive nature of the audit market warrants a re-examination of the association between auditor size and audit fees in the Chinese context.

Early studies of China's dual audit market provide inconsistent evidence in this area. Using a sample of dual-listing firms from 2000 to 2003, Chen, Su, and Wu (2007) find that, relative to their non-Big 4 counterparts, Big 4 auditors enjoy no audit fee premium in the competitive statutory market (A-share audits), but charge higher audit fees in the less competitive supplementary market⁴ (B-share audits). However, using A-B share data for 2005 and 2006, Wang, O, and Iqbal (2009) find evidence of Big 4 premiums in both statutory and supplementary markets. They also report that Big 4 industry specialists charge additional premiums in the former market relative to their non-specialist counterparts, whereas the two second-tier auditors they consider (BDO and Horwath) earn no fee premiums. Recent studies examine the association between auditor size and audit fees using data from only the A-share market. Wang et al. (2011) discover that Big 4 auditors earn a fee premium for both their reputation and industry specialization. Non-Big 4 auditors by contrast earn a fee premium only for industry specialization, and this premium is much lower than that earned by Big 4 auditors. Liu and Subramaniam (2013) further show that large auditors (Big 4 plus Top 10 domestic auditors) tend to charge local-SOEs (SOEs owned by a local government) higher audit fees than central-SOEs (SOEs owned by the central government) to protect their reputation.

In sum, these studies provide evidence that the Big 4 and large domestic auditors both charge fee premiums for their brand name and industry specialization in the Chinese audit market. Therefore, we propose the following hypotheses.

H1a: Big 4 auditors charge Chinese listed companies an audit fee premium relative to second-tier auditors.

H1b: Second-tier auditors charge Chinese listed companies an audit fee premium relative to other small auditors.

2.2. Auditor size and audit quality

A large body of evidence indicates that Big N auditors provide better audit quality than their less prominent counterparts, as measured by audit opinions, clients' financial reporting quality, and market perceptions (DeFond and Zhang 2014). At the same time, some research suggests that auditor size is not associated with differences in audit quality among various types of auditors. Boone, Khurana, and Raman (2010) examine the audit quality of Big 4 and second-tier auditors during the 2003–2006 period. Using a PSM sample, they find little difference in actual audit quality (as measured by auditors'

propensity to issue going concern opinions and abnormal accruals) but a pronounced difference in perceived audit quality (as measured by the ex-ante cost of equity capital). Further, adopting a similar matching technique, Lawrence, Minutti-Meza, and Zhang (2011) show the effects of Big 4 auditors to be insignificantly different from those of non-Big 4 auditors with respect to three audit quality proxies: discretionary accruals, ex-ante cost of equity capital, and analyst forecast accuracy. Cassell et al. (2013) report the financial reporting credibility of clients of second-tier auditors in the post-Andersen period to be indistinguishable from that of Big 4 clients, but superior to that of clients of other auditors. Using a sample of UK listed companies in the 2005–2011 period, Campa (2013) finds that Big 4 auditors do not deliver a higher level of audit quality than their non-Big 4 counterparts with respect to three audit quality proxies: discretionary accruals, accounting conservatism, and value relevance of earnings. Examining auditor changes in the US from 2002 to 2006, Chang, Cheng, and Reichelt (2010) document a relatively positive stock market reaction to clients switching from a Big 4 to a small- or medium-sized auditor in the post-2004 period, concluding that the market has become more receptive to small auditors because they provide a quality service at a lower cost. Using clients' issuance of accounting restatements as a measure of audit quality, Eshleman and Guo (2014) find evidence that Big 4 auditors perform higher quality audits than non-Big 4 auditors, but only weak evidence that Big 4 auditors demonstrate superior performance to mid-tier auditors.

In the Chinese setting, in addition to adopting the Big 4 vs. non-Big 4 dichotomy (e.g. Wang, O, and Iqbal 2009; Wang et al. 2011; Du and Zhou 2014; Habib, Jiang, and Zhou 2014), a significant number of studies use Top 10 or Top 8 auditors as a proxy for high-quality auditors (e.g. Gul, Sun, and Tsui 2003; Chan, Lin, and Mo 2006; Wang, Wong, and Xia 2008; Lin and Liu 2009; Chen et al. 2010; 2011; Liu and Subramaniam 2013; Jiang, Habib, and Zhou 2015) due to the relatively competitive nature of the Chinese audit market. Similarly, there is a large body of evidence from China linking larger auditors to higher quality audits. For example, DeFond, Francis, and Wong (2000), Chan, Lin, and Mo (2006), Wang, Wong, and Xia (2008), Chen, Sun, and Wu (2010), Chan and Wu (2011), and Chen et al. (2011) all report that larger auditors are more likely to issue modified audit opinions to their clients. Using discretionary accruals to capture actual audit quality and the cost of equity capital to capture perceived audit quality, Chen et al. (2011) show both that the clients of Top 8 auditors are associated with less earnings management and a lower cost of equity capital, and that this association is more pronounced for non-SOEs than SOEs. Jiang, Habib, and Zhou (2015) examine the effect of auditor type on accounting restatements, and find that the involvement of Top 8 auditors reduces the likelihood of earnings management-induced restatements. Other studies (e.g. Gul, Sun, and Tsui 2003; Lin and Chen 2005; Lin, Liu, and Wang 2009) demonstrate that the stock market perceives larger auditors as providing higher quality audits, resulting in higher earnings response coefficients (ERCs) for their clients' earnings surprises. However, some research has challenged the assumption of perceived Big 4 audit quality in China. Using relatively recent data, Du and Zhou (2014) find no difference in perceived audit quality, as captured by ERCs, between Big 4 and non-Big 4 auditors. Habib, Jiang, and Zhou (2014) also report that Big 4 auditors provide no incremental benefit to their clients in terms of earnings informativeness. Moreover, there is a long-standing unspoken rule among the Big 4 firms in China: less experienced auditors are assigned to clients listed only in mainland China (A-shares) rather than those cross-listed in Hong Kong (A-H shares). Such an arrangement results in the Big 4 performing poorer quality audits on A-share companies due to China's weak institutional environment (Ke, Lennox, and Xin 2015).

In sum, the research to date provides some evidence that larger auditors supply a higher degree of audit quality in the Chinese audit market than smaller auditors. However, as previously discussed, the emergence of second-tier auditors in recent years necessitates a re-examination of whether there is any difference in audit quality between these relatively new players and the Big 4 auditors. Therefore, we propose the following hypotheses.

H2a: Big 4 auditors provide higher quality audits to Chinese listed companies relative to second-tier auditors.

H2b: Second-tier auditors provide higher quality audits to Chinese listed companies relative to other small auditors.

3. Research design and data

3.1. Test for audit fee premium

Following a standard audit fee model (Menon and Williams 2001; Chen, Su, and Wu 2007; Wang, O, and Iqbal 2009; Caneghem 2010; Wang et al. 2011; Campa 2013; Liu and Subramaniam 2013), we examine whether the clients of Big 4 and second-tier auditors in China pay an audit fee premium after controlling for other factors that may affect audit fees. We estimate an ordinary least squares (OLS) regression model, as in Equation (1).

$$\begin{aligned} \ln\text{AUDITFEE}_{i,t} = & \beta_0 + \beta_1\text{AUD}_{i,t} + \beta_2\text{TQ}_{i,t} + \beta_3\text{LEV}_{i,t} + \beta_4\text{FIRMSIZE}_{i,t} + \beta_5\text{INVREC}_{i,t} + \\ & \beta_6\text{ROA}_{i,t} + \beta_7\text{LOSS}_{i,t} + \beta_8\text{QUICK}_{i,t} + \beta_9\text{DUAL_LIST}_{i,t} \\ & + \beta_{10}\text{GEO}_{i,t} + \beta_{11}\text{SOE}_{i,t} + \beta_{12}\text{MSHARE}_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

where $\ln\text{AUDITFEE}$ is the natural logarithm of audit fees; AUD is an indicator variable for BIG4 (or SEC_TIER) that equals 1 for Big 4 (or second-tier) clients, and 0 otherwise; TQ is Tobin's Q, measured as the market value of equity over the book value of total assets; LEV is leverage measured as total liabilities over total assets; FIRMSIZE is the natural logarithm of total assets; INVREC is the sum of inventories and receivables divided by total assets; ROA is return on assets calculated as net profit over the average of total assets; LOSS equals 1 if a firm reports a net loss, and 0 otherwise; QUICK is a quick ratio calculated as current assets excluding inventories over current liabilities; DUAL_LIST equals 1 for a firm that issues B- or H-shares to foreign investors, and 0 otherwise; GEO equals 1 for a firm that is registered in the eastern coastal area of China, and 0 otherwise; SOE equals 1 if the firm is ultimately controlled by the central or local government, and 0 otherwise; and MSHARE is the auditor's market share of total sales in the industry in which the client operates.

For the client sample of Big 4 vs. second-tier auditors, the indicator variable BIG4 is included to test for the existence of a Big 4 fee premium, whereas the indicator variable SEC_TIER is included for the client sample of second-tier vs. other small auditors to test for the existence of a second-tier fee premium. A positive and significant coefficient on AUD (β_1) indicates the existence of an audit fee premium in both cases.

