

# Earnings Management To Tunnel: Evidence from China's Listed Companies \*

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## Abstract

This paper conducts a two-stage analysis to demonstrate that earnings management in China's listed companies is mainly induced by the controlling owners' tunnelling incentive. In the first stage, we relate our analysis to previous research on the Chinese listed companies which has documented their strong incentives to manage earnings in order to meet certain return on equity (ROE) thresholds. We identify tunnelling evidence in two situations where such practice has been the most conspicuous. In the second stage, we examine systematic differences in earnings management across the universe of China's listed companies during 1999-2001. We provide cross-sectional and time-series evidence showing that firms with higher corporate governance levels tend to have less earnings management. Our empirical findings although not being able to completely exclude other explanations, strongly suggest that agency conflicts between controlling shareholders and outside investors are the main stimuli of earnings management in China's listed companies.

*JEL Classification:* G32, G34, M41, M43

*Keywords:* Earnings management, tunnelling, and corporate governance

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# Earnings Management To Tunnel: Evidence from China's Listed Companies

## Abstract

This paper conducts a two-stage analysis to demonstrate that earnings management in China's listed companies is mainly induced by the controlling owners' tunnelling incentive. In the first stage, we relate our analysis to previous research on the Chinese listed companies which has documented their strong incentives to manage earnings in order to meet certain return on equity (ROE) thresholds. We identify tunnelling evidence in two situations where such practice has been the most conspicuous. In the second stage, we examine systematic differences in earnings management across the universe of China's listed companies during 1999-2001. We provide cross-sectional and time-series evidence showing that firms with higher corporate governance levels tend to have less earnings management. Our empirical findings although not being able to completely exclude other explanations, strongly suggest that agency conflicts between controlling shareholders and outside investors are the main stimuli of earnings management in China's listed companies.

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# 1 Introduction

The emerging market crisis of 1997-1998 has spawned a vast body of research on corporate governance issues in emerging markets. In contrast with traditional literature such as Berle and Means (1932) and Jensen and Meckling (1976),<sup>1</sup> recent finance theory (e.g., La Porta et al. 1997, 1998, 2000) has presented a powerful argument that the central agency problem in large corporations around the world is that of restricting expropriation of minority shareholders by controlling shareholders. Johnson et al. (2000) use the term tunnelling to describe the transfer of resources away from firms for the benefits of their controlling shareholders. The “tunnelling” of firm value by controlling shareholders, including activities ranging from outright theft and loan guarantees to selling assets or products at lower than market prices, has thus become a centerpiece of recent corporate finance and drawn widespread attention.<sup>2</sup> It is widely believed that tunnelling is particularly serious in emerging markets, where fewer effective corporate governance mechanisms such as dispersed ownership structures, independent boards, active external takeover markets, and high-quality disclosure, exist to protect minority shareholders.

If controlling shareholders intend to tunnel the firm value, they have incentives to mask true firm performance and conceal their private control benefits from outside investors. This insight suggests that earnings management is inherently related to tunnelling in the context of poor corporate governance practice where private control benefits are higher and the likelihood of these benefits being detected is lower. Prior research has provided some support for this argument. For example, Leuz, Nanda, and Wysocki (2003) conduct a cross-country analysis and present evidence showing that earnings management decreases in investor protection. Jian and Wong (2003) document that a *group-controlled* firm in China

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<sup>1</sup>Both argue that when ownership and control of corporations are not fully coincident, there are potential conflicts of interest between owners and controllers. Managers, by controlling the daily operating activities of a firm, may extract private benefits at the expense of the firm’s ultimate owners - the shareholders.

<sup>2</sup>For example, Claessens, Djankov, and Lang (2000), Bertrand, Mehta and Mullainathan (2002), Bae, Kang and Kim (2002), Bai, Liu and Song (2003) and Friedman, Johnson, and Mitton (2003) all provide empirical evidence of tunneling by controlling shareholders in emerging markets. Shleifer and Wolfenzon (2002) present theoretical illustrations of such minority shareholder expropriation.

is more likely to use related transactions to manipulate earnings and tunnel firm value.

In this paper, we conduct a two-stage analysis to demonstrate the linkage between earnings management and tunnelling in China. In the first stage, we study two China-specific situations where earnings management has been identified to be the most conspicuous.<sup>3</sup> They are: (i) a listed company manages earnings to exceed certain return on equity (ROE) thresholds so as to earn the rights to issue additional shares to existing shareholders (rights issues); and (ii) a listed company manages earnings to avoid being de-listed. For each of them, we demonstrate the potential wealth or resource diverting from minority shareholders to controlling shareholders and explore the role of earnings management.

If earnings management is indeed induced by a firm's tunnelling need, we expect its pervasiveness to be closely related to the firm's corporate governance practice since good governance limits insiders' acquisition of private control benefits. We test this hypothesis in the second stage. Examining the entire population of Chinese listed companies during the period from 1999 to 2001, we find that the degree of earnings management is significantly correlated with a variety of measures for different aspects of corporate governance. Furthermore, our time series evidence showing that a firm displays weaker incentive to manage earnings after it improves its corporate governance practice.

The two issues examined in our two-stage analysis are among those where research is lacking or inconclusive. The first issue - whether earnings management has any 'tunnelling' consequences - has not been fully resolved by previous research. This study takes advantage of the unique Chinese setting and identifies tunnelling as the primary driver of manage earnings in two situations where earnings management has been the most conspicuous. The second issue - whether earnings management is associated with firms' corporate governance levels - is important because good corporate governance may weaken controlling shareholders' incentive to tunnel thus reduces their needs for earnings management. Evidence on this front

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<sup>3</sup>See Chen et al. (2000), Chen and Yuan (2002), and Jian and Wong (2003) for anecdotal evidence and large sample evidence.

not only provides support for our main thesis - earnings management is primarily driven by tunnelling - but also complements Leuz, Nanda and Wysocki (2003) where evidence from China is void. Unlike previous studies which only use a sub-sample of the Chinese listed companies,<sup>4</sup> this paper examines the universe of China's listed companies from 1999 to 2001.

