OWNERSHIP STRUCTURES AND RISK OF FINANCIAL MISREPORTING: EVIDENCE FROM CHINA

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Abstract

This study examines the association between the role of ownership structures and the risk of misreporting (earnings management and fraud) using a sample of 2,170 firm-years listed on the Shanghai A stock market between the years of 2004 and 2006. We used three different ownership structures (i.e., institutional, state and tradable ownership) and two earnings management methods (i.e., accruals-based and real earnings management) to investigate whether firms with various ownership structures will choose earnings management methods that damages the actual values the least, lowers earnings management and whether this lowers the risk of financial misreporting fraud. The major findings are as follows. First, we find that institutional ownership is negatively associated with earning management and lowers the risk of financial misreporting. Institutional ownership can prevent listed companies from real activities earnings management, and it negatively affects accruals-based earnings management in low state share firms but not in high state share firms. Second, we find that state ownership is positively associated with earnings management but lowers the risk of financial misreporting. Third, tradable shares are negatively but not significantly related to accruals-based earnings management but increase the risk of financial misreporting. According to our findings, state ownership has great impact on listed companies; it also impedes the active role of other shareholders in invested companies. This study supports calls for restructuring and strengthening the role of governance by institutional shareholders, reinforcing and transforming the function of state-owned asset supervision and administration commission of the state council (SASAC, an agent organisation of state shares) from inefficient state investors to efficient institutional investors***.

Keywords: Institutional Ownership, State Ownership, Tradable Ownership, Earnings Management, Financial Misreporting

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1 Introduction

This paper is to examine the impact of ownership structures on Chinese firms' earnings management behaviour and risk of financial misreporting. Ownership structures in China are different from "westerns: firms because a significant portion of Chinese firms are majority owned by the government. Because of this unique ownership structure, Chinese firms face different agency problems form firms outside the country. This unique agency relationship arises from conflicting incentives and goals between state ownership, institutional ownership, and firm management. The unique ownership structure in China has an impact on the factors that influence incentive preferences in earnings management (Wang 2006, Hao 1999, Ren 2004). Zhang and Zhang (2003) examined the differences in firm performance due to the quality of corporate governance and the future direction to reinforce the private sector. The CFA institute (2007) stated that while many Chinese businesses are becoming very influential multinational corporations, there are still a percentage of private entrepreneurs operating in China under inefficient checks and balances and a lack of transparent financial reporting. Chen et al (2008) argued that earnings management in China is not simply a management choice, but involves collusive manipulation by local governments against the central government.

This study examines how the various ownership structures impacts differential earnings management and examined whether these ownership plays a role in the context of fraudulent activity in China. We examine whether certain ownership structure (i.e. institutional, state and tradable ownerships) that previously been shown to have an association with another form of earnings management (i.e. real

earnings management). Unlike most of prior study, that has examined the use of discretional accruals to manage earnings, we added to study the real earnings management in China. This paper is to investigate the institutional, state, tradable ownership behaviour contributing to the myopic investment problems in China, where the equity ownership of listed companies is heavily concentrated of large state-owned shareholders. The ownership arrangements can influence the incentives of earnings management significantly and will also influence the specific accruals chosen from managing earnings. In recent years in China, increased interest has developed in the role of institutional investors[1] in the financial monitoring and reporting process. The Chinese government encourages sophisticated institutions to invest in Chinese listed companies through a series of policies. State ownership has always been the largest problem of listed companies and has troubled the Chinese government because as the largest owner, state ownership cannot absolutely supervise the listed companies. Wei and Gang (2008) pointed that the state is the absolute controller of most listed companies and the unique agency-principle relationship existed. The state owned companies is the government and the stated-owned assets management firms and listed companies. The listed companies are under the control of the agents, the state-owned assets management firms. The state-owned assets do not hold the absolute ownership of these assets, consequently they cannot effectively supervise and motivate directors and managers of listed companies.

A considerable body of existing literature (Chen et al. 2006; Sharma 2004) indicates that institutions are important monitoring agents and typically exercise an active role (consistent with their interest in protecting their significant stake) in the firm. The importance of the corporate governance role that institutional investors can play in monitoring company management has been stressed in the academic literature (Solomon, 2007). Rajgopan and Venkatachaka (1997) present evidence consistent with greater institutional ownership reducing the incidence of a lower-cost form of earnings management, Diamond (1984) demonstrated that institutional investors can solve agency problems because of their ability to take advantage of economic scale and diversification. Empirical studies have traditionally used institutional ownership as a proxy for sophisticated investors that would not be 'functionally fixated' on earnings (El-Gazzar, 1998; Koh, 2003). Shleifer and Vishny (1997) compare and contrast the effectiveness of institutional shareholders in monitoring and influencing corporate managers across national boundaries. Noronha et al. (2008) pointed out the main reasons for managers to exercise earning management. One reason is the ownership structure of the company. The ownership arrangement can significantly influence the incentives of earnings management and will thus also influence the choice of earnings management. Prior research shows that institutional shareholders serve a monitoring role in constraining firm's opportunities earnings management behaviour, but because of state-ownership's significant influence on the firm, institutional shareholders may not be able to perform their monitoring roles and its impact on firms' earnings management behaviour.

In contrast to other western markets, the shares owned by state legal entities cannot be freely traded in stock markets for more than 15 years. The conflict of interest between tradable shares and non-tradable shares is becoming serious. Under the unique Chinese ownership structures (that is, the state holding of majority shares and the existence of non-tradable shares), it is an empirical issue of whether institutional investors play active roles in the accounting quality of listed firms in Chinese stock markets because of the high government involvement in the listed companies. A recent paper (Koh 2003, Wang 2006, Chung et al. 2002, Mitra and Cready 2005) on earnings management overlooks the impact of institutional investors, who are the dominant players in the western equity market. Prior studies have found that earnings manipulation can be prevented by the monitoring of institutional investors (Mitra and Cready, 2005). Chen et al (2008) suggest that the greater proportion of state ownership can be used listed firms to manage earnings. There is no published Chinese evidence on the linkage between institutional ownership and uniquely Chinese ownership structures, earnings management and fraud. Chen et al. (2006) examined the effect of ownership structure and corporate governance on corporate financial fraud and found that boardroom characteristics are important determinants of corporate fraud, while the types of owners are less relevant. Firth et al (2007) examined the effect of ownership structure on earnings informativeness in the emerging Chinese economy.

