

# Private vs State Ownership and Earnings Management: evidence from Chinese listed companies

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In this study, we investigate the role played by a firm's ownership structure in earnings management, with reference to the Chinese capital market. We measure the impacts of both ownership concentration and different ownership types, specifically the difference between the state as blockholder and private blockholders.

Analysing 273 privately-owned and state-owned Chinese companies listed in 2002, we establish a link between ownership structure and firms' earnings management practices. Our results show that the relationship between earnings management measures and ownership concentration exhibits a statistically significant non-linear, inverted U-shape pattern known as the "entrenchment versus alignment" effect. It is clear that privately-owned listed companies tend to maximise their accounting earnings more. However, the entrenchment effect of ownership concentration on earnings management is weaker in privately-owned listed firms than in state-owned listed firms. Our study also confirms that when a firm manages its earnings, it tends to do so through both operating-related accrual mechanisms and non-operating transactions with related parties.

**Keywords:** Earnings management, corporate governance, ownership, China

## Introduction

Academic literature has long been interested in earnings management by companies. Many surveys have been published on this topic (Barnea *et al.*, 1976; Imhoff, 1977; Ronen and Sadan, 1981, p. 474; Buckmaster, 1992, 1997; Healy and Wahlen, 1999; Dechow and Skinner, 2000; Fields *et al.*, 2001; Stolowy and Breton, 2004). With major scandals around the world shaking investors' faith in published company accounts, the scale of the problem has recently come under the spotlight. Top executives have been found to manage their earnings aggressively, through accounting sleight-of-hand and corporate policies designed to improve their companies' apparent performance.

But earnings management is always a means to an end, and uncovering the motives for earnings management is the key to

explaining the issue. In a developed capital market, with separation between ownership and management, and broad shareholder bases, earnings management is driven by the desire to prop up the company's stock price, as that price is often the key basis for managerial compensation, which may include stock options or other incentive plans. However, in some less developed capital markets these motives may no longer be relevant. In such markets, even listed companies have a highly-concentrated ownership structure and top managers are (or directly represent the interests of) controlling shareholders. The Chinese stock market is a good example of such a context: the floating shares often represent only a small proportion of listed firms' total shares, and until mid-2005, stock options were prohibited.

Nevertheless, earnings management is found to be prevalent in Chinese listed com-

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panies (Aharony *et al.*, 2000; Liu and Lu, 2002; Chen and Yuan, 2004; Jian and Wong, 2004). These studies provide strong evidence that Chinese listed companies boost their earnings dramatically in order to gain authorisation for an IPO, to issue new shares or to avoid being delisted. The implicit assumption is that meeting the regulatory requirements is the companies' incentive to manage their earnings.

The present study adds to the literature by addressing the same issue from a different perspective, namely, an agency perspective, i.e. looking at earnings management structure as one sign of the agency problem faced by modern corporations. We argue that the conflict of interests between controlling shareholders and minority shareholders is the root cause of earnings management in China. Since ownership structure is the primary determinant of agency cost, this study attempts to link companies' ownership structure with their earnings management behaviour. The current transitional nature of the Chinese economy provides a valuable opportunity for examining the behaviour of companies with different ownership types, i.e. with state blockholders or private blockholders. As stated by the Chinese government, the original purpose of the stock market was to help state-owned enterprises (SOEs) raise funds and improve their operating performance. For this historical reason, the majority of current listed Chinese companies originate from restructured SOEs and are still controlled by the State and/or other non-listed SOEs. Yet despite this background, a distinctive group of listed companies, accounting for slightly more than 10 per cent of all such firms, has emerged in the Chinese market: listed firms controlled by private owners. Selecting a sample consisting of both privately-owned listed companies and state-owned listed companies for the purpose of comparison, we are able to examine whether and how ownership concentration and ownership type affect firms' earnings management practices.

We put forward three hypotheses regarding the relationship between ownership structure and earnings management. The first relates to the negative effect of ownership concentration on the agency problem. Building on research by Morck *et al.* (1988), we argue that increased shareholding by controlling owners provides entrenchment against governance input by small shareholders. In situations where expropriation of controlling owners would result in lower actual earnings, they will manage earnings upward, to avoid any leakage of information on their misbehaviour.

Our second hypothesis is based on the theory that ownership concentration also reduces agency costs, by aligning the interests of controlling owners with those of the company. Gomes (2000) suggests that high ownership concentration is a signal of the controlling owner's commitment to build a reputation for not expropriating minority shareholders. Therefore, the alignment effect suggests that increasing ownership concentration beyond the minimum level for effective control will reduce opportunistic behaviour by controlling owners, and hence their incentive for managing earnings upward.

The third theory concerns the inefficiency of state ownership. Extant literature suggests that state ownership entails inferior governance quality compared to private ownership, due to a contracting ability problem (Alchian, 1977; Shleifer, 1998). Companies with private ownership will thus have a less serious agency problem, and hence a lower incentive for managing earnings upward. More specifically, we predict that ownership concentration will give rise to a weaker entrenchment effect in privately-owned companies than in state-owned companies.

We use two measures of earnings management for the purposes of this study. The first is the conventional "discretionary accruals" technique, which measures earnings management practices through non-cash operating transactions. The second is the "Non-operating income/sales" ratio, which captures the earnings management effects of non-operating transactions with related parties. The relationship between earnings management and ownership is then examined.

The empirical results are generally consistent with our predictions. The relationship between ownership concentration and earnings management measures exhibits an inverted U-shape pattern. Beginning from a low level, increased ownership concentration induces upward earnings management, but once a turning point is reached (at approximately 55 per cent), a higher level of ownership concentration is associated with downward earnings management. The left half of the curve reflects the entrenchment effect, while the right half reflects the alignment effect. The empirical evidence also shows that ownership concentration tends to reduce earnings management more in privately-owned companies than in state-owned companies, indicating the positive effect of private ownership on agency costs, and in turn, on earnings management.

This study contributes to the existing literature in two ways. First, to the best of our knowledge, this is the first study comparing

earnings management practices between Chinese privately-owned and state-owned listed firms. Second, this study reveals that the U-shape relationship between ownership concentration and performance (McConnell and Servaes, 1990; Himmelberg *et al.*, 1999; de Miguel *et al.*, 2005) also exists between ownership concentration and earnings management practices.