We include the client company's size (FIRMSIZE), growth rate (TQ), ratio of inventories and receivables to total assets (INVREC), and dual-listing status (DUAL_LIST) to control for audit complexity, and financial leverage (LEV), presence of loss (LOSS), quick ratio (QUICK), and return on assets (ROA) to capture audit risk. GEO is included to control for regional disparity. Listed companies that are registered in the more developed eastern coastal region of China – Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian, and Guangdong – are expected to have better governance structures (Gao and Kling 2008), and thus to be charged lower audit fees. SOE is included to capture the effect of government ownership on audit fees. We also include the auditor's industry expertise (MSHARE).

3.2. Test for audit quality

To test the quality of auditors, we measure the earnings quality of their clients. Studies have shown that a higher level of audit quality is associated with a lower level of earnings management or a higher level of accounting conservatism.

3.2.1. Earnings management

Discretionary accruals are used extensively in the literature as a proxy for earnings management. We assume the magnitude of discretionary accruals to reflect the consequences of earnings management. Following the literature (e.g. Becker et al. 1998; Boone, Khurana, and Raman 2010; Chen et al. 2011; Lawrence, Minutti-Meza, and Zhang 2011; Eshleman and Guo 2014), we estimate the following regression:

$$\begin{aligned} \text{ABS_PMATCHP}_{i,t} = & \beta_0 + \beta_1 \text{AUD}_{i,t} + \beta_2 \text{CFO}_{i,t} + \beta_3 \text{LEV}_{i,t} + \beta_4 \text{FIRMSIZE}_{i,t} + \beta_5 \text{ROA}_{i,t} + \\ & \beta_6 \text{TQ}_{i,t} + \beta_7 \text{GROWTH}_{i,t} + \beta_8 \text{DUAL_LIST}_{i,t} + \beta_9 \text{GEO}_{i,t} \\ & + \beta_{10} \text{OWNER}_{i,t} + \beta_{11} \text{SOE}_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

where ABS_PMATCHP is the absolute value of discretionary accruals calculated by the performance-adjusted modified Jones model;⁵ CFO is the cash flow from operations divided by average total assets; GROWTH is the annual change in net sales; and OWNER is the percentage of ownership held by the largest shareholders. The definitions of the other variables are the same as those in Equation (1).

The coefficient on AUD (BIG4 or SEC_TIER), β_1 , represents the incremental effect on the level of earnings management of choosing a larger auditor. For the client sample of Big 4 vs. second-tier auditors, a significant and negative β_1 means that Big 4 auditors are associated with less earnings management, thereby indicating that Big 4 auditors deliver a higher degree of audit quality relative to their second-tier counterparts. The same relationship applies to the client sample of second-tier vs. other small auditors. We control for a number of client characteristics that prior research has shown to affect earnings management, namely, client size (FIRMSIZE), leverage (LEV), operating performance (CFO and ROA), and growth (GROWTH and TQ). Regional disparity (GEO), dual-listing status (DUAL_LIST), and the nature and magnitude of the largest shareholders (SOE and OWNER) are also included to capture the distinct characteristics of the Chinese setting (Chen et al. 2011).

3.2.2. Accounting conservatism

To capture cross-sectional and time-series variation in conservatism of individual companies, Khan and Watts (2009) extend the Basu (1997) model and develop a firm-year measure of conservatism, C_SCORE. Chen et al. (2010, 2013) assess the validity of C_SCORE as a conservatism measure in the Chinese setting and show that C_SCORE is effective in distinguishing between Chinese firms with different levels of conservatism. We thus estimate the following regression:

$$\begin{aligned} \text{C_SCORE}_{i,t} = & \beta_0 + \beta_1 \text{AUD}_{i,t} + \beta_2 \text{FIRMSIZE}_{i,t} + \beta_3 \text{LEV}_{i,t} + \beta_4 \text{MB}_{i,t} \\ & + \beta_5 \text{DUAL_LIST}_{i,t} + \beta_6 \text{GEO}_{i,t} + \beta_7 \text{SOE}_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (3)$$

where the definitions of the variables are the same as in Equation (1). As suggested by Khan and Watts (2009), we control for size, leverage, market-to-book ratio, and other firm characteristics that may affect earnings quality in our analysis, such as regional disparity (GEO), dual-listing status (DUAL_LIST), and the nature of the largest shareholders (SOE).

C_SCORE⁶ measures earnings' incremental response to bad news, and accounting conservatism increases as C_SCORE increases. The coefficient on AUD (BIG4 or SEC_TIER), β_1 , represents the incremental effect on the level of accounting conservatism of choosing a larger auditor. For the client sample of Big 4 vs. second-tier auditors, a significant and positive β_1 means that Big 4 auditors are more conservative, thereby indicating that Big 4 auditors deliver a higher degree of audit quality relative to their second-tier counterparts. The same relationship applies to the client sample of second-tier vs. other small auditors.

3.3. Test for changes in fee premium and quality differentiation

If second-tier auditors have emerged as ‘brand-name’ auditors to compete with the Big 4, we expect to find they have experienced an increase in both audit fees and audit quality post-2007. Using a pre- vs. post-2007 design, we examine changes in audit fee and quality differences among three types of auditors over time. It is difficult to isolate the effects of individual changes that have occurred in the Chinese auditing profession since 2007 on the audit fees and audit quality of second-tier auditors. Hence, our predictions about improvement in audit fees and audit quality of second-tier auditors are not based on a specific event (e.g. adoption of IFRS, implementation of a talent development program, or organizational reform) but rather on a series of events that affected second-tier audit practices over time (Cassell et al. 2013).

To test the average increase in audit fees and audit quality of second-tier clients in the years 2008–2013, relative to the years 2003–2007, we include an indicator variable for the post-2007 period (POST, which equals 1 if the observation is from 2008 or later, and 0 otherwise) and the interaction term between POST and BIG4 (POST and SEC_TIER) in Equations (1–3).

3.4. Endogenous auditor choice

The three foregoing models do not take into account the possibility that auditor choice is endogenous. Following prior research (Chaney, Jeter, and Shivakumar 2004; Chen, Su, and Wu 2007; Caneghem 2010; Chen et al. 2011; Campa 2013; Liu and Subramaniam 2013), we adopt Heckman’s two-stage model (Heckman 1979) to correct for possible endogeneity in auditor choice. In the first stage, we run a probit regression of the binary variable AUD (BIG4 or SEC_TIER) on the variables that have been identified to affect auditor choice in the Chinese market to obtain consistent estimates, and we then use those estimates to compute the inverse Mills ratio (IMR). In the second stage, we estimate Equations (1–3) with IMR included as an additional explanatory variable. Our first-stage self-selection model⁷ is as follows:

$$\begin{aligned} \text{AUD}_{i,t} = & \beta_0 + \beta_1 \text{TQ}_{i,t} + \beta_2 \text{LEV}_{i,t} + \beta_3 \text{FIRMSIZE}_{i,t} + \beta_4 \text{INVREC}_{i,t} + \beta_5 \text{ROA}_{i,t} \\ & + \beta_6 \text{LOSS}_{i,t} + \beta_7 \text{QUICK}_{i,t} + \beta_8 \text{DUAL_LIST}_{i,t} + \beta_9 \text{GEO}_{i,t} + \beta_{10} \text{EISSUE}_{i,t} \\ & + \beta_{11} \text{OWNER}_{i,t} + \beta_{12} \text{SQUOWN}_{i,t} + \beta_{13} \text{CSOE}_{i,t} + \beta_{14} \text{LSOE}_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (4)$$

where SQUOWN is the square of OWNER; EISSUE is the annual change in shareholders’ equity; and CSOE and LSOE are indicator variables for the SOEs ultimately controlled by the central and local governments, respectively. The definitions of other variables are the same as in (1). As in prior studies (Gao and Kling 2008; Wang, Wong, and Xia 2008; Lin and Liu 2009; Leung and Liu 2015), we include common client factors likely to affect auditor choice such as firm size, leverage, growth, business complexity, and litigation risk. We also include variables specific to the Chinese setting, including local SOEs’ tendency to hire small local auditors (LCOE), an inverse U-shaped relationship between large shareholder ownership and auditor choice (OWNER and SQUOWN), regional disparity in institutional environments (GEO), and stronger demand for high-quality audits from listed companies that issue B- or H-shares to foreign investors (DUAL_LIST).

To control for self-selection bias, we also use the PSM method developed by Rosenbaum and Rubin (1983), which has become a popular technique in auditing research (Boone, Khurana, and Raman 2010; Lawrence, Minutti-Meza, and Zhang 2011; Campa 2013; Eshleman and Guo 2014). We run the probit regression model in Equation (4) to estimate the fitted probability of selecting a Big 4 (second-tier) auditor. We then match each Big 4 (second-tier) client, with replacement, to the second-tier (other small auditor) client with the closest fitted probability, requiring a maximum distance of 0.01 between the two fitted values. This requirement results in a loss of observations when no good match exists, but ensures that we find close matches.⁸ Finally, we estimate Equations (1–3) based on the resulting PSM sample.