This study examines how various ownership structures impact differential earnings management levels in China, where state shareholders heavily influence management decisions. The results of this study follow. First, we found that institutional ownership lowers earnings management and lowers the risk of fraud. We include banks, insurance

[1] We include bank, insurance and securities companies who awards qualified institutional investors licence, including domestic institutional investors and foreign sectors. Different with western companies, state shares conducted by state-owned asset supervision and administration commission of the state council (SASAC, an agent organisation of state shares) are not classified in institutional investors, because the institution of SASAC is to managing the ownership of states, even though they are criticize the process. In this study, we defined the ownership of state are the ownership held by SASAC.

companies and securities as institutional ownership; they represent quite a small proportion of the whole sample. There is a limitation in the monitoring role played by institutional ownership in the capital market. When we divide the companies into those with high state shares and low state shares, institutional ownership is highly associated with accruals-based earnings management in companies with low state ownership but not in the high state ownership group. Second, we found that state ownership raises earnings management and, contrary to our expectations, lowers the risk of financial misreporting. The state ownership cannot effectively supervise and motivate directors and manage the listed companies. As an organisational branch of the government, the China Securities Regulatory Commission (CSRC) finds it difficult to control and penalise the state owned enterprises, as this would prevent growth in the capital market. Chen et al (2008) stated that government assisted earnings management by joint effort of government and firm management. Third, we found that tradable ownership lowers earnings management and increases the risk of fraud. Tradable ownership plays a better monitoring role than non-tradable ownership, which then able to enhance the transparency of the capital market in China.

The findings contribute to the literature in the relation between a firm's ownership and the behaviour of earnings management, and the likelihood of fraud. We extend this prior study by examining the effects of various ownership structures on differential earnings management. Our study contributes to that literature first by analyzes the effect of Chinese unique ownership structures (institutional, state and tradable) on differential earnings management, while most prior studies have examined the effect if corporate ownership structure on accruals-based earnings management through discretionary accruals. Our findings support some insights into the issue by using real earnings management instead of accruals-based earnings management. Institutional investors discourage myopic investment behaviour because they are sophisticated investors who typically serve a monitoring role in reducing pressures for myopic behaviour, whereas state investors encourage myopic investment behaviour to not only opportunistically but for the efficient of firms performance. The state investors unable to substantially played monitoring role, and entrust the managing of ownership to SASAC. The way to improve this inefficient monitoring by SASAC to provide the incentives, by offer the bonus plans to the person in charge of SASAC to compensate according to the firm's performance. Prior research has examined the role of institutional investors in corporate governance by searching for evidence of monitoring affecting stock prices, firm profitability, and earnings management. We show that institutional ownership plays an important role in the quality of corporate internal control, especially in the group of low state share Chinese listed companies. That is, institutional owners are better monitors of management than individual investors and low equity of state shares. Second, we examined the relationship between the ownership structure and the likelihood of fraud.

The remainder of the paper is organised as follows. Section 2 describes the institutional setting in China. Section 3 reviews the literature and develops the hypotheses, and Section 4 presents the empirical models. Section 5 reports our findings on the effects of ownership structures on earnings management and fraud. Finally, Section 6 draws our conclusions.

2 Institutional Settings

2.1 Ownership Structure in China

Ownership restriction and market segmentation are two distinct differences between Chinese and Western stock markets. An ownership restriction applies to the government's shares of stated-owned companies[2], which are restricted with regards to the transfer of their ownership. These shares are called non-tradable shares, in contrast to tradable shares that can be purchased and sold by individual investors. The ownership restriction has effectively prevented state-owned enterprises from becoming totally public because more than 50% of their shares are non-tradable. Such restrictions have also prevented investors who own tradable shares in these enterprises from dismissing incompetent management without governmental approval.

The shares issued by Chinese firms can be classified according to the residency of their owners, as either A-shares, B-shares, or both. A-shares are denominated in Chinese currency and can be owned and traded by Chinese citizens. B-shares are denominated in U.S dollars, and are tradable by both foreign and domestic investors. Both types of shares are traded with the same ownership as investors in the Chinese mainland stock market (Tondkar et al. 2003). We examined institutional, tradable and state ownership[3], and their associations with earnings

[2] One of the unique features of Chinese listed companies is that approximately two-thirds of China's listed companies are SOEs (stated owned enterprise). SOEs must issue shares to the government when going public and the state must remain the largest shareholder. It is possible that the government has more comprehensive goals than the simple maximization of shareholder value. (Cheung et al, 2008)

[3] In China, institutional investors refer to organisations that have free access to the stock market and invest funds in it subject to Chinese security law and regulations. They include security firms, insurance firms, retirement and pension funds and qualified foreign institutional investors. State-owned shares refer to the shares owned and controlled by the state.

management and fraud.

2.2 Corporate Fraud in China

The regulation of information disclosure of listed companies in China is part of a set of related rules in securities law, corporate law, securities issuance and trade or disclosure. These regulations are under the jurisdiction of the China Securities Regulatory Commission (CSRC), the Shanghai / Shenzhen stock exchange, and the Chinese Institute of Certificate Public Accountants (CICPA). The major enforcement power is exercised by the China Securities Regulatory Commission, and preliminary monitoring is conducted by the Shanghai (Shenzhen) stock exchange.

