

**The Effects of Management Demography on Auditor Choice and Earnings
Management: Evidence from China**

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Abstract

The literature shows that audit quality and earnings management are related. In addition, there is also some evidence revealing that higher quality auditors provide significant external governance. As top management plays a vital role in designing and implementing corporate governance policy, we conjecture that management demography and internal corporate governance characteristics affect auditor choice, which in turn together with management demography influence earnings management. Using a sample of 3,881 firm-year observations between 2001 and 2005 in China, we find that a board employing a chairperson with professional or academic certification (i.e., holding titles) and a higher percentage of independent directors tends to hire better quality auditors. Furthermore, chairpersons with titles and longer tenure conduct less earnings management. Our results are robust using different measures of auditor quality and discretionary accruals.

JEL: G30; G32

Keywords: Auditor quality; Management demography; Corporate governance; Earnings management

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1. Introduction

Controlling for corporate governance and firm characteristics, this study examines how management demography affects auditor choice and hence earnings management. Our hypothesis is based on three areas of literature: 1) the effects of audit quality on earnings management; 2) the relation between corporate governance and audit quality; and 3) the influence of management demography on corporate behavior. While little research has been done in the literature in examining the relations between management demography and accounting decisions, management theories long ago have recognized the important role of top management in determining the success of a firm. In particular, the upper echelons theory by Hambrick and Mason (1984) and Hambrick (2007) suggest that demographic characteristics of top executives can play a significant role in shaping organizational outcomes. Also, the resource-based view of firms by Barney (1991) and Hitt, Bierman, Shimizu, and Kochhar (2001) propose that human capital is a crucial intangible asset for firm operation and decision.

The accounting literature clearly demonstrates some relations among corporate governance, audit quality and earnings management. Extending the assertions of upper echelons theory and resource-based view, we conjecture that top management demography plays a vital role in influencing the design and implementation of corporate governance policy. As Fan and Wong (2005) conclude that auditors serve as an external corporate governance tool, especially in emerging markets, we hypothesize that management demography affects auditor choice. Finally, we further conjecture that management demography and audit quality jointly influence earnings management.

Employing 3,881 firm-year observations between 2001 and 2005 in China, we find

evidence to support our hypothesis that chairpersons with professional or academic titles and a board with a higher percentage of independent directors hire better quality auditors. Furthermore, chairpersons with titles and longer tenure conduct less earnings management. Our results are robust using different measures of auditor quality and earnings management. Following this introduction is the section on theoretical background and hypothesis. The data and methodology are described in Section 3. We present the empirical results in Section 4 and conclude our study in Section 5.

2. Theoretical Background and Hypothesis

Corporate governance and audit quality

Past corporate governance literature mainly focuses on board governance and its effects on performance (Weisbach 1988; Brickley, Coles and Terry 1994; Lee, Rosenstein, Rangan and Davidson 1992; Yermack 1996). In particular, Xie, Davidson and DaDalt (2003) suggest that an active board should perform the monitoring function better than an inactive board. One strand of the literature focuses on the relation between audit quality and corporate governance. Francis, Khurana, and Pereira (2003) report that the demand for high quality auditor is lower for countries with weaker legal environment than for the countries with stronger legal environment.

Fan and Wong (2005) argue that as the agency conflicts between controlling shareholders and minority shareholders are difficult to be resolved by traditional corporate control tools such as board of directors, auditors can serve as an external agent to take up an important corporate governance role, particularly in emerging markets. They examine the role of external auditors in alleviating the agency problems in eight emerging East Asian countries and find that firms with agency problems are more likely to hire higher quality auditors. Choi and Wong (2007) further find that auditors play a more important role in corporate governance in

countries with weak rather than strong legal institutions.

Audit quality and earnings management

Previous studies in audit literature cover extensively on the relation between agency problems (Francis and Wilson 1988; DeFond 1992) or institutional including legal, political and economic factors and choice of auditors (Francis, Khurana and Pereira 2003; Choi and Wong 2007; Wang, Wong and Xia 2008). Here we focus on the relations between audit quality and earnings management. Among the three explanations concerning the demand for and value of audit quality¹, a relevant reason to earnings management is that auditors can help to solve an agency problem of adverse selection by enhancing the credibility and informativeness of financial reports (Teoh and Wong 1993; Becker, DeFond, Jiambalvo and Subramanyan 1998). Based on this argument, better audit quality should lead to stronger public and market pressure for a firm to engage in earnings management.

In fact, the literature has recently documented some international evidence for the effects of audit quality on earnings management. Tendeloo and Vanstraelen (2008) find that high quality auditors provide a constraint on earnings management for private firms in European countries. Chen, Chen, Lobo, and Wang (2008) show that state-owned and family-owned firms in China using high quality auditors conduct less earnings management. In short, these studies provide the necessary foundation for us to propose the possible moderation effect for management demography on the audit quality-earnings management relation.

¹ The other two explanations for the demand of audit quality are provided by Jensen and Meckling (1976) and Menon and William (1994). As there are always conflicts of interests between shareholders and management in the agency relation (Jensen and Meckling 1976), it is expected that an independent audit can help mitigate agency problems and lower agency costs. In addition, audit service performs an insurance role to function as a potential indemnifier against investment losses in the capital markets (Menon and William 1994). Audit quality also includes the auditors' ability to unveil and report contract breach (Watts and Zimmerman 1986).

Management demography and corporate behavior

Early literature in management (Hall 1977) and population ecology (Hannan and Freeman 1977) suggest that organizational outcomes including performance are mainly determined by bureaucratic rules and environmental selection. Then a recently emerging management theory, upper echelons theory (Hambrick and Mason 1984; Hambrick 2007), proposes a new perspective and argues that top management makes a difference. In other words, upper echelons theory conjectures that top management's demographic characteristics are key factors in shaping organizational outcomes.

Under the upper echelons literature, common management demographic characteristics that have a significant influence on organizational outcomes include gender (Kalleberg and Leicht 1991; Carter, Simkins and Simpson 2003; Farrell and Hersch 2005), education level (Wailderdsak and Suehiro 2004; Boyatzis 2004), age, and tenure (Hambrick and Mason 1984; Hambrick and Fukuomi 1991; Barker and Mueller 2002). Another popular management theory, resource-based view (RBV), echoes back a similar argument. From the RBV perspective, human capital is an essential intangible asset for firm operations (Hitt, Bierman, Shimizu, and Kochhar 2001). Both theories suggest that top executives represent an essential resource for the firm to generate superior performance.

Why China and why chairperson of the board?

There are several reasons why we choose the Chinese market for our study. China is one of the largest and fastest-growing emerging markets in the world. As part of the economic restructuring process, many SOEs are carved out and become privatized. The growing economic significance of the Chinese market in the global economy arouses the attention of the local and international investors to the issue about the right type of top executives for effective

management and corporate governance practice.

Despite the rapid economic growth, the development of the financial infrastructure and regulatory system are still not mature. The Chinese market is characterized with concentrated ownership by controlling shareholders and weak legal institutional environment. In such kind of legal environment, investor protection is inadequate (La Porta, Lopez-De-Silanes and Shleifer 1999). Poorer corporate governance system may lead to lower demand of audit quality (DeFond, Wong and Li 2000).

The Chinese audit market has undergone drastic changes in the last century. The CPA profession was established in 1918. However, the revolution in 1949 made the growing CPA profession to shrink drastically and to be abolished entirely in 1962 (Gensler and Yang 1996). Later, the economic reforms started in 1979 resume the gradual growth of the audit profession in the Chinese economy again with the establishment of the Chinese Institute of Certified Public Accountant (CICPA) by the National Ministry of Audit in 1992. However, a majority of the CPA firms are controlled by the government or government-related entities directly or indirectly. Since then, several audit market reforms have been implemented with the aim to open up the Chinese market to international CPA firms and to promote higher quality and more independent audits. These reforms include the issue of Certified Public Accountants Act in 1993; the adoption of international auditing standards in 1995; the separation of government control and audit firms in 1998; and the merge of small local auditors in 2000. However, the Chinese audit market is still dominated by government-affiliated CPA firms and hence by government.