It is worth noting that this study is also subject to several caveats as well. First, it is difficult to measure earnings management in China. As prior literature suggests (e.g., Chen et al. 2000, Jian and Wong 2003), Chinese listed companies mainly use some discretionary items such as accruals to management earnings. Thus, we use two accrual-based variables to measure earnings management. However, we have to point out that our measures do not fully appreciate the dynamic nature of earnings management (see for example, Healy and Whalen 1999, and Dechow and Skinner 2000). Accruals may reverse over time and they may also be positively correlated with cash flow and earnings levels. Therefore, they may reflect things other than earnings management. Second, it is possible that in China, incentives other than tunnelling exist. For example, the managers of state-owned enterprises (SOEs) might have incentives to manage earnings so as to please their superiors and obtain quicker promotion. They may manage earnings to fulfill certain political agenda rather than tunnel firm value.<sup>5</sup> Although our two-stage analysis provide corroborating evidence of tunnelling that relates to earnings management, they cannot *perfectly* eliminate all alternative possibilities. However, given the fact that there is tunnelling evidence in the two situations where earnings management is the most conspicuous and corporate governance related variables are able to explain cross-sectional and time-series variations in earnings management, we believe tunnelling - if it is not the only driver - is probably the primary one of earnings management in China. Third, it is also difficult to measure corporate governance practice at firm level. Although, we construct eight different variables to capture

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<sup>4</sup>For example, Aharony et al. (2000) explore earnings management in the IPOs of China's B- and H-share companies; Chen and Yuan (2002) study a sample of listed companies that applied for rights issues during 1996-1998; Jian and Wong (2003) study a sample of 131 Chinese listed firms in the basic materials industries.

<sup>5</sup>The governments at different levels or government-equivalent legal persons are the controlling shareholders in more than 56% of Chinese listed companies. These firms may pursue objectives other than maximizing shareholder value.

various aspects of a firm's corporate governance practice, these governance variables are often complementary and measured with error. To resolve this concern, we also apply principal component analysis (PCA) and construct an aggregate measure of corporate governance based on the results of PCA as well.

The rest of the paper is organized as follows. In Section 2, we discuss China's institutional background and lay out our main hypotheses. Data, variables, sample, and summary statistics are discussed in Section 3. Section 4 examines two situations where earnings management is most conspicuous in China. We present evidence of tunnelling for each of them and illuminate the role of earnings management. Section 5 presents cross-sectional and time-series evidence showing that in China, the pervasiveness of earnings management is determined by the level of corporate governance. Section 6 concludes.

## **2 Institutional Setting and Hypothesis Development**

### **2.1 Institutional Setting**

The Chinese stock market was organized by the government as a vehicle for its state-owned enterprises (SOEs) to raise capital and improve operating performance. In 12 years, China's stock markets have grown into the eighth largest in the world with market capitalization of over US\$500 billion. Chinese companies, especially SOEs, have benefited greatly from rapid equity issuance growth and public enthusiasm for the equity market due to a lack of other attractive investment vehicles.

#### **2.1.1 The pervasiveness of tunnelling in the Chinese listed companies**

Over the past decade, regulations have been evolving to address problems typically found in emerging markets. In particular, the China Securities Regulatory Commission (CSRC) has been managing the tradeoff between growth and control. Since the primary objective of developing equity markets in China is to help SOEs relax external financing constraints,

regulations have been asymmetrically in favor of SOEs or companies with close ties to the government. For example, a quota system was used by CSRC to assign the listing quota to the planning commissions at province level, then to IPO candidates. Because of the policy constraints, competition for the rights to go IPO is fierce. Another consequence of such policy practice is that the ownership of Chinese listed companies is highly concentrated in the hands of the government. On average, state-owned shares and legal person shares (indirectly owned by the government) account for over 70% of the total number of shares in China's listed companies. Furthermore, the largest shareholder (in 80% of cases, the government) controls around 44% of listed companies' shares, while the second largest shareholder typically owns less than 10%.

Several reasons explain why private benefits accruing to controlling shareholders in China are enormous and cannot be easily competed away. In China, most listed companies are spin-offs from large SOEs, and in most cases, they still share personnel functions, capital, and assets with their parent companies. Local governments, in most cases, appoint the management of listed firms. Therefore, the management often take action to benefit the largest shareholder. It is noted that such practice may add social values in other ways that offset the social costs it imposes through tunnelling (e.g., it may help reduce external financing constraints and transaction costs). But outside investors almost always lose when the controlling shareholders tunnel.

Given the fact that only around 30% of listed companies' shares are publicly tradable, and the controlling shareholders normally control more than 40% of total shares, controlling shareholders are rarely challenged by other shareholders on important issues. Minority shareholders cannot take listed companies to court, due to limitations in the civil law, and a lack of punishment spectrum in the current securities laws.<sup>6</sup> Listed companies, therefore, are the nexus of a series of related party transactions carried out for the benefit of the

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<sup>6</sup>For example, current Chinese securities laws do not allow proportionate legal enforcement. Regulators can only take extreme actions (prison sentences or warnings); they cannot impose moderate penalties.

controlling shareholders. In 2001 the largest shareholder of Meierya - a then profitable company - colluded with other insiders to embezzle US\$44.6 million, 41% of the company's total equity. In the same year, the largest shareholder of Sanjiu Pharma, one of the *blue chips* in China, extracted US\$309.1 million, 96% of the listed company's total equity. According to a survey conducted by the Shanghai-based Shenying and Wangguo Securities Co., Ltd., the controlling shareholders of the 130 firms surveyed on average owe the listed companies US\$ 40 million in the form of accounting receivables or parent borrowing (*Caijing Magazine*, June 5, 2002).

### **2.1.2 The pervasiveness of earnings management in Chinese listed companies**

Earnings management has been rampant in China's listed companies too. Chinese regulators often rely on accounting numbers to govern the listed companies. For example, CSRC requires listed companies to meet certain return on equity (ROE) criteria before they can apply for permission to issue additional shares to existing shareholders; the most important criterion for delisting a listed company is a reported net loss for three consecutive years. To be eligible for rights issue, a listed company has to satisfy several requirements - it has to maintain at minimum, a reported ROE of 6% for three consecutive years, and the average ROE over these three years must be no less than 10%. This is not an easy task for most Chinese listed companies considering the fact that the average ROE for all listed companies was only 6.9% in 2000. Given that CSRC relies on ROEs to review a listed company's application for new equity issue, the listed company has a strong incentive to manage earnings above the necessary thresholds.

As shown in Zingales (1994, 1995), Nenova (2002), Doidge (2003), and Dyck and Zingales (2002), the control over listed companies carries a special value for the controlling shareholders. To enjoy these private control benefits, controlling shareholders have strong incentives to manage earnings to avoid being de-listed, especially when de-listing decision is fixated on certain accounting numbers.

