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On the Association between Changes in Corporate Ownership and Changes in Auditor Quality in a Transitional Economy

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Abstract

This study uses agency theory to test whether the demand for quality-differentiated audits by listed Chinese companies is systematically associated with changes in ownership structure, which is characterized by the dominance of government and institutional owners in a transitional economy. Our empirical test results are supportive of agency theory. Specifically, we find that a decrease of government shares and a corresponding increase of institutional shares lead to a general increase in the demand for higher-quality audits in China's stock market. However, the influence of individual shareholders on a firm's auditor-choice decisions appears insignificant. Our results suggest that in the absence of institutional features typically found in free-market economies that provide incentives for managers to supply credible accounting information via quality audits, the introduction of large institutional blockholders can be a good alternative for a transitional economy.

Keywords

agency theory; audit quality; corporate governance; ownership structure

I. INTRODUCTION

The early 2000s has witnessed a renewed interest in the quality of corporate financial reporting. The Enron debacle and other scandals have raised serious questions about the quality and reliability of audited information. The concerns of the resultant Sarbanes-Oxley Act of 2002 regarding the proximity of the auditor-management relationship highlight the importance of auditing as an important governance mechanism through which shareholders can seek to monitor management. In this paper, we use agency theory to explain whether a firm's demand for audit quality is a function of changes in the proportion of shares held by government versus institutional and individual owners in China. As will be explained later, high government ownership of shares results in severe agency problems and weakens the desire for credible accounting information, and thus audit quality. We, therefore, hypothesize that a decrease of shares that are owned by government agencies and a corresponding increase of shares that are held by institutional and individual entities will lead to a

general increase in the demand for higher-quality audits in China's stock market.

Agency theory suggests that a firm's ownership structure affects its demand for external auditing (DeFond 1992; Francis and Wilson 1988; Jensen and Meckling 1976; Fama 1980; Watts and Zimmerman 1986). When share ownership becomes more dispersed, direct monitoring by shareholders becomes more costly, and greater reliance on the audit as a mechanism of governance to mitigate agency problems is expected. When share ownership is concentrated, there are two conflicting views about accounting information quality. One view is that, as Shleifer and Vishny (1997) claim, when ownership concentration increases to a level where an owner obtains effective control of the firm, the controlling owners can use earnings management to expropriate minority shareholders. This will reduce the controlling owners' demand for quality audits. Another view, as Jensen and Meckling (1976) suggest, is that an increase in the holdings of the owner-largest shareholder reduces agency costs and thus, the need to manage earnings in order to alleviate contractual constraints. In this case, the controlling owners will be more motivated to improve earnings informativeness via independent auditing.

High levels of government ownership of shares are a unique feature of ownership structure in China's stock markets as well as in markets of many transitional economies (Krivogorsky 2000). As will be explained later, high levels of government ownership in China create a series of agency problems, such as ineffective corporate governance that directly results in poor firm performance (Qi et al. 2000; Xu and Wang 1999), and little demand for independent auditing to supply quality accounting information (DeFond et al. 2000; Wang et al. 2005). Over the past few years, the Chinese government has undertaken measures to reduce its holdings in listed companies through the sale of state shares to other groups of investors. For example, the government suspended IPOs and rights offering by listed companies in May 2005 to make way for reforms to float government-owned, nontradable shares (People's Daily Online 2006). As a result, the proportion of state shares has declined over the years, while the proportions of institutional and tradable A-shares have risen. In this paper, we investigate whether these changes in ownership structure are associated with quality-differentiated audit services. Specifically, we examine whether changes in the proportion of shares held by government versus institutional and individual investors affect the demand for quality audits. Audit quality is proxied by auditor size, which is constructed as a ratio of the total client assets of the new and the old auditors (DeAngelo 1981; DeFond 1992; Francis and Wilson 1988), and auditor differentiation is captured by comparing the size of the new auditor with that of the old auditor in the year of auditor change.

We test our hypothesis by analyzing 130 voluntary auditor switches over the 1997-2005 period, after excluding several categories of switching companies. Consistent with our hypothesis, we find that the demand for quality audits increases as a result of an increase in institutional shares and a

decrease in state shares. However, we find little evidence in support of a positive association between auditor choice and the proportion of tradable Ashares owned by domestic individual investors. Our results are robust to control for other agency variables and to alternative definitions of audit quality and ownership level.

This paper provides empirical evidence that supports the efficient monitoring explanation for the relationship between institutional ownership and audit quality in a setting typical for many transitional economies, but different from those in most Western countries. Prior studies (e.g., Chow 1982; DeFond 1992; GuI et al. 2002) have typically examined the relationship between managerial ownership (as a proxy for a firm's ownership structure) and audit quality in a diffused ownership setting. However, the use of managerial ownership does not fit the Chinese context, due to differences in the level of ownership concentration and in the associated type of agency problems. Moreover, unlike managers in the West, managerial ownership in China is relatively low. In contrast to the situation in Western economies, Chinese ownership structures are characterized by the control of two groups of shareholders: government and institutions.