## Institutional context analysis and literature review

We will start with a brief history of the ownership characteristics of Chinese listed firms, and then review the literature on corporate governance and earnings management.

### *Ownership characteristics of Chinese listed firms*

The past 20-plus years have witnessed China's economic miracle: with average annual growth at around 9 per cent and GDP quadrupled, China has become the largest and fastest-growing emerging economy in the world. It is commonly accepted that this economic success is the result of China's economic reform, which is progressively turning the central-command economic system into a market economy. During this transition period, one of the most significant phenomena has been the relative decline of state-owned enterprises and the rise of the private sector.

The growing number of privately-owned firms listed on the Chinese stock market is both a reflection and a consequence of the whole private sector's development. The stock market was designed as a place to raise much-needed capital for state-owned enterprises (SOEs), and financing through the equity markets shows a tremendous bias in favour of SOEs over non-SOEs. The first privately-owned listed company appeared in 1992, but during the period 1992–1997, the number of privately-owned listed companies was negligible given the rapid increase of market capitalisation and the total number of listed companies. In 1997, less than 6 per cent of listed companies were privately-owned, despite the increasing importance of non-state-owned firms in the Chinese economy. However, 1998 saw the start of a boom in privately-owned listed companies. By the beginning of 2002, there were 197 privately-owned listed companies, 16 per cent of the total number of listed companies on the Chinese stock market.<sup>1</sup>

### *Corporate governance and earnings management literature*

Following Jensen and Meckling's seminal work (1976), the traditional agency approach to corporate governance attempts to address the conflicts of interest between shareholders and management. Shleifer and Vishny (1997) argue that one of the two most effective solutions to such an agency problem is concentrated ownership (the other being legal protection). However, recent developments in corporate governance theory have highlighted another form of conflict of interests – action being taken by the controlling shareholders for their own benefit, at the expense of minority shareholders. This has been called "tunneling" (Johnson *et al.*, 2000).

The majority of large corporations in the world's 27 wealthiest economies are not widely held (La Porta *et al.*, 1999a); on the contrary, most of these corporations are controlled by families or states. Claessens *et al.* (2000) provide further evidence that the shares of most companies (regardless of size) in the nine east Asian economies are typically in the hands of a small number of families. These findings strongly support the assertion by La Porta *et al.* that "the theory of corporate finance relevant for most countries should focus on the incentives and opportunities of controlling shareholders to both benefit and expropriate the minority shareholders" (1999a, p. 474).

Recent accounting research has begun to turn to corporate governance aspects to explain firms' accounting behaviours. For example, by using a sample of listed firms in Hong Kong, Ho and Wong (2001) examine the relationship between corporate governance structures and the extent of voluntary disclosure. Their results indicate that the existence of an audit committee is significantly and positively related to the extent of voluntary disclosure, while the percentage of family members on the board is negatively related to the extent of voluntary disclosure. In her study of 21 countries, Hung (2001) finds that shareholder protection improves the effectiveness of accrual accounting.

Earnings management is another accounting research field where corporate governance studies have a major contribution to make. Schipper (1989) defines earnings management as a "purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to say, merely facilitating the neutral operation of the process)".

Based on a US sample, Agrawal and Chadha (2002) show two corporate gover-

nance characteristics that reduce the probability of restatement. They are the incidence of independent directors with a background in accounting or finance on the board or audit committee, and the presence of the CFO on the audit committee. In their study of Belgian firms, Vander Bauwhede *et al.* (2003) indicate that listed firms engage less in income-decreasing earnings management than non-listed firms. Leuz *et al.* (2003) examine systematic differences in earnings management across 31 countries. They propose an explanation for the differences based on the notion that insiders, in an attempt to protect their private control benefits, use earnings management to conceal the corporate performance from outsiders. Earnings management is thus expected to decrease as investor protection increases, because strong protection limits insiders' ability to acquire private control benefits, reducing their incentives to mask firm performance. Warfield *et al.* (1995) examine the effect of managerial ownership on the informativeness of earnings, and in the process also examine its effect on discretionary accruals. They argue that higher managerial ownership reduces the agency cost of information asymmetry, and therefore reduces earnings management.

Liu and Lu (2002) examine whether earnings management in China's publicly traded companies is related to "tunneling" of corporate resources by controlling shareholders for their own benefit. Their empirical evidence shows that total accruals and industry median adjusted accruals are positively correlated with the largest shareholder's interest in a company, top executives' interests in the company, and whether the board of directors is chaired by the CEO, while being negatively related to international listing. However, we question the explanatory power of total accruals as a measure for accounting management, since it is biased not only by variations in investments in fixed assets but also by changes in working capital. Furthermore, we do not think the relationship between accruals and tunneling is fixed; it will depend on whether investors are seeking long-term or short-term benefit.

## Hypotheses

Before examining whether and how the ownership structure of Chinese listed firms influences earnings management, we predict ex ante the possible relationships between large shareholdings and earnings management, and between ownership type and earnings management. The testable hypotheses are as follows.

### *Ownership structure and agency cost*

One feature of Chinese listed companies is that ownership is highly concentrated. According to ownership data from 2003, the five largest shareholders on average account for 58.5 per cent<sup>2</sup> of the total equity, compared with 25.4 per cent in the United States and 33.1 per cent in Japan (Prowse, 1992). More strikingly, the largest shareholder holds more than 42 per cent<sup>3</sup> of total shares for an average Chinese listed company. This highly concentrated ownership determines the nature of the agency problem in Chinese corporations. When ownership is diffuse, as is typical in the US and the UK, the agency problem arises from the conflict of interests between outside shareholders and managers (Berle and Means, 1932; Jensen and Meckling, 1976). On the other hand, when ownership is concentrated in the hands of one owner that has effective control of the firm, as is the case in most countries around the world (La Porta *et al.*, 1998; Claessens *et al.*, 2000; Faccio and Lang, 2002), the nature of the agency problem turns into conflicts of interest between the controlling shareholders and the minority shareholders. But in both scenarios the essential effect is the same: insiders, through their control of the firm, pursue their private benefit at the cost of outsiders.