3.5. Sample selection

All data on A-share listed companies are collected from the China Stock Market and Accounting Research (CSMAR) database. From the initial 12471 firm-year observations for the sample period 2008–2013, we remove 179 observations from the financial services sector, 964 observations listed for less than one year, and 4279 with missing variables. Hence, the final full sample comprises 7049 firm-year observations. In the regressions, all continuous variables are winsorized at the 1st and 99th percentiles,⁹ and dummy variables for year and industry are included.

4. Results

4.1. Descriptive statistics

We classify auditors into three categories: Big 4, second-tier, and other small auditors. We define the eight large domestic audit firms eligible to perform H-share audits as second-tier auditors, and all other audit firms that are non-Big 4 and non-second-tier are considered other small auditors.¹⁰ A list of the second-tier auditors is presented in Table 1.

Table 1 reports the firm size of the top 15 accounting firms in China. The 12 (currently 11) auditors eligible to carry out H-share audits were the top-ranked accounting firms in terms of annual revenue and number of CPA employees in 2014. The second-tier auditors have more human, financial, and other resources than other small auditors, and thus greater technical competence and ability to resist client pressure. Their H-share audit reports are also recognized in the Hong Kong securities market, indicating that the audit quality of these second-tier auditors is comparable to that of the Big 4 and superior to that of other domestic auditors.

Table 2 presents the number and percentage of listed companies engaging Big 4, second-tier, and other small auditors from 2003 to 2013. On average, the market share of these three auditor types is 6.7, 41.3, and 52%. Big 4 auditors play an increasingly minor role in the Chinese market: their market share declined from 8.8% in 2003 to 6.1% in 2013, with the greatest decline occurring from 2008 onward. At the same time, the market share of second-tier auditors has steadily increased, reaching a record high of 58.3% in 2012. Other small audit firms account for nearly half the audit market, and face substantial pressure to secure and retain clients.

Table 3 Panel A reports the descriptive statistics of our sample. In the full sample, the number (percentage) of firm-year observations engaging Big 4, second-tier, and other small auditors is 433 (6.1%), 2545 (36.1%), and 4071 (57.8%), respectively, consistent with the total 2003–2013 population

Table 1. Top 15 accounting firms in China.

Name of CPA firm	Classification	Overall ranking	Eligible for H-share audits	Revenue (RMB million)	No. of CPA employees
PWC	Big 4	1	Yes	3713	1007
Deloitte	Big 4	2	Yes	3131	849
Ernst & Young	Big 4	3	Yes	2833	910
Ruihua	Second-tier	4	Yes	3062	2357
Lixin	Second-tier	5	Yes	2907	1920
KPMG	Big 4	6	Yes	2351	646
Tianjian (Pan-China)	Second-tier	7	Yes	1506	1399
ShineWing	Second-tier	8	Yes	1283	1186
Tianzhi (Baker Tilly)	Other	9	No	1217	835
Zhitong (Grant Thornton)	Second-tier	10	Yes	1196	831
Dahua	Second-tier	11	Yes	1274	1063
Daxin	Second-tier	12	Yes	1016	1139
Jonten (Morison)	Other	13	No	663	451
Zhonghui	Other	14	No	701	412
Xinghua (Moore Stephens)	Other	15	No	625	520

Source: CICPA, List of top 100 accounting firms in China, published on August 3, 2015. Revenue and number of CPA employees are based on information for 2014.

Table 2. Market share of auditing services for Chinese listed companies.

	Year											Total
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
<i>Number of Chinese listed companies engaging:</i>												
Big 4 auditors	113	100	101	101	116	111	114	131	150	155	155	1347
Second-tier auditors	339	384	379	461	558	589	797	979	1160	1453	1146	8245
Other auditors	838	895	894	895	897	925	863	1018	1053	884	1235	10397
Total	1290	1379	1374	1457	1571	1625	1774	2128	2363	2492	2536	19989
<i>Percentage of Chinese listed companies engaging:</i>												
Big 4 auditors	8.8	7.3	7.4	6.9	7.4	6.8	6.4	6.2	6.3	6.2	6.1	6.7
Second-tier auditors	26.3	27.8	27.6	31.6	35.5	36.2	44.9	46.0	49.1	58.3	45.2	41.3
Other auditors	65.0	64.9	65.0	61.5	57.1	57.0	48.6	47.8	44.6	35.5	48.7	52.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: All firm-year observations in the CSMAR database.

Table 3. Descriptive statistics.

	Full sample			Big 4 clients			Second-tier clients			Other Firm clients				
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD		
<i>Panel A: Descriptive statistics of the full sample and sub-samples by audit firm type</i>														
InAUDITFEE	13.427	13.305	0.629	14.627***	14.557***	0.761	13.471	13.430	1.254	13.272***	13.218***	0.486		
ABS_PMATCHP	0.064	0.045	0.065	0.054**	0.040**	0.056	0.063	0.043	1.273	0.066**	0.047***	0.065		
C_SCORE	0.031	0.010	0.061	0.036	0.011**	0.075	0.038	0.015	0.189	0.026***	0.008***	0.052		
MB_ASSETS	2.076	1.689	1.230	1.581***	1.312***	0.789	2.089	1.686	1.214	2.121	1.734***	1.242		
TQ	1.596	1.227	1.255	0.996***	0.766***	0.781	1.604	1.226	0.192	1.655	1.281***	1.268		
LEV	0.519	0.526	0.185	0.542**	0.536*	0.172	0.520	0.528	0.052	0.516	0.523	0.184		
FIRMSIZE	22.021	21.883	1.186	23.541***	23.546***	1.208	22.125	21.977	0.293	21.795***	21.745***	1.028		
INVREC	0.309	0.290	0.185	0.265**	0.243**	0.187	0.321	0.298	1.024	0.306***	0.289**	0.179		
ROA	0.039	0.033	0.052	0.052***	0.041***	0.049	0.038	0.032	0.082	0.098	0.031	0.053		
LOSS	0.094	0.000	0.293	0.060**	0.000**	0.238	0.095	0.000	0.394	0.098	0.000	0.297		
QUICK	1.056	0.796	0.984	0.858***	0.695***	0.680	1.105	0.853	0.472	1.047**	0.778***	0.984		
CFO	0.046	0.046	0.082	0.070***	0.067***	0.073	0.044	0.044	0.243	0.045	0.045	0.082		
EISSUE	0.157	0.067	0.372	0.141*	0.081*	0.299	0.169	0.068	0.488	0.150^	0.064	0.364		
GROWTH	0.181	0.113	0.436	0.153**	0.112	0.315	0.191	0.111	0.430	0.178	0.116	0.424		
DUAL_LIST	0.069	0.000	0.253	0.436***	0.000***	0.497	0.063	0.000	0.478	0.033***	0.000***	0.178		
GEO	0.559	1.000	0.497	0.762***	1.000***	0.426	0.607	1.000	0.491	0.507***	1.000***	0.500		
CSOE	0.189	0.000	0.391	0.374***	0.000***	0.484	0.244	0.000	18.200	0.134***	0.000***	0.341		
LSOE	0.397	0.000	0.489	0.446***	0.000***	0.498	0.352	0.000	2.707	0.420***	0.000***	0.494		
SOE	0.586	1.000	0.493	0.820***	1.000***	0.385	0.596	1.000	0.059	0.554***	1.000***	0.497		
OWNER	30.978	29.358	17.757	37.093***	36.434***	18.459	32.384	31.030	1.254	29.449***	27.190***	17.183		
MB	3.356	2.477	2.927	2.334***	1.737***	2.096	3.290	2.540	1.273	3.506***	2.545***	3.107		
MSHARE	0.048	0.027	0.055	0.104***	0.069***	0.084	0.076	0.058	0.189	0.024***	0.014***	0.031		
N	7049			433			2545			4071				
	(100%)			(6.14%)			(36.10%)			(57.75%)				
<i>Panel B: Mean difference in audit fees and audit quality before and after audit firm switch between Big 4 and Second-tier</i>														
	AUDITFEE ('000 ¥)						ABS_PMATCHP						C_SCORE	
	N	After	Before	Diff.	Pr > t	N	After	Before	Diff.	Pr > t	After	Before	Diff.	Pr > t
Switch from Big 4 to Sec-	27	1883.11	2661.26	-778.15***	(0.000)	18	0.037	0.052	-0.015	(0.223)	0.053	0.015	0.038	(0.137)
ond-tier														
Switch from Second-tier to	16	1755.63	1206.25	549.38*	(0.064)	8	0.047	0.053	-0.006	(0.730)	0.042	0.044	-0.002	(0.909)
Big 4														

Notes: ***, **, and * indicate significance at the 1, 5, and 10% levels (two-tailed) of differences in the means and medians of Big 4 clients vs. second-tier clients, respectively. ^^^, ^^, ^, and ^ indicate significance at the 1, 5, and 10% levels (two-tailed) of differences in the means and medians of second-tier clients vs. other audit firm clients, respectively.