The two stock exchanges in mainland China were established in Shanghai and Shenzhen in 1990 and 1991 as part of a major initiative of economic reform. Due to the rapid development of China's capital markets, it was necessary to establish a regulatory agency that would administer market operations and protect investors' interests. The CSRC was established in 1992 for this purpose. In 1999, the Chinese Securities Law recognised the CSRC as the sole regulatory agency responsible for regulating securities instruments and markets in China. We defined fraud as listed fraudulent activity discovered and penalised by the China Securities Regulatory Commission (CSRC).

The discovery of discrepancies, such as irregular stock buying, earnings manipulation, fictitious assets, unlawful alteration of the use of funds, disclosure delay, false statements, irregular investment, significant miss, leads to the occupation of the assets of the listed company, which is then subject to public announcement or administrative penalty.

3 Literature Review and Hypotheses Development

The theoretical and empirical studies suggest that institutional investors, compared to small individual investors, possess greater expertise and can play an important role in monitoring the actions of management (Shleifer and Vishny, 1997; Pound, 1988; Almazan et al., 2005). Beasley et al. (2000) conducted a descriptive study of fraud and corporate governance mechanisms by industry. They showed that the nature of fraud differed by industry and, in small companies, fraudulent firms tended not to have an audit committee. Abbott et al. (2000) showed that the effectiveness of the audit committee in detecting fraud is a function of the presence of outside members in the audit committee and the frequency of audit committee meetings. They found no significant relationships between the characteristics of the board of directors and fraud. Seamer and Psaros (2000) found that fraudulent firms have a statistically significantly greater proportion of internal directors and a lower proportion of independent directors. Sharma (2004) provided evidence that as the proportion of independent directors and the proportion of independent institutional ownership increase, the likelihood of fraud decreases. Chen et al. (2006) examined better corporate governance and showed that as the proportion of institutional ownership increases, the likelihood of fraud decreases.

3.1 Institutional ownership and risk of financial misreporting

Chung et al. (2002) documented that firms whose aggregate institutional ownership is above the cross-sectional median are deterred from using discretionary accruals to manipulate earnings. Mitra and Cready (2005) found that institutional ownership is negatively related to managerial flexibility in the accrual process. These studies provide supporting evidence that institutional investors effectively monitor the financial reporting of firm managers and thus improve the earnings quality of those firms. Chen et al. (2006) examined better corporate governance and showed that as the proportion of institutional ownership increases, the likelihood of fraud decreases. The sophistication and large shareholdings of institutional investors remove incentives for myopic investment behaviour by providing a higher degree of monitoring of managerial behaviour (Bushee, 1998).

Institutional shareholders have incentives to protect their investment and thus reduce agency problems by closely monitoring the actions of management (Shleifer and Vishny, 1986; Gillan, 2000). Beasley (1996) and Abbott et al. (2000) observe insignificant institutional shareholder effects on the likelihood of fraud in the U.S. Sharma (2004) showed that as the percentage of institutional ownership increases, the likelihood of fraud decreases. As explained earlier, the Chinese context appears to have a distinct institutional governance mechanism. Consequently, we expect to observe stronger monitoring by institutional owners than has been found in the U.S. or in Australia.

Chen et al. (2007) provided evidence that independent long-term institutions with large ownership shares tend to oversee managers actively in their merger and acquisition decisions. Gaspel et al. (2005) suggested that short-term institutional investors provide weak monitoring and thus allow managers to pursue value-reducing mergers and acquisitions. The ability of managers to manage reported earnings opportunistically is constrained by the effectiveness of external monitoring by stakeholders such as institutional investors (Monks and Minnow, 1995; Chung et al., 2002). Under the

Tradable shares are defined as the percentage of shares freely traded in stock market.

active monitoring hypothesis, it is believed that due to the magnitude of wealth invested, institutions are likely to manage their investment more actively. Institutions have greater incentives to collect information, monitor management actions, and urge less earnings management. We therefore formulate the following hypotheses:

H1-1: There is a negative association between the proportion of institutional ownership and risk of financial misreporting.

3.2 State ownership and risk of financial misreporting

The unique ownership structures in China lead to the strong-weak control phenomenon in corporate governance. Hao (1999) examined that the non-tradable characteristic of state-owned firms is the main reason for their low quality of earnings. Most Chinese listed companies are SOEs (stated owned enterprises). SOEs must issue shares to the government when going public and the state must remain the largest shareholder. However, because state-owned shares cannot directly manage companies, the Chinese state authorises the state-owned asset supervision and administration commission of the state council (SASAC) to serve in the role of shareholder, so there exists an agency problem between the state shares and SASAC. Because the leaders of SASAC have little incentive to monitor the invested companies, monitoring from state shareholders is limited. The Chinese government has found in practice that it is difficult for state owned asset management firms to maintain and increase the value of state owned assets because they do not hold the absolute ownership of the assets in state ownership. Chen et al (2008) stated that most of Chinese listed firms are selected and reorganised by local governments, so that earnings management is not simply a managerial behaviour, but a joint effort of local government and firm managers.

Nohorna et al. (2008) stated that the fact that state-owned companies have multi-level principal-agent relationships in the administration of state-owned companies provides many chances for misconduct. The top management consists of the government officials, which leads to a strong tendency for earnings management. As a result, state ownership cannot effectively supervise and motivate directors and managers in listed companies. Thus, our second hypothesis, stated in an alternative firm, is as follows:

H2-1: There is a positive association between the proportion of state ownership and risk of financial misreporting.