### *The entrenchment effect*

Stulz (1988) proposed a theoretical model of the entrenchment effect, which predicts a "roof-shaped" relationship between managerial ownership and firm value. In this model, as managerial ownership increases, the entrenched manager-owner will pursue his private interests at the expense of outside investors, thus lowering firm value. Empirically, Morck *et al.* (1988) and McConnell and Servaes (1990) find evidence supporting this prediction.

The entrenchment of large shareholders is similar to that of the manager. La Porta *et al.* (1999a) show that concentrated ownership is common in most parts of the world. In this context, the agency problem is between large and small shareholders. In principle, shareholders are entitled to a share of a firm's cash flow, in proportion to their investment in the firm. But when there are agency costs, minority shareholders face the risk of being deprived of this right due to expropriation by the controlling shareholders, who usually also gain effective control of the firm's management (La Porta *et al.*, 1999a). As argued by Shleifer and Vishny, "Large investors may represent their own interests, which need not co-

incide with the interests of other investors in the firm" (1997, p. 758). Entrenched controlling owners are less subject to stock market discipline and governance input by minority shareholders, and thus have substantial discretion in pursuing their own interest rather than the company's (Claessens *et al.*, 2002). The opportunistic activities of entrenched controlling owners will eventually harm the health of the company, but as the same owners also control the preparation of financial statements, which are the primary means of communicating corporate financial information, they will try to hide the company's real economic situation by increasing reported profit (Leuz *et al.*, 2003). This effect is even more accentuated in the Chinese IPO process (Aharony *et al.*, 2000). As a controlling shareholder, the parent or holding company can inject valuable assets into its listed subsidiary in order to boost earnings. Also, the parent company or other group members may absorb unprofitable units from the listed company prior to listing. In return, the holding company expects future payoffs by siphoning profits or cash back from the listed company (Jian and Wong, 2004). This entrenchment effect is also supported by some other empirical evidence (Aharony *et al.*, 2000; Wang *et al.*, 2001). Both these studies find that overall, public listings as a means of reforming SOEs have not worked wonders. Company performance from the first post-listing year onward is sharply lower than the levels in both the pre-listing years and the IPO years (Aharony *et al.*, 2000).

In short, the entrenchment effect predicts that ownership concentration will result in earnings maximisation.

### *The alignment effect*

Despite the entrenchment effect, ownership concentration mitigates the conflicts of interest in that increased cash flow rights will cost the controlling owners more when they divert cash flows from the company to their own pocket. Shleifer and Vishny point out that large shareholders "have both a general interest in profit maximisation, and enough control over the assets of the firm to have their interest respected" (1997, p. 754). As a result, the controlling owners' interests are better aligned with the firm's interests when ownership concentration is higher (Shleifer and Vishny, 1986). Furthermore, the alignment effect of increased ownership concentration is significant in countries with a less developed legal and institutional environment. La Porta *et al.* (1999b) argue that concentrated ownership in developing countries is endogenously formed, suggesting its positive effect. Highly concen-

trated ownership may also serve as a signal for reputation-building by controlling owners, because they know expropriation will cause minority shareholders to discount share prices and thereby reduce their wealth (Gomes, 2000). Since the alignment effect will reduce the controlling owner's incentive to expropriate the company for their private benefit, we believe it will accordingly encourage controlling owners to minimise accounting earnings, in order to protect the company's future, and therefore their own future.

The alignment effect also works for state-owned listed companies. One of the main characteristics of a listed SOE's ownership structure is usually the existence of a parent company (Liu and Lu, 2002). State-owned business groups often spin off selected profitable business units and turn them into a subsidiary company in preparation for a public offering, in order to meet IPO requirements and achieve a higher IPO price, and the state-owned business group becomes the parent company of the listed firm (Aharony *et al.*, 2000). The listed company is viewed by its parent as a platform for financing in the stock market and a cash cow for the whole group's internal capital market (Liu and Lu, 2002). Therefore, interests will be transferred from the listed SOEs to their parent companies, so even when a listed company is state-owned, a problem of expropriation by controlling shareholders remains. However, as the parent company's share percentage increases, its incentive to transfer interests declines, so the alignment effect also comes into play for state-owned listed companies.

### *Combining the entrenchment effect and the alignment effect*

While the alignment effect reduces the degree of upward earnings management, the entrenchment effect suggests that earnings maximisation rises with ownership concentration. Depiction of an unambiguous relationship between ownership concentration and earnings management is thus an empirical issue.

The extant literature has used various methods to examine the positive and negative effect of ownership structure on firm value. Morck *et al.* (1988) estimate piecewise regressions. McConnell and Servaes (1990) add a squared term of insider ownership and estimate the nonlinear regression. They both report an inverted U-shape pattern of the relationship between insider shareholding and firm value. Their explanation is that, at a lower level of insider ownership, the alignment

effect dominates the entrenchment effect, but beyond a certain point the entrenchment effect dominates the alignment effect. As a result, firm value first increases, and later declines, with ownership concentration. In their study on Dutch companies, Chirinko *et al.* (2004) find that ownership concentration has no discernible impact on firm performance, a finding which may reflect large shareholders' dual role in lowering the costs of managerial agency problems but raising the agency costs of expropriation. In their study linking the performance of Chinese listed firms to their ownership structure, Xu and Wang (1999) confirm the existence of this type of U-shape relationship among Chinese firms. They argue that

*when legal persons own a small stake in a company, they may try to exert their influence on or collude with the management for undertaking business operations or investments that will benefit themselves but harm the firm's value in the long run. When their equity holding in the firm increases, their goal coincides with that of outside shareholders, that is, to maximize the firm's value.* (1999, p. 91)

Tian (2002) also shows similar results: up to a certain threshold, corporate value decreases with increased government shareholding stakes. But when the government is a large shareholder, corporate value increases with increased government shareholding. Tian interprets this U-shape relationship as representative of the two hands of the government shareholder – grabbing with one, and helping with the other. The empirical evidence from Sun *et al.* (2002) again confirms the U-shape relationship: when a SOE begins selling a small portion of shares to the public, the firm's performance improves. Beyond a certain level, increased selling of government shares to the public is correlated with poorer firm performance.