Wang et al. (2005) compare the state-owned enterprises (SOEs) with non-SOEs in their choice of auditors in China. They find that SOEs and, in particular, local SOEs are more likely than non-SOEs to hire small local auditors. However, in regions where the institutional environment is better developed, SOEs and non-SOEs tend to make more similar auditor choices. Different from their study that examines how different types of ownership are associated with a particular class of the auditor, we study how the annual "change" in ownership structure affects the "change" in quality-differentiated audit services. We use agency theory to explain that, when the institutional ownership of a firm increases, the firm is likely to switch from a lower-quality auditor to a higher-quality auditor. To our knowledge, no published research has examined the association between changes in ownership structure and changes in auditor choice in transitional economies. Evidence on the role of government in auditor choice decisions is a useful contribution to the literature because little is known about the relationship between government dominance of share ownership and the motivation of firms for quality-differentiated audit services. Moreover, our results provide a useful reference for other transitional economies such as Russia and Vietnam whose organizational form is also characterized by insider ownership and government control (Krivogorsky 2000; Wright and Nguyen 2000).

Given that emerging markets and transitional economies are keen to build a credible accounting profession and efficient capital markets, our results are rich in policy implications. For example, we provide empirical support, from the accounting perspective, for the reduction of government shares in listed companies to improve corporate governance and firm performance. Moreover, our results indicate that in the absence of institutional features typically found in developed capital markets,

such as auditor litigation and corporate governance mechanisms that provide incentives for managers to supply credible accounting information via quality audits, the maintenance of large institutional blockholders can be a good formula for transition. Finally, although our findings pertain to China, empirical evidence of how changes in ownership structure affect the demand for quality audits should provide a useful reference for other transitional economies with high government ownership. Our results illustrate the need for policy makers in other transitional economies to understand how the government-concentrated share structure provides perverse incentives for managers to reduce both accounting information and audit quality before prescribing a comprehensive set of rules and regulations for corporate reporting.

The remainder of the paper is organized as follows. The next section presents the institutional background of China's stock markets and develops the research hypothesis. Section III describes the research methodology. Section IV discusses the empirical results, and Section V concludes the paper.

II. INSTITUTIONAL BACKGROUND AND RESEARCH HYPOTHESIS

The Chinese stock market became a significant vehicle for ownership reform of the state-owned enterprises (SOEs) after the establishment of stock exchanges in Shanghai and Shenzhen in the early 1990s. The number of listed companies, trading volume, and total market capitalization has grown rapidly since then. For example, the total number of listed companies increased from 50 in 1992 to 1,378 in 2005. In less than 15 years, China's stock market has grown to become the second largest in Asia behind Japan, with market capitalization close to U.S.\$500 billion. During this period, about U.S.\$100 billion has been raised through initial public offerings. However, tradable market capitalization as a percentage of GDP in China is only about 17 percent, compared with 60 percent in other emerging markets (Farrell and Lund 2006). Nevertheless, once the recent share reform that aims at converting nontradable shares into tradable listed shares has been completed, China's market capitalization as a percentage of GDP is expected to increase to a level comparable to other emerging markets.

To be eligible for listing, Chinese companies must report three consecutive years of profits for an initial public offering. To raise additional capital through a rights issue, listed companies should have maintained a minimum level of profit or ROE, and the threshold of a rights issue has been gradually refined over the years. For example, the 1996 guideline required a ROE of at least 10 percent in each of previous three years to qualify for a rights issue. The 1999 guideline required a three-year average ROE of at least 10 percent and an ROE of at least 6 percent in each of previous three years. The 2001 guideline required a three-year average ROE of at least 6 percent, which is calculated based on net income excluding extraordinary items. Companies that report three consecutive years of losses will be de-listed. Listed Chinese companies issue three major classes of

shares: state shares, institutional (legal persons) shares, and tradable A-shares. State shares are owned by government agencies (including central government ministries and commissions, national industry companies, state asset management bureaus, and local government bureaus), and state-owned enterprises. Institutional shares are held by domestic legal entities and nonbank financial institutions, including securities firms, trust and investment companies, mutual funds, and state-private mixed companies. State shares cannot be traded, but institutional shares can be traded in blocks in a designated market. Tradable A-shares are held and traded mostly by transient individual investors in stock exchanges. As individual ownership is widely dispersed, individual investors do not have much influence in most listed companies.

In line with the government's objective of improving nonperforming state assets, China has undertaken measures from year to year to relax its control over corporate affairs by selling off state shares in listed companies (People's Daily 2005). As a result, the proportion of state shares has declined over the years. To illustrate changes in corporate ownership, we track down 480 companies that were continuously listed on the two stock exchanges throughout the period 1996-2005 and report the results in Table 1.

Panel A of Table 1 indicates that the number and the percentage of companies with 51 percent or higher levels of state ownership declined from 90 (19 percent) in 1996 to 35 (7 percent) in 2005. The overall ownership mix by year (Panel B) shows a similar decreasing trend for state shares. In contrast to the trend displayed by the state holdings, the percentage of firms with A-share owners has consistently increased over the years. The level of institutional ownership has not significantly increased over the years because of an offset of increases and decreases in institutional shares. On average, the state, institutional investors and individual A-share owners respectively controlled 16 percent, 39 percent, and 42 percent of total stock from 1996 to 2005.