3.3 Tradable Ownership, Earnings management and Fraud

Another unique ownership structure in China is tradable ownership. There is a great agency problem and conflict of interests between tradable and non-tradable ownership. Tradable shares input relatively large amounts of capital and divide lower returns from listed companies because of the differentiation of price between tradable and non-tradable shares. Owners of tradable shares are likely to actively manage their investment, have incentives to protect their investment and thus reduce the agency problem by closely monitoring the actions of management. But their monitoring roles are limited under non-tradable controlled companies. The existence of non-tradable shares has been regarded as the biggest impediment to fairness between shareholders and the development of China's equity market, and troubles the government. So Chinese government has gradually transformed non-tradable shares to tradable shares through the split share reform from the year 2006. Accordingly, we hypothesise the following:

H3-1: There is a negative association between the proportion of tradable ownership and risk of financial misreporting.

4 Research Design and Model Specification

4.1 Sample Selection

For the purposes of this study, we selected those companies listed in the Shanghai A Share Stock Market between 2004 and 2006, satisfying the selection criteria described below.

All December fiscal year-end manufacturing firms traded on the Shanghai A Share Stock Market from 2004 to 2006 were the starting point for our sample (2,456 firm-year observations) which was reduced by deleting firms whose financial information and ownership data were not available from the GTA-CSMAR database (286), ending up with 2,170 firm-year observations. We examined all published CSRC enforcement actions, including all corporate fraud, which occurred in 69 companies.

Panel A of Table 1 presents the relevant 2,170 firms in the Shanghai A Share Stock Market for the period between 2004 and 2006. Panel B of Table 1 summarises the sample selection and the industry distribution of fraudulent firms in our sample. Although fraud is present in all sectors of the economy, it is not uniformly distributed within and across industries. The agricultural industry is the most frequently detected as fraudulent, in contrast to the extractive industry, which had no detected fraud. The industries with the next highest frequencies of detected fraud were the food and chemical industries.

Table 1. Sample Description

Panel A: Summary of sample selection criteria				
	2004	**2005**	**2006**	**Total**
# of December fiscal year end firms traded in Shanghai A Share Stock Market	820	813	823	2,456
# of firms cannot access data from GTA-CSMAR database	146	89	51	286
# of Firms	674	724	772	2,170
(# of firms detected as fraud)	(39)	(23)	(7)	(69)
Panel B: Distribution of Observations by Industry				
Industry	**# of observations**	**# of fraud**	**fraud percentage**	
agriculture	51	7	13.73%	
chemicals	165	8	4.85%	
computers	196	7	3.57%	
durable manufacturers	581	13	2.24%	
extractive	29	-	0.00%	
food	98	6	6.12%	
holding company	121	5	4.13%	
mining and construction	72	2	2.78%	
pharmaceuticals	143	6	4.20%	
retail	135	3	2.22%	
services	178	1	0.56%	
textile/printing/publishing	178	2	1.12%	
transportation	126	5	3.97%	
utilities	97	4	4.12%	
Total	2170	69	3.18%	

Table 2 displays enforcement actions by types of violations in our sample. 69 fraud firms were detected in 105 fraud cases, meaning that some fraud firms violated more than one law or regulation. We discover from Table 2 that disclosure delay, illegal share buybacks and changes of usefulness of capital frequently happen in the fraud firms.

Table 2. Enforcement Actions by Type of violation

Types of Fraud	Number of cases detected as fraud
Illegal share buybacks	21
Reporting Earnings manipulation	9
Changes in purpose of capital	19
Postponement / Delay in disclosure	33
Unfaithful disclosure	4
Violations of fund provisions	1
Major failure to disclose information	12
Embezzlement by major shareholder	6
Total	105

Source: data from GTA-CSMAR database

4.2 Empirical Model

4.2.1 Measures of Ownership structures

Consistent with Chen (2005), the following organisations are classified as institutional investors: banks, security firms and insurance companies included in the largest ten stockholders. Institutional ownership (IST) is a proxy for the total number of shares held by institutional investors divided by the total number of shares outstanding. State ownership (STATE) is measured by the proportion of state owned shares in total number of shares outstanding, and tradable shares (TRADABLE) is measured by the percentage of shares freely traded in the stock market out of the total number of shares outstanding.

4.2.2 Measures of Earnings Management and Fraud

We examine the earnings management in the following two ways: accruals-based earnings management (DA) and real activity based earnings

management (RAM).

Accruals-based Earnings Management. Discretionary accrual is an indicator of accruals-based earnings management. The regression model below, the Modified Jones Model (Dechow et al., 1995) is estimated for each industry and fiscal year combination:

$$TA_{it}/A_{it-1} = \alpha\,(1/A_{it-1}) + \beta\,\{(\Delta REV_{it} - \Delta REC_{it})/Ai_{t-1}\} + \gamma\,(PPE_{it}/A_{it-1}) + \varepsilon_{it}, \quad (1)$$

where TA_{it} – The total accrual of firm i at period t;
A_{it-1} – The total asset of firm i at period t-1;
ΔREV_{it} – Change of revenue of firm i at period t;
ΔREC_{it} – Change of receivables of firm i at period t;
PPE_{it} – The sum of property, plant and equipment of firm i for period t.

Discretionary accrual is estimated by subtracting the estimated value from the actual value.

Real Activities Earnings Management. Real activities earnings management extorts normal operating activities to overstate the magnitude of income, so it is more disadvantage than accruals-based earnings management. The behaviour of real activities earnings management sacrifices long-term firm value.

According to Roychowdhury (2006), real activities manipulations can be explained by three methods and has an impact on three variables: First, sales manipulation consists of accelerating the timing of sales and/or generating additional unsustainable sales through increased price discounts or more lenient credit terms. It can lead to greater net incomes and smaller cash flows from operating activities. Second, overproduction involves firms reporting lower cost of goods sales by producing more goods than necessary to meet demand. As long as the reduction in fixed costs per unit is not offset by any increase in marginal cost per unit, the total cost per unit declines. This implies that the reported cost of goods sales is lower, and the firm reports better operating margins. Third, reduction of discretionary expenditure is when the net income of the current year is increased because of small discretionary expenditures, whereas the long-term performance may be decreased because lower expenditures on R&D and advertising could reduce the firm's competitiveness.