Claessens *et al.* (2002) disentangle the alignment effect and entrenchment effect using a sample of East Asian companies in which controlling owners' voting rights are magnified through pyramid structures and cross-holdings. The alignment effect is measured by cash flow rights and the entrenchment effect is measured by the difference between voting rights and cash flow rights. Their empirical result is consistent with their theoretical argument.

In his case study on two Chinese listed firms, Kelon and TCL, Watanabe (2002) illustrated that state-owned listed companies are usually majority-owned by the holding company directly, and thus are indirectly controlled by the government.

We predict that the entrenchment effect of ownership structure on earnings management is initially stronger than the alignment effect. As ownership concentration rises, the alignment effect gradually grows until it finally dominates the entrenchment effect. The relationship between earnings management and ownership concentration will thus exhibit an inverted U-shape pattern. Our prediction is contrary to the position taken by Morck *et al.* (1988) and McConnell and Servaes (1990). The reason is that unlike managers, controlling owners, as the largest shareholder, are effectively already entrenched, even when their shareholding is relatively small. So the initial increase in their ownership can only entrench them further, until they reach a point where they gain total control of the firm. Beyond that point, subsequent ownership concentration will increase their cash flow rights, and the alignment effect dominates.

### ***The difference between private and state ownership***

The possibility of principal-agent conflict exists in both state-owned companies and privately-owned companies when they are publicly listed, since the separation of ownership and control is a common feature. However, it is more difficult to address the agency problem in state-owned companies than in privately-owned companies because there is an extra agency relationship in state-owned companies compared to privately-owned companies, as the controlling owners are themselves agents of the true owners: the state. In their study on listed firm performance in China, Hovey *et al.* (2003) find that legal persons' shareholdings are positively related to firm valuation, while state shareholdings are not. Furthermore, Wang (2002) affirms that Government intervention is the key reason for the inefficiency of state shareholdings from a political perspective.

The interests of these de facto controllers are very likely to be different from those of minority shareholders, and those of the state that they represent. When the owners gain control of the companies, they will pursue their own interests at the expense of both minority shareholders and the state. This means that even when ownership concentration solves the agency problem between the controlling owner and minority shareholders, another agency conflict problem remains in state-owned companies. In fact, with the helping hand of the government, for almost a decade the managers of Chinese listed SOEs were largely insulated against pressure from non-state minority shareholders, but enjoyed the

benefit of a large stream of cheap direct capital, i.e. they were highly entrenched (Zhang, 2004).

Since there is one more type of agency cost in state-owned enterprises, i.e. the agency cost between the state and the controlling owner, and this type of agency cost cannot be addressed simply by ownership concentration, we predict that the entrenchment effect of ownership concentration on earnings management is more serious in state-owned enterprises than in private enterprises.

## Data, sample, measures and proxies

This section presents our definition of a privately-owned listed company, the size and industry-matched state-owned listed companies, the database used and the sample chosen for this study. This is followed by discussion of certain measurement issues, including the ownership concentration measure, proxies for earnings management and control variables.

Our definition of a privately-owned listed company is as follows: if a listed company's largest shareholder is a private company or an individual, then this company is a privately-owned listed company.

Using this criterion, we find that at the beginning of 2001 there were 142 privately-owned companies in the Chinese stock market, including some that are famous names in China. For example, "Shimao Gufen" (Shanghai stock exchange code 600823) is owned by the Xu Rongmao family; "Tiantong Gufen" (Shanghai stock exchange code 600300) is owned by Pan Guangotng and Pan Jianqing (father and son).

Based on these privately-owned listed companies, we then identified a matched sample comprising 142 state-owned firms. There were two reasons for using the matched sample comparison method. First, privately-owned listed companies are smaller in size than the average state-owned listed company (the average sales of privately-owned and state-owned listed companies in 2001 amounted to RMB 570 million and RMB 1450 million respectively). Second, their industry distribution is also different. The three industries with the highest concentration of state-owned listed companies are heavy industry, chemicals and multi-segments, while most privately-owned listed companies belong to multi-segments, electronics and communication, and light industry. To control for the possible influence of firm size and industry distribution, we selected our matched state-owned listed companies using the following two criteria: it is in

the same industry as the privately-owned listed company; and its sales revenue is the closest to the privately-owned listed company. Some may argue that in China, SOEs face an enormous amount of pension liabilities in respect of "state" retirees, while private companies never have this lingering liability problem overshadowing them. This argument is true in general, but not for listed SOEs, because before their IPOs, listed firms were relieved of this burden by their unlisted parent companies (and sometimes even the local authorities) transferring the relevant obligations to other, unlisted, related firms.

We use the sample companies' largest shareholding of 2001 and earnings management measures for 2002. This time lag makes it easier to see clearly whether and how corporate governance mechanisms affect earnings management, hence avoiding the problem of reverse causality. The financial and ownership structure data for the sample firms were obtained from the GTA Company's Chinese stock market database. Any necessary adjustments for stock splits, rights issues and M&As are conducted by the database to make data comparable over time.

From the total 284 listed companies in the sample, four were dropped because of missing financial data and four others eliminated because they belong to industries comprising less than seven firms. Following DeFond and Jiambalvo (1994), we dropped industries with less than seven observations for the discretionary accruals computation. This left 276 firms used to calculate the discretionary accruals. A further three firms had no ownership data and were excluded from the regression analysis. The final sample for our study thus totalled 273 companies.

## Measures of ownership structure

As stated earlier, the first purpose of this study is to examine whether and how ownership concentration influences earnings management. Consistent with existing literature (Demsetz and Lehn, 1985; Prowse, 1992; Claessens and Djankov, 1999), we use "shareholding percentage of the largest shareholder" as a measure of the sample companies' ownership concentration. It is important to note that the distinction between controlling rights and cash flow rights is not an issue in this study, since the Chinese Company Law does not allow the use of preferential shares or shares with double voting rights.<sup>4</sup> Also, this study is only interested in the direct owners of the listed company, and the pyramid structure of ownership is therefore outside its scope. Nevertheless, as shown by Watanabe (2002),

the largest shareholder of these listed state-owned firms is often directly 100 per cent controlled by the government.