reported in Table 2. We also separate the sample into three client sub-samples – the clients of Big 4, second-tier, and other small auditors – and present their means and medians. We carry out *t*-tests and Wilcoxon tests to determine the differences in means and medians. It can be seen from the table that the average *ln*AUDITFEE for the clients of Big 4, second-tier, and other small auditors amounts to 14.627 (equivalent to RMB 2.3 million), 13.471 (RMB 0.7 million), and 13.272 (RMB 0.6 million), respectively. The *t*-test results indicate that, on average, the Big 4 charge higher audit fees than second-tier auditors and their clients exhibit fewer discretionary accruals. Similarly, on average, relative to other small auditors, second-tier auditors charge higher audit fees, and their clients exhibit fewer discretionary accruals and a higher level of conservatism. In terms of other client characteristics, at the 1% significance level, Big 4 clients are the largest in size (highest FIRMSIZE), whereas the clients of other small auditors are the smallest (lowest FIRMSIZE), with second-tier clients falling between them. Listed companies that are incorporated in a relatively developed region (highest frequency of GEO), issue shares to foreign investors (highest frequency of DUAL_LIST), are ultimately controlled by the central government (highest frequency of CSOE), and have more shares held by their largest shareholders (highest OWNER) are the most likely to engage the Big 4 and least likely to engage other small auditors. Table 3 Panel B reports the descriptive statistics of audit fees and audit quality for our sample companies that switch auditors between Big 4 and second-tier. We show the means of audit fees (AUDITFEE) and audit quality (ABS_PMATCHP and C_SCORE) during the last year with the predecessor auditors and during the first year with the successor auditors, and report the *t*-tests on the mean differences in audit fees and audit quality before and after audit firm switching. It can be seen from the table that audit fees decrease when companies switch from Big 4 to second-tier auditors, and increase when companies switch from second-tier to Big 4 auditors, whereas the differences in audit quality before and after auditor switch are indistinguishable.

Table 4 presents a Pearson correlation matrix in which the audit fee level is positively correlated with Big 4 and second-tier auditors. However, the level of abnormal accruals is negatively correlated only with BIG4, having no significant correlation with SEC_TIER. C_SCORE is positively correlated with SEC_TIER, having no significant correlation with BIG4.

4.2. Multivariate analyses

4.2.1. Auditor choice

Table 5 presents the results of the auditor choice model, Equation (4). These results provide the basis for the computation of IMR and implementation of the PSM procedures. Consistent with Wang, Wong, and Xia (2008), Chen et al. (2011), and Leung and Liu (2015), we find that firms that are larger in size (FIRMSIZE), issue shares to foreign investors (DUAL_LIST), are located in eastern-coastal regions (GEO), and are ultimately controlled by the central government (CSOE) are more likely to hire larger auditors. The results also show that firms' propensity to choose Big 4 auditors increases with an increase in the ownership percentage (OWNER) of their largest shareholders, and that relation is nonlinear, as evidenced by the negative coefficient on SQUOWN.

4.2.2. Auditor size and audit fee

Table 6 presents the results of Equation (1), which investigates the presence of an audit fee premium for large auditors relative to their smaller competitors. Columns A to C show that the coefficient on BIG4 (β_1) is significant and positive at the 1% level under the OLS, Heckman, and PSM methods, indicating that the Big 4 charge their clients higher audit fees than their second-tier counterparts, which is consistent with the findings of Campa (2013), Caneghem (2010), Chen, Su, and Wu (2007), Wang, O, and Iqbal (2009), and Wang et al. (2011). Columns D to F report a similar result. The coefficient on SEC_TIER (β_1) is significant and positive under the OLS, Heckman, and PSM methods, indicating that the clients of second-tier auditors pay an audit fee premium relative to those of other small auditors.

Table 4. Correlation matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
InAUDITFEE	1																					
ABS	-0.073	1																				
PMATCHP			1																			
C_SCORE	0.211	-0.060	1																			
MB_ASSETS	-0.259	0.083	-0.304	1																		
BIG4	0.488	-0.040	0.021	-0.103	1																	
SEC_TIER	0.053	-0.017	0.083	0.008	-0.192	1																
TQ	-0.295	0.072	-0.316	0.982	-0.122	0.005	1															
LEV	0.207	0.067	0.324	-0.309	0.032	0.005	-0.413	1														
FIRMSIZE	0.714	-0.058	0.317	-0.481	0.328	0.066	-0.495	0.366	1													
INVREC	-0.003	0.153	0.036	-0.038	-0.061	0.048	-0.077	0.219	0.001	1												
ROA	0.084	0.037	-0.207	0.255	0.068	-0.005	0.292	-0.377	0.076	0.001	1											
LOSS	-0.072	0.049	0.078	0.012	-0.030	0.001	-0.013	0.172	-0.117	0.001	-0.598	1										
QUICK	-0.113	-0.009	-0.167	0.250	-0.052	0.037	0.320	-0.624	-0.203	-0.108	0.273	-0.113	1									
CFO	0.034	-0.129	-0.119	0.123	0.075	-0.020	0.143	-0.190	0.005	-0.329	0.344	-0.139	0.068	1								
EISSUE	0.035	0.146	-0.057	0.052	-0.010	0.025	0.068	-0.085	0.106	0.000	0.343	-0.231	0.117	0.034	1							
GROWTH	0.020	0.194	-0.032	0.056	-0.016	0.017	0.055	0.072	0.084	0.072	0.260	-0.166	-0.014	0.050	0.386	1						
DUAL_LIST	0.348	-0.046	0.006	-0.007	0.372	-0.016	-0.097	0.044	0.184	-0.036	-0.010	0.008	-0.050	0.009	-0.025	-0.040	1					
GEO	0.185	0.004	-0.054	-0.014	0.105	0.073	-0.024	-0.097	0.032	0.113	0.092	-0.052	0.073	0.004	-0.036	-0.032	0.127	1				
SOE	0.116	-0.060	0.059	-0.173	0.122	0.016	-0.189	0.187	0.275	-0.131	-0.079	0.027	-0.170	0.040	-0.023	-0.019	0.137	-0.110	1			
OWNER	0.153	0.009	0.072	-0.055	0.088	0.060	-0.049	0.024	0.246	0.065	0.073	-0.052	0.012	0.007	0.071	0.088	0.009	0.049	0.214	1		
MB	-0.212	0.111	-0.223	0.792	-0.089	-0.017	0.729	0.092	-0.398	0.022	0.031	0.134	0.010	0.014	-0.011	0.066	0.029	-0.053	-0.104	-0.066	1	
MSHARE	0.303	-0.057	0.159	-0.098	0.259	0.385	-0.106	0.068	0.242	-0.010	0.017	-0.034	-0.032	0.018	-0.003	0.013	0.128	0.089	0.089	0.125	-0.092	1

Notes: The correlation matrix is for the full sample (7049 firm-year observations). Bold and italics indicate significance at the 1 and 5% levels, respectively (two-tailed).

Table 5. Probit regression of auditor choice on firm characteristics.

	Dependent variable: BIG4		Dependent variable: SEC_TIER	
	BIG4 vs. SEC_TIER		SEC_TIER vs. OTHER	
	Coeff. est.		Coeff. est.	
Intercept	-11.617 (0.000)***	-4.395 (0.000)***		
TQ	-0.133 (0.014)**	0.100 (0.000)***		
LEV	-1.516 (0.000)***	-0.082 (0.536)		
FIRMSIZE	0.476 (0.000)***	0.180 (0.000)***		
INVREC	-0.438 (0.084)*	-0.017 (0.880)		
ROA	5.565 (0.000)***	-1.175 (0.012)**		
LOSS	0.387 (0.018)**	-0.045 (0.526)		
QUICK	-0.205 (0.001)***	0.031 (0.140)		
DUAL_LIST	1.127 (0.000)***	0.361 (0.000)***		
GEO	0.291 (0.000)***	0.284 (0.000)***		
EISSUE	-0.291 (0.010)**	0.043 (0.353)		
OWNER	0.016 (0.028)**	-0.002 (0.627)		
SQUOWN	-0.0002 (0.022)**	-0.0001 (0.255)		
CSOE	0.190 (0.053)*	0.460 (0.000)***		
LSOE	-0.044 (0.639)	-0.044 (0.266)		
Year	Included	Included		
Industry	Included	Included		
R ²	0.244	0.079		
Max-rescaled-R ²	0.432	0.107		
Wald Chi-square	573.05***	512.11***		
Observations	2978	6616		

Notes: The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed *p*-values are reported in parentheses.

The results for control variables are also consistent with the literature. Across all samples, the coefficients on FIRMSIZE, TQ, DUAL_LIST, and GEO are positive and significant irrespective of the methods used, indicating that the audit fee level is positively associated with such client characteristics as size, growth, and audit complexity. A negative coefficient on SOE is found, suggesting that auditors levy lower fees on SOEs than non-SOEs. The positive coefficient on MSHARE provides support for industry specialists earning fee premiums. Finally, the negative association found between audit fees and QUICK for the clients of second-tier vs. other small auditors suggests that clients enjoy lower audit fees when their liquidity improves.

In summary, our findings from the audit fee model demonstrate that large auditors charge their clients higher fees than do their smaller competitors, thus supporting our H1a and H1b hypotheses.

4.2.3. Auditor size and audit quality

The evidence in Table 6 demonstrates the presence of an audit fee premium among large auditors. The following analyses examine whether that premium is accompanied by the delivery of higher quality audits.