We examined the following variables: Abnormal Cash Flow from Operations (ACFO), Abnormal Production Costs (AP), and Abnormal Discretionary Expenses (ADE), which are indicators of real activities earnings management, consistent with Roychowdhury (2006). The abnormal portion of each variable is calculated by subtracting the estimated value from the actual value. According to the logic of Roychowdhury (2006) if companies conduct real activities earnings management, it can appear in the form of lower ACFO, greater APC and lower ADE.

To calculate the estimated value, a model is needed. Equations (2) to (4) are used as estimation models, introduced by Roychowdhury (2006) based on the hypothesis that each variable is generated in proportion to any change in sales, as postulated by Dechow et al. (1998). Moreover, each model was estimated through cross-section analysis according to industry and year, to reflect the characteristics of each industry and year.

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \cdot \frac{1}{A_{t-1}} + \beta_1 \cdot \frac{S_t}{A_{t-1}} + \beta_2 \cdot \frac{\Delta S_t}{A_{t-1}} + \varepsilon_t, \quad (2)$$

$$\frac{PC_t}{A_{t-1}} = \alpha_0 + \alpha_1 \cdot \frac{1}{A_{t-1}} + \beta_1 \cdot \frac{S_t}{A_{t-1}} + \beta_2 \cdot \frac{\Delta S_t}{A_{t-1}} + \beta_3 \cdot \frac{\Delta S_{t-1}}{A_{t-1}} + \varepsilon_t, \quad (3)$$

$$\frac{DE_t}{A_{t-1}} = \alpha_0 + \alpha_1 \cdot \frac{1}{A_{t-1}} + \beta_1 \cdot \frac{S_{t-1}}{A_{t-1}} + \varepsilon_t, \quad (4)$$

where CFO – Cash flow from operations;
PROD – production cost, （the sum of cost of goods sold and change in inventory during fiscal year;
DE – discretionary expenses; （sum of the sales expense and administrative expense）[4];
A – Total assets;
S – Sales.

[4] In China, Interest is included in the financial cost; other costs are included in administrative costs and sales costs (expensing R&D costs and ad costs); therefore, we measured discretionary expenses by the sum of administrative costs and sales expenses, as did Zhang et al. (2008).

Fraud. Fraud is measured by a dummy variable with the value 1 for firms found to be fraudulent, and o for others.

4.2.3 Regression Model for Ownership Structure and Earnings Management

To compare and analyse the earnings management behaviours of companies in the bracket suspected of earnings management, we used the models below from equation (5)-(8). The dependent variable of equation (5), which represents earnings management through discretionary accruals, is the residual from the estimation model of equation (1) that cannot be explained. The dependent variable that represents the real earnings management of equation (6)-(8) is the residual that cannot be explained by the estimation model of equation (2)-(4).

$$DA = \beta_0 + \beta_1 INS + \beta_2 STATE + \beta_3 TRADABLE + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \sum\beta_m YEAR + \varepsilon, \quad (5)$$

$$ACFO = \beta_0 + \beta_1 INS + \beta_2 STATE + \beta_3 TRADABLE + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \sum\beta_m YEAR + \varepsilon, \quad (6)$$

$$APC = \beta_0 + \beta_1 INS + \beta_2 STATE + \beta_3 TRADABLE + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \sum\beta_m YEAR + \varepsilon, \quad (7)$$

$$ADE = \beta_0 + \beta_1 INS + \beta_2 STATE + \beta_3 TRADABLE + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \sum\beta_m YEAR + \varepsilon, \quad (8)$$

where DA – residual from the estimation model of equation (1);
ACFO – residual from the estimation model of equation (2);
APC – residual from the estimation model of equation (3);
ADE – residual from the estimation model of equation (4);
INS – the percentage of shares held by institutional shareholders at the beginning of the fiscal year;
STATE – the percentage of shares held by the state at the beginning of the fiscal year;
TRADABLE – the percentage of shares freely traded in the stock market at the beginning of the fiscal year;
SIZE – natural logarithm of total assets at the beginning of the fiscal year;
LEV – debt to total assets at the beginning of the fiscal year;
ROA – return on asset;
YEAR – year dummy.

4.2.4 Regression Model Ownership Structure and Corporate Fraud

We use a multivariate logistic model to test our hypothesis of fraud, similar to those of Beasley (1996), Agrawal and Chadha (2004), Uzun et al. (2004) and Chen et al. (2006).

The simple logistic regression model is as follows:

$$FRAUD = \beta_0 + \beta_1 INS + \beta_2 STATE + \beta_3 TRADABLE + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \\ + \beta_7 GROWTH + \sum\beta_m YEAR + \varepsilon, \quad (9)$$

where FRAUD – 1 for firms with fraud, 0 for others;
INS – the percentage of shares held by institutional investors at the beginning of the fiscal year;
STATE – the percentage of shares owned by the state at the beginning of the fiscal year;
TRADABLE – the percentage of shares freely traded in stock market at the beginning of the fiscal year;
SIZE – natural logarithm of total assets at the beginning of the fiscal year
LEV – debt to total asset at the begging of the fiscal year;
ROA – return on Asset;
GROWTH – $(NI_t - NI_t\text{-}1) / (NI_t\text{-}1)$;
YEAR – Year dummy.