The second purpose of our study is to explore the difference between state blockholders and private blockholders. We create a dummy variable (1 = privately-owned listed firms, 0 = state-owned listed firms) to capture the type of ownership.

### *Proxies for earnings management*

Following standard accounting literature, we use discretionary accruals as one of our proxies for earnings management. We think that a large absolute value for discretionary accruals indicates active earnings management behaviour, while the direction shows the strategy adopted by the firm: maximisation or minimisation of earnings.

As Healy and Wahlen (1999) pointed out in their excellent survey on earnings management, total accruals can be divided into two components. One component is caused by the company's normal business activities, while the other is discretionary accruals, considered as abnormal. The normal portion of total accruals can be predicted by a cross-sectional regression model in which the changes in revenue from main operations, and in gross fixed assets from year  $t - 1$  to year  $t$  (scaled by total assets of the company in year  $t - 1$ ) are explanatory variables. As a result, the regression residual is discretionary accruals (Jones, 1991).

It is very important that this regression be conducted within each industry so that the influence of industry<sup>5</sup> on discretionary accruals can be controlled for (see, for example, Cohen *et al.*, 2003).

The relevance and suitability of using discretionary accruals as an earnings management measure in the Chinese context is often challenged in the literature (Jian and Wong, 2004; Srinidhi *et al.*, 2004). Two main arguments have been put forward by these authors.

First, Chinese accounting has been traditionally tax-oriented, i.e. the treatments used to be virtually the same for accounting and tax purposes. To ensure stable fiscal income, the Chinese authorities excluded almost all accounting choices deriving from accounting conservatism, such as provisions and reversals, choice of depreciation method and the useful life of fixed assets, etc. This system made it difficult for Chinese firms to adjust their earnings via non-cash accruals. However, the situation has totally changed over the last four or five years, and we believe that for the period concerned by our study (2002), using discretionary accruals for earnings manage-

ment is possible because of the recent full application of the conservatism principle in China. Since 1999, the Chinese capital markets watchdog has required listed firms to make provisions for various potential losses (Leung, 1999). This has brought the Chinese accounting language closer to international standards, while also offering Chinese firms the opportunity to manage their earnings via more conventional discretionary accruals.

Second, for certain cultural and historical reasons, related party transactions are one of the dominant characteristics of the Chinese capital market (Chen *et al.*, 2003; Chen and Yuan, 2004). Firms tend to take advantage of these practices to adjust their earnings, by classifying profits and losses as core or non-core items and using the non-core operating profit or loss as a means of earnings management. This measure is valid if the dominant method of earnings management is by related party transactions with an unlisted firm such as a parent SOE (Chen and Yuan, 2004). Jian and Wong (2004) argue that the main feature of the Chinese capital market is the domination of listed SOEs. "These group-controlled listed companies use related party transactions to manipulate earnings in order to meet government requirements for new equity offerings or avoidance from delisting." Jian and Wong (2004) therefore believe that the related party transaction is a better measure of earnings management than accruals. However, they admit that

*not all firms in China belong to groups. In regions where state enterprises are small in scale and poorly developed, such as those in less developed inland provinces, firms operate independently and report directly to a state assets management bureau. Another type of non-group-controlled firms that are burgeoning in coastal regions is privately-owned businesses established by entrepreneurs and township-village enterprises<sup>6</sup> under a collective. Some of them have gained the privilege of issuing shares in the stock markets and played an increasingly important role in the country's economy. These firms are more likely to operate more independently in the market.*

This is why we believe that discretionary accruals should be a relevant measure for earnings management in our study on Chinese privately-owned and other relatively small state-owned listed companies. Our study also introduces a second earnings management measure to capture the impact on earnings of certain non-market-based non-operating related party transactions, like the disposal of fixed assets. The proxy we chose is "Non-operating income/sales". This approach is



consistent with the study carried out by Bertrand *et al.* (2002). Examining Indian business groups, they find a significant amount of tunneling, much of it occurring via non-operating components of profit.

### Control variables

When examining the relationship between ownership structure and earnings management, it is necessary to control for other factors that may also influence earnings management.

First of all, we should consider the incentive to manage earnings to meet certain regulatory requirements. The extant literature on the subject suggests that Chinese listed companies manage their earnings for two main purposes.

The first is to enable the company to apply for permission for a rights issue. For a rights issue by a Chinese listed company, the most important requirement is that the company must have reported return on equity (ROE) of at least 6 per cent for three consecutive years. Companies wanting to undertake a rights issue are therefore likely to manage their earnings upward. We control for this effect by adding a dummy variable indicating whether the company is making this type of application in 2002.

The second purpose is to avoid being delisted. The regulatory authority, the CSRC, has also stipulated that if a listed company reports a net loss for three consecutive years it will be labelled as "ST", which stands for "special treatment". ST stocks are traded with a 5 per cent price fluctuation limit each day vs 10 per cent for normal stocks. If a ST firm cannot improve its performance over the next year, it will be labelled as "PT", which stands for "Particular Transfer". PT stocks are traded only on Fridays with a maximum 5 per cent upside limit to the last trading day's closing price, but no restriction on the downside. If the company cannot generate profit in the next two to three years, it will be delisted. It is thus likely that "ST" and "PT" companies will display a higher degree of earnings management. We use a dummy variable which indicates whether the company is labelled as "ST" or "PT" in regression.

Another factor we consider is that there are some privately-owned listed companies that are really privatised former state-owned listed companies, i.e. the previous state-owned listed companies have been taken over and restructured. It is possible that these companies have been subjected to the practice known as a *big bath*.<sup>7</sup> Therefore, we control for this effect by including a dummy indicating whether or not the company is privatised.

Our sample includes 85 private companies that were previously state-owned, 27 companies that applied for permission for a rights issue, and 12 ST or PT companies.

Finally, we introduce two control variables: total sales (in natural log form) and leverage (long-term debt over equity). These two variables are used to control for the influence of firm size and capital structure respectively on earnings management behaviour.