High levels of government ownership create a number of agency problems (Gao 1996; Qian 1996). The first is the "absence of principal" problem. The principal of state shares is the state, which represents all Chinese people. The agents are multi-tiered state controlling authorities (i.e., central government, line ministries and commissions, local governments, and SOE managers). According to the classical agency theory, agents are supposed to serve the principal's interest. However, due to the lack of a principal or the ambiguity of property rights, no agent in this chain of principal-agent relationships has an adequate incentive to pursue profit maximization for the real principal (the Chinese people). The state assumes the role as representative of the people and acts as the principal (owner) on behalf of the public in delegating enterprise managers (agents) to perform daily operational activities. However, the controlling authorities, i.e., central government line ministries and local governments, which exercise de facto ownership rights over the enterprises, do not bear any residual risks over the control and use of an enterprise's assets. Any residual claims (profits) are

socialized and risks (losses) are simply passed on to the public via budgetary subsidies and government loans.

TABLE 1
Changes in Ownership Level for 480 Companies Listed throughout the Period 1996–2005

1996–05		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005			
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Panel A: Changes in Ownership Level for 480 Companies Listed throughout the Period 1996–2005																							
State	0–50%	416	(86.7)	390	(81.3)	394	(82.1)	403	(84.0)	411	(85.6)	416	(86.7)	417	(86.9)	420	(87.5)	429	(89.4)	435	(90.6)	445	(92.7)
	51–100%	64	(13.3)	90	(18.7)	86	(17.9)	77	(16.0)	69	(14.4)	64	(13.3)	63	(13.1)	60	(12.5)	51	(10.6)	45	(9.4)	35	(7.3)
		480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)
Institutions	0–50%	286	(59.6)	289	(60.2)	292	(60.8)	290	(60.4)	285	(59.4)	283	(59.0)	292	(60.8)	288	(60.0)	281	(58.5)	272	(56.7)	291	(60.6)
	51–100%	194	(40.4)	191	(39.8)	188	(39.2)	190	(39.6)	195	(40.6)	197	(41.0)	188	(39.2)	192	(40.0)	199	(41.5)	208	(43.3)	189	(39.4)
		480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)
Individuals	0–50%	373	(77.8)	427	(88.9)	423	(88.1)	412	(85.8)	402	(83.8)	368	(76.7)	348	(72.5)	347	(72.3)	343	(71.5)	338	(70.4)	324	(67.5)
	51–100%	107	(22.2)	53	(11.1)	57	(11.9)	68	(14.2)	78	(16.2)	112	(23.3)	132	(27.5)	133	(27.7)	137	(28.5)	142	(29.6)	156	(32.5)
		480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)
Others	0–50%	478	(99.6)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)
	51–100%	2	(0.4)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0.2)	23	(4.8)
		480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)	480	(100)
Panel B: Total Number of Shares (Billions) and Percentages Held by Ownerships																							
State		68.9	16.2	24.5	22.5	38.0	21.9	46.3	20.5	54.5	19.4	64.2	18.3	89.9	18.2	95.7	17.1	96.1	15.6	96.6	14.0	83.5	11.2
Institutions		164.3	38.7	40.9	37.6	64.5	37.2	84.2	37.4	107.2	38.1	134.1	38.3	186.2	37.7	215.8	38.5	245.0	39.7	283.8	40.9	281.2	38.0
Individuals		178.7	42.1	37.8	34.7	61.2	35.3	81.4	36.1	108.2	38.5	144.3	41.2	211.6	42.5	242.4	43.2	268.6	43.5	303.6	43.8	327.9	44.1
Others		12.7	3.0	5.6	5.2	9.8	5.6	13.5	6.0	11.3	4.0	7.5	2.2	6.2	1.3	6.7	1.2	7.6	1.2	8.4	1.3	50.0	6.7

The second agency problem relates to the principal's ineffective monitoring of the agents. The state relies on its control over the board of directors to preserve the value of state properties. However, as many board members who represent the state's interest are appointed and paid by the local government according to their administrative rankings rather than their ability to perform (Zhou and Wang 2000; Xu and Wang 1999), they may not have sufficient managerial ability to monitor the management's divergent behavior. Moreover, the preferences of the local government do not necessarily coincide with those of the state. The third agency problem stems from the government's political influence on corporate decisions. The government, through its control over the board of directors, may divert managerial objectives away from profit maximization and toward such objectives as infrastructure development and employment and social welfare maximization (Williamson 1985).

In sum, controlling government entities lack sufficient managerial incentives to monitor divergent management behavior to promote the best interest of the public. From an accounting perspective, their controlling ownership interest means the government-entity owners are able to control the production of a firm's accounting information and its reporting policies. Given the current regulatory profit requirement for additional capital raising by listed companies, government owners have strong incentives to pressure management to report favorable earnings, but little regard for audit quality (Chan et al. 2006; DeFond et al. 2000). Moreover, unlike other groups of investors, the government has adequate power to require whatever information is needed from the listed companies. The lack of reliance on publicly released financial reports for performance evaluation reduces the government's need for independent auditing (Klassen 1997).