4.2.5 Control Variables

To isolate the effects of the ownership structures on earnings management and fraud, we control for several factors that have been shown to influence earnings management and fraud in previous studies (Beasley 1996; Sharma 2004; Francis 2005; Chen 2006; Ang et al. 2001; Wang 2006; Abott 2000). We control several factors that influence the regression analysis on earnings management variables. First, Size, (i.e., the log of total assets) is used as a measure in a number of fraud and earnings quality studies (Beasley 1996; Sharma 2004; Francis 2005; Chen 2006). Large firms are politically more important in a socialist economy, and hence they may be more subject to government influence and monitoring. Of course, the government has a greater incentive to protect and assist large firms. Second, Lev, (i.e., the

ratio of debt to total liabilities, Ang et al. 2000; Carcello and Nagy 2004; Sharma 2004) is used as empirical evidence in many studies, and supports the effectiveness of debt as a control device. China's debt markets differ from their western counterparts in that banks' decision- making is heavily influenced by the state. Third, ROA (i.e., the ratio of profit to assets, Wang (2006) is also considered because companies that are performing well are more likely to report less earnings management and are less likely to be identified as fraudulent. Finally, Growth, (i.e., the average percentage changes in total income, Beasley 1996; Abbott 2000; Sharma 2004; Chen 2006) may increase the likelihood of fraud because of management incentives to mask downturns or because financial controls become inadequate as the firm size increases.

5 Empirical Results

5.1 Descriptive Statistical Analyses

The descriptive statistics for the earnings management (DA, ACFO, APC and ADE), fraud (FRAUD), ownership structures (IST, STATE, TRADABLE) and other control variables are provided in Table 3. On average, the sample consists of firms with a mean value of frauds 0.032, implies that 3.2% of the firms were punished by the CSRC for fraud. Institutional shares have a mean value of 3.21% and a median value of 0.35%, indicating that more than half the firms have no, or small proportions of institutional shares (the maximum value is 58.85%). State shares have a mean value of 34.501%, a median value of 38.646%, and a maximum value of 84.99%, indicating that there are high proportions of state shares in the listed firms.

Table 3. Descriptive statistics of study variables

	Mean	Median	Std D	Minimum	Maximum
DA	-0.000	0.003	0.094	-0.881	0.533
ACFO	0.002	0.000	0.093	-0.462	0.932
APC	-0.004	-0.001	0.145	-1.360	1.577
ADE	-0.002	-0.013	0.063	-0.252	0.498
FRAUD	0.032	0.000	0.176	0	1
INS	3.212	0.356	6.858	0	58.852
STATE	34.501	38.646	26.780	0	84.998
TRADABLE	36.573	36.364	36.138	2.390	100
SIZE	21.302	21.178	0.985	17.496	26.978
ROA	0.020	0.023	0.069	-0.983	0.457
LEV	0.489	0.497	0.179	0.023	0.991
GROWTH	-1.101	0.029	12.769	-449.88	38.666

DA = residual from the estimation model of equation (1); ACFO = residual from the estimation model of equation (2); APC= residual from the estimation model of equation (3); ADE = residual from the estimation model of equation (4); INS = the percentage of shares held by institutional shareholders at the beginning of the fiscal year; STATE = the percentage of shares held by the state at the beginning of the fiscal year; TRADABLE = the percentage of shares freely traded in the stock market at the beginning of the fiscal year; SIZE = natural logarithm of total assets at the beginning of the fiscal year; LEV = debt to total assets at the beginning of the fiscal year; ROA = return on asset; GROWTH: $(NI_t - NI_t\text{-}1) / (NI_t\text{-}1)$; YEAR = year dummy.

5.2 Correlation Analyses

Table 4 presents the results of the analysis of the Pearson correlations between the different variables used for the regression analyses. The results show a significant negative correlation between institutional shares and fraud, indicating that more institutional investors lead to a lower probability of accounting fraud. Institutional shares have a significant positive correlation with ACFO and ADE, and significant negative correlation with APC, meaning that institutional investors can prevent firm from real activities earnings management. However, institutional shares have no significant correlation with discretionary accruals. We also see a significant positive correlation between institutional shares and SIZE, ROA, and GROWTH, and a significant negative correlation between institutional shares and LEV. This means that institutional investors invest in firms with large sizes, high profitability/ growth ability and low debt ratios. State shares have a positive correlation with DA and a negative correlation with fraud; tradable shares are positively correlated to fraud.

Table 4. Correlation matrix of study variables

	DA	ACFO	APC	ADE	FRAUD	INS	STATE	TRADABLE	SIZE	ROA	LEV	GROWTH
DA	1	-0.711 (0.000)	0.113 (0.000)	-0.161 (0.000)	-0.074 (0.001)	-0.022 (0.306)	0.058 (0.007)	0.002 (0.938)	-0.046 (0.034)	0.150 (0.000)	-0.116 (0.000)	0.094 (0.000)
ACFO		1	-0.306 (0.000)	0.063 (0.004)	-0.044 (0.039)	0.178 (0.000)	0.014 (0.508)	-0.043 (0.045)	0.128 (0.000)	0.111 (0.000)	-0.073 (0.001)	0.039 (0.069)
APC			1	-0.372 (0.000)	0.026 (0.234)	-0.123 (0.000)	-0.018 (0.398)	0.050 (0.019)	-0.013 (0.552)	-0.158 (0.000)	0.138 (0.000)	-0.005 (0.802)
ADE				1	0.013 (0.540)	0.093 (0.000)	-0.035 (0.102)	-0.041 (0.055)	-0.087 (0.000)	0.033 (0.122)	-0.099 (0.000)	-0.064 (0.003)
FRAUD					1	-0.066 (0.002)	-0.103 (0.000)	0.066 (0.002)	-0.036 (0.097)	-0.132 (0.000)	0.078 (0.000)	-0.006 (0.771)
INS						1	0.022 (0.300)	-0.177 (0.000)	0.365 (0.000)	0.216 (0.000)	-0.045 (0.035)	0.039 (0.070)
STATE							1	-0.283 (0.000)	0.147 (0.000)	0.070 (0.001)	-0.040 (0.062)	0.012 (0.592)
TRADABLE								1	-0.127 (0.000)	-0.060 (0.005)	0.061 (0.004)	0.015 (0.485)
SIZE									1	0.210 (0.000)	0.137 (0.000)	0.046 (0.031)
ROA										1	-0.317 (0.000)	0.267 (0.000)
LEV											1	-0.071 (0.001)
GROWTH												1

Numbers in the parentheses are p-values. See TABLE 3 for variable definitions

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5.3 Multivariate Results

5.3.1 Multiple Regression Analyses: Earnings Management

Table 5 presents the regression results for ownership structures and accruals-based earnings management. Using discretionary accruals (DA) as a dependent variable, we find that the institutional investor variable (INS) shows the predicted sign, but not at significant levels. State ownership (STATE) shows a significant positive sign, consistent with our hypothesis, and tradable shares (TRADABLE) shows no significant sign.