### Testing methodology

In this study, we speculate that ownership concentration affects a firm's earnings management behaviour, and that the way earnings are managed is very likely to be different for privately-owned and state-owned companies.

We therefore use cross-sectional multivariate regression to examine how ownership concentration and ownership type affect earnings management. We run the same regression twice using two different measures of earnings management: discretionary accruals and non-operating income/sales.

The regression equations are as follows.

$$\begin{aligned} \text{Earnings\_management} \\ = a_0 + a_1 \text{top1} + a_2 (\text{top1})^2 + a_3 \text{private} \\ + a_4 \text{private\_top1} + \varepsilon. \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Earnings\_management} \\ = a_0 + a_1 \text{top1} + a_2 (\text{top1})^2 + a_3 \text{private} \\ + a_4 \text{private\_top1} + a_5 \ln\_sales \\ + a_6 \text{leverage} + \varepsilon. \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Earnings\_management} \\ = a_0 + a_1 \text{top1} + a_2 (\text{top1})^2 + a_3 \text{private} \\ + a_4 \text{private\_top1} + a_5 \text{right\_issue} \\ + a_6 \text{pri} + a_7 \text{st\_pt} + a_7 \ln\_sales \\ + a_8 \text{leverage} + \varepsilon \end{aligned} \quad (3)$$

where *Top1* is the shareholding percentage of the largest shareholder; *Private* is a dummy variable equal to 1 if the company is privately-owned and 0 otherwise; *Private\_top1* is an interaction variable of *Private* and *Top1*; *Right\_Issue* is a dummy variable equal to 1 if the company applied to undertake a rights issue in 2002; *Pri* is a dummy variable equal to 1 if the company is privatised from a SOE and 0 otherwise; *st\_pt* is a dummy variable indicating whether the company is a ST or PT company; *Ln\_sales* is the natural logarithm of the annual sales from main operations; *Leverage* is total debt over total assets.

Model 1 tests the link between earnings management on one side, and ownership con-

centration (measured as the total percentage held in the top one shareholding) and ownership type (*Private* is a dummy variable: 1 when the firm is privately-owned, 0 otherwise) on the other.

In Model 2, we introduce two control variables: firm size and capital structure.

Model 3 is the most complete regression, including three more control variables: *Right\_issue* is a dummy variable equal to 1 if the company applied for a rights issue in 2002. *Pri* is a dummy variable equal to 1 if the company is a privatised former SOE. *ST\_PT* is a dummy variable equal to 1 if the company is a ST or PT company.

## Empirical results

### Descriptive statistics

Table 1 presents summary statistics for earnings management, ownership concentration, leverage and sales of the sample companies.

From Table 1, we can see that Chinese listed firms have a high level of ownership concentration. The mean interest held by the largest shareholder is 41.9 per cent for SOEs and 32.2 per cent for private listed firms. For the subsample of SOEs, the standard deviation is 17.6 per cent. The maximum is 75 per cent and the minimum is 1.9 per cent. Although few firms have low concentration in China due to state supermajority holdings, there is substantial cross-sectional variation in ownership concentration for SOEs.

The most interesting result from the pairwise analysis is the highly significant positive correlation between discretionary accruals and non-operating income over sales. This finding suggests that when a firm tries to

manipulate its earnings, it will use all possible means to reach its goal (using non-cash accruals at the operating level, and certain non-market-based asset transfer transactions with related parties at non-operating level).

Table 2 also indicates that in our sample, privately-owned firms have a lower level of ownership concentration than state-owned companies, since there is a negative and significant correlation between *Private* and *Top1*.

### Multivariate regression results

Tables 3 and 4 report estimated coefficients, t-statistics and adjusted R<sup>2</sup> from an OLS regression of discretionary accruals (Table 3) and non-operating income over sales (Table 4) on ownership variables and control variables. Before interpreting them, it is important to make sure there is no multicollinearity problem among the independent variables, causing misleading results. Rawlings (1988, p. 277) suggests VIF > 10 as a guideline for serious collinearity. Our tests show that all VIFs of the variables in our regression are below 10, but that since the largest shareholding and its square term are highly correlated, their VIFs are high. We also calculate the Condition Indices (CI) based on eigenvalues. The condition index is 12.57, below the threshold of 15 above which a collinearity problem may exist (Belsley *et al.*, 1980).

For regressions of both measures of earnings management, the models are highly significant. The adjusted R<sup>2</sup> obtained in this study is fairly comparable with those in similar studies, for example Warfield *et al.*'s (1995) adjusted R<sup>2</sup>: 8.34–12.48 per cent or Liu and Lu's (2002) adjusted R<sup>2</sup>: 2.83 per cent.

Table 1: Summary statistics

	D_A		Non_Sales		Top1		Sales		Leverage	
	SOE	Private	SOE	Private	SOE	Private	SOE	Private	SOE	Private
mean	-0.001	0.007	-0.071	-0.042	0.419	0.322	0.589	0.616	0.248	0.304
p50	0.007	0.000	-0.001	-0.001	0.403	0.290	0.326	0.320	0.222	0.295
sd	0.114	0.103	0.729	0.260	0.176	0.140	1.104	1.081	0.162	0.212
min	-0.910	-0.362	-8.439	-2.346	0.019	0.037	0.025	0.004	0.000	0.000
Max	0.232	0.433	0.566	0.741	0.750	0.691	11.442	10.525	1.003	2.011

Notes: This table reports the summary statistics of earnings management measures (*D\_A*, *Non\_Sales*), the ownership concentration measure (*Top1*), firm size (*Sales*), and leverage (*Leverage*) of the sample companies. *D\_A* is discretionary accruals. *Non\_Sales* is non-operating income over sales. *Top1* is the shareholding percentages of the largest shareholders. *Sales* is the natural logarithm of the annual sales from main operations. *Leverage* is total debt over total assets.