In an attempt to protect minority shareholders and to encourage better corporate governance, the CSRC introduced a special *delisting mechanism* in 1998. Under the guidelines set forth by the CSRC, China's two stock exchanges - the Shanghai and Shenzhen Stock Exchanges, started to de-list Chinese listed firms. The stock exchanges will first label a firm in financial trouble as a *special treatment* (ST) firm, then designate it a *particular transfer* (PT) firm if it fails to turn profitable within one year.<sup>7</sup> In general, a firm will be designated a PT firm if it has negative net profits for *three consecutive years*. To controlling shareholders and other insiders, becoming a PT firm and being de-listed afterwards suggests the loss of private control benefits and future rent-seeking opportunities. Therefore, doing whatever it takes to avoid net loss for three consecutive years provides Chinese listed companies with another incentive to manage earnings: to report a profit. Figure 1 presents a histogram of ROE for China's listed companies from 1999 to 2001. It is apparent that a disproportionately high number of companies reported ROEs just slightly over 6% and 10%. The 0%, 6% and 10% spikes shown in Figure 1 demonstrate the two most important incentives to manage earnings in China: to gain rights to issue new equity; and to avoid de-listing.

## 2.2 Hypothesis Development

Given that both tunnelling and earnings management are rampant in China, an interesting question arises - whether earnings management in China is mainly induced by tunnelling? In order to test it, we need to first establish the fact that a significant amount of earnings management has been related to two incentives - to gain rights to issue new equity, and to avoid de-listing. We then need to present the evidence of resources diverting to controlling shareholders from minority shareholders for each. In the first situation where a firm needs

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<sup>7</sup>The special treatment means, for example, that the stocks are traded with a 5% price change limit each day vs. 10% for normal stocks. Its midterm reports must be audited. Also, if an ST firm continues to suffer loss for one more year, it will be designated a particular transfer (PT) firm. PT stocks can only be traded on Friday, with a maximum 5% upside limit to last Friday's close, but no restriction on the downside. PT firms will be de-listed if they cannot become profitable within one year.

to earn the rights to issue new shares to existing shareholders, we immediately have:

*H1a: A listed firm has a stronger incentive to manage earnings when it needs to satisfy the requirements for rights issues.*

It is inherently difficult to offer corroborating evidence of tunnelling because a controlling shareholder is able to use corporate resources to his or her benefit only if it is difficult or impossible to prove these actions in court. However, as we hypothesize the main purpose of rights issues is to use the raised capital for the benefit of controlling shareholders, we can test the existence of tunnelling by checking whether the investment of firms issuing new shares (SEO firms) is more responsive to their investment opportunities (measured by Tobin's Q).<sup>8</sup> If not, we speculate that the raised capital has been mis-allocated and very likely has been diverted away from the listed companies. We have:

*H1b: The firms issuing new shares (SEOs) have a more sensitive investment-Tobin's Q relationship.*

In the second situation where a listed company needs to avoid de-listing, we have:

*H2a: The firms with de-listing risk tend to display more significant earnings management.*

In the presence of poor governance, private control benefits embody themselves in many forms of potential tunnelling activities. In order to prove that earnings management for a firm with de-listing risks is also induced by tunnelling, we need to demonstrate the amount of private control benefits that would be forfeited if a listed company is de-listed. We have:

*H2b: When a listed company is de-listed, its controlling shareholder loses a large amount of private control benefits.*

Since good corporate governance limits controlling shareholders' tunnelling activity, if earnings management in Chinese listed companies is indeed induced by tunnelling, we would expect its pervasiveness to be *negatively* correlated with a firm's corporate governance practice. We propose:

*H3a: a listed firm with a higher level of corporate governance tends to have less earnings*

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<sup>8</sup>Bertrand, Mehta and Mullanianthan (2002) use a similar empirical design to test the existence of tunnelling among Indian group companies.

*management.*

By the same logic, we hypothesize that:

*H3b: as a listed firm migrates to higher corporate governance standards, it tends to use less earnings management.*

## 3 Data and Empirical Design

### 3.1 Earnings Management Measures

Drawing on the existing earnings management literature (see Healy and Wahlen, 1999; Dechow and Skinner, 2000) and taking into account the China-specific institutional features, we use two variables - the total accruals (ACC), and industry-median-adjusted accruals (IAACC) - to measure earnings management. ACC is defined as the difference between net income (NI) and cash flows from operating activities (CFO) divided by the average total assets (TA):<sup>9</sup>

$$ACC_{i,t} = \frac{NI_{i,t} - CFO_{i,t}}{(TA_{i,t-1} + TA_{i,t})/2}. \quad (1)$$

Most earnings management literature uses abnormal accruals estimated from a specific model to measure earnings management. We select the total accruals as a measure of earnings management for two reasons. First, we do not have a reliable model for estimating abnormal accruals in Chinese companies. Given the unique nature of China's stock market and accounting regulations, it is difficult to argue that any model that is well-received in the developed markets can be easily applied without major adjustments. Second, when we test the hypotheses, the independent variables are proxies for various corporate governance mechanisms. It is unlikely that these variables correlate with the non-discretionary component of the total accruals. To the extent that our independent variables are uncorrelated with the non-discretionary component of the total accruals, the empirical relations detected in our analysis can be attributed to the correlation between the

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<sup>9</sup>The average of total assets at the beginning and the end of the year.

discretionary component of the total accruals and the independent variables.

Most studies using the US data define total accruals as the difference between earnings before extraordinary items and operating cash flows. Under the Chinese GAAP, so-called “one-time” items, such as extraordinary items and discontinued operations, are not reported separately. On China’s standardized income statement, profit from operations is sales revenue less cost of goods sold and operating expenses, plus profits (losses) from non-major operations; total profit includes profit from operations, gains (losses) from disposal of assets and investments, and other revenues and expenses; net income is total profit less income taxes.<sup>10</sup> The main results reported in the paper are based on accruals calculated from net income. We also conduct relevant empirical tests using accruals calculated from profit from operations and total profit. All results are qualitatively similar.

Our industry median adjusted accruals is defined as the difference between a firm’s ACC and the median ACC of the industry the firm belongs to:

$$IAACC_{i,t} = ACC_{i,t} - \text{Industry median } ACC_t. \quad (2)$$

We adjust total accruals by the industry median to control for common determinants of accruals among firms within the same industry.

### 3.2 Corporate Governance Variables

Corporate governance has been characterized as a set of mechanisms protecting investors from opportunistic behavior (Shleifer and Vishny, 1997; Dennis and McConnell, 2002). These mechanisms may be internal or external ones. Internal mechanisms include dispersed ownership structures, independent boards of directors, formal board processes, timely and accurate disclosure of relevant information. External mechanisms include the existence of active external take-over markets, a shareholder-friendly legal infrastructure, well-established

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<sup>10</sup>Therefore, both “above the line” and “below the line” items in an American income statement are included in China’s operating income.

capital markets. We construct a series of variables to capture various aspects of a Chinese listed company's corporate governance practice.