Regression results for ownership structures and real activities earning management are provided in Table 6. Panel A, Panel B and Panel C display the results from the regression analysis using the ACFO (Abnormal Cash Flow from Operating Activities), APC (Abnormal Production Cost) and ADE (Abnormal Discretionary Expenses) as a dependent variable, respectively. If ownership entities play a positive role in the monitoring process, then the regression coefficient must have a positive, negative or positive sign, respectively, for the dependent variable ACFO, APC or ADE. The institutional investor variable (INS) shows significant predicted signs in all of the panels, whereas state ownership and tradable shares show no significant signs. The result indicates that institutional shares can prevent listed companies from engaging in real activities earnings management. Real earnings management has a more direct effect not only on the firm's operating performance but also on the state shareholders' own wealth than that of accruals-based earnings management. Intuitional investors can protect listed companies from managers' opportunistic behaviours, thus helping to realise better long-term development of the companies.

Although institutional shares play a positive role in decreasing listed companies' real activities manipulations, they cannot decrease discretionary accruals. We suppose that the reason for the non-significant sign of the INS regression coefficient on discretionary accrual was due to the high percentage of state control of the listed companies because the average proportions of state shares are more than 10 times those of institutional shares. It is difficult for institutional investors to play a monitoring role in these high state equity companies. Therefore, we have divided the samples into two groups: the low-state owned shares group and the high-state-owned shares group. We predicted that institutional ownership and monitoring would play a stronger role in the low-state owned share group than in the high state-owned share group. Table 7 presents the regression results by sub-sample, separated into high and low stated-owned groups. We found in Table 7 that INT shows a significant negative correlation in the low state-owned group, whereas it is not significant in the high state-owned group, which implies that institutional investors find it difficult to play a role as a monitoring mechanism in high state-owned companies in the Chinese stock market. The results mean that the role of institutional shareholders as a monitoring mechanism is restricted by the presence of state-owned non-tradable shares. This could restrict the investors' involvement in their investments, causing a disadvantage to the listed companies and to the capital market development. This study supports calls for restructuring in state-owned corporations, and the active and positive function of state-owned asset supervision and administration commission of the state council (SASAC) on state owned enterprises (SOEs).

Table 5. Regression Results for Ownership Structure and Accruals-Based Earnings Management

Dependent Var. = DA(Discretionary Accruals measured by modified Jones model)			
	Predicted Sign	Coefficient	t-statistics
Intercept	?	0.133	2.805***
INS	-	-0.000	-1.454
STATE	+	0.000	2.725***
TRADABLE	-	0.000	0.718
SIZE	-	-0.006	-2.673***
LEV	-	-0.032	-2.707***
ROA	?	0.200	6.354***
Year Dummy	Included		
Number	2,170		
Adjusted R^2	3.3%		

***, **, * significant at the1%, 5%, 10% level, respectively, using a two-tailed t-test. See TABLE 3 for variable definitions.

Table 6. Regression Results for ownership structure and Real Activities Earnings Management

Panel A **Dependent Var. = ACFO(Abnormal CFO)**				
	Predicted Sign	Coefficient	t-statistics	P-value
Intercept	?	-0.153	-3.288***	0.002
INS	+	0.002	6.105***	0.000
STATE	?	-0.000	-0.299	0.765
TRADABLE	+	-0.000	-0.026	0.980
SIZE	+	0.007	3.329***	0.001
LEV	-	-0.031	-2.623***	0.009
ROA	?	0.059	1.895*	0.058
Year Dummy	Included			
Number	2,170			
Adjusted R^2	4.3%			
Panel B **Dependent Var. = APC(Abnormal Production Cost)**				
	Predicted Sign	Coefficient	t-statistics	P-value
Intercept	?	-0.170	-2.327**	0.026
INS	-	-0.002	-4.437***	0.000
STATE	?	-0.000	-0.153	0.878
TRADABLE	-	0.000	1.121	0.262
SIZE	-	0.006	1.722*	0.085
LEV	+	0.074	3.989***	0.000
ROA	?	-0.240	-4.932***	0.000
Year Dummy	Included			
Number	2,170			
Adjusted R^2	4.1%			
Panel C **Dependent Var. = ADE(Abnormal Discretionary Expense)**				
	Predicted Sign	Coefficient	t-statistics	P-value
Intercept	?	0.189	5.900***	0.000
INS	+	0.001	5.398***	0.000
STATE	?	-0.000	-1.534	0.125
TRADABLE	+	-0.000	-1.800*	0.072
SIZE	+	-0.008	-5.268***	0.000
LEV	-	-0.025	-3.129***	0.002
ROA	?	0.009	0.435	0.664
Year Dummy	Included			
Number	2,170			
Adjusted R^2	3.0%			

***, **, * significant at the1%, 5%, 10% level, respectively, using a two-tailed t-test. See TABLE 3 for variable definitions.