DeFond, Wong and Li (2000) explain that there are several institutional characteristics that impede the supply and demand of high quality audits in the Chinese market. Some of the impediments are a lack of corporate governance mechanisms for investor protection; government ownership of state-owned enterprises (SOEs) and audit firms and the perverse management

incentives due to government ownership. Gul, Sun and Tsui (2003) find that the market reaction to earnings increase is stronger when the firms are audited by high quality auditors. Chan, Lin and Mo (2006) show that after receiving qualified opinions, the local government-owned-firms switch from non-local to local auditors to achieve opinion shopping. Wang, Wong and Xia (2008) provide evidence that three institutional factors of extent of state ownership, level of market and legal development and degree of government power over auditors affect auditor choice.

In short, in an emerging market like China where the government is the controlling shareholders of many listed SOEs in the market and a large proportion of domestic CPA firms are related to the government directly or indirectly, there is a question how the auditors may work with top management in China to perform their monitoring function. Therefore, it is important to explore the relation between management demography and choice of auditors in China.

The next issue needed discussion is why we study chairperson instead of chief executive officer (CEO) or general managers. The management structure is different between the US (or Europe) and China. Article 114 of China's company law states that the chairperson of a firm is a full-time (instead of part-time) executive. The chairperson ranks higher than the CEO in the firm and is usually the highest paid executive (Firth, Fung and Rui 2006). They also chair major committees in the firms and approve all major decisions. Li and Yang (2003) even point out that the chairpersons in China involve in the daily management and operation of the firms.

Hypothesis

Our hypotheses can be divided into two separate but consecutive parts. The first part deals with how management demography affects auditor choice. The second part examines how management demography and auditor choice together may affect earnings management. Based

on the three areas of literature discussed above, we can draw the following concluding argument.

Top managers shape corporate culture with its management philosophy, which directly influence how the corporate governance policies are implemented. The choice of auditor is an issue relating to corporate governance of the firm. In addition, auditors play an important part in influencing management reporting discretion. Extending the argument of Fan and Wong (2005) which suggests that auditors can serve as an external agent to perform the corporate governance function, we conjecture that the internal governance characteristics are related to management demography, which affects the external governance monitoring mechanism: the choice of auditor. This is the first part of our hypothesis.

Second, the selection of auditor and earnings management strategy are major decisions to be made by top executives. The literature has already shown that there is a relation between audit quality and earnings management. Extending the first part of our hypothesis here, we hypothesize that management demography and audit quality jointly influence the financial reporting discretion and consequently the level of earnings management of the firm. We formulate the following general hypothesis:

H1: The demographic characteristics of a chairperson are related to auditor quality and magnitude of earnings management.

In order to test the effects of management demography on audit quality and earnings management, we need to propose the specific relation for each of the demographic characteristics of company chairpersons in our analysis. Based on the five demographic characteristics of the chairperson (title ownership, gender, tenure, age and education level) in the subsequent empirical analysis, we formulate five sub-hypotheses to delineate their respective influence on audit quality and earning management.

Title ownership

In addition to the common demographic characteristics (gender, education level, age, and tenure) suggested by the upper echelons literature, we propose to add a new demographic characteristic namely “title” (i.e., professional and academic certification status) of chairperson in our study. Certification status can be defined as receiving professional and academic certification such as certified public accountants (CPAs), certified engineers, and professorship. Sollenberger (1986) shows that Chinese have a long tradition in pursuing personal certification through higher education and professional qualifications. Starting from the Sui Dynasty in 605, the recruitment of government officials into the bureaucratic system has to go through a series of public examinations called “Imperial Examinations” which cover military strategy, civil law, revenue and taxation, agriculture and geography and the Confucian classics (Miyazaki 1976). Although the system of using the Imperial Examinations to recruit government officials is abolished now, the tradition that the Chinese put great emphasis on qualification and titles remains. For instance, the Minister of Finance is also the President of the Chinese Institute of Certified Public Accountants (CICPA); the President of the China Association for Science and Technology is also the Vice President of the Science and Technology Minister. These examples illustrate the fact that personal qualification and certification are highly appreciated in the Chinese society.

We expect that there is an association of employment of quality auditor and title ownership of chairperson. The chairpersons with title status would tend to use higher quality auditors as titled chairpersons believe in the importance of higher audit quality. In addition, based on our argument of titled chairpersons employing higher quality auditor and the literature that the employment of higher quality auditor would lead to less earnings management, we can

expect that titled chairpersons would be associated with less earnings management.

H1a: Chairperson's title is positively related to audit quality and negatively related to magnitude of earnings management.

Gender

An increasing number of females have taken up the senior executive positions in the traditionally male-dominating business world. There are a number of studies examining the aggressiveness, leadership ability and qualifications of executives (Maier 1970; Day and Stogdill 1972; Schein 1973; 1975) and find that both male and female managers perceive that males rather than females are more likely to possess the characteristics associated with managerial success. Kalleberg and Leicht (1991) find that it is more likely for male executives than the female counterparts to accept and undertake innovative corporate strategies and business projects. Carter, Simkins and Simpson (2003) argue that diversity enhances the effectiveness of corporate leadership. Therefore, we expect that there should be a difference for firms chaired by female or male on the decisions of auditor choice and earnings management in a culturally masculine society like China.

H1b: There is a difference in the decisions for auditor choice and earnings management for firms led by female and male chairpersons.

Tenure and age

Management literature indicates that tenure of managers is related to the propensity to accept new changes and risk. Grimm and Smith (1991) and Hambrick and Fukutomi (1991) find that as tenure increases, CEOs tend to make fewer changes in corporate strategy. In addition, Hambrick and Mason (1984) suggest that older top managers, as compared to younger

top managers, are more conservative and risk averse. We control for tenure and age in our model. We expect more experienced and older chairperson should be more conservative than less experienced and younger chairperson. Therefore, more experienced and older chairperson should choose higher quality auditor and be less likely to engage in earnings management activity.

H1c: Chairperson's tenure is positively related to audit quality and negatively related to magnitude of earnings management.

H1d: Chairperson's age is positively related to audit quality and negatively related to magnitude of earnings management.

Education level

In the upper echelons literature, education level is related to open mindedness and ability to evaluate alternatives (Herrmann and Datta 2002). Wally and Baum (1994) find that more educated top executives are less conservative. Therefore, we expect that more educated chairperson should be less conservative in auditor choice and more aggressive in financial reporting decision to engage in earnings management activity.

H1e: Chairperson's education level is negatively related to audit quality and positively related to magnitude of earnings management.

3. Data and Methodology

We retrieve our data of all firms (except those in the finance industry) listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange in our sample period over five years between 2001 and 2005 from the China Securities Markets and Accounting Research Database (CSMAR) and Wind Financial database (WindDB). After matching all the management demographic and

firm level data, there are 3,881 firm-year observations in our sample.