Table 7 presents the results from our first proxy for audit quality: *earnings management*. Columns A–C do not show a significantly negative coefficient on BIG4 (β_1), indicating that Big 4 clients do not exhibit lower levels of discretionary accruals than their second-tier counterparts. Hence, Big 4 auditors do not deliver higher quality audits than second-tier auditors. Columns D to F, in contrast, show that the coefficient on SEC_TIER (β_1) is marginally negative under the OLS and Heckman methods and significantly negative at the 5% level under the PSM method, suggesting that second-tier clients do exhibit lower levels of discretionary accruals than the clients of other small auditors, and thus that the audit quality of second-tier auditors is superior to that of their smaller competitors. With respect to control variables, we find ABS_PMATCHP to be positively associated with ROA, TQ, and GROWTH, implying that more profitable companies with higher levels of growth exhibit more discretionary accruals. ABS_PMATCHP is negatively associated with CFO and FIRMSIZE, suggesting that the use of discretionary accruals is more pervasive among smaller companies with poorer operating cash flows.

Table 6. Association between auditor type and audit fee.

	Dependent Variable: lnAUDITFEE					
	BIG4 vs. SEC_TIER		SEC_TIER vs. OTHER		(D) OLS	(F) PSM
	(A) OLS	(B) Heckman	(C) PSM	(E) Heckman		
	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.
Intercept	4.811 (0.000)***	4.186 (0.000)***	3.422 (0.000)***	5.912 (0.000)***	5.166 (0.000)***	5.617 (0.000)***
BIG4	0.502 (0.000)***	0.916 (0.000)***	0.434 (0.000)***			
SEC_TIER				0.019 (0.083)*	0.385 (0.011)**	0.023 (0.062)*
TQ	0.054 (0.000)***	0.047 (0.000)***	0.108 (0.000)***	0.038 (0.000)***	0.044 (0.000)***	0.034 (0.000)***
LEV	0.015 (0.819)	0.021 (0.162)	0.310 (0.046)**	0.025 (0.508)	0.015 (0.690)	-0.018 (0.699)
FIRMSIZE	0.386 (0.000)***	0.387 (0.000)***	0.445 (0.000)***	0.336 (0.000)***	0.346 (0.000)***	0.352 (0.000)***
INVREC	-0.089 (0.086)*	-0.104 (0.058)*	-0.293 (0.017)**	-0.020 (0.530)	-0.016 (0.610)	0.001 (0.989)
ROA	-0.299 (0.150)	-0.147 (0.532)	0.005 (0.993)	0.014 (0.911)	-0.047 (0.717)	-0.064 (0.682)
LOSS	-0.023 (0.479)	-0.019 (0.598)	0.089 (0.257)	0.024 (0.231)	0.023 (0.256)	0.012 (0.616)
QUICK	0.001 (0.953)	-0.0004 (0.970)	0.026 (0.393)	-0.012 (0.040)**	-0.010 (0.087)*	-0.021 (0.002)***
MSHARE	0.210 (0.096)*	0.294 (0.027)**	0.165 (0.515)	0.824 (0.000)***	0.934 (0.000)***	0.677 (0.000)***
DUAL_LIST	0.392 (0.000)***	0.325 (0.000)***	0.351 (0.000)***	0.362 (0.000)***	0.372 (0.000)***	0.350 (0.000)***
GEO	0.160 (0.000)***	0.169 (0.000)***	0.074 (0.069)*	0.146 (0.000)***	0.164 (0.000)***	0.154 (0.000)***
SOE	-0.114 (0.000)***	-0.106 (0.000)***	-0.196 (0.000)***	-0.098 (0.000)***	-0.094 (0.000)***	-0.103 (0.000)***
IMR		1.037 (0.000)***			0.638 (0.004)***	
Year	Included	Included	Included	Included	Included	Included
Industry	Included	Included	Included	Included	Included	Included
Adj. R ²	0.705	0.674	0.678	0.530	0.531	0.516
F-value	255.43***	220.65***	58.62***	267.42***	258.70***	192.07***
Observations	2978	2978	690	6616	6616	5026

Notes: Columns A and D present the OLS regression results without controlling for self-selection bias. Columns B and E present the second-stage regression results using the Heckman method, and Columns C and F present the regression results using the PSM method with caliper = 0.01. The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed p-values are reported in parentheses.



Table 7. Association between auditor type and earnings management.

	Dependent Variable: ABS_PMATCHP					
	BIG4 vs. SEC_TIER		SEC_TIER vs. OTHER		(F) PSM	
	(A) OLS	(B) Heckman	(C) PSM	(D) OLS		(E) Heckman
	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	
Intercept	0.135 (0.000)***	0.068 (0.085)*	0.121 (0.025)**	0.115 (0.000)***	0.134 (0.002)***	0.132 (0.000)***
BIG4	0.004 (0.243)	-0.018 (0.184)	0.007 (0.123)			
SEC_TIER				-0.003 (0.082)*	-0.043 (0.091)*	-0.004 (0.015)**
CFO	-0.115 (0.000)***	-0.110 (0.000)***	-0.150 (0.000)***	-0.099 (0.000)***	-0.099 (0.003)***	-0.096 (0.000)***
LEV	0.025 (0.003)***	0.018 (0.040)**	0.029 (0.104)	0.026 (0.000)***	0.025 (0.000)***	0.020 (0.000)***
FIRMSIZE	-0.005 (0.000)***	-0.001 (0.426)	-0.005 (0.059)*	-0.004 (0.000)***	-0.003 (0.037)**	-0.004 (0.000)***
ROA	0.059 (0.032)**	0.075 (0.009)***	0.200 (0.002)***	0.056 (0.003)***	0.051 (0.007)***	0.035 (0.107)
TQ	0.004 (0.002)***	0.003 (0.009)***	0.003 (0.343)	0.003 (0.000)***	0.003 (0.000)***	0.003 (0.001)***
GROWTH	0.029 (0.000)***	0.028 (0.000)***	0.028 (0.000)***	0.026 (0.000)***	0.026 (0.000)***	0.030 (0.000)***
DUAL_LIST	-0.003 (0.376)	0.007 (0.251)	-0.002 (0.711)	-0.009 (0.022)**	-0.006 (0.121)	-0.008 (0.032)**
GEO	0.001 (0.597)	0.003 (0.216)	0.000 (0.988)	0.001 (0.656)	0.002 (0.408)	0.000 (0.846)
OWNER	0.000 (0.498)	0.000 (0.575)	0.000 (0.017)**	0.000 (0.296)	0.00006 (0.226)	0.000 (0.453)
SOE	-0.003 (0.238)	-0.003 (0.294)	-0.005 (0.402)	-0.004 (0.026)**	-0.003 (0.075)*	-0.004 (0.047)**
IMR		-0.016 (0.291)			-0.055 (0.143)	
Year	Included	Included	Included	Included	Included	Included
Industry	Included	Included	Included	Included	Included	Included
Adj. R ²	0.144	0.144	0.112	0.127	0.127	0.154
F-value	19.48***	19.60***	4.47***	36.48***	35.23***	34.76***
Observations	2978	2978	690	6616	6616	5026

Notes: Columns A and D present the OLS regression results without controlling for self-selection bias. Columns B and E present the second-stage regression results using the Heckman method, and Columns C and F present the regression results using the PSM method with caliper = 0.01. The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed *p*-values are reported in parentheses.

Table 8. Association between auditor type and accounting conservatism.

	Dependent Variable: C_SCORE					
	BIG4 vs. SEC_TIER		SEC_TIER vs. OTHER			
	(A) OLS	(B) Heckman	(C) PSM	(D) OLS	(E) Heckman	(F) PSM
Intercept	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.
BIG4	0.113 (0.000)***	0.227 (0.000)***	0.256 (0.000)***	0.112 (0.000)***	0.130 (0.000)***	0.098 (0.000)***
SEC_TIER	-0.004 (0.151)	0.010 (0.358)	-0.003 (0.463)	0.003 (0.021)**	0.114 (0.000)***	0.002 (0.081)*
FIRMSIZE	-0.004 (0.001)***	-0.008 (0.000)***	-0.010 (0.000)***	-0.003 (0.000)***	-0.008 (0.000)***	-0.0003 (0.001)***
LEV	0.143 (0.000)***	0.141 (0.000)***	0.149 (0.000)***	0.106 (0.000)***	0.104 (0.000)***	0.116 (0.000)***
MB	-0.005 (0.000)***	-0.003 (0.000)***	-0.007 (0.000)***	-0.003 (0.000)***	-0.003 (0.000)***	-0.003 (0.000)***
DUAL_LIST	0.001 (0.856)	-0.011 (0.024)**	0.004 (0.345)	-0.000 (0.995)	-0.009 (0.001)***	-0.003 (0.277)
GEO	-0.006 (0.003)***	-0.009 (0.000)***	-0.004 (0.382)	-0.004 (0.000)***	-0.010 (0.000)***	-0.006 (0.000)***
SOE	0.006 (0.004)***	0.005 (0.015)**	0.004 (0.508)	0.003 (0.003)***	-0.000 (0.818)	0.005 (0.000)***
IMR	Included	0.003 (0.805)	Included	Included	0.129 (0.000)***	Included
Year	Included	Included	Included	Included	Included	Included
Industry	Included	Included	Included	Included	Included	Included
Adj. R ²	0.487	0.489	0.531	0.477	0.486	0.479
F-value	123.63***	124.78***	38.09***	263.33***	262.01***	201.44***
Observations	2978	2978	690	6616	6616	5026

Notes: Columns A and D present the OLS regression results without controlling for self-selection bias. Columns B and E present the second-stage regression results using the Heckman method, and Columns C and F present the regression results using the PSM method with caliper = 0.01. The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed p-values are reported in parentheses.