### 3.2.1 Disaggregate corporate governance measures

Both internal and external mechanisms help to resolve two types of agency problem: the one between corporate owners and managers; and the one between controlling shareholders and minority shareholders. We define *TOPSHARE* as the percentage of shares held by the largest shareholder. It is computed as  $\frac{S_1}{S}$ , where  $S_1$  is the number of shares held by the largest shareholder and  $S$  is the total shares outstanding. It measures the largest shareholder's interest in a company and likely the largest shareholder's power in the board. Most corporate governance frameworks place positive values on a dispersed ownership structure.<sup>11</sup> It has been argued that concentrated ownership (e.g., existence of one ultimate firm owner) is the ultimate determinant of Asian companies' poor governance practice.<sup>12</sup> The ability of controlling shareholders to expropriate minority shareholders is directly related to the degree to which they control the company. Thus, a higher *TOPSHARE* corresponds to a lower governance level and a higher incentive to tunnel. We expect a positive correlation between *TOPSHARE* and earnings management measures, *ACC* and *IAACC*.

We define *TOPEXECSHARE* as the percentage of shares held by the top executives including the CEO, the executive vice presidents, the chairperson and the vice chairpersons of the board of directors. *TOPEXECSHARE* measures the top executives' interests in a company. Here, a higher *TOPEXECSHARE* indicates that the management's interests are more likely to be in line with those of controlling shareholders. We expect a *positive* relationship between earnings management and *TOPEXECSHARE*.

Klein (2002) finds that boards of directors are more effective in monitoring managers'

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<sup>11</sup>Several recently released reports, such as the McKinsey Corporate Governance report, S&P company level corporate governance rating, and CLSA emerging market governance rating all take dispersed ownership structure as a requirement for good governance.

<sup>12</sup>See for example, Claessens, Djanov, and Lang (2000), and Fan and Wong (2001).

financial reporting behavior, if they are more independent of the CEO. In our research setting, board structure is not only a mechanism of monitoring a company’s financial reporting process, but also an instrument to curb controlling shareholders’ tunnelling behavior. We construct two variables to capture the independence (or the lack thereof) of boards. The first variable is *CEO\_DIR*, which is a binary dummy variable that takes the value of 1 if the company’s CEO is also the chairperson of the board and 0 otherwise. When the CEO is also the board chair, it is more difficult for minority shareholders to have a say on important issues and the controlling shareholders have larger discretionary power in their financial reporting. We therefore expect a *positive* correlation between earnings management and *CEO\_DIR*. The second variable is *OUTSIDEDIR*, which is defined as the ratio of the number of directors who do not receive any compensation from the company to the total number of directors.<sup>13</sup> We expect earnings management and *OUTSIDEDIR* to be *negatively* correlated.

Controlling shareholders tend to expropriate minority shareholders when they are less likely to be challenged by other shareholders. An active takeover market does not exist in China.<sup>14</sup> However, other shareholders can still form coalitions and seriously challenge opportunistic controlling shareholders. We use *SHARE2\_10* as a measure of the likelihood that other large shareholders will challenge the largest shareholders. *SHARE2\_10* is defined as:

$$SHARE2_10 = \sum_{n=2}^{10} \left(\frac{S_n}{S}\right)^2, \quad (3)$$

where  $S_n$  is the number of shares held by the  $n$ th largest shareholder, and  $S$  is the number of total outstanding shares. *SHARE2\_10* is a Herfindahl type of index that measures the concentration of shares held by the top 10 shareholders excluding the controlling one. We

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<sup>13</sup>It is possible that some unpaid directors could have been appointed by the controlling shareholders to represent the unlisted parent company on the board. We therefore carefully check the affiliations of these unpaid directors. If they are affiliated with the parent company or other subsidiaries of the parent company, we do not treat them as outsiders.

<sup>14</sup>Mergers and acquisitions (M&A) markets have been relatively quiet. The total M&A transaction volume in 1997 was only 1% of China’s GDP. It has increased to 2-3% in recent years. Still, it lags behind developed markets and most Asian peers (Source: Thomson Financial).

expect a *negative* correlation between *SHARE2\_10* and earnings management.

A dummy variable - *HBSHARE* - is constructed to capture the effect of legal environment in enforcing corporate governance. It takes the value of 1 if a firm has H - shares listed in Hong Kong or B - shares issued to foreign investors. These firms must adopt international accounting standards, and have their financial statements audited by internationally recognized accounting firms. The managers of these firms are therefore subject to stricter scrutiny from more sophisticated investors. We therefore expect a *negative* correlation between *HBSHARE* and earnings management.

We also construct two variables to measure the impact of Chinese institutional background on a firm's corporate governance practice. *PARENT* is a dummy variable which measures whether a listed firm is controlled by a group. If a listed company is group affiliated, the scope for tunnelling may be wider and its manager's incentives to manage earnings are also stronger. We expect a *positive* sign between *PARENT* and earnings management. We define *SOE* as a dummy variable that capture whether the controlling shareholder is the government or not. The controlling government may use the listed company as a vehicle to meet policy goals conflicting with shareholders' interests. We believe earnings management could be more conspicuous for SOEs and a *positive* correlation between *SOE* and earnings management is expected.

### **3.2.2 Aggregate measure of corporate governance**

The above eight corporate governance mechanisms might be complementary and measured with error. To accommodate these concerns, we construct a composite index to quantify and evaluate a firm's overall corporate governance level. To specify the appropriate weights for the eight governance variables, we apply principal component analysis (PCA). PCA allows us to identify linear combinations that best represent the variation in the eight variables (See Greene 1993, pages 271-273). We define the composite index - *CGRANK*- as the first principal component of the PCA. The factor loadings for the eight governance variables are

-0.626 for *TOPSHARE*; 0.595 for *SHARE2\_10*; -0.378 for *PARENT*; -0.227 for *SOE*; 0.230 for *OUSIDERDIR*; 0.071 for *HBSHARE*; 0.037 for *TOPEXESHARE*; and 0.023 for *CEO\_DIR*.<sup>15</sup> Based on the above factor loading, we calculate the composite raw score that measures a firm's overall corporate governance performance. We then split observations for each year into quintiles based on their composite scores. The quintile of firms with the lowest raw scores has their *CGRANK* equal to 1 and the quintile of firms with the highest raw scores has their *CGRANK* equal to 5.