3.1 Regression Model

We examine the relation between earnings management, auditor choice and management demography through the following two-stage least-square regression models (1) and (2):

$$\begin{aligned} \text{AQD} = & \alpha_0 + \beta_1 \text{Title} + \beta_2 \text{Gender} + \beta_3 \text{Tenure} + \beta_4 \text{Age} + \beta_5 \text{Edu} + \beta_6 \text{BoardSize} \\ & + \beta_7 \text{IndDirRatio} + \beta_8 \text{DirHolding} + \beta_9 \text{EPS} + \beta_{10} \text{DA} + \beta_{11} \text{MB} + \beta_{12} \text{LnAsset} \\ & + \beta_{13} \text{ForeignD} + \beta_{14} \text{NonSOED} + \beta_{15} \text{Develop} + \beta_t \sum_t \text{Year}_t + \beta_j \sum_j \text{Industry}_j \end{aligned} \quad (1)$$

$$\begin{aligned} \text{EM} = & \alpha_0 + \beta_1 \text{FVAQD} + \beta_2 \text{Title} + \beta_3 \text{Gender} + \beta_4 \text{Tenure} + \beta_5 \text{Age} + \beta_6 \text{Edu} + \beta_7 \text{BoardSize} \\ & + \beta_8 \text{IndDirRatio} + \beta_9 \text{DirHolding} + \beta_{10} \text{EPS} + \beta_{11} \text{DA} + \beta_{12} \text{MB} + \beta_{13} \text{LnAsset} \\ & + \beta_{14} \text{NonSOED} + \beta_t \sum_t \text{Year}_t + \beta_j \sum_j \text{Industry}_j \end{aligned} \quad (2)$$

3.2 Measurement of Auditor Quality

In the audit literature, market share in terms of revenue or audited assets of an audit firm is used to measure audit quality (e.g., Becker, DeFond, Jiambalvo and Subramanyam 1998). Thus international Big-N CPA firms (previously Big 8, then Big 6, and then Big 5, and now Big 4) are used as a proxy for higher quality (DeAngelo 1981; Gul and Tsui 1998). Studies using Chinese firms also use total audited assets of clients to rank auditors to proxy audit quality (Gul, Sun and Tsui, 2003; DeFond, Wong and Li 2000). DeFond et al show that firms audited by Top 10 auditors have better audit quality than firms audited by non-Top 10 auditors.

However, in developing markets such as China, the audit market is still mainly dominated by the government-affiliated or domestic CPA firms in terms of the number of clients. Francis, Khurana and Pereir (2003) find that the market share of Big-N firms is smaller in countries with weaker legal environment. For instance, in terms of revenue, the international Big-4 firms do

rank the highest four audit firms between 2002 and 2005 in China². However, in terms of audited assets, one of the Big-4 international CPA firm cannot make it to the top 10 during the same period. Recently, Wang, Wong and Xia (2008) provide three reasons why local and smaller auditors in China are actually preferred by local and central SOEs³.

Before we select the audit quality measures, we first explore how many different auditors existed during our sample period. The distribution and concentration of auditing services in China help us to better design the audit quality measures. In Table 1, we show the number of auditors existed in our sample between 2000 and 2005. We also calculate the Herfindahl index of the audit profession of China (Table 1 Panel A) in terms of the audited assets captured by Top-N firms. During the 2000-2005 period, the number of auditors in the Chinese market decreases gradually from 74 to 66. The H-index of the Top 4 audit firms in China is around 76% to 80% (except for 2000). The H-index for Top-4 and Top-10 in 2000 is much lower than those for 2001. This sharp increase may be due to the fact that there are several mergers of audit firms in 2000 and 2001⁴, leading to a substantial consolidation of auditing business in 2001 and on.

To understand the concentration of audit services in China relative to an international benchmark, we also compute the corresponding H-measure for the US audit market during the

² Based on the information of www.esnai.com, the total revenues earned by the Big-4 CPA firms between 2002 and 2005 are RMB4,718,368,200 for PriceWaterhouse and Coopers (with an average of RMB1,179,592,050), RMB2,462,856,400 for Ernst and Young ((HuaMing and DaHua) with an average of RMB615,714,100), RMB2,234,605,300 for Deloitte (with an average of RMB558,651,325) and RMB2,396,702,400 for KPMG (with an average of RMB599,175,600).

³ Wang, Wong and Xia (2008) mention several reasons why the local and central SOEs prefer small local auditors rather than Top 10 or non-local auditors. One reason is the preferential treatments given to the local and central SOEs in the product and capital markets by the stock market regulators and the government's or state's banks (Li 1996; Brandt and Li 2003). In addition, as the outside shareholders expect the government to provide bailout to the SOEs in times of financial problems, the SOEs have a weaker demand for Top 10 auditors to provide financial insurance or to mitigate the agency problems. Another reason for the preference to the small local audit firms by the SOEs is that the small local auditors have specialized knowledge of the local government and of the SOEs which are in the same regions.

⁴ For instance, several audit firms in Tianjin and Xinjiang merge to become Wuzhou Lianhe. Xinyong and Zhonghe merge to become Xinyong Zhonghe. Shenzhen Dahua Tiancheng is the result of the merge between Shenzhen Dahua and Guangzhou Tiancheng.

same period (Table 1 Panel B). The number of auditors for all Compustat firms ranges between 19 and 21. The H-index for Top-4 auditors accounts for over 99% for all years, indicating that the concentration of auditing services in the US is very high. Relatively speaking, the auditing service in China is quite diverse. Next, we plot the average amount of audited assets per year by auditors in Figure 1. Obviously, reflecting the same conclusion in the H-index in Table 1 Panel A, the top 5 to 15 firms capture a substantial amount of the business by audited assets and the remaining 50 to 60 audit firms share the rest of the business. This diversity and distribution of audit services allow us to construct three versions of auditor quality measures for robustness testing: Top 5, Top 10 and Top 15 auditors as high quality auditors and vice versa.

Based on the methodology of DeFond, Wong and Li (2000), we use the market share (in terms of audited assets) of an audit firm as a proxy of auditor quality. First we construct an annual list of auditor by market share. Basically, we compute the total audited assets for each auditor per year. Based on this list, we can rank the auditors by market share, which proxies their quality. Our proxy of auditor quality is the traditional measure of a dummy variable (AQD). We construct three versions of AQD (AQD1 for Top 5, AQD2 for Top 10, and AQD3 for Top 15). For instance, AQD1 is coded 1 if the audit firm is in the Top-5 category and 0 otherwise.

3.3 Measurement of Earnings Management (EM)

Large audit firms have more reputation capital at stake and hence should be more resistant to management pressure not to report contract breach (DeAngelo 1981). Therefore, higher audit quality can help constraining the magnitude of earnings management. Becker, DeFond, Jiambalvo and Subramanyam (1998) find that there is a larger discretionary accrual reported by non-Big 6 auditors (lower audit quality) than by Big 6 auditors (higher audit quality). As a

result, we expect a negative relation between auditor quality and earnings management.

We have two measures of earnings management (EM) (DeFond and Jiambalvo 1994; Teoh, Welch and Wong 1998). The first measure is the modified Jones model (Dechow, Sloan and Sweeney 1995) (MJAC).

$$\begin{aligned} TACC_{it} / TA_{it-1} = & \alpha_1 (1 / TA_{it-1}) + \alpha_2 ((\Delta Revenue_{it} - \Delta AR_{it}) / TA_{it-1}) + \alpha_3 (PPE_{it} / TA_{it-1}) \\ & + \varepsilon_{it} \end{aligned} \quad (3)$$

TACC is the total accrual which is estimated as the net income before extraordinary items minus operating cash flows. TA is total assets. $\Delta Revenue$ is change in revenue from operations. ΔAR_{it} is change in account receivables. PPE is plant, property and equipment.

The second measure is the performance-matched discretionary accrual model (PMAC) of Kothari, Leone and Wasley (2005). We also use the performance-matched discretionary accrual model because this method controls for the effect of performance on discretionary accrual which improves the reliability of inferences from earnings management. We use the current year's return on assets (ROA_t) as the additional performance matching variable in the modified Jones model (Dechow, Sloan and Sweeney 1995) to estimate the performance matched discretionary accrual each year for each industry.

$$\begin{aligned} TACC_{it} / TA_{it-1} = & \alpha_1 (1 / TA_{it-1}) + \alpha_2 (\Delta Revenue_{it} / TA_{it-1}) + \alpha_3 (PPE_{it} / TA_{it-1}) \\ & + \alpha_4 ROA_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

The four estimated parameters, α_1 , α_2 , α_3 , α_4 , from equation (4) are then used in equation (5) to measure the performance matched discretionary accruals (PMAC):

$$PMAC_{it} = TACC_{it} / TA_{it-1} - \hat{\alpha}_1 (1 / TA_{it-1}) + \hat{\alpha}_2 ((\Delta Revenue_{it} - \Delta AR_{it}) / TA_{it-1})$$

$$+ \hat{\alpha}_3 (PPE_{it} / TA_{it-1}) + \hat{\alpha}_4 ROA_{it} \quad (5)$$

We use the absolute values of MJAC and PMAC to examine the magnitude of earnings management.