Table 8 presents the results from our second proxy for audit quality: *accounting conservatism*. Columns A to C do not show a significantly positive coefficient on BIG4 (β_1), indicating that the audits conducted by Big 4 auditors are not associated with a higher level of accounting conservatism. On the contrary, columns D to F report significantly positive coefficients on SEC_TIER (β_1) across the three methods, indicating that audits conducted by second-tier auditors are associated with a higher level of accounting conservatism, or better audit quality, relative to audits by other small auditors. With respect to control variables, we find that across all of the samples and methods, at the 1% level, the coefficients on FIRMSIZE and MB are significantly negative and the coefficient on LEV is significantly positive, indicating that larger, growing, and less leveraged companies are less conservative, consistent with the predictions of Khan and Watts (2009).

To summarize, the findings from our two proxies for audit quality indicate no significant differences in audit quality between Big 4 and second-tier auditors, whereas the audit quality of second-tier auditors is superior to that of other small auditors.

4.2.4. Changes in fee premium and quality differentiation

Using data from 2003 to 2013, we repeat the auditor choice probit regression of Equation (4) in Table 5. We then estimate Equations (1–3) with IMR, POST, and POST_BIG4 (POST_SEC_TIER) as additional explanatory variables. Table 9 reports the Heckman results from our pre- vs. post-2007 tests. Columns A to C present results from estimating Equations (1–3) for the client sample of Big 4 vs. second-tier auditors. The coefficients on POST are significantly positive in the audit fee and C_SCORE models and significantly negative in the earnings management model, indicating an increase in audit fees and audit quality of both Big 4 and second-tier clients since 2008. In column A, the significant and positive coefficient on BIG4 indicates that pre-2007, Big 4 auditors earn a fee premium relative to second-tier auditors; the coefficient on POST_BIG4 is also significant and positive, showing that the Big 4 fee premium increases post-2007. In column B, no evidence is found for differences in earnings management between Big 4 and second-tier clients pre- and post-2007. In column C, no significant difference in accounting conservatism between Big 4 and second-tier clients is found pre-2007, whereas the difference in conservatism for Big 4 vs. second-tier clients widens post-2007 (i.e., the positive coefficient on POST_BIG4). We run a joint test on the sum of the coefficients on BIG4 and POST_BIG4 (0.004, $p = 0.625$), revealing that Big 4 auditors do not exhibit more accounting conservatism than second-tier auditors post-2007. Columns D to F present the results from estimating Equations (1–3) for the client sample of second-tier vs. other small auditors. Similarly, the significant coefficients on POST across the three models indicate an increase in audit fees and audit quality for the clients of both second-tier and other small auditors since 2008. Column D shows that pre-2007, second-tier auditors earn a fee premium relative to other small auditors, whereas the fee premium does not further increase post-2007. We run a joint test on the sum of the coefficients on SEC_TIER and POST_SEC_TIER (0.533, $p = 0.0001$), revealing that second-tier auditors earn a fee premium relative to other small auditors post-2007. Columns E and F show that second-tier auditors provide higher quality audits than other small auditors pre-2007, and the difference in audit quality for clients of second-tier vs. other small auditors widens post-2007 (i.e., the negative coefficient on POST_SEC_TIER in Column E and the positive coefficient on POST_SEC_TIER in Column F).

Overall, the results in Table 9 suggest that the audit fees and audit quality of second-tier clients have improved since 2008. In the post-2007 period, relative to other small auditors, second-tier auditors earn a fee premium and deliver higher quality audits. The quality differentiation between second-tier and other small auditors has widened post-2007. In contrast, relative to the Big 4, second-tier auditors provide audit quality that is indistinguishable from that of the Big 4 but charge their clients lower audit fees.

Table 9. Association between auditor type and audit fee and audit quality: 2003–2013.

	BIG4 vs. SEC_TIER			SEC_TIER vs. OTHER		
	(A) lnAUDITFEE	(B) ABS_PMATCHHP	(C) C_SCORE	(D) lnAUDITFEE	(E) ABS_PMATCHHP	(F) C_SCORE
	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.
Intercept	4.865 (0.000)***	-0.201 (0.002)***	0.600 (0.000)***	5.017 (0.000)***	0.124 (0.001)***	0.337 (0.000)***
BIG4	0.340 (0.000)***	-0.014 (0.155)	-0.005 (0.595)			
SEC_TIER				0.549 (0.001)***	-0.007 (0.809)	0.139 (0.000)***
SOE	-0.109 (0.000)***	-0.001 (0.615)	0.001 (0.767)	-0.088 (0.000)***	-0.003 (0.014)**	-0.005 (0.000)***
POST	0.540 (0.000)***	-0.031 (0.000)***	0.128 (0.000)***	0.210 (0.000)***	-0.012 (0.024)**	0.064 (0.000)***
POST_BIG4	0.122 (0.000)***	-0.002 (0.274)	0.009 (0.000)***			
POST_SEC_TIER				-0.016 (0.637)	-0.010 (0.070)*	0.025 (0.000)***
CFO		-0.094 (0.000)***			-0.081 (0.000)***	
TQ	0.050 (0.008)***	0.005 (0.000)***		0.043 (0.000)***	0.004 (0.000)***	
MB			-0.002 (0.000)***			-0.005 (0.000)***
LEV	0.219 (0.030)**	-0.011 (0.247)	0.163 (0.000)***	0.051 (0.026)**	0.039 (0.000)***	0.124 (0.000)***
FIRMSIZE	0.354 (0.000)***	0.010 (0.001)***	-0.028 (0.000)***	0.338 (0.000)***	-0.003 (0.000)***	-0.022 (0.000)***
INVREC	-0.041 (0.469)			-0.011 (0.630)		
ROA	-0.341 (0.225)	0.138 (0.000)***		-0.212 (0.025)**	0.052 (0.000)***	
LOSS	-0.032 (0.383)			0.019 (0.226)		
QUICK	0.010 (0.382)			-0.009 (0.055)*		
GROWTH		0.022 (0.000)***			0.018 (0.000)***	
OWNER		0.000 (0.271)			0.000 (0.058)*	
MSHARE	0.453 (0.000)***			0.808 (0.000)***		
DUAL_LIST	0.231 (0.000)***	0.025 (0.000)***	-0.030 (0.000)***	0.205 (0.000)***	-0.005 (0.104)	-0.024 (0.000)***
GEO	0.167 (0.000)***	0.005 (0.029)**	-0.013 (0.000)***	0.154 (0.000)***	-0.000 (0.835)	-0.014 (0.000)***
IMR	0.391 (0.000)***	0.011 (0.345)	-0.035 (0.001)***	0.768 (0.000)***	-0.020 (0.582)	0.174 (0.000)***
Year	Included	Included	Included	Included	Included	Included
Industry	Included	Included	Included	Included	Included	Included
Adj. R ²	0.635	0.136	0.470	0.543	0.113	0.531
F-value	191.93***	18.75***	114.28***	381.50***	43.07***	423.14***
Observations	3835	3835	3835	11,191	11,191	11,191

Notes: Columns A to C present the second-stage regression results using the Heckman method for the client sample of Big 4 vs. second-tier auditors in years 2003 through 2013. Columns D to F present the second-stage regression results using the Heckman method for the client sample of second-tier vs. other small auditors in years 2003 through 2013. Pre-2007, the accounting firms with a CICPA annual ranking of 5–10 are classified as SEC_TIER, and the remaining firms are OTHER small auditors. The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed p-values are reported in parentheses.

Table 10. Valuation effects of choosing different types of auditors.

	Dependent Variable: MB_ASSETS			
	BIG4 vs. SEC_TIER		SEC_TIER vs. OTHER	
	(A) OLS	(B) PSM	(C) OLS	(D) PSM
	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.
Intercept	11.851 (0.000)***	7.117 (0.000)***	13.651 (0.000)***	13.274 (0.000)***
BIG4	-0.118 (0.271)	-0.116 (0.220)		
SEC_TIER			0.104 (0.005)***	0.075 (0.071)*
SOE	-0.051 (0.203)	-0.096 (0.241)	-0.151 (0.000)***	0.041 (0.299)
BIG4_SOE	0.253 (0.034)**	0.193 (0.079)*		
SEC_TIER_SOE			0.127 (0.008)***	-0.081 (0.134)
LEV	-0.331 (0.006)***	0.181 (0.342)	-0.123 (0.117)	-0.229 (0.012)**
ROA	6.100 (0.000)***	7.740 (0.000)***	5.916 (0.000)***	5.825 (0.000)***
EISSUE	-0.079 (0.120)	0.011 (0.887)	-0.064 (0.062)*	-0.014 (0.715)
GROWTH	0.028 (0.513)	-0.105 (0.105)	0.036 (0.212)	0.018 (0.581)
OWNER	0.005 (0.000)***	0.003 (0.022)**	0.004 (0.000)***	0.003 (0.000)***
FIRMSIZE	-0.449 (0.000)***	-0.256 (0.000)***	-0.539 (0.000)***	-0.519 (0.000)***
GEO	-0.017 (0.642)	-0.063 (0.248)	-0.095 (0.000)***	-0.060 (0.035)**
Year	Included	Included	Included	Included
Industry	Included	Included	Included	Included
Adj. R ²	0.455	0.486	0.449	0.451
F-value	96.41***	29.29***	208.70***	161.49***
Observations	2978	690	6616	5072

Notes: Columns A and C present the OLS regression results without controlling for self-selection bias. Columns B and D present the regression results using the PSM method with caliper = 0.01. The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed *p*-values are reported in parentheses.