In contrast, market-oriented economic entities and institutions act more like commercial enterprises than government agencies. They have a lesser degree of government intervention because they have much more autonomy (Groves et al. 1994). Unlike government officials, representatives of institutional shareholders are elected to the board of directors by different institutions, act more like businessmen than bureaucrats or politicians, and are paid according to their real managerial efforts. Because of the size of their holdings and economies of scale in information gathering, representatives of institutional shareholders have strong incentives to maximize firm value to promote the best interests of the institutions that they represent (Pound 1988; Bushee 1998; Shleifer and Vishny 1986). For example, Jin (2005) suggests that dividend-averse institutional investors have tax incentives to let firms adapt their payout policies to the interests of their institutional shareholders. The presence of institutional ownership has also been found to mitigate managerial incentives to report aggressively (Dechow et al. 1996; Koh 2003; Rajgopal and Venkatachalam 1998). Moreover, these representatives have diverse professional backgrounds and are better equipped with authority and expertise. For example, they can vote on important issues such as the appointment of the auditor and can also bring significant pressure to bear on management to ensure

that an effective corporate governance structure is in place. Many studies (e.g., Claessens and Djankov 1999; Qi et al. 2000; Pound 1988; Shleifer and Vishny 1986; Xu and Wang 1999) find a strong positive relation between the concentration of institutional ownership and corporate performance in both transitional and market economies, and attribute it to the effect of better monitoring. Prior studies (e.g., Warfield et al. 1995) also indicate that the higher the holdings of institutions and blockholders, the smaller the discretionary accruals and the greater the informativeness of earnings. This suggests that, unlike government-entity owners, institutional investors are likely to prefer credible financial information and hire quality auditors to improve earnings informativeness and market returns (Teoh and Wong 1993).

Under current Chinese regulations, at least 25 percent of the shares outstanding must be sold to the general public. However, the vast majority of individual investors are relatively small and their representation on boards of directors is extremely low (Xu and Wang 1999). Consequently, individual shareholders may not be able to closely monitor management. This is consistent with the results of prior studies (Xu and Wang 1999; Qi et al. 2000), which find that the influence of individual shareholders on a firm's profitability is often irrelevant because of their incapability of monitoring managerial performance. Minority shareholders also lack the ability to claim damages due to the release of false information by listed companies, as there are no adequate corporate governance mechanisms to protect their interests and the litigation costs that are involved are relatively high. Furthermore, most individual investors in China buy stocks for speculative purposes rather than dividend income or long-term growth (Xu and Wang 1999). This short investment horizon deters individual investors from incurring monitoring costs and controlling actions taken by managers. Therefore, although diffused ownership by individual investors theoretically provides the basis for a demand for credible financial information via quality audits, transient individual investors may not have adequate incentive to closely monitor management.

Prior studies frequently attribute the poor performance of listed companies in China to their ownership structure, which gives rise to severe agency problems originating from the ambiguity of property rights that is associated with government ownership (e.g., Qi et al. 2000; Gao 1996; Xu and Wang 1999). These studies find that the firm's profitability is positively (negatively) correlated with the fraction of shares that are held by institutional (government) owners. Regulators in China have taken measures to deal with nonperforming state assets through the sale of state shares in listed companies to market-oriented economic entities and institutions. As indicated earlier, such measures have brought about ownership changes in China. A change in ownership structure is also paralleled by a change in the composition of the board of directors.¹ It is expected that this change will affect the quality of auditing that is demanded by listed companies in China. Therefore, we summarize our directional hypothesis as follows:

Ceteris paribus, the higher the increase (decrease) in the fraction of institutional and individual A-shares (state shares), the higher the demand for audit quality.

III. RESEARCH METHOD

Sample Data

To test the hypothesis, we hand-collected ownership data and client-firm characteristics from the annual reports of listed companies that changed their ownership structure and auditors between 1997 and 2005, as we focused on examining the relationships between these changes. This information is available from the CD-ROM database published by the Securities Times and the Shanghai securities News. The database contains 482 firm-year observations that involve changes in both client-firm ownership level and auditor choice. As auditor change can be driven by both agency and nonagency factors, we exclude the following categories of switching firms from the sample in order to reduce noise (thus yield more powerful tests) and avoid the distraction of uncontrollable variables. First, we exclude 340 involuntary auditor switches resulting from either license suspension of the previous auditor due to irregularities, or from the merger of the incumbent auditor with other auditors, because these switches are not caused by endogenous changes in client characteristics but by exogenous events. Second, we eliminate two companies that changed auditors more than twice during a three-year period, as these switches often relate to opinion shopping. Third, we omit six companies that received severe (adverse or disclaimer) audit opinions in the year prior to auditor switch, as their financial information is deemed unreliable for statistical analysis (DeFond 1992). Finally, we leave out four financial institutions, because these companies are very dissimilar to others in terms of accounting rules, auditor choice (they are required to hire international accounting firms), and corporate governance (La Porta et al. 2000). Therefore, our final sample is composed of 130 auditor changes that are motivated by agency-related factors.