3.4 Measurement of Management Demography

Based on our hypothesis, the five personal attributes of chairpersons we examine are title, gender, tenure (year of experience as chairperson), age, and education level. Title is a dummy variable for title, which is coded 1 if the chairperson holds a title (academic title or professional title) and 0 otherwise. We use Gender, which is a dummy variable coded 1 if the chairperson is a female and 0 otherwise to test if there is a difference in auditor choice and earnings management. Tenure is a measure of experience, which is the number of years the chairperson stays in office. Age is the age of chairperson. Edu is a dummy variable coded 1 if the chairperson has a four-year university degree or above and 0 otherwise.

3.5 Control Variables

Measurement of Board Governance Factors

Fama (1980) argues that the directors on the board should be effective monitors and are important governance mechanisms as they have their reputation at stake in the director labor market. One of the functions of the board of directors is to oversee firm management. Therefore, board governance is an important element of corporate governance. The literature has documented that board governance is related to auditor quality and earnings management. A good-governed board represents a good internal corporate governance mechanism and hence would be expected to have a high quality external monitoring agent (auditor) to oversee the firm's financial reporting process. We include board size (BoardSize), independent director ratio

(IndDirRatio), and percentage of directors' shareholding (DirHolding) as the corporate governance factors in our model.

Xie, Davidson and DaDalt (2003) suggest that board size and percentage of independent directors can be used as proxies of strength of governance and board monitoring mechanism. BoardSize is the number of directors on board. A larger board is expected to perform better monitoring function. As we assume that the members on the board, especially the independent directors directly influence the choice of auditor, we include BoardSize and IndDirRatio to examine if board size and proportion of independent directors would have impacts on auditor choice. A larger board tends to make decisions that conform to norms as it is generally more difficult to get majority approval for extraordinary or adventurous proposal from a group with more members. Consequently, a larger board is more likely to make safer decisions including hiring higher quality auditors in order to mitigate risk. Thus we expect that firms with a larger board would hire auditors with higher quality.

Rosenstein and Wyatt (1990) argue that the presence of independent directors helps increase the value of the firm. Brickley, Coles and Terry (1994) find that effective governance is positively related to board independence. In general, independent directors in China do not own much firm shares or get substantial compensation. When the firm makes money through taking risk, the independent directors do not share much financial reward. Yet if the firm suffers losses or is involved in scandals, the independent directors would be blamed by shareholders and the market for poor governance. Thus they have little motivation to make risky decisions for the firm, leading to the practice of favoring safer choice. Hiring higher quality auditors helps to mitigate risk and is safer than hiring lower quality auditors. Klein (2002) reports a negative relation between board independence and abnormal accruals. Xie, Davidson and DaDalt (2003) find that a greater independent representation on the board is related to a lower level of earnings

management as a higher proportion of independent directors perform a better monitoring function than a smaller proportion. Therefore, we expect that firms with a higher proportion of independent directors on board would hire higher quality auditors and engage in less earnings management activity. We use the proportion of independent directors (IndDirRatio) on the board as proxies for board independence.

DirHolding is the ownership percentage of all directors on board. Agency theory suggests that awarding firm shares to top managers can help reduce conflict of interests between managers and shareholders (Jensen and Meckling 1976). Morck, Shleifer and Vishny (1989) find that corporate performance can be enhanced at moderate levels of ownership held by top management. Family-shareholders holding large family ownership are more likely to manage the firms in secrecy (La Porta, Lopez-De-Silanes, and Shleifer 1999; La Porta, Lopez-de-Silanes, Shleifer and Vishny 2002). Therefore, the percentage of directors' shareholding is related to standard of corporate governance, and hence the choice of auditor. In addition, Warfield, Wild and Wild (1995) argue that the percentage of managerial ownership is an important factor of discretionary accruals and find a negative relation between managerial ownership and accruals.

Firm Financial Measures

We include several financial measures (EPS, DA, MB and LnAsset) of firms in our model as control variables. EPS is earnings per share. DA is debt to asset ratio which is a measure of firm risk. Information asymmetry is positively related to firm risk. MB is ratio of market value to book value of equity. LnAsset is log of total assets which is a measure of firm size.

Firm Demographic Characteristics

We have three firm demographic characteristics (ForeignD, NonSOED and Develop) in our

model. Auditor choice may be related to whether the firms have overseas equity issues (Fan and Wong 2005). Since 1992, some listed firms in China are allowed to issue foreign shares (B-shares denominated in USD listed on Shanghai Stock Exchange and denominated in HKD listed on Shenzhen Stock Exchange; H-shares denominated in HKD listed on Hong Kong Exchanges) for foreign investors. The financial statements of these firms for foreign investors have to be prepared according to International Accounting Standards and to be audited by international CPA firms. Consequently, the international Big-4 CPA firms usually dominate the markets with firms which issue B-share and H-share. We have to include the variable, ForeignD, in the model as the fact whether the firms issue foreign shares would affect the choice of auditor. ForeignD is a dummy variable coded 1 if the firm issues domestic A-shares and B-shares or H-shares and 0 otherwise.

Wang, Wong and Xia (2008) find that the institutional factors (both economic and political) of the extent of state ownership and level of market development affect auditor choice in the Chinese market. Therefore, we include NonSOED and Develop in the model as control variables. NonSOED is a dummy variable coded 1 if the firm is a non-state-owned enterprise and 0 otherwise.⁵ As the SOEs can seek the financial protection from the government, it is less likely for the auditors to perform an insurance role for the firms. In addition, the managers have incentives to make the firms have good performance through earnings management because their compensation package may be related to firm performance (Healy 1985; Yermack 1997; Aboody and Kasznik 2000). Therefore, it is expected that the demand for auditor quality to play a monitoring role and likelihood to engage in earnings management activity are higher for non-SOEs than for SOEs. The variable, Develop, is the index score of marketization for each

⁵ By non-state-owned firms, we refer to those firms with the ultimate owners which are not government or government-related entities. By state-owned enterprises, we do not further distinguish whether they are local SOEs or central SOEs. We categorize those firms whose the controlling shareholders are local governments (including the Bureau of State Assets Management and Finance Bureau) or central government (including the Ministry of Finance) as state-owned enterprises.

province in China (Fan, Wang and Zhang 2001) which captures the development disparity of different regions.

In summary, our variable selection for equation (1) for AQD and equation (2) for EM models are very similar as most of the variables can be linked to audit quality and earnings management with some theoretical support. The two exceptions are ForeignD and Develop as we do not have a strong theoretical argument to relate them to earnings management. Therefore, we exclude ForeignD and Develop in equation (2).

4. Empirical Results

We report the descriptive statistics (mean, median, maximum, minimum, and standard deviation) of audit quality measure (AQ), earnings management proxy (EM), management demographic characteristics and other control variables for our sample firms in Table 2. Of our 3,881 observations, there are 952 and 2,929 firms employing audit firms with high quality and audit firms with low quality, respectively. These statistics are consistent with the previous studies that the audit market in China is dominated by the government-affiliated auditors (DeFond, Wong and Li 2000; Wang, Wong and Xia 2008). There are 3,112 chairpersons holding academic or professional certification titles. The mean of years of chairpersons (Tenure) staying in office is 3.78 years. The chairpersons have an average age of 49.60 in our sample. The number of females holding positions of chairpersons is very few. In our sample, there are only 164 female chairpersons (Gender). A majority of chairpersons (Edu = 79.34%) have university degrees⁶. Table 3 shows the correlation matrix of the variables in our regression

⁶ In our sample, the number of chairpersons holding university degree is smaller than that holding professional certification. This may be due to the 10-year Cultural Revolution in China during 1966-1976. The Cultural Revolution closed down the education system for 10 years. The university entrance examinations were cancelled and the scholars were sent to rural labor camps, and consequently, leading to a lack of an entire generation of university-educated individuals. However, the chairpersons can obtain their nationally accredited professional certification without going to university.

model. The correlations between each of the three AQDs and other variables are quite similar. To save space, we use all three AQDs only in our first-stage regression analysis in Table 5, and focus on AQD2 (Top-10) for the rest of our analysis.