4.3. Additional analyses

4.3.1. Valuation effects of choosing different types of auditors

We test the quality of auditors from an investor's perspective by analyzing the firm valuation effects of choosing different types of auditors. Previous studies (Chan, Lin, and Mo 2006; Wang, Wong, and Xia 2008) have suggested that local SOEs and central SOEs in regions with less developed institutions tend to hire small local auditors because small auditors are inclined to report favorably on them and allow them to manipulate earnings by not issuing a modified opinion. If hiring larger auditors acts as a signal of higher demand for audit quality, we expect to observe a price premium by investors for SOEs when they hire Big 4 (second-tier) auditors rather than second-tier (other small) auditors. Following Wang, Wong, and Xia (2008), we regress the client's *Market-to-Book Assets* (MB_ASSETS, which equals the sum of market value of equity and book value of total liabilities, all divided by book value of total assets) on BIG4 (SEC_TIER), SOE, the interaction term between BIG4 (SEC_TIER) and SOE, and other control variables including FIRMSIZE, LEV, ROA, EISSUE, GROWTH, OWNER, and GEO. Table 10 presents the regression results using the OLS and PSM methods. The coefficient on BIG4_SOE is significant and positive, indicating that SOEs' hiring of Big 4 auditors results in higher valuation by investors. The coefficient on SEC_TIER_SOE is significant and positive under the OLS method, indicating that investors perceive audit quality to be higher for SOEs hiring second-tier auditors than for those hiring other small auditors.

4.3.2. Audit fee and audit quality of A-H share clients

We examine audit fee and audit quality differentiation between Big 4 and second-tier auditors for A-H share listed companies. As Big 4 auditors have more experience in auditing H-share companies, they are more likely to provide superior audit quality than second-tier auditors. Table 11 presents the Heckman results from estimating Equations (1–3) for the A-H client sample of Big 4 vs. second-tier auditors. We also repeat the valuation effect model for A-H share clients. We find evidence of a Big 4 audit fee premium, and a valuation premium by investors for SOEs hiring Big 4 auditor

Table 11. Regression results for A-H share listed companies.

	BIG4 vs. SEC_TIER			
	(A) InAUDITFEE	(B) ABS_PMATCHP	(C) C_SCORE	(D) MB_ASSETS
	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.
Intercept	4.301 (0.006)***	0.387 (0.062)*	0.603 (0.008)***	9.851 (0.000)***
BIG4	0.803 (0.012)**	-0.037 (0.353)	-0.005 (0.913)	0.962 (0.040)**
SOE	0.451 (0.003)***	0.023 (0.218)	-0.002 (0.903)	-0.453 (0.004)***
BIG4_SOE				0.516 (0.004)***
CFO		-0.052 (0.566)		
TQ	0.196 (0.093)*	0.031 (0.033)**		
MB			-0.008 (0.025)**	
LEV	-0.230 (0.566)	0.108 (0.022)**	0.179 (0.000)***	0.730 (0.084)*
FIRMSIZE	0.392 (0.000)***	-0.016 (0.076)*	-0.023 (0.017)**	-0.421 (0.000)***
INVREC	-0.372 (0.332)			
ROA	-0.406 (0.756)	0.201 (0.182)		3.528 (0.002)***
LOSS	-0.083 (0.659)			
QUICK	-0.064 (0.540)			
EISSUE				0.2000 (0.182)
GROWTH		0.027 (0.170)		0.203 (0.263)
OWNER		0.000 (0.292)		0.005 (0.080)*
MSHARE	0.106 (0.867)			
GEO	0.051 (0.628)	-0.026 (0.037)**	-0.018 (0.216)	-0.165 (0.147)
IMR	1.194 (0.026)**	-0.091 (0.159)	-0.053 (0.477)	1.688 (0.010)**
Year	Included	Included	Included	Included
Industry	Included	Included	Included	Included
Adj. R ²	0.718	0.213	0.582	0.621
F-value	16.14***	2.68***	11.47***	11.17***
Observations	144	144	144	144

Notes: Columns A–D present the second-stage regression results using the Heckman method for A-H share listed companies. The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed *p*-values are reported in parentheses.

Table 12. Year-by-year regression coefficients.

	BIG4 vs. SEC_TIER			SEC_TIER vs. OTHER		
	(A) InAUDITFEE	(B) ABS_PMATCHP	(C) C_SCORE	(D) InAUDITFEE	(E) ABS_PMATCHP	(F) C_SCORE
	Coeff. est. on BIG4	Coeff. est. on BIG4	Coeff. est. on BIG4	Coeff. est. on SEC_TIER	Coeff. est. on SEC_TIER	Coeff. est. on SEC_TIER
2008	0.562 (0.104)	-0.044 (0.349)	0.001 (0.198)	-0.465 (0.458)	0.117 (0.288)	0.003 (0.049)**
2009	0.750 (0.014)**	-0.013 (0.764)	0.002 (0.857)	-0.724 (0.216)	-0.061 (0.582)	0.051 (0.015)**
2010	1.001 (0.001)***	0.023 (0.547)	-0.001 (0.865)	-0.386 (0.529)	-0.112 (0.274)	-0.010 (0.538)
2011	0.850 (0.000)***	-0.019 (0.546)	0.007 (0.281)	1.118 (0.026)**	-0.134 (0.115)	0.045 (0.003)***
2012	1.099 (0.000)***	-0.018 (0.504)	-0.033 (0.240)	0.732 (0.054)*	0.014 (0.797)	-0.048 (0.365)
2013	1.056 (0.000)***	-0.024 (0.396)	-0.047 (0.040)**	0.667 (0.052)*	-0.092 (0.085)*	0.001 (0.968)

Notes: The probit models in the first stage are the same as those used for the main results. In the second stage of the Heckman method, we run the regressions year by year. This table provides partial results from the audit fee and audit quality models. Only the coefficients on main test variables for each of the years 2008 through 2013 are shown. The coefficient is statistically significant at the *10, **5, and ***1% levels or better. Two-tailed *p*-values are reported in parentheses.

4.3.3. Year-by-year regressions

Several changes have occurred in the Chinese auditing market since 2007, which may have different effects on the audit fees and audit quality of second-tier auditors. We conduct year-by-year regressions for audit fee and audit quality models. We estimate Equations (1–3) for each of the six years in the sample. The results are shown in Table 12. The coefficients on BIG4 (SEC_TIER) in the audit fee model are significant and positive in most of the years. The coefficients on BIG4 in the audit quality models for the client sample of Big 4 vs. second-tier auditors are not significant in any of the regressions.¹¹ The coefficients on SEC_TIER in the audit quality models are significant and agree with the expected sign in some of the years. Overall, our inferences remain unchanged.

Table 13. Regression results for clients of Big 4 vs. Ruihua and Lixin.

	BIG4 vs. Ruihua & Lixin			
	(A) lnAUDITFEE	(B) ABS_PMATCHP	(C) C_SCORE	(D) MB_ASSETS
	Coeff. est.	Coeff. est.	Coeff. est.	Coeff. est.
Intercept	5.369 (0.000)***	0.028 (0.754)	-0.574 (0.000)***	7.948 (0.000)***
BIG4	0.874 (0.000)***	-0.021 (0.207)	-0.004 (0.785)	0.610 (0.003)***
SOE	-0.092 (0.009)***	-0.002 (0.689)	0.006 (0.208)	0.356 (0.001)***
BIG4_SOE				0.226 (0.000)***
CFO		-0.057 (0.038)**		
TQ	0.081 (0.000)***	0.004 (0.104)		
MB			-0.009 (0.000)***	
LEV	0.192 (0.304)	0.006 (0.694)	0.217 (0.000)***	0.236 (0.238)
FIRMSIZE	0.344 (0.000)***	0.001 (0.887)	0.023 (0.000)***	-0.355 (0.000)***
INVREC	0.044 (0.665)			
ROA	-1.558 (0.002)***	0.071 (0.178)		8.816 (0.000)***
LOSS	-0.090 (0.239)			
QUICK	0.031 (0.183)			
EISSUE				-0.043 (0.674)
GROWTH		0.018 (0.001)***		0.045 (0.584)
OWNER		0.000 (0.159)		0.001 (0.497)
MSHARE	-0.346 (0.169)			
DUAL_LIST	0.154 (0.066)*	0.012 (0.170)	0.016 (0.076)*	
GEO	0.138 (0.000)***	0.002 (0.653)	-0.001 (0.901)	0.080 (0.207)
IMR	0.859 (0.000)***	-0.014 (0.473)	0.024 (0.194)	1.158 (0.000)***
Year	Included	Included	Included	Included
Industry	Included	Included	Included	Included
Adj. R ²	0.705	0.094	0.604	0.466
F-value	90.12***	5.04***	72.05***	38.07***
Observations	934	934	934	934

Notes: Columns A to D present the second-stage regression results using the Heckman method for the client sub-sample of Big 4 vs. Ruihua and Lixin in 2012 and 2013. The coefficient is statistically significant at the *10%, **5%, and ***1% levels or better. Two-tailed *p*-values are reported in parentheses.