Table 2: Pairwise correlation coefficients of variables for regression

	D_A	non_sales	top1	Private	ln_sales	Leverage
D_A	1					
non_sales	0.4968*	1				
Top1	0.0325	0.1528*	1			
Private	0.0381	0.0264	-0.2928*	1		
ln_sales	0.0523	0.1054	0.103	-0.0054	1	
leverage	-0.1174*	-0.1075	-0.2402*	0.1465*	-0.2099*	1

Notes: This table reports the pairwise correlation coefficients of variables for regression. *D\_A* is discretionary accruals. *Top1* is the shareholding percentage of the largest shareholder. *Private* is a dummy variable, equal to 1 if the company is privately-owned and 0 otherwise. *Non\_Sales* is non-operating income over sales. *Ln\_sales* is the natural logarithm of the annual sales from main operations. *Leverage* is long-term debt over equity. \* = significant at 5%.

Table 3: Discretionary accruals and ownership structure: multivariate regression analysis

D_A	Coef.	Coef.	Coef.
<i>Top1</i>	0.773 (3.740***)	0.737 (3.560***)	0.726 (3.540***)
<i>square_top1</i>	-0.832 (-3.540***)	-0.802 (-3.410***)	-0.787 (-3.370***)
<i>Private</i>	0.073 (2.150**)	0.079 (2.330**)	0.069 (1.750*)
<i>Private_top1</i>	-0.179 (-2.050**)	-0.191 (-2.190**)	-0.189 (-2.070**)
<i>Right_issue</i>			0.061 (2.800***)
<i>Pri</i>			0.012 (0.620)
<i>st_pt</i>			0.008 (0.230)
<i>ln_sales</i>		0.002 (0.420)	0.002 (0.250)
<i>Leverage</i>		-0.060 (-1.670*)	-0.068 (-1.850**)
<i>Adjusted R<sup>2</sup></i>	0.038	0.042	0.062
<i>F statistic</i>	3.690***	3.030***	3.030***

Notes: This table reports coefficients for regressions of discretionary accruals on ownership structure and other firm characteristic variables. *Top1* is the shareholding percentages of the largest shareholders. *Private* is a dummy variable equal to 1 if the company is privately-owned and 0 otherwise. *Private\_top1* is an interaction variable of *Private* and *Top1*. *Right\_Issue* is a dummy variable equal to 1 if the company applied to undertake a rights issue in 2002. *Pri* is a dummy variable equal to 1 if the company is privatised from a SOE. *st\_pt* is dummy variable if the company is a ST or PT company. *Ln\_sales* is the natural logarithm of the annual sales from main operation. *Leverage* is total debt over total assets. T-statistics of regression coefficients are given in parentheses. \*\*\* = significant at 1%, \*\* = significant at 5%, \* = significant at 10%.

In the regressions for both earnings management measures, the *Top1* variable has a significant positive coefficient while the *Square\_top1* variable has a significant negative

coefficient. This result shows that there is a strong, significant nonlinear relationship between earnings management and ownership concentration. This relationship takes the

Table 4: Non-operating income and ownership structure: multivariate regression analysis

non_main	Coef.	Coef.	Coef.
<i>Top1</i>	5.605 (5.610***)	5.505 (5.500***)	5.567 (5.580***)
<i>Square_top1</i>	-5.515 (-4.840***)	-5.453 (-4.790***)	-5.466 (-4.820***)
<i>Private</i>	0.591 (3.600***)	0.614 (3.740***)	0.696 (3.610***)
<i>Private_Top1</i>	-1.479 (-3.500***)	-1.539 (-3.640***)	-1.660 (-3.750***)
<i>Right_issue</i>			0.070 (0.670)
<i>Pri</i>			-0.067 (-0.680)
<i>st_pt</i>			0.393 (2.360**)
<i>Ln_sales</i>		0.042 (1.500)	0.056 (1.930*)
<i>Leverage</i>		-0.163 (-0.940)	-0.254 (-1.430)
<i>Adjusted R<sup>2</sup></i>	0.107	0.113	0.123
F statistic	9.250***	6.840***	5.290***

Notes: This table reports coefficients for regressions of non-operating income over sales on ownership structure and other firm characteristic variables. *Top1* is the shareholding percentages of the largest shareholders. *Private* is a dummy variable equal to 1 if the company is privately-owned and 0 otherwise. *Private\_top1* is an interaction variable of *Private* and *Top1*. *Right\_issue* is a dummy variable equal to 1 if the company applied to undertake a rights issue in 2002. *Pri* is a dummy variable equal to 1 if the company is privatised from a SOE. *st\_pt* is dummy variable if the company is a ST or PT company. *Ln\_sales* is the natural logarithm of the annual sales from main operation. *Leverage* is total debt over total assets. T-statistics of regression coefficients are given in parentheses. \*\*\* = significant at 1%, \*\* = significant at 5%, \* = significant at 10%.

form of an inverted U-shape, which means that at a low level, increased ownership concentration is associated with earnings maximisation (entrenchment effect). But to the right of the inflection point, earnings minimisation is associated with increased ownership concentration (alignment effect).

According to the regression coefficients, for the largest (*Top1*) shareholding, the inflection point is somewhere between 55 per cent and 60 per cent. This result is consistent for different model specifications and different earnings management measures (discretionary accruals and non-operating income/sales). An increase in ownership concentration will result in earnings maximisation, but the concentration of even more shares in the hands of the largest shareholder will help curb this short-term earnings management.

Turning to ownership type, the *Private* variable maintains a significant positive coefficient in the regressions for both earnings management measures, indicating a higher level of

discretionary accruals and non-operating income in privately-owned listed firms. This result reflects the specificity of the Chinese capital market: privately-owned firms are still in a weaker position than their state-owned counterparts, and therefore have to report a better-than-real financial performance to reassure the market. Meanwhile, the significant negative coefficient of *Private\_Top1* reveals that the effect of ownership concentration on earnings maximisation is smaller in privately-owned firms, because their top shareholder tends to act as if they were the actual owner.

The results of our control variables are also interesting. First of all, before their rights issue, firms tend to maximise their earnings through operating accruals, while firms in difficulty (ST or PT) also manage their earnings upward, but mainly by using non-operating items. These results are consistent with findings in the extant literature (Aharony *et al.*, 2000; Chen and Yuan, 2004; Srinidhi *et al.*, 2004), confirming that Chinese firms do

manage earnings to meet the regulatory requirements.