4.1 Distribution Analysis and Two-sample T-test Comparison

In Table 4, we use distribution analysis and two-sample t-test for measuring differences of subsamples with different levels of auditor quality (Panel A) and earnings management (Panel B). Of the five demographic characteristics, there are significant differences in the level of auditor quality (AQD2) for the chairpersons with and without certification status (Title), who stay in office for longer and shorter time period (Tenure), and who are older and younger in age (Age). Those chairpersons with titles prefer auditor with higher to lower quality. In addition, more experienced and older chairpersons prefer auditor with higher quality.

In Panel B, there are significant differences in $|MJAC|$ and $|PMAC|$ for the chairpersons with and without titles and university degree. The chairpersons with titles tend to be more conservative and those with university degree tend to be more aggressive in financial reporting. Consistent with the result of Becker, DeFond, Jiambalvo and Subramanyam (1998) that there is a larger discretionary accrual reported by non-Big 6 auditors (lower audit quality) than by Big 6 auditors (higher audit quality), we find that firms hiring higher quality auditor are less aggressive in financial reporting than firms hiring lower quality auditor.

4.2 Regression Analysis

First-stage Least-square Regression (Equation 1)

The results for first-stage least-square regression model (equation 1) are reported in Table

5 respectively.⁷ In Table 5, we use three measures of audit quality (AQ), AQD1, AQD2 and AQD3, to differentiate high and low audit quality. We hypothesize that management demographic characteristics of chairperson should be related to auditor choice. In particular, we expect that the chairpersons with certification status would prefer higher quality auditors for corporate governance. Of the five demographic characteristics, we find that Title is positively related to the three measures of AQ (AQD1, AQD2 and AQD3). The positive relation indicates that the chairpersons with certification status are more likely to use high quality auditors. Therefore, the results are consistent with our hypothesis.

We include BoardSize, IndDirRatio and DirHolding as our board governance factors. A larger board is more likely to make safer decisions including hiring higher quality auditors in order to mitigate risk. Thus we expect that firms with a larger board would hire higher quality auditors. In Table 5, the coefficient on BoardSize is positive but not significant. We argue that independent directors have little motivation to make risky decisions for the firms, leading to the practice of favoring safer choice. Hiring high quality auditors helps to mitigate risk and is safer than hiring low quality auditors. Therefore, we expect that firms with a higher proportion of independent directors on board would hire higher quality auditors. Our results in Table 5 show that there is a significant and positive relation between different measures of audit quality (AQD1, AQD2 and AQD3) and IndDirRatio. The coefficient on DirHolding is positively and significantly related to AQD3, indicating that firms with higher directors' ownership percentage hire higher quality auditor.

EPS, DA MB and LnAsset are included as control variables for firm performance. Datar,

⁷ We include year and industry dummies as additional control variables in our regression models. The industry definition is the expanded list of industries of the CSRS, which includes agriculture, mining, food and beverage, textile and apparel, timber and furniture, paper making and printing, petroleum and chemicals and plastics, electronics, metal and non-metal, machinery, equipment and instrument, medicine and biological product, other manufacturing industries, power, gas and water, architecture, transportation, IT, retail, real estate, communication, and conglomerate. The year dummies represent the years for 2001, 2002, 2003, 2004 and 2005. In addition, we control for heteroskedasticity using White's procedure (1980) procedure.

Feltham and Hughes (1991) suggest that high risk firms have a higher signaling demand for audit quality. We expect firms with better financial performance, larger size and more growth opportunities to be more likely to choose auditor with higher quality to give a better signal of the credibility of the information in the financial statements. Simunic and Stein (1996) and Choi and Wong (2007) suggest that firm size affects the scale, complexity and level of effort of an audit. The larger the firm, the more likely an auditor with higher quality is employed. Consistent with our expectation, the coefficients on LnAsset and MB are positively significant. In addition, the coefficient on DA is negative, implying that firms with high leverage are more likely to hire lower quality auditors.

Among our firm demographic characteristics, ForeignD and Develop are significant while NonSOED is not. We have to include ForeignD in the model as the fact whether the firms issue foreign shares would affect the choice of auditor. In Table 5, the coefficient on ForeignD is positive. As it is more likely for firms which also issue foreign shares to hire international Big 4 CPA firms as their auditors, a positive relation between ForeignD and different auditor quality measures is found.

Wang, Wong and Xia (2008) find that the SOEs which are controlled by province, city and country governments tend to use small local auditors as compared to non-SOEs. We expect a positive relation between NonSOED and AQ but the coefficient on NonSOED is not significant. Finally, we use Develop to capture the development disparity of different regions in China. The larger the index score, the more advanced the economic development and market-oriented transformation (less government intervention, more sophisticated legal system, and higher-level institutional infrastructure) in the region should be. It is expected to have positive relations between Develop and different measures of auditor quality. In Table 5, the coefficients on Develop are positively significant, indicating that firms in more developed regions are more

likely to hire higher quality auditors.

Second-stage Least-square Regression (Equation 2)

The results for second-stage least-square regression model (equation 2) are reported in Table 6. DeAngelo (1981) argue that large audit firms have more reputation capital at stake and hence should be more resistant to management pressure not to report contract breach. There is a larger magnitude of accruals reported by lower quality auditors than by higher quality auditor (Becker, DeFond, Jiambalvo and Subramanyam 1998). Therefore, we expect a negative relation between AQ and EM. To save space, only the analysis result using AQD2 is reported in Table 6 but the results for all three AQDs are similar. The coefficients on AQD2 are negatively and significantly related to |MJAC| and |PMAC|.

In Table 6, we use Title to test if certification status is important management demography to reflect human and social resources of upper echelons in preparing financial statement using earnings management techniques. The coefficients on Title are significantly and negatively related to |MJAC| and |PMAC|. The negative coefficient on Title suggests that the chairpersons with professional title are also more prudent rather than more aggressive in preparing the financial statement of their firms.

The coefficient on Tenure is negatively related to |MJAC| and |PMAC|. This result suggests that the longer the number of years the chairpersons stay in office, the less likely they would manage reported income. It is expected that as tenure increases, the CEOs are less likely to make changes in corporate strategy (Grimm and Smith 1991; Hambrick and Fukutomi 1991). Our finding is consistent with this conjecture that the longer the number of years the chairpersons stay in office, the more conservative and risk averse they would become and consequently, the less likely they would use earnings management techniques to make changes on reported income.

Among the board governance factors (BoardSize, IndDirRatio and DirHolding), only IndDirRatio is found to be significantly related to the measures of abnormal accrual. We have four financial measures (EPS, DA, MB and LnAsset) as control variables (Becker, DeFond, Jiambalvo and Subramanyam 1998; Frankel, Johnson and Nelson 2002). The coefficients on EPS and LnAsset are not significant. In Table 6, DA is positively related to |MJAC| and |PMAC|. As high leverage ratio indicates that the firms do not perform that well, then the firms with high debt-to-asset ratio may need to engage in some opportunistic activities to manage reported earnings to make the firms look better (Becker, DeFond, Jiambalvo and Subramanyam 1998). Heflin, Kwon and Wild (2002) report that firms use accruals to reduce the probability of debt covenant violations. Therefore, we expect the relation between DA and EM measures to be positive. Consistent with the expectation, DA is positively related to |MJAC| and |PMAC|.