### 3.3 The Sample

Our empirical analysis requires both financial and corporate governance data. The corporate governance data used in our tests are *manually* collected from annual reports.<sup>16</sup> Not until the year 1999 did a critical mass of Chinese listed companies' annual reports start to disclose information on various aspects of a listed company's corporate governance, such as ownership structure, executives' shareholding, board structure. Also, there was a major change in regulations governing rights issues in March 1999.<sup>17</sup> Our analysis therefore focuses on the period from 1999 to 2001.

Listed companies' financial data are collected from the CSMAR Financial Databases developed by the Shenzhen GTA Information Technology Co., and the China Accounting and Finance Research Center at the Hong Kong Polytechnic University. We study the universe of Chinese listed companies for the three years. Because we need to use listed companies' historical financial data, we are only able to include in our sample the firms that are listed prior to 1999. Dropping the firm observations with missing values in either

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<sup>15</sup>We also compute the aggregate measure using equal weight for the governance variables, which yields the same results.

<sup>16</sup>The Taiwan Economic Journal (TEJ) database, a popular database for research on Chinese listed companies, has information about top ten shareholders' equity interest, board compositions and management shareholdings from as early as 1995. However, it does not specify the identities of large shareholders, the affiliations of the board directors, and executives' shareholding information. Also, there is quite a lot of missing information on management. The level of the information provided by the database cannot match up against the level of detail required by our empirical design.

<sup>17</sup>Refer to Section 2 for detail.

financial variables or governance variables, we obtained a sample with 722 observations in 1999, 819 observations in 2000 and 963 observations in 2001.

### 3.4 Summary statistics

Table 1 provides descriptive statistics of the variables used in our study. The mean (median) total accrual as a percentage of total assets is -1.83% (-0.91%). There is a large variation in *ACC*. The highest (lowest) *ACC* is 77.11% (-286.34%); the standard deviation is 13.93%. The mean (median) industry median adjusted accruals as a percentage of total assets are -1.09% (0%). Recall that our measure of the shareholding by the second to the tenth largest shareholders is a Hirfindal-type index. The summary statistics for this variable do not intuitively describe the shareholding by the second to the tenth largest shareholders in a company. Therefore, we also present the raw shareholding data, which is labeled *RAWSHARE2.10* and represents the sum of the percentages of shareholding held by the second to the tenth largest shareholders. Its mean (median) is 16.93% (13.52%). In our sample, the mean (median) percentage of outside board members - *OUTSIDEDIR* - is around 47% (51%). Despite efforts made in collecting information and constructing the variable, we believe the variable should be considered with reservation. Although board composition matters a lot, formalized board decision-making mechanisms probably play an more important role. However, it is not captured in this study. *TOPSHARE* describes the percentage of shares held by the largest shareholders. Most Chinese listed companies are directly controlled by the state either through a state asset management authority or indirectly through a holding company and the largest shareholder in a company usually holds a very high percentage of the company. The summary statistics of *TOPSHARE* confirm this. The mean (median) percentage of shares held by the largest shareholders in our sample firms is 44.18% (43.24%).

Top executives are found on average to hold only a little over 0.06 of one percent of their company's shares. Meanwhile, the summary statistics also suggest that about 36.86% of the

CEOs in our sample firms were the chairperson of the board. We find, in addition, that around 10.30% of the companies in our sample have either H- or B- shares. Our summary statistics also show around 79% of listed companies in China are group affiliated. Also, around 56% of Chinese listed companies are controlled by the government. On average, the total assets (revenue) of our sample firms is RMB 1,729 (RMB 544) million, which is about US\$ 209 (US\$66) million dollars. Compared to their Western counterparts, China's listed companies are fairly small.

## 4 Earnings Management to Tunnel

In the section, we attempt to provide direct evidence showing that earnings management is primarily induced by tunnelling. We consider two situations where the firms demonstrate the strongest propensity to manage earnings. We study earnings management in each of them and illuminate how controlling shareholders use earnings management to tunnel.

### 4.1 Tunnelling through rights issues

Since 1999, to obtain the right to issue new equity, a listed company must maintain, at minimum, a ROE of 6% for three consecutive years; meanwhile, the average ROE over these three years must be no less than 10%. If rights issues provide the controlling shareholders with tunnelling opportunities, listed companies' incentive to manage earnings above the required thresholds is strong.

#### 4.1.1 Earnings management to earn the right to issue new equity

We bisect our sample. The first group consists of firms reaching the decision threshold based on their ROEs in either 1999, or 2000 or 2001.<sup>18</sup> The second group consists of firms that

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<sup>18</sup>To be included in this category, the companies have to satisfy two conditions: first, the ROE for each of the three years is above 6%; second, the average ROE for the three years is above 10%.

did not reach the threshold. We test hypothesis *H1a* - the average *ACC/IAACC* for firms reaching the rights issues requirement is significantly higher.

In this test, we consider two ROEs. The first is the “core” ROE, which is defined as profit from operations divided by book value of equity. The second is “non-core” ROE, which is defined as total profit divided by book value of equity. As discussed in Section 3.1, profit from operations is defined as sales revenue less cost of goods sold and operating expenses; whereas total profit includes profit from operating activities, gains (losses) from disposal of assets and investments, and other revenues and expenses. Therefore, profit from operations measures the profitability of a company’s “core” business activities; total profit measures the profitability of both the “core” and “non-core” business activities. We believe that it is easier for managers and controlling shareholders to manipulate reported profit through “non-core” activities, since they can exercise a larger degree of discretion over these “non-core” business activities.

Panel A of Table 2 presents the results of both the *t* – *test* and the *Kruskal – Wallis* test using “core” ROE. Since the test requires three consecutive annual ROEs, companies that were not listed at the end of 1997 and 1998 are missing from the sample. The sample size drops to 2041 firm year observations. During 1999-2001, 1565 companies reached the decision threshold based on their reported “core” ROE and 576 firms failed. The *t* – *test* indicates that the average *ACC/IAACC* of companies exceeding the threshold is significantly larger than that of companies failing to achieve the threshold (P values are 0.001 and 0.000 for *ACC* and *IAACC* respectively). The *Kruskal – Wallis* test suggests the same results. Panel B reports the test with the threshold based on “non-core” ROE. 1100 firms reached the rights issue threshold based on their reported “non-core” ROEs in 1999-2001. Notice that the results in Panel B are more significant than those in Panel A, suggesting that many companies use non-core business activities as vehicles for managing earnings in order to pass the rights offering threshold.