Regression Model

As already discussed, a change in ownership structure may give rise to demand for quality-differentiated audits. We use the ratio of the total client assets of the new and old auditors to proxy for the change in audit firm size, as size based on client assets is a good surrogate for audit quality (DeAngelo 1981; DeFond et al. 2000; Reynolds and Francis 2001). A ratio above one indicates a move to a larger auditor. (We test two alternative surrogates for audit quality in the sensitivity analysis section.) We estimate the following regression model to test the relationship between changes in client firm ownership structure and changes in audit quality by listed Chinese companies.

$$\begin{aligned} \Delta Quality = & b_0 + b_1 \Delta State + b_2 Institutions + b_3 \Delta Individuals + b_4 \Delta Size \\ & + b_5 \Delta Leverage + b_6 \Delta Accrual + b_7 \Delta ROE + b_8 Subsidiary \\ & + b_9 Management + b_k \sum_{k=98}^{05} Year_k + e. \end{aligned}$$

The dependent variable, $\delta Quality$, is defined as the natural logarithm of the ratio of combined assets of listed companies audited by the new auditor to that by the old auditor in the year of auditor change (DeAngelo 1981; DeFond 1992; Francis and Wilson 1988; Johnson and Lys 1990; Reynolds and Francis 2001).² Changes in ownership structure are measured as changes in the percentage of shares held by the state, institutions, and individual A-share holders between year t and $t - 1$, respectively. We predict that the coefficient b^1 will be negative and that b^2 and b^3 will be positive.

Six agency-related variables are used to control for the effect of changes in agency costs on auditor choice.³ Increases in client firm size can be expected to increase agency costs due to the increased remoteness of principals from the observation of agents' actions (Palmrose, 1984). The larger the size of the client firm, the greater the magnitude of wealth transfers (agency costs). As client size is significantly related to auditor choice (DeFond 1992), a $\Delta Size$ variable, measured as the percentage change in total assets between year t and $t - 1$, is included in the model.

Another type of contractual relationship with the potential for divergence of interests is the relationship between debt holders and shareholders. As the amount of debt increases, the potential amount of the wealth transfer away from debt holders increases, which results in a greater incentive for such transfers and a greater demand for monitoring (Chow 1982; DeFond and Jambalvo 1994; Jensen and Meckling 1976). We thus include a $\Delta Leverage$ variable in the model to capture the potential wealth transfers (i.e., agency costs). This variable is measured as the change in the ratio of total liabilities to total assets between year t and $t - 1$.

When ownership is separated from management, conflicts of interests often arise between shareholders and managers. Shareholders may contract with management under arrangements that attempt to mitigate the extent of conflicts of interests between the two groups. One such arrangement is to align the interests of managers with those of shareholders. This alignment is often tied to accounting numbers. However, the determination of accounting numbers necessarily involves judgment and discretion, which gives the manager an opportunity to manipulate the numbers via short-term accruals (DeFond 1992; Healy 1985). One mechanism for enhancing the credibility of management-prepared accounting numbers is to hire a quality auditor. We use $\Delta Accrual$, which is measured as the change in the ratio of short-term accruals to total assets between year t and $t - 1$, to measure the effect of vulnerability to manipulation on the demand for monitoring. We expect the coefficient b^6 to be positive.

Prior studies (e.g., DeFond et al. 2000; Schwarte and Menon 1985) find that financially distressed firms are more likely than healthy firms to make income-increasing accounting changes and hire an accommodating auditor to mask these changes. We use changes in the return on equity (ΔROE) prior to auditor changes to control for the effect of the firm's financial condition on auditor choice.

As with size, the complexity of an organization increases the number of agency relationships. The greater the complexity and diversity of an organization's activities and operations, the greater the difficulty in monitoring the divergent behavior of agents that are remote from the principals (Palmrose 1984). Accordingly, we include the number of subsidiaries (natural log form) in the model to capture the organizational diversity and geographical dispersion.

In a society like China, where business transactions are relationship based, changes in key management positions can create new principal-agent contractual agreements and trigger alterations in the auditor-client relationship. Previous studies find that changes in management are a significant factor in auditor changes (e.g., Beattie and Fearnley 1995). We use a dummy variable, *Management*, to measure this effect by taking a value of one if there are changes in key management positions (e.g., the board chairman, the president and CEO) in year *r*, and 0 otherwise. Finally, as the sample covers auditor changes from 1997 to 2005, we include eight Year dummies to control for inter-temporal differences.

IV. EMPIRICAL RESULTS

Univariate Test Results

Table 2 reports descriptive statistics and univariate tests of differences in means and medians by the direction of auditor switch. The table shows that of the 130 companies which voluntarily switched their auditors, 71 switched to larger auditors, and 59 switched to smaller auditors. Companies with upgrade switches have, on average, greater decreases in the percentage of state shares (-6.92 percent for means and -1.08 for medians) than companies with downgrade switches (-2.50 percent for means and 0.00 for medians), and the differences are significant at the 10 percent level. Companies with an increase (decrease) in the proportion of institutional shares are more likely to switch to a larger (smaller) auditor (4.08 percent versus -0.29 percent for means). Other statistics suggest that when the number of subsidiaries becomes larger, companies are significantly more likely to make an upgrade auditor switch. These univariate results are directionally supportive of the association of changes in ownership structure with changes in auditor choice.