Market-to-book ratio (MB) is our measure of growth opportunity. Positive relations are expected between |MJAC| and |PMAC| with MB as it is more difficult to detect the earnings manipulation activities of fast-growing firms than slow-growing firms. Consequently, there is a higher likelihood for fast-growing firms than the slow-growing firms to engage in earnings management activities to meet shareholders' expectation (Skinner and Sloan 2002). In Table 6, the coefficients on MB are positively and significantly related to |MJAC| and |PMAC|.

In our main text, we report the results of the second-stage least-square model using AQD2 as our AQD variable. For robustness purpose, we also repeat the analyses using AQD1 and AQD3, the results are qualitatively similar to those shown in Table 6. In our second-stage least-square regression model (equation 2) results reported in Table 6, we do not include ForeignD and Develop as we assume they are not related to the magnitude of earnings management. For robustness testing, we repeat the analysis of equation 2 by including ForeignD and Develop, the results are qualitatively the same as those reported in Table 6.

Throughout the analyses in our paper, we control for corporate governance factors in examining the effects of management demography and audit quality on earnings management. However, it is well documented in the agency theory literature that as there are always conflicts of interests between shareholders and management in the agency relation, the information asymmetry between the agent and the principal creates moral hazard problem and increases agency costs (Jensen and Meckling 1976). One obvious finding from the agency theory is the role of firm growth. To further explore how firm growth affects our findings in terms of earnings management, we divide the sample into low-growth firms and high-growth firms for analysis. The results are reported in Table 7. We use the median⁸ of the market-to book (MB) ratio (2.3882) to divide the firms into low-growth group and high-growth group. Comparing the audit quality variable and the management demography variables for low-growth firms and low-growth firms shown in Panel A and Panel B, respectively, the low-growth firms and high-growth firms demonstrate similar relations between earnings management, audit quality and demographic characteristics of chairpersons. For the two groups of firms, the only difference is in the corporate governance factors. There are different relations between earnings management and the traditional board governance factors for firms in low-growth and high-growth groups. For instance, the coefficients on BoardSize and DirHolding are significant in low-growth firm group but not in high-growth firm group while the coefficients on IndDirRatio are significant in high-growth firm group only. Further research is needed to explore why earnings management is influenced by different governance characteristics for low-growth and high-growth firms. But this issue is beyond the scope of our study.

5. Conclusion

⁸ Traditionally, firms with MB ratio less than 1 are regarded as low-growth firms. However, in China, most firms are high-growth firms if we use 1 as the cut-off. Therefore, we use the median of MB in our sample to divide the firms into low-growth and high-growth groups.

In this study, we examine if the demographic characteristics of chairperson affect auditor choice, and whether these two factors jointly influence the firms in restricting or permitting earnings management activity. Earnings management is an issue relating to corporate governance of the firm. Weak corporate governance practice can be reflected by evidence of accounting manipulation (Beasley 1996). We focus on the role of the chairperson in permitting earnings management. It is because the chairpersons are supposed to manage the firms for the best interest of shareholders, if the management employs lower quality auditors and manipulates earnings, the information asymmetry between the inside directors and outside shareholders increases, which affects negatively the interest of shareholders.

Auditors play an important role in controlling management reporting discretion and this is also an issue relating to corporate governance. By examining the impact of management demography on auditor choice and earnings management, we provide evidence on the effectiveness of the monitoring mechanism on director behavior and corporate governance and the relation between internal and external monitoring mechanisms of the firms in China. We examine a sample of 3,881 firm-year observations between 2001 and 2005 in China and find that firms managed by chairpersons with titles tend to hire higher quality auditors and engage in less earnings management activity. In addition, firms with a higher percentage of independent directors tend to hire better quality auditors. Furthermore, chairpersons with titles and longer tenure conduct less earnings management. Our results are robust using different measures of auditor quality and discretionary accruals.

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Table 1

Herfindahl Index

Herfindahl (H) Index: $\sum_{i=1}^N S_i^2$, where S_i is the market share of auditor i in the audit market. N is the number of auditors.

Panel A: China

Year	No. of Firms	H-index	H-index (Top 4)	H-index (Top 4) / H-index	H-index (Top 10)	H-index (Top 10) / H-index	No. of Auditors
2000	998	252.2305	109.3995	43.37%	171.3270	67.92%	74
2001	1077	460.0445	351.9056	76.49%	393.8933	85.62%	70
2002	1147	479.0440	382.0794	79.76%	421.8772	88.07%	71
2003	1211	436.1986	335.3276	76.87%	372.8610	85.48%	70
2004	1312	432.8748	333.782	77.11%	372.2843	86.00%	72
2005	1314	491.9483	378.2559	76.89%	434.6866	88.36%	66

Panel B: US

Year	No. of Firms	H-index	H-index (Top 4)	H-index (Top 4) / H-index	H-index (Top 10)	H-index (Top 10) / H-index	No. of Auditors
2000	8099	2000.4337	1995.2766	99.74%	2000.4178	99.99%	20
2001	8849	2024.0093	2021.9389	99.90%	2023.9407	99.99%	21
2002	8460	2338.3113	2336.7893	99.93%	2338.2327	99.99%	21
2003	8144	2324.1630	2320.8568	99.86%	2324.0189	99.99%	20
2004	7921	2460.9121	2459.7342	99.95%	2460.8607	99.99%	19
2005	8368	2364.7496	2358.9627	99.76%	2364.5823	99.99%	19

Table 2

Descriptive Statistics

$|MJAC|$ is the absolute value of modified Jones version of accrual measure. $|PMAC|$ is the absolute value of performance matched discretionary accrual. AQD1 is a dummy variable coded 1 if the audit firm is in the Top 5 category and 0 otherwise. AQD2 is a dummy variable coded 1 if the audit firm is in the Top 10 category and 0 otherwise. AQD3 is a dummy variable coded 1 if the audit firm is in the Top 15 category and 0 otherwise. Title is a dummy variable for title which is coded 1 if the chairperson holds a title and 0 otherwise. Gender is a dummy variable coded 1 if the chairperson is a female and 0 otherwise. Tenure is the number of years the chairperson stays in office. Age is the age of chairperson. Edu is a dummy variable coded 1 if the chairperson has a four-year university degree or above and 0 otherwise. BoardSize is the number of directors on board. IndDirRatio is the ratio of the number of independent directors to total directors on board. Dirholding is the total shareholding percentage of all directors on board. EPS is earnings per share. DA is debt to asset ratio. MB is ratio of market value to book value of equity. LnAsset is log of total assets. ForeignD is a dummy variable coded 1 if the firm issues domestic A-shares and B-shares or H-shares and 0 otherwise. NonSOED is a dummy variable coded 1 if the firm is a non-state-owned enterprise and 0 otherwise. Develop is index score of marketization for each province in China.

Panel A: Descriptive Statistics

	<u>Dummy Code = 1</u>	<u>Dummy Code = 0</u>	<u>Mean</u>	<u>Median</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Standard Deviation</u>
$ MJAC $			0.0594	0.0405	1.0531	0.0000	0.0670
$ PMAC $			0.0599	0.0416	1.0577	0.00002	0.0647
AQD1	511	3370					
AQD2	952	2929					
AQD3	1365	2516					
Title	3112	769					
Gender	164	3717					
Tenure			3.7789	3.0000	16.0000	1.0000	2.4493
Age			49.5962	50.000	70.0000	29.0000	7.6458
Edu	3079	802					
BoardSize			9.7910	9.0000	19.0000	4.0000	2.2567
IndDirRatio			0.2771	0.3333	0.6667	0.0000	0.1189
DirHolding			0.0023	0.0001	0.9163	0.0000	0.0299
EPS			0.1620	0.1376	2.3703	-2.1392	0.2869
DA			0.4760	0.4854	0.9338	0.0081	0.1722
MB			2.9450	2.3882	10.9984	0.5651	1.8573
LnAsset			21.2473	21.1668	26.9782	18.3224	0.8835
ForeignD	349	3532					
NonSOED	991	2890					
Develop			6.4723	6.4000	8.4100	3.4000	1.3008