#### 4.1.2 Private benefits accrued to controlling shareholders following rights issues

Results in Table 2 suggest that the Chinese listed companies have strong incentives to manage earnings above the policy thresholds so as to earn the rights to issue new equity. If we can demonstrate the existence of a significant amount of private control benefits for controlling shareholders, then we can argue that earnings management in this case likely is induced by tunnelling. Anecdotal evidence lends immediate support. We search the CSMAR Financial Databases and identify 364 rights issues during 1999-2001. One interesting finding is that in almost all cases, large shareholders choose to give up their rights to purchase additional shares. In the very few cases where large shareholders made subscriptions to the new shares, they paid with land or other non-cash assets (for example, the rights issue of Zhangjiang Gaoke (600898) in 2001). Typically, only minority shareholders make subscriptions to the new shares. Obviously, what controlling shareholders need here is cash. Since the controlling shareholders typically control more than 40% of the shares, their control over the firm is still secure even after they give up subscriptions to the new shares.

We calculate the capital raised by the listed companies through rights issues, *CAPRAISED*, based on the assumption that only minority shareholders subscribe to new shares.<sup>19</sup> Here *CAPRAISED* is defined as the total amount of cash raised through rights issues minus the amount paid out as dividends in the same year. Panel A of Table 3 presents the descriptive statistics of *CAPRAISED*, *CAPRAISED* deflated by market cap in prior year, and *CAPRAISED* deflated by total assets in prior year. On average, the firms issuing new shares (SEO firms) are able to raise new capital amounting to 4.4% of the firm market value or 13.9% of the firm total assets through rights issues.

The raised capital may be used in two ways: (1) it might be mis-allocated by the controlling shareholders for their own benefits; (2) it may be used for profitable investment

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<sup>19</sup>In the course of conducting the research, we interviewed numerous members of Chinese business community with many of them representing the SEO firms. Almost all of them agreed that only minority shareholders purchased the new shares and large shareholders usually gave up the rights.

projects. The results from the following regression can help us detect the use of raised fund:

$$INVESTMENT = \alpha + \beta_1 Tobin'sQ + \beta_2 SEO * Tobin'sQ + \gamma_1 CashFlow + \gamma_2 SEO * CashFlow + \epsilon, \quad (4)$$

where *INVESTMENT* is defined as capital expenditures in year t deflated by total assets in year t-1, *SEO* is a dummy variable that takes the value of 1 if a firm issues new equity in that year and 0 otherwise. If the capital raised is used for profitable projects, we expect the investment to be more responsive to *Tobin'sQ* (a proxy for investment opportunity) for *SEO* firms. However, as shown in Panel B of Table 3, the regression coefficient of *Tobin'sQ* for the *SEO* firms is negative. Surprisingly, the *Tobin'sQ* coefficient for non-*SEO* firms is significantly positive. Furthermore, in the pooled regression, the interactive variable - *SEO \* Tobin'sQ* - carries a negative sign. Overall, the results suggest that *SEO* firms' investment is not responsive to investment opportunities.

Intriguingly, the coefficient of *SEO \* CashFlow* is significantly positive, which suggests that *SEO* firms are more likely to be financially constrained compared with non-*SEO* firms (see Fazzari, Hubbard and Petersen, 1988). After raising a huge amount of capital through rights issues, the *SEO* firms still face stringent financing constraints and their investment is not responsive to their investment opportunities. The results naturally point to one possible explanation - the raised capital may have been diverted to controlling shareholders. Chan and Yuan (2002) show that *SEO* firms subsequently performed worse than those which did not employ such practice. They attribute the value loss to possible misallocation of capital resources, which is consistent with our evidence.

## 4.2 Testing Hypotheses H2a and H2b

Studying the corporate behaviors of firms facing serious de-listing risks provides us with another opportunity to understand the connections between earnings management and tunnelling in the context of China's capital market.

#### 4.2.1 Earnings management to avoid de-listing

According to the guideline introduced by CSRC in 1999, a listed company will be designated an “ST” firm if it reports a net loss for two consecutive years and a “PT” firm if it suffers a net loss for three consecutive years. “PT” itself entails virtual suspension of trading. Further, if a PT firm cannot become profitable in one year, it will be completely de-listed. Overall, a firm will only have two years to work itself out of the trouble once it is labelled as ST. If tunnelling is pervasive and the private control benefits accrued to controlling shareholders are significant in the Chinese listed companies, controlling shareholders will have strong incentives to manage earnings to avoid being de-listed.

To test hypothesis H2a, we construct two sub-samples. The first includes the firms that have successfully managed themselves out of trouble (reporting net loss in the first two years but net income in the third year); and the second group includes the firms failing to do so (reporting net loss in three consecutive years). We then test whether  $ACC/IAACC$  is significantly higher for firms that have successfully avoided the de-listing risk. Table 4 reports results of both the  $t$ - and the *Kruskal – Wallis* test. 29 firms out of the universe of Chinese listed companies experienced three consecutive loss years during 1999-2001; 54 firms reported losses for two years, but managed to report a net income in the third year during the same period. Consistent with our expectation, Table 4 shows that the average  $ACC/IAACC$  of firms that have successfully avoided delisting is significantly higher than that of firms failing to do so. The result indicates that the managers may have manipulated earnings upward to avoid the delisting risk.

#### 4.2.2 The control benefits forfeited as a result of de-listing

If we can estimate the size of private benefits controlling shareholders can extract or the size of private benefits that could be forfeited as a result of de-listing, we can better understand a listed company’s strong propensity to manage earnings when facing a de-listing risk. The “ST” practice in China’s capital market provides us with a unique opportunity to address

this issue.

The system of ST designation triggers a contest over corporate control.<sup>20</sup> An ST firm is pressured to restore profitability within two years in order to avoid being de-listed. Given the strong incentive to have the ST label removed, the paternalistic instinct of the local government toward the incumbent controlling shareholder gives way to their common desire to find a convincing restructuring plan. If the incumbent controlling shareholder does not offer a good one, others with a superior restructuring plan will take over the firm. The contestants for control rights are often the other large shareholders of the firm, working with the encouragement of the government.<sup>21</sup> Facing the risk of losing control to other contestants, the incumbent controlling shareholders have to do whatever it takes to “prop” up the listed companies.<sup>22</sup> In most cases, such “propping” (negative tunnelling) takes the form of cash or quality assets injection. If the competition for corporate control is fierce enough, we expect that the amount of wealth the controlling shareholders use to prop up the listed companies would be equal to the amount of wealth they expect to tunnel from the listed companies. In other words, the value of “propping” is a lower bound of the value of “tunnelling”. The rest of the section, therefore, focuses on how to find a reasonable measure for the amount of wealth propping up a listed company.