In the regression for non-operating income, the coefficient of the proxy for size is positive and significant, which means larger Chinese listed firms tend to make more intensive use of non-operating items to maximise their earnings. This result concurs with the findings of Jian and Wong (2004), who argue that large Chinese listed firms tend to have a more extensive network of related parties, which makes it easier for them to manipulate their earnings via non-operating transactions.

The major contribution of our study is to reveal that the U-shape relationship between ownership concentration and performance also exists between ownership concentration and earnings management practices. Our results also show that the entrenchment effect of ownership concentration on earnings management is weaker in privately-owned listed firms than in state-owned listed firms.

The sign and the significance level of all our ownership concentration and ownership type measures remain stable in the regressions for both earnings management measures, which suggests Chinese listed firms tend to use both non-cash accrual items at operating level and non-operating transactions with related parties to maximise (or minimise) their accounting earnings. This finding is consistent with the situation demonstrated by Lee and Xue (2004) in their study on earnings management by loss-making firms in China. They show that before the loss year, firms increase their discretionary accruals or below-the-line items, to defer the appearance of losses.

We also conducted a sensitivity analysis to test for the robustness of the results. We replaced total assets (in log term) and total leverage with sales (in log term) and long-term leverage. We also dropped some control variables. The results remain largely unchanged, i.e. the direction, magnitude and significance of the coefficient of ownership variables are stable.

Our study also indirectly confirms the results of previous research into Chinese listed firms (Chen *et al.*, 2003; Chen and Yuan, 2004; Jian and Wong, 2004; Srinidhi *et al.*, 2004), i.e. for Chinese firms, related party transactions remain a major channel for earnings management: the regressions over non-operating income produce average  $R^2$  of 10 per cent, while the same regressions over discretionary accruals result in average  $R^2$  of about 5 per cent. This difference means our ownership and other independent variables explain the better earnings management at non-operating level than at operating level.

## Conclusion

This paper examines the relationship in Chinese listed firms between earnings management practices and two different ownership characteristics, namely concentration and type (privately-owned versus state-owned).

It provides evidence that the earnings management practices of Chinese listed firms are influenced by these firms' ownership concentration as measured by the total percentage interest in the hands of the largest shareholder. Specifically, our study shows that the relationship between shareholding concentration and earnings management follows an inverted U-shape pattern: when the ownership concentration level is low, the agency cost is high. Initially, large shareholders tend to maximise accounting earnings in order to reap benefits in the future (entrenchment effect). However, when the ownership concentration reaches a high level, large shareholders become the true owners of the firm, and are thus more likely to seek to preserve its future growth potential by minimising accounting earnings (alignment effect). Our results show that in our sample of Chinese listed firms, until the top-shareholder concentration reaches 55–60 per cent, the correlation between ownership concentration and earnings management is positive, while beyond that ownership concentration level the relationship becomes negative.

Our analysis also shows that privately-owned listed firms favour earnings boosting methods more than their state-owned counterparts. This result reflects the specificity of the Chinese capital market, where privately-owned firms are still in a weaker position because of specific political and historical factors. They are thus under pressure to report a better-than-real financial performance to reassure the market. Meanwhile, the effect of ownership concentration as a factor increasing earnings maximisation is less marked in privately-owned firms, because their large shareholders are inclined to act as if they were actual owners, which means their incentives to expropriate the firm are comparatively low.

All our ownership concentration and type measures hold significant coefficients of the same sign in the regressions for both earnings management measures (discretionary accruals and non-operating income over sales). This suggests Chinese listed firms tend to use both non-cash accrual items at operating level, and non-operating transactions with related parties, to maximise (or minimise) their accounting earnings.

One major limitation of our paper is that our "non-operating income over sales" measure makes no distinction between normal

gains and losses and abnormal transactions with related parties. In future research, it would be very interesting to examine the relationship between discretionary accruals and certain directly-related party transaction measures.

## Acknowledgements

Christine Mallin (the Editor) and two anonymous referees helped us to improve the paper considerably. The authors would also like to thank Thomas Jeanjean for his helpful comments. The recommendation from Jiwei Wang, referee of the Fourth Asia-Pacific Interdisciplinary Research in Accounting Conference, contributed to a significant improvement in the paper, and the authors have also benefited from the constructive discussions of participants at the Research Center in International Accounting and Management Control, University of Montesquieu Bordeaux IV (11 March 2004, Bordeaux, France), the European Accounting Association Annual Meeting (1–3 April 2004, Prague, Czech Republic), the Fourth Asia-Pacific Interdisciplinary Research in Accounting Conference (4–6 July 2004, Singapore) and The Inaugural Asia-Pacific Corporate Governance Conference (25–26 August 2005, Hong Kong). Yuan Ding and Hua Zhang would like to acknowledge the financial support of the CEIBS Research Foundation. Part of the research was conducted when the first author was affiliated with HEC School of Management, Paris. Finally, the authors thank Ann Gallon for her much appreciated editorial help.

## Notes

1. Source: Chinese stock market database of Wind.net Co. Ltd (www.wind.com.cn).
2. Source: Chinese stock market database of Wind.net Co. Ltd (www.wind.com.cn).
3. Source: Chinese stock market database of Wind.net Co. Ltd (www.wind.com.cn).
4. Article 33, The Company Law of The People's Republic of China (Adopted at the 5th Session of the Standing Committee of the 8th National People's Congress on 29 December 1993, and Promulgated by Presidential Order of the People's Republic of China (No. 16) on 29 December 1993, and Amended on 25 December 1999).
5. We follow the China Securities Regulatory Commission's industry classification.
6. Economists are often divided over the issue of how to classify Chinese township-village enterprises (TVE). Although legally these

enterprises are collective and therefore not private, because private ownership has not been well-protected in China, many TVEs are actually private firms in disguise. For this reason, the brokerage CLSA preferred to count all enterprises defined as "collectives" or "joint-stock companies" as private companies in their survey published in September 2005. (Source: Private sector "in control of China economy", *Financial Times*, 13 September 2005.)

7. The concentration of losses in a single year, in order to generate a smoothed stream of income in future years. This often occurs after an executive change, as responsibility for the loss can be attributed to the departed CEO (Breton and Stolowy, 2005).

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