Table 3

Correlation Matrix

|MJAC| is the absolute value of modified Jones version of accrual measure. |PMAC| is the absolute value of performance matched discretionary accrual. AQD1 is a dummy variable coded 1 if the audit firm is in the Top 5 category and 0 otherwise. AQD2 is a dummy variable coded 1 if the audit firm is in the Top 10 category and 0 otherwise. AQD3 is a dummy variable coded 1 if the audit firm is in the Top 15 category and 0 otherwise. Title is a dummy variable for title which is coded 1 if the chairperson holds a title and 0 otherwise. Gender is a dummy variable coded 1 if the chairperson is a female and 0 otherwise. Tenure is the number of years the chairperson stays in office. Age is the age of chairperson. Edu is a dummy variable coded 1 if the chairperson has a four-year university degree or above and 0 otherwise. BoardSize is the number of directors on board. IndDirRatio is the ratio of the number of independent directors to total directors on board. DirHolding is the total shareholding percentage of all directors on board. EPS is earnings per share. DA is debt to asset ratio. MB is ratio of market value to book value of equity. LnAsset is log of total assets. ForeignD is a dummy variable coded 1 if the firm issues domestic A-shares and B-shares or H-shares and 0 otherwise. NonSOED is a dummy variable coded 1 if the firm is a non-state-owned enterprise and 0 otherwise. Develop is index score of marketization for each province in China. For correlation coefficients of two binary variables, we fill in "NA" instead

	<u> MJAC </u>	<u> PMAC </u>	<u>AQD1</u>	<u>AQD2</u>	<u>AQD3</u>	<u>Title</u>	<u>Gender</u>	<u>Tenure</u>	<u>Age</u>	<u>Edu</u>
MJAC	1.000									
PMAC	0.866	1.000								
AQD1	-0.042	-0.019	1.000							
AQD2	-0.044	-0.020	NA	1.000						
AQD3	-0.018	0.001	NA	NA	1.000					
Title	-0.096	-0.097	NA	NA	NA	1.000				
Gender	0.018	0.009	NA	NA	NA	NA	1.000			
Tenure	-0.083	-0.071	0.049	0.085	0.057	0.117	0.005	1.000		
Age	-0.053	-0.053	0.024	0.088	0.071	0.258	-0.033	0.364	1.000	
Edu	0.030	0.013	NA	NA	NA	NA	NA	-0.096	-0.218	1.000
BoardSize	-0.023	-0.017	0.052	0.070	0.053	0.107	-0.021	0.034	0.100	0.018
IndDirRatio	0.032	0.032	0.050	0.037	0.036	-0.053	0.004	0.071	-0.048	0.041
DirHolding	-0.015	-0.020	-0.014	0.014	0.025	0.030	0.001	-0.008	0.036	-0.049
EPS	-0.023	-0.032	0.075	0.092	0.071	0.107	0.039	0.075	0.113	0.039
DA	0.135	0.133	0.004	-0.007	0.019	-0.064	-0.029	-0.045	-0.077	0.012
MB	0.123	0.114	0.033	0.020	0.055	-0.067	-0.016	-0.146	-0.100	0.023
LnAsset	-0.054	-0.050	0.227	0.251	0.222	0.125	-0.007	0.161	0.198	0.030
ForeignD	-0.037	-0.028	0.290	0.242	0.244	0.039	0.032	0.114	0.086	0.014
NonSOED	0.061	0.077	-0.024	-0.044	-0.028	-0.213	0.030	-0.018	-0.217	-0.088
Develop	0.027	0.038	0.127	0.221	0.226	-0.043	0.034	0.039	0.055	-0.055

	<u>BoardSize</u>	<u>IndDirRatio</u>	<u>DirHolding</u>	<u>EPS</u>	<u>DA</u>	<u>MB</u>	<u>LnAsset</u>	<u>ForeignD</u>	<u>NonSOED</u>	<u>Develop</u>
BoardSize	1.000									
IndDirRatio	-0.078	1.000								
DirHolding	-0.011	0.054	1.000							
EPS	0.070	0.027	0.037	1.000						
DA	0.022	0.125	-0.023	-0.171	1.000					
MB	-0.059	-0.350	-0.032	-0.088	0.136	1.000				
LnAsset	0.220	0.095	-0.024	0.291	0.173	-0.396	1.000			
ForeignD	0.068	0.025	-0.022	0.013	0.003	0.071	0.236	1.000		
NonSOED	-0.152	0.060	0.104	-0.065	0.080	0.085	-0.208	-0.093	1.000	
Develop	-0.063	0.038	0.047	0.042	0.002	0.045	0.075	0.184	0.040	1.000

Table 4

Distribution Analysis and Two-sample T-test Comparison

AQD2 is a dummy variable coded 1 if the audit firm is in the Top 10 category and 0 otherwise. Title is a dummy variable for title which is coded 1 if the chairperson holds a title and 0 otherwise. Gender is a dummy variable coded 1 if the chairperson is a female and 0 otherwise. Tenure is the number of years the chairperson stays in office. Age is the age of chairperson. Edu is a dummy variable coded 1 if the chairperson has a four-year university degree or above and 0 otherwise. BoardSize is the number of directors on board. IndDirRatio is the ratio of the number of independent directors to total directors on board. Dirholding is the total shareholding percentage of all directors on board. |MJAC| is the absolute value of modified Jones version of accrual measure. |PMAC| is the absolute value of performance matched discretionary accrual. For the two-sample t-test comparison on earnings management, we use the binary variables of Title, Gender, Edu and AQD2 as grouping variables.

Panel A: Audit Quality

	Dummy Code	AQD2[1]		AQD2[0]		Mean Difference	Chi -Square
		N	Mean	N	Mean		
Title	1	799		2313			11.1233**
	0	153		616			
Gender	1	50		114			3.2835
	0	902		2815			
Edu	1	745		2334			0.8957
	0	207		595			
Tenure			4.1450		3.6600	0.4850**	
Age			50.7752		49.2130	1.5622**	

Panel B: Earnings Management

	Dummy Code	N	MJAC		PMAC	
			Mean	Mean Difference	Mean	Mean Difference
Title	1	3112	0.0563	-0.0161**	0.0568	-0.0157**
	0	769	0.0723		0.0725	
Gender	1	164	0.0653	0.0061	0.0626	0.0028
	0	3717	0.0592		0.0598	
Edu	1	3079	0.0605	0.0049*	0.0603	0.0022
	0	802	0.0555		0.0582	
AQD2	1	952	0.0543	-0.0068**	0.0576	-0.0031
	0	2929	0.0611		0.0606	

* parametric test significant at 0.05 level

** parametric test significant at 0.01 level

Table 5

First-stage Least-square Regression Analysis

AQD1 is a dummy variable coded 1 if the audit firm is in the Top 5 category and 0 otherwise. AQD2 is a dummy variable coded 1 if the audit firm is in the Top 10 category and 0 otherwise. AQD3 is a dummy variable coded 1 if the audit firm is in the Top 15 category and 0 otherwise. Title is a dummy variable for title which is coded 1 if the chairperson holds a title and 0 otherwise. Gender is a dummy variable coded 1 if the chairperson is a female and 0 otherwise. Tenure is the number of years the chairperson stays in office. Age is the age of chairperson. Edu is a dummy variable coded 1 if the chairperson has a four-year university degree or above and 0 otherwise. BoardSize is the number of directors on board. IndDirRatio is the ratio of the number of independent directors to total directors on board. Dirholding is the total shareholding percentage of all directors on board. EPS is earnings per share. DA is debt to asset ratio. MB is ratio of market value to book value of equity. LnAsset is log of total assets. ForeignD is a dummy variable coded 1 if the firm issues domestic A-shares and B-shares or H-shares and 0 otherwise. NonSOED is a dummy variable coded 1 if the firm is a non-state-owned enterprise and 0 otherwise. Develop is index score of marketization for each province in China. z-values are adjusted for heteroskedasticity using White's procedure (1980).