Searching the *WISE Information System* provided by the Shanghai Wind Co., Ltd., we identify 66 ST designations during the period from 1998 to 2000.<sup>23</sup> For each ST designation, we calculate the listed firm’s market adjusted stock price performance from

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<sup>20</sup>Also see Bai, Liu, and Song, 2003.

<sup>21</sup>There is an interesting fact about Chinese ST firms: while fewer than 10% of non-ST firms changed their controlling shareholders, more than 55% of ST firms had their controlling shareholders changed one or two years after their ST designation during 1998-2000.

<sup>22</sup>Friedman, Johnson, and Mitton (2003) study a firm’s “propping” activity in the context of emerging markets. Based on their description, “propping” is equivalent to negative tunnelling. That is, controlling shareholders transfer resources into the listed companies to boost their performance. However, they do not specify why such propping would happen. We believe preventing a listed firm from being de-listed presents itself as a good example of propping in China.

<sup>23</sup>Note that the number of observations is slightly different from that in Table 4 where 83 firms had loss for two consecutive years and should be labelled as “ST”. We study the ST designation during the period from 1998-2000 here since we need two years’ stock return data to carry out our analysis.

the third month prior to the ST announcement (month -3) to the twenty-fourth month after the announcement (month +24) as follows:<sup>24</sup>

$$PER_j = \sum_{t=-3}^{t=24} (r_{j,t} - m_t), \quad (5)$$

where  $PER_j$  measures firm  $j$ 's abnormal stock market performance,  $r_{j,t}$  is the monthly return for firm  $j$  and  $m_t$  is the monthly market return. We believe PER is a good proxy for the amount of wealth injected into an ST firm by the incumbent controlling shareholder or the winning controlling shareholder so as to save it from de-listing. Table 5 presents the descriptive statistics of  $PER$ .

Table 5 shows that the average  $PER$  is as high as 31.81% with a standard deviation of 47.79%. The minimum of PER is -57.15% and the maximum is 248.99%. Obviously, on average, an ST firm's stock price outperforms the market by as much as 31.81% of the firm's market value. The extraordinary stock performance reflects the amount of wealth the controlling shareholders transfer into the listed company to prop up its performance. It explains why the controlling shareholders show such strong a propensity to manage earnings when facing a delisting risk.

## 5 Do Firms with Good Governance Have Less Earnings Management?

Our analysis in the first stage have established the evidence of tunnelling closely related to the two situations where earnings management has been identified to be the most conspicuous in China. If earnings management in China is indeed primarily induced by tunnelling, we should observe that firms with good governance tend to have less earnings management.

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<sup>24</sup>The starting month has little effect on the magnitude of the abnormal market performance. But month +24 here is critical given that Chinese regulations stipulate that an ST firm only have two years to turn around its performance. Therefore, the assets or cash injection, if any, will have to happen within the two-year time window.

## 5.1 The correlation between earnings management and corporate governance variables

Table 6 shows the Pearson correlation coefficients (in the upper diagonal) between our two earnings management measures (*ACC* and *IAACC*) and the set of governance variables defined in Section 3 and *SIZE*. The first set of corporate governance variables, *SHARE2\_10*, *HBSHARE* and *OUTSIDEDIR*, measure the restraining mechanisms (internal or external) operating on the tunnelling activities of controlling shareholders. We expect *ACC* and *IAACC* to be negatively correlated with them. The second set of corporate governance variables - *TOPSHARE*, *TOPEXECSHARE*, *PARENT*, *SOE* and *CEO\_DIR* - measure the level of incentive for controlling shareholders to manage earnings and tunnel. We expect *ACC* and *IAACC* to be positively correlated with them.

As shown in Table 6, among all governance variables, all except *SOE* have signs consistent with predictions. However, only *TOPSHARES*, *TOPEXECSHARE*, *CEO\_DIR*, *HBSHARE* are significantly correlated with *ACC/IAACC*.

## 5.2 The role of governance in earnings management: multiple regression analysis

In addition to correlation analysis, we also use multiple regression approach to test Hypothesis H3a. We run the following regressions:

$$\begin{aligned}
 ACC_{i,t}(IAACC_{i,t}) = & \alpha + \beta_1 \ln(SHARE2\_10_{i,t}) + \beta_2 OUTSIDEDIR_{i,t} + \beta_3 TOPSHARE_{i,t} \\
 & + \beta_4 (TOPSHARE_{i,t})^2 + \beta_5 TOPEXESHARE_{i,t} + \beta_6 CEO\_DIR_{i,t} \\
 & + \beta_7 HBSHARE_{i,t} + \beta_8 PARENT_{i,t} + \beta_9 SOE_{i,t} + \beta_{10} SIZE_{i,t} \\
 & + years + \epsilon_{i,t}.
 \end{aligned} \tag{6}$$

The relationship between *TOPSHARE* and the dependent variables requires further explanation. We expect the relation between *ACC/IAACC* and *TOPSHARE* to exhibit an inverse U-shape. As the largest shareholder’s interest in the company increases, his opportunistic behavior increases. However, when the largest shareholder’s interest in the company reaches a certain level, his incentive to further expropriate the firm’s wealth may decrease, since the net gain of tunnelling is no longer very significant. Therefore, we include the square of *TOPSHARE* in the regression. We expect a negative coefficient on this variable. In our empirical analysis, we use the natural log of *SHARE2\_10*, instead of *SHARE2\_10* itself, to bring the coefficient on that variable to a scale compatible with the coefficients on other variables. We also include *SIZE*, defined as the natural log of total assets, in the regression to control for undetermined size effects. In addition to the set of corporate governance variables, we also regress our earnings management measures against the composite index, *CGRANK*.

$$ACC_{i,t}(IAACC_{i,t}) = \alpha + \beta_1 CGRANK_{i,t} + \beta_2 SIZE_{i,t} + years + \epsilon_{i,t}. \quad (7)$$

Table 7 presents the results of regressions (6) and (7). In general, the results support our hypothesis. In models 1 and 3, we find that *ACC(IAACC)* is significantly positively correlated with *TOPSHARE*, *TOPEXESHARE*, and *CEO\_DIR*, suggesting that expropriation of firm wealth increases with the largest shareholder’s interest in the company, the top executives’ personal interest in the company, and the lack of independence of the board. *ACC(IAACC)* is also negatively correlated with the square of *TOPSHARE*, suggesting that as the largest shareholder’s interest in the company reaches a threshold, his opportunistic behavior decreases. More strikingly, we find that *HBSHARE* is significantly negative. It suggests that listed companies with H- or B-shares are not keen to manage their earnings. However, the relations between *ACC(IAACC)* and  $\ln(SHARE2_10)$ , *PARENT*, *SOE* are not significant. *PARENT* even carries a wrong sign. Finally, both *ACC* and

*IAACC* are positively correlated with *SIZE*, suggesting that earnings management is more problematic in larger companies. Table 7 (models 2 and 4) also shows that the measures of earnings management are significantly correlated with *CGRANK*, our aggregate measure for a firm’s overall corporate governance performance. These results provide strong support for the argument that firms with good governance tend to have less earnings management.