TABLE 2
Descriptive Statistics and Univariate Tests by the Direction of Auditor Switch (n = 130)

	Switch to larger auditors (n = 71)						Switch to smaller auditors (n = 59)						Test of differences (p-value)	
	Mean	Median	Q1	Q3	Max	Min.	Mean	Median	Q1	Q3	Max	Min.	Mean*	Median*
$\Delta State$	-6.92	-1.08	-8.30	0.00	5.08	-51.52	-2.50	0.00	-3.17	0.00	52.89	-62.64	0.100	0.003
$\Delta Institutional$	4.08	0.00	-0.72	0.91	51.52	-9.61	-0.29	0.00	-2.65	0.00	50.34	-52.89	0.090	0.170
$\Delta Individual$	5.64	3.60	0.00	9.58	23.35	-0.20	4.61	0.90	0.00	7.38	21.37	-2.32	0.354	0.139
$\Delta Size$	0.16	0.14	0.01	0.27	0.95	-0.35	0.13	0.14	-0.06	0.35	0.87	-0.50	0.465	0.308
$\Delta Leverage$	0.01	-0.01	-0.06	0.06	0.31	-0.17	0.04	0.02	-0.04	0.08	1.16	-0.29	0.204	0.085
$\Delta Accrual$	-0.02	-0.01	-0.06	0.03	0.22	-0.27	0.01	-0.01	-0.05	0.05	0.70	-0.20	0.178	0.249
ΔROE	-0.08	-0.01	-0.04	0.01	0.40	-1.88	0.01	-0.01	-0.07	0.04	2.03	-1.50	0.192	0.326
<i>Subsidiary</i>	1.84	1.95	1.10	2.48	4.22	0.00	1.33	1.39	0.69	2.08	3.04	0.00	0.002	0.002
<i>Management</i>	0.17	1.00	0.00	0.00	1.00	0.00	0.29	0.00	0.00	1.00	1.00	0.00	0.138	0.069

Variable Definitions:

$\Delta State$ = percentage change in state shares between year t and $t - 1$;

$\Delta Institutional$ = percentage change in institutional shares between year t and $t - 1$;

$\Delta Individual$ = percentage change in individual shares between year t and $t - 1$;

$\Delta Size$ = percentage change in client firm (logged) assets between year t and $t - 1$;

$\Delta Leverage$ = change in the ratio of total liabilities to total assets between year t and $t - 1$;

$\Delta Accrual$ = change in the ratio of short-term accruals to total assets between year t and $t - 1$;

ΔROE = percentage change in return on equity between year t and $t - 1$;

Subsidiary = natural logarithm of the number of subsidiaries; and

Management = 1 if client firm changes its management and 0 otherwise.

* p-values for means are from two-sample t-tests and p-values for medians are from Wilcoxon two-sample tests.

TABLE 3
Multivariate Results for the Association between Changes in Ownership Level and Auditor Choice (n = 130)

	Predicted sign	Model # 1			Model # 2		
		Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
Intercept		-0.553	-2.17	0.032	-0.537	-2.10	0.038
$\Delta State$	-	-0.017	-2.38	0.019**			
$\Delta Institutions$	+				0.015	2.13	0.036**
$\Delta Individuals$	+	0.016	0.91	0.362	0.020	1.14	0.258
$\Delta Size$	+	0.145	0.32	0.751	0.162	0.35	0.726
$\Delta Leverage$	+	0.196	0.24	0.808	0.148	0.18	0.855
$\Delta Accrual$	+	-1.434	-1.36	0.177	-1.426	-1.35	0.181
ΔROE	+	-0.384	-1.22	0.224	-0.361	-1.15	0.253
<i>Subsidiary</i>	+	0.289	2.48	0.015**	0.294	2.51	0.013**
<i>Management</i>	?	-0.158	-0.58	0.566	-0.171	-0.62	0.538
<i>Year Dummies</i> (included)	?		Not reported			Not reported	
Adjusted R ²			0.086			0.077	
Model F-stat.			2.420			2.260	
P-value			0.019**			0.028**	

(continued on next page)

TABLE 3 (continued)

Model Specification:

$$\Delta Quality = b_0 + b_1 \Delta State + b_2 \Delta Institutions + b_3 \Delta Individuals + b_4 \Delta Size + b_5 \Delta Leverage + b_6 \Delta Accrual + b_7 \Delta ROE + b_8 \Delta Subsidiary + b_9 Management + \sum_{i=1998}^{2005} Year_i + e.$$

** Significant at the 5% level.

Variable Definitions:

$\Delta Quality$ = natural logarithm of the ratio of combined assets of companies audited by the new auditor to that by the old auditor;

$\Delta State$ = percentage change in state shares between year t and $t - 1$;

$\Delta Institutions$ = percentage change in institutional shares between year t and $t - 1$;

$\Delta Individuals$ = percentage change in individual shares between year t and $t - 1$;

$\Delta Accrual$ = change in the ratio of short-term accruals to total assets between year t and $t - 1$;

$\Delta Size$ = percentage change in client firm assets between year t and $t - 1$;

$\Delta Leverage$ = change in the ratio of total liabilities to total assets between year t and $t - 1$;

ΔROE = percentage change in return on equity between year t and $t - 1$;

$Subsidiary$ = natural logarithm of the number of subsidiaries; and

$Management$ = 1 if client firm changes its management and 0 otherwise.