4.3.4. Audit fee and audit quality for client sample of Big 4 vs. Ruihua and Lixin

Ruihua overtook Ernst & Young and KPMG in 2012 in terms of revenue, and Lixin followed suit in 2013. Since then, the two international firms have lost their position among the Top 4 auditors in the Chinese market. We estimate the audit fee, audit quality, and valuation effect models for a client sub-sample¹² of Big 4 vs. Ruihua and Lixin in 2012 and 2013. The results in Table 13 show that, when the market shares of Ruihua and Lixin surpass those of the two international firms, the Big 4 fee premium does not disappear and investors perceive audit quality to be higher for SOEs hiring Big 4 auditors.

5. Conclusion

The implementation of government strategies to help domestic accounting firms grow bigger and stronger to compete abroad has resulted in substantial changes in the Chinese audit market. Domestic auditors have grown significantly in size and market share since 2007. Two large domestic auditors have even managed to overtake Ernst & Young and KPMG in terms of revenue to take their place among the Top 4 auditors in the Chinese market. Eight large domestic auditors and the Big 4 are authorized to conduct statutory audits on H-shares for foreign investors in the Hong Kong stock market. Large domestic auditors have thus emerged as an alternative to the Big 4 for Chinese listed companies. Hence, the significant growth in the practices of second-tier auditors presents an ideal opportunity to re-examine the relationship between auditor size, audit fee premium, and audit quality.

Most Chinese research to date has focused on the differences in audit fees and audit quality between Big 4 and non-Big 4 or between Top 10 and non-Top 10. Thus, the question of whether the audit fees and audit quality of second-tier auditors are distinct from those of the Big 4 or other non-Big 4 auditors

remains ripe for exploration. In this paper, we investigate the differences in audit fees and audit quality across three categories of auditors, namely the Big 4, second-tier, and other small auditors.

Using recent data from Chinese A-share listed companies, and controlling for self-selection bias through the Heckman and PSM procedures, we find that Big 4 auditors do indeed charge their clients an audit fee premium relative to second-tier auditors. However, that fee premium is not accompanied by improvement in audit quality, as measured by two proxies for client earnings quality – discretionary accruals and accounting conservatism. The regression results show that, compared with their second-tier counterparts, Big 4 auditors do not reduce the level of discretionary accruals among their clients, nor do they improve the level of accounting conservatism of their clients. However, the results suggest that second-tier auditors charge a fee premium relative to other small auditors, and that premium is accompanied by superior audit quality. Specifically, relative to other small auditors, second-tier auditors reduce the level of discretionary accruals and increase the level of accounting conservatism among their clients. Further, pre- vs. post-2007 tests show that second-tier auditors experience improvement in both audit fees and audit quality post-2007, and the quality difference between second-tier and other small auditors has widened since 2008.

Overall, the evidence reported herein supports the view that second-tier auditors have become increasingly competitive and now offer a real alternative to the Big 4 for clients in the Chinese market. They charge their clients lower audit fees than their more prominent counterparts and deliver audit quality that is indistinguishable from that of the Big 4. Our results should be of interest to Chinese regulators encouraging domestic accounting firms to grow bigger and stronger to compete more effectively with the Big 4, to the management and boards of directors of A-share companies considering a switch to a second-tier auditor, and to academics interested in examining the differences in audit fees and audit quality between different types of auditors. However, due to unique features in the Chinese auditing market, our results may not be directly comparable with those from the US, where regulators also encourage second-tier auditors to enhance audit quality and compete with Big 4 auditors (PCAOB 2015).

Notes

1. Prior to 2007, Chinese listed companies issuing A- and B- (or H-) shares were required to prepare two sets of financial statements: one for domestic investors in accordance with Chinese accounting standards and one for foreign investors in accordance with IFRS, which led to a binary audit market, i.e., a statutory audit market and a supplementary audit market. The dual audit requirement for A-B share companies was repealed in 2007 and that for A-H share companies in 2010.
2. These measures include internationalization, organizational and institutional reforms, and leading accountant talent development.
3. The CICPA has published an annual ranking of the Top 100 CPA firms in China since 2003. Firms are evaluated in several aspects such as total revenue, number of CPA employees, and malpractice (a negative indicator). The ranking reflects the overall performance of a CPA firm. According to the most recent ranking, released on January 12, 2017, Ruihua has risen from third to second place. Lixin remains in fourth place.
4. Prior to 2007, the Chinese government advocated the employment of internationally recognized CPA firms for supplementary audits, which led to the Big 4's dominance of the supplementary market.
5. Following prior research (Dechow, Sloan, and Sweeney 1995; Kothari, Leone, and Wasley 2005; Jones, Krishnan, and Melendrez 2008), we run an OLS regression on the total accruals (TACC) for each year and industry: $TACC/TA = \beta_1(1/TA) + \beta_2(\Delta REV - \Delta AR)/TA + \beta_3 PPE/TA + \beta_4 ROA + \varepsilon$; we then use the estimates of β_1 , β_2 , β_3 , and β_4 obtained to calculate the residual of the model, discretionary accruals. TACC is total accruals, calculated as the difference between net income and net cash flows from operating activities; TA is total assets at the beginning of the year; ΔREV is change in revenues; ΔAR is change in net accounts receivable; PPE is the net book value of property, plant, and equipment; and ROA is net income divided by total assets at the beginning of the year. We require each industry to have at least eight observations in any given year.
6. Following Khan and Watts (2009) and Chen et al. (2013), we estimate the annual cross-sectional model: $EPS/Price = (\lambda_0 + \lambda_1 SIZE + \lambda_2 LEV + \lambda_3 MB) + NEG(\kappa_0 + \kappa_1 SIZE + \kappa_2 LEV + \kappa_3 MB) + RET(\mu_0 + \mu_1 SIZE + \mu_2 LEV + \mu_3 MB) + NEG * RET(\nu_0 + \nu_1 SIZE + \nu_2 LEV + \nu_3 MB) + \varepsilon$; we then use the estimates of ν_0 , ν_1 , ν_2 , and ν_3 obtained to calculate C_SCORE for each firm-year: $C_SCORE = \nu_0 + \nu_1 SIZE + \nu_2 LEV + \nu_3 MB$. EPS is earnings per share; Price is the closing price per share at the end of the previous year; RET is 12-month buy-and-hold market-

adjusted stock returns in the current fiscal year; NEG equals 1 if RET is negative, and 0 otherwise; SIZE is the natural logarithm of market value of equity; LEV is leverage ratio, defined as the sum of long-term and short-term debt divided by market value of equity; and MB is market-to-book ratio. The fiscal year in China is the same as the calendar year. Hence, annual buy-and-hold returns are calculated from January 1 to December 31. Because all Chinese listed firms are required to release audited annual reports no later than April 30 of the next calendar year, for a robustness check, we also use 12-month buy-and-hold market-adjusted stock returns from May of year t to April of year $t + 1$. Our inferences remain unchanged.

7. Following Eshleman and Guo (2014), in testing our hypotheses using the client sample of Big 4 vs. second-tier auditors we first drop all clients of other small auditors and then estimate Equation (4) on the reduced sample. Similarly, for the client sample of second-tier vs. other small auditors, we first drop all Big 4 clients and then estimate (4) on the reduced sample.
8. The results are robust to imposing a maximum distance of 0.03 and 0.05 between the two fitted values. We also replicate our main results using the 'without replacement' procedure. For a robustness check, we use the nearest-neighbor matching procedure to obtain a larger sample. Our inferences remain unchanged.
9. The exception is C_SCORE, which is winsorized at the 5th and 95th percentiles in the main test results.
10. In total, 40 audit firms are licensed to provide audit services to listed companies in China. The eight second-tier auditors were Lixin, Dahua, Tianjian (Pan-China), ShineWing, Crowe Horwath, Jingdu Tianhua, Zhongrui Yuehua, and Daxin. However, Jingdu Tianhua changed its name to Zhitong after merging with a small domestic firm in June 2012, and Zhongrui Yuehua and Crowe Horwath merged, resulting in a name change to Ruihua in May 2013.
11. The one exception is -0.047 ($p = 0.040$) in 2013 under the conservatism model, which is probably driven by a small number of extreme values of C_SCORE. We experiment with further winsorizing C_SCORE at the 5th percentile, and the coefficient turns out to be insignificant.
12. We also estimate the audit fee, audit quality, and valuation effect models for a client sub-sample of Big 4 vs. Ruihua. The untabulated results are consistent with those in Table 13.

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