	AQD1		AQD2		AQD3	
	N [1]	N [0]	N [1]	N [0]	N [1]	N [0]
	511	3370	952	2929	1365	2516
	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Intercept	-22.5191	-13.79	-21.7685	-15.85	-17.8615	-14.34
Title	0.2605	1.79*	0.3020	2.62**	0.2802	2.82**
Gender	0.1335	0.60	0.1092	0.56	0.0983	0.53
Tenure	-0.0129	-0.57	0.0086	0.48	-0.0168	-1.02
Age	-0.0067	-0.79	0.0083	1.33	0.0055	0.98
Edu	0.1110	0.79	-0.0922	-0.88	-0.0815	-0.86
BoardSize	0.0081	0.32	0.0301	1.57	0.0176	1.03
IndDirRatio	2.2289	2.95**	2.0983	3.37**	1.8912	3.24**
DirHoldng	-1.2566	-0.56	1.4284	1.27	2.1199	2.10*
EPS	0.1230	0.68	0.0190	0.13	-0.0865	-0.61
DA	-1.7712	-4.94**	-1.5430	-5.43**	-1.0916	-4.28**
MB	0.2459	7.84**	0.2006	7.23**	0.2038	7.89**
LnAsset	0.9088	11.96**	0.8313	13.14**	0.7019	12.11**
ForeignD	1.5722	10.15**	0.9425	6.54**	1.1636	7.94**
NonSOED	0.1717	1.27	0.0030	0.03	0.0546	0.58
Develop	0.1263	2.83**	0.3245	9.13**	0.2752	8.46**
Year Dummies Included						
Industry Dummies Included						
LR Statistic	523.8008		662.1181		685.9822	
p-value	0.00		0.00		0.00	
N	3881		3881		3881	

* 0.05 significance level (one-tailed)

** 0.01 significance level (one-tailed)

Table 6

Second-stage Least-square Regression Analysis

|MJAC| is the absolute value of modified Jones version of accrual measure. |PMAC| is the absolute value of performance matched discretionary accrual. FVAQD2 is the fitted value of AQD2 estimated in the first-stage least-square regression analysis. Title is a dummy variable for title which is coded 1 if the chairperson holds a title and 0 otherwise. Gender is a dummy variable coded 1 if the chairperson is a female and 0 otherwise. Tenure is the number of years the chairperson stays in office. Age is the age of chairperson. Edu is a dummy variable coded 1 if the chairperson has a four-year university degree or above and 0 otherwise. BoardSize is the number of directors on board. IndDirRatio is the ratio of the number of independent directors to total directors on board. Dirholding is the total shareholding percentage of all directors on board. EPS is earnings per share. DA is debt to asset ratio. MB is ratio of market value to book value of equity. LnAsset is log of total assets. NonSOED is a dummy variable coded 1 if the firm is a non-state-owned enterprise and 0 otherwise. t-values are adjusted for heteroskedasticity using White's procedure (1980).

	MJAC		PMAC	
	Coefficient	z-value	Coefficient	t-value
Intercept	0.0340	0.83	0.0474	1.19
FVAQD2	-0.0086	-3.40**	-0.0046	-1.79*
Title	-0.0088	-2.85**	-0.0088	-2.94**
Gender	0.0033	0.53	-0.0003	-0.05
Tenure	-0.0019	-4.23**	-0.0015	-3.32**
Age	0.0002	1.28	0.0002	0.88
Edu	0.0033	1.28	0.0008	0.33
BoardSize	-0.0001	-0.23	0.0002	0.48
IndDirRatio	0.0212	1.37	0.0318	2.05*
DirHoldng	-0.0236	-1.14	-0.0335	-1.59
EPS	0.0041	0.66	0.0023	0.41
DA	0.0290	3.81**	0.0258	3.59**
MB	0.0043	3.72**	0.0037	3.21**
LnAsset	0.0007	0.36	0.0002	0.12
NonSOED	0.0034	1.24	0.0050	1.89
Year Dummies Included				
Industry Dummies Included				
Adjusted R	0.0673		0.0626	
F	8.7795		8.1991	
p-value	0.00		0.00	
N	3881		3881	

* 0.05 significance level (one-tailed)

** 0.01 significance level (one-tailed)

Table 7

Second-stage Least-square Regression Analysis with Low Growth Firms and High Growth Firms

|MJAC| is the absolute value of modified Jones version of accrual measure. |PMAC| is the absolute value of performance matched discretionary accrual. FVAQD2 is the fitted value of AQD2 estimated in the first-stage least-square regression analysis. Title is a dummy variable for title which is coded 1 if the chairperson holds a title and 0 otherwise. Gender is a dummy variable coded 1 if the chairperson is a female and 0 otherwise. Tenure is the number of years the chairperson stays in office. Age is the age of chairperson. Edu is a dummy variable coded 1 if the chairperson has a four-year university degree or above and 0 otherwise. BoardSize is the number of directors on board. IndDirRatio is the ratio of the number of independent directors to total directors on board. Dirholding is the total shareholding percentage of all directors on board. EPS is earnings per share. DA is debt to asset ratio. LnAsset is log of total assets. NonSOED is a dummy variable coded 1 if the firm is a non-state-owned enterprise and 0 otherwise. t-values are adjusted for heteroskedasticity using White's procedure (1980).

	Panel A: Low Growth Firms				Panel B: High Growth Firms			
	MJAC		PMAC		MJAC		PMAC	
	Coefficient	z-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	0.1363	3.29	0.1345	3.26	0.0439	0.87	0.0719	1.46
FVAQD2	-0.0067	-2.27*	-0.0046	-1.54	-0.0098	-2.54**	-0.0037	-0.95
Title	-0.0043	-1.10	-0.0073	-1.91*	-0.0135	-2.90**	-0.0103	-2.30*
Gender	0.0030	0.36	0.0028	0.34	0.0026	0.27	-0.0054	-0.65
Tenure	-0.0024	-4.16**	-0.0017	-3.00**	-0.0013	-1.70*	-0.0013	-1.65*
Age	0.0002	1.21	0.0001	0.71	0.0002	0.64	0.0001	0.53
Edu	0.0057	1.75*	0.0029	0.88	0.0022	0.57	-0.0002	-0.05
BoardSize	0.0008	1.22	0.0013	2.11*	-0.0009	-1.20	-0.0008	-1.22
IndDirRatio	0.0211	0.77	0.0237	0.92	0.0264	1.40	0.0418	2.15*
DirHoldng	-0.0382	-2.33*	-0.0372	-1.93*	0.0206	0.32	-0.0130	-0.19
EPS	0.0011	0.17	0.0019	0.31	0.0063	0.60	0.0026	0.28
DA	0.0230	2.53**	0.0211	2.34*	0.0492	3.44**	0.0423	3.10**
LnAsset	-0.0037	-1.87*	-0.0032	-1.63	0.0012	0.47	-0.0002	-0.07
NonSOED	0.0045	1.28	0.0050	1.44	0.0027	0.68	0.0054	1.39
Year Dummies Included								
Industry Dummies Included								
Adjusted R	0.0583		0.0595		0.0561		0.0481	
F	4.4311		4.5032		4.2957		3.8014	
p-value	0.00		0.00		0.00		0.00	
N	1940		1940		1941		1941	

* 0.05 significance level (one-tailed)

** 0.01 significance level (one-tailed)

Figure 1

Average Total Auditee Assets for the Sample Period (2000-2005) of Each Audit Firm

In each year for each audit firm, the total auditee assets is the aggregate of the assets of all auditees. The average total auditee assets is the average of the total auditee assets over the number of years the audit firm is in the sample. In total there are 80 audit firms over 6 years from 2000 to 2005. These 80 audit firms are ranked from the largest to the smallest according to the average total auditee assets. Note that there are some cases that the audit firms may not exist for all 6 years in the sample period.