Multivariate Analysis Results

To avoid multicollinearity problems arising from the high correlation (-0.961) between Δ State and Δ Institutions if these two variables are simultaneously included in the model, we run two separate OLS regressions and report the results in Table 3.⁴

Both models are significant at the 5 percent level, which indicates a strong relationship between the dependent and independent variables. Most of the coefficient signs in the models are in the hypothesized directions. As predicted by the hypothesis and indicated by the significantly negative (positive) coefficient for the Δ State (Δ Institutions) variable, companies with greater decreases in the proportion of state shares and those with greater increases in the fraction of institutional shares are more likely to demand higher-quality audits. The coefficient on Δ Individuals is insignificant at the conventional levels in both models, which provides no evidence that greater ownership by individual A-share owners leads to an improved preference for audit quality. Individual A-shareholders experience the traditional free-rider problem that they have neither the incentive nor the capability to monitor managerial performance and thus have little regard for auditor differentiation. One control variable, *Subsidiary*, is also significantly positive at the 5 percent level. This supports the proposition that the greater the complexity and geographical dispersion of an organization's activities and operations, the greater the difficulty in monitoring the divergent behavior of agents that are remote from the principals, thus the greater the demand for reputable auditors to monitor the management's actions.

Sensitivity Analysis

We perform the following additional analyses on the dependent and explanatory variables and summarize the results in Table 4. First, we test whether the results are robust to alternative definitions of the dependent variable. In this regard, we rerun the regressions by using two alternative surrogates for audit quality: auditor affiliation and auditor dependence. In the affiliation model, we classify auditors into either top 10 (= 1) or non-top 10 (= 0) groups based on the total client assets audited, as top 10 auditors in China are of higher quality than their counterparts (DeFond et al. 2000).⁵ Thus, a change from a non-top 10 auditor to a top 10 auditor suggests the demand for a higher-quality auditor. In the dependence model, we consider the economic dependence of auditors upon their clients and compute this dependence as the difference between the ratios of the switching client firm's assets to the total client assets of the old auditor, minus the same ratio for the new auditor (DeFond 1992). A positive difference suggests a preference for an independent auditor. Table 4 (Tests 1a and 1b) reports the results of regressing these two alternative surrogates of audit quality.

Second, we define the dependent variable as the natural logarithm of the ratio of the combined sales (instead of assets) of the client firms audited by the new auditor to that by the old auditor in the year of auditor change. The results of replicating Table 3 are reported in Test 2 of Table 4. Finally, to

further explore the association between audit quality and the proportion of shares owned by individual investors, we focus on 33 firm-year observations where tradable A-share investors hold a dominant stake and report the results in Table 4 (Test 3).

TABLE 4
Summary of Sensitivity Test Results

Variables		$\Delta State$	$\Delta Institutions$	$\Delta Individuals$	$\Delta Size$	$\Delta Leverage$	$\Delta Accrual$	ΔROE	Subsidiary Management	Model
Predicted Sign	Intercept	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(?)	p-value
Test 1a: Auditor Affiliation as a Proxy for Audit Quality (n = 130)										
Model 1	Coefficient	0.503	-0.017	0.009	-0.313	1.288	-0.460	-0.432	0.054	-0.029
	p-value	0.027	0.098*	0.601	0.592	0.400	0.534	0.613	0.612	0.920
Model 2	Coefficient	0.512	0.015	0.013	-0.272	1.084	-0.396	-0.438	0.055	-0.033
	p-value	0.028	0.100*	0.461	0.652	0.481	0.594	0.615	0.610	0.901
Test 1b: Auditor Dependence as a Proxy for Audit Quality (n = 130)										
Model 1	Coefficient	-0.485	-0.018	0.012	-0.667	0.389	-1.141	-0.377	0.269	-0.164
	p-value	0.058	0.012**	0.486	0.137	0.622	0.278	0.225	0.021**	0.545
Model 2	Coefficient	-0.465	0.016	0.016	-0.647	0.339	-1.134	-0.035	0.273	-0.178
	p-value	0.071	0.024**	0.347	0.157	0.669	0.285	0.256	0.020**	0.515
Test 2: Size Based upon Client Sales as a Proxy for Audit Quality (n = 130)										
Model 1	Coefficient	-0.634	-0.015	0.014	0.347	0.729	-0.585	-0.621	0.374	-0.219
	p-value	0.028	0.060*	0.467	0.474	0.399	0.608	0.068*	0.004***	0.456
Model 2	Coefficient	-0.614	0.013	0.017	0.355	0.687	-0.577	-0.603	0.377	-0.232
	p-value	0.027	0.100*	0.375	0.471	0.428	0.614	0.077*	0.004***	0.433
Test 3: Firms Dominated by Individual Shareholders (n = 33)										
Model 1	Coefficient	-0.976	-0.051	0.009	-0.735	-0.693	-4.504	-0.481	0.460	-0.365
	p-value	0.130	0.029**	0.780	0.466	0.603	0.110	0.355	0.076*	0.620
Model 2	Coefficient	-1.245	0.064	0.042	-0.351	-0.343	-4.672	-0.547	0.507	-0.251
	p-value	0.061	0.011**	0.212	0.728	0.793	0.087*	0.280	0.047**	0.725

*, **, *** Significant at the 10%, 5%, and 1% levels, respectively.
The independent variables are as previously defined (see Tables 2 and 3).