Table 7. Regression Results for Institutional Investors and Accruals-Based Earnings Management By Sub samples

Dependent Var. = DA(Discretionary Accruals estimated from modified Jones model)				
	Group of High State Share		**Group of Low State Share**	
	Coefficient	t-statistics	Coefficient	t-statistics
Intercept	0.195	2.981***	0.066	0.877
INS	0.000	-0.815	-0.001	-1.704*
STATE	0.000	0.209	0.000	0.976
TRADABLE	0.000	-0.471	0.000	0.894
SIZE	-0.008	-2.667***	-0.003	-0.870
LEV	-0.050	-2.815***	-0.019	-1.137
ROA	0.176	3.940***	0.224	4.964***
Year Dummy	Included		Included	
Number	1,085		1,085	
Adjusted R^2	3.5%		2.7%	

***, **, * significant at the1%, 5%, 10% level, respectively, using a two-tailed t-test. See TABLE 3 for variable definitions.

Table 8. Logistic Regression Results for Ownership Structure and Fraud

Panel A: Logistics Regression Results for Full Sample **Dependent Var. = Fraud**			
	Predicted Sign	Coefficient	Wald χ^2
Intercept	?	-8.279	6.222**
INS	-	-0.212	6.719**
STATE	+	-0.024	18.054***
TRADABLE	-	0.015	3.318*
SIZE	-	0.133	0.695
LEV	+	1.989	6.984***
ROA	-	-3.764	9.114***
GROWTH	-	0.008	0.551
Year Dummy	Included		
Number	2170		
Likelihood ratio	513.229		
Panel B: Logistics Regression Results for Matching Sample **Dependent Var. = Fraud**			
	Predicted Sign	Coefficient	Wald χ^2
Intercept	?	-8.616	2.222
INS	-	-0.254	5.945**
STATE	+	-0.023	9.480***
TRADABLE	-	0.023	2.053
SIZE	-	0.421	2.339
LEV	+	-0.591	0.642
ROA	-	-3.743	3.638*
GROWTH	-	0.032	1.571
Year Dummy	Included		
Number	138		
Likelihood ratio	183.906		

***, **, * significant at the1%, 5%, 10% level, respectively, using a two-tailed t-test. See TABLE 3 for variable definitions.

5.3.2 Multiple Regression Analyses: Fraud

Table 8 presents the regression results for ownership structures and fraud. Panel A displays results for the full sample, whereas panel B refers to the results from the regression analysis for the matched samples. We selected the matched samples, which were only 3% of the full sample and could affect the empirical results.

The matched samples that we obtained were designed to correspond as closely as possible to the size and industries of the fraudulent companies. The multivariate logit results in Table 8 show that institutional shares （INS） is statistically significant, and has a negative relation with the likelihood of fraud. Thus, the results suggest that greater institutional shareholding reduces the likelihood of fraud. But state ownership (STATE) and tradable shares （TRADABLE） are significantly oppositely correlated, due to the unique ownership and differential stock market environment in China. The Chinese mainland stock market is heavily regulated by the government, and its development is subject to constant intervention by the government. Although China has been actively improving the regulatory framework of corporate governance, the market has been governed by an 'administrative governance' approach (Pistor and Xu, 2005). CRSC is an organisational part of government, so it is difficult for them to control and penalty the state-owned enterprises, as this would prevent growth in the capital market. Therefore, the reform (2006) of split shares structured from non-tradable shares and tradable shares was necessary to further develop corporate governance.

6 Conclusion

The emergence of stock markets in China over the last 20 years has attracted increased attention from investors. Even though the Chinese government consistently reformed the economics mechanisms, stock market systems, role of government and state owned enterprises, there still remain many problems. Agency problems between state ownership and individual ownership, government and state-owned asset supervision and administration commission of the state council (SASAC), board and managers are still severe. The unique Chinese ownership structure may interfere with improvements in firms' earnings management, and may also protect firms from fraud, but it is harmful to market fair competition, a disadvantage to the development of Chinese listed companies.

This study examined the relationship between ownership structure and earnings management and fraud. The findings indicate that as the proportion of institutional ownership in low state-owned firms increased, their level of earnings management decreased, and as the proportion of institutional ownership increased, real activities earnings manipulation and the likelihood of fraud decreased. This suggests that institutional ownership serve a monitoring and controlling function in the context of earnings management and fraud; however, high proportions of state ownership interfere with the monitoring role of institutional shares in earnings management. Empirical results also show that state ownership raises accruals-based earnings management and, contrary to our expectations, lowers the risk of fraud; tradable ownership lowers earnings management but raises the risk of fraud. Moreover, this study is significant for its comprehensive verification of various types of earnings management using proxy variables of real earnings management, such as abnormal cash flow from operations, abnormal discretionary expenses, abnormal production costs and accruals-based earnings management measurement (discretionary accruals). While real earnings management can change a company's actual value, we should not ignore the influence of corporate ownership structure on discretionary accruals. Therefore, this study suggests that the difference in corporate ownership structure makes a difference in actual value incentive, which leads a company to avoid earnings management methods that might damage its actual value.

This study implies that China needs to enhance independent institutional shareholders, and gradually decrease state control of listed companies. The existing roles and suggestions for enhancing governance by independent institutional shareholders are thus reinforced. Overall, the results of the study support calls for restructuring the role of governance and strengthen the role of institutional shareholders. Also reinforcing the reform of the split share structure between non-tradable shares and tradable shares, and state-owned asset supervision and administration commission of the state council (SASAC) must play key role on operating state owned asset post split share reforms. Through 3- year reforms, unlikely there are only a few actual trading is occurred in stated shares, even though most state shares can be freely traded in the stock market, so the function of SASAC must be expanded. For the purpose of keeping and increasing the value of state assets, SASAC must not only play an effective monitoring role on invested companies, but also have the ability to discover good companies in the stock market maintain and increase the value of state assets through stock trading. It is necessary to reinforce and transform the function of SASAC from an inefficient state investor to efficient institutional investors. This study inevitably has a number of limitations, which provide scope for future research in this area. The further study on the impact of reform on the split share structure to examine the effectiveness of different corporate governance structure and accounting quality.

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