All of the sensitivity test results point to a single conclusion regarding the experimental variables. Tests 1 to 2 provide the consistent result that changes in share ownership are associated with changes in audit quality. Specifically, the higher the increase (decrease) in the fraction of institutional (state) shares, the higher the demand for audit quality. One control variable, *Subsidiary*, is significantly positive in most of the tests. This is consistent with agency theory, which states that as a firm increases in complexity and diversity, the number of agency relationships also increases, thus creating a greater need for owners to monitor the actions of managers through independent auditing (Palmrose 1984).

V. CONCLUSIONS

Recent audit failures and accounting scandals in the capital markets of China and the U.S. have resulted in increasing concern over corporate governance and audit quality. Over the years, China has gradually relaxed governmental control over corporate affairs through ownership reform. That reform has brought about changes in firm ownership structure. This paper analyzes the effects of changes in the ownership structure of listed Chinese companies on their voluntary hiring of quality auditors. We hypothesize that a decrease of state shares and a corresponding increase of institutional and tradable A-shares will lead to a greater need for independent auditing. The empirical test results based on pooled, cross-sectional time series data are supportive of the hypothesized association between changes in ownership structure and changes in audit quality, except that there is little evidence of a positive association between audit quality and the proportion of shares held by individual A-shareholders. These results suggest the importance of large institutional shareholders in corporate governance and in the development of financial markets that foster independent auditing.

While previous research focuses on examining the relationship between managerial ownership and agency costs, we investigate the identity of the owners and relate the ownership structure to mandatory external audits in the context of a concentrated ownership in a transitional economy. Our results provide evidence of the active monitoring role of institutional investors (Pound 1988; Shleifer and Vishny 1986) and have important implications for policy makers in China. China should diversify its state ownership and introduce other forms of large external shareholders, including institutional investors, to improve the efficiency of China's stock markets, the effectiveness of corporate governance, and the credibility of accounting information. From the accounting perspective, the study suggests that in the absence of the institutional features typically found in free-market economies that provide incentives for managers to supply credible accounting information via quality audits, the introduction of large institutional shareholders can be a good alternative for transition. Our results also illustrate the need for policymakers in other transitional economies to understand how ownership reforms provide incentives for managers to supply

credible accounting information via independent auditing before prescribing a comprehensive set of rules and regulations for corporate reporting.

Footnote

1 For example, the largest shareholder of Fangxiang Guangdian Ltd. (Stock No. 000757) was Neijiang State Assets Management Bureau, which held 50 percent of the firm's total shares outstanding at the end of 2001. The firm's board of directors was then composed of five members representing the state interest and two members acting for institutional investors. When the firm sold all of its state shares to institutional investors in July 2002, the board of directors was completely dominated by institutional representatives.

2 We follow the traditional approach to measure auditor size based on the book value of the clientele's assets; as state shares cannot be traded, no data on the market value of shares held by government agencies are available. Furthermore, without taking the natural logarithm, the mean ratio, standard deviation, variance, and skewness of the dependent variable are 2.159, 3.270, 10.692, and 4.038, respectively. The results of the Kolmogorov-Smirnov test suggest that the null hypothesis that the data follow a normal distribution be rejected at the 1 percent level. After the log transformation, the mean, standard deviation, variance and skewness are 0.081, 1.217, 1.482, and -0.270, respectively. The results of normality tests (Shapiro Wilk and Kolmogorov-Smirnov) suggest that the data are from a lognormal distribution. In addition, the transformation also corrects for heteroscedasticity caused by differences in raw values.

3 DeFond (1992) and Francis and Wilson (1988) both control for new stock issues that may involve marketing the firms' new issues to outsiders through auditor change. In our sample, 98 percent of firms had no new issues in the year of auditor change. As new issues are not systematically related to the dependent variable, leaving them out will not confound the test results. Similarly, to examine the possible effect of audit fees on auditor switching in China, we compare the audit fees of 85 switching companies that voluntarily disclosed their audit fees for 2000 and 2001. We find that these companies paid comparatively higher audit fees after their auditor switches by an average of RMB83.800 (approximately U.S.\$10,000) per engagement. We obtain similar results when comparing the pre- and post-switch audit fees of 56 companies that disclosed audit fees for both 2001 and 2002. Therefore, audit fees do not appear to be a factor for our sample firms to change auditors (Chan et al. 2006).

4 The significantly negative correlation between ΔState and $\Delta\text{Institutions}$ suggests, perhaps not surprisingly, that the percentage increase in institutional shares was directly attributable to the decrease in the proportion of state shares. Except for the correlation between ΔState and $\Delta\text{Institutions}$, other correlations among the independent variables are below 0.23.

5 Over the sample period, there were 7, 9, 1, and 113 clients switching from a Non-Big 4 auditor to a Big 4 auditor, from a Big 4 auditor to a Non-Big 4 auditor, from a Big 4 auditor to another Big 4 auditor, and from a Non-Big 4 auditor to another Non-Big 4 auditor, respectively. Insufficient switches to Big 4 auditors prevent us from running the affiliation model based on this classification of auditors.

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