### 5.3 Time-series evidence

An interesting question to ask is whether a firm tends to use less earnings management if it has migrated to a higher level of corporate governance practice. We test this hypothesis (H3b) by running the following regression:

$$DACC_{i,t}(DIAACC_{i,t}) = \alpha + \beta DCGRANK_{i,t} + years + \epsilon_{i,t}, \quad (8)$$

where  $DACC_{i,t}(DIAACC_{i,t}) = ACC_{i,t}(IAACC_{i,t}) - ACC_{i,t-1}(IAACC_{i,t-1})$  and  $DCGRANK_{i,t} = CGRANK_{i,t} - CGRANK_{i,t-1}$ . We expect  $\beta$  in regression (8) to be significantly negative.

Table 8 presents the regression results. In both regressions, the coefficients of *DCGRANK* are significantly negative. The result suggests that as a listed company improves its corporate governance performance (along all aspects of its corporate governance practices or some of them), its incentive to manage earnings and to tunnel decreases.

### 5.4 Further discussion

Our analysis shows that in China, cross-sectional and time series differences in corporate earnings management could be largely accounted for by corporate governance variables (see Sections 5.1-5.3). These results, coupled with the findings in Section 4, strongly suggest that earnings management in China is primarily driven by tunnelling. While we present strong evidence of controlling shareholders managing earnings to tunnel, we are not able

to completely exclude several alternative explanations. For example, the managers of state owned enterprises (SOEs) may have incentives to manage earnings so as to please their superiors and obtain quicker promotion; also, they may manage earnings to fulfill certain political agenda rather than tunnel firm value.

Although not specifically addressed, our empirical findings do carry some implications for those explanations. First of all, if a major driver of earnings management in China is to fulfill certain political agenda, we expect earnings management to be more significant for SOEs. However, as Table 7 shows, the coefficient of *SOE* dummy is far from being significant. Also, we use a piece-meal approach to testing between group differences (SOEs vs non-SOEs). We do not find any significant difference in earnings management.<sup>25</sup> Second, if the managers want to please their superiors in order to increase their chance for promotion, the incentive will be there regardless of how many shares are held by the largest shareholders and whether the CEO is the chairman of the board. Also, such an incentive should be stronger for group - controlled firms. However, the regressions results in Table 7 do not provide such support. Third, given our findings that corporate governance related variables are able to explain cross-sectional and time-series variations in earnings management, we believe tunnelling - if it is not the only one - is the most significant determinant of earnings management in China.

## 6 Conclusion

This paper hypothesizes that earnings management in the Chinese listed companies is mainly induced by tunnelling. To provide supporting evidence, we conduct our analysis in two stages. In the first stage, we study two China-specific situations where earnings management has been identified to be conspicuous. For each of them, we document listed firms' incentives to manage earnings and relate these incentives to controlling shareholders' tunnel activity. For example, we document the mis-allocation of raised capital by controlling shareholders

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<sup>25</sup>Results not reported but available from authors upon request.

in the case of rights issues; we also manage to estimate the size of private control benefits controlling shareholders are able to extract and explain why they have strong incentives to manage earnings when facing a de-listing risk.

In the second stage, we document systematic differences in earnings management across the universe of China's listed companies from 1999 to 2001. We establish cross-sectional and time-series evidence showing that Chinese listed companies' earnings management is significantly related to their corporate governance practices. These results, together with the results from the first stage, provide strong support for our main hypothesis. That is, tunnelling is the major driver of earnings management in Chinese listed companies.

Our findings, however, should be interpreted cautiously. Our analysis cannot totally exclude other incentives to manage earnings. The extent of tunnelling incentive and other incentives (e.g., maintain social stability, please superiors, etc.) are therefore, not yet well understood and hence difficult to disentangle.

## References

- [1] Aharony, Joseph, Jeveons C. Lee, and T.J. Wong, 2000, Financial packaging of IPO firms in China, *Journal of Accounting Research*, Spring 2000: 103-126.
- [2] Bae, Kee-Hong, Jun-Koo Kang, and Jin-Mo Kim, 2002, Tunneling or value addition? Evidence from mergers by Korean business groups, *Journal of Finance*, 57(6): 2695-2740.
- [3] Bai, Chong-en, Qiao Liu, and Frank Song, 2003, The value of private benefits: evidence from an emerging market for corporate control, The William Davidson Institute working paper.
- [4] Berle, Adolf and Gardiner Means, 1932, The modern corporation and private property, New York, Macmillan.
- [5] Bertrand, Marianne, Paras Mehta, and Sendhil Mulliananthan, 2002, Ferreting out tunneling: an application to Indian business groups, *The Quarterly Journal of Economics*, 117(1): 121-148.
- [6] Chen, Kevin, and H. Q. Yuan, 2002, Earnings management and capital resource allocation: evidence from China's accounting-based regulation of rights issue, working paper.
- [7] Chen, J.P. Charles, Shimin Chen, and Xijia Su, 2000, Is accounting information value relevant in the emerging Chinese stock market? working paper.
- [8] Claessens, Stijin, Simeon Djankov, and Larry Lang, 2000, The separation of ownership and control in east Asian corporations, *Journal of Financial Economics*, 58.
- [9] CLSA Emerging Markets, 2001, Saints and sinners: who's got religion?
- [10] Dechow, P., and D. Skinner, 2000, Earnings management: reconciling the views of accounting academics, practitioners, and regulators, *Accounting Horizons*, 14: 235-250.
- [11] Dennis, Diane and John McConnell, 2002, International corporate governance, *Journal of Financial and Quantitative Analysis*, forthcoming.
- [12] Fan, J., and T. J. Wong, 2001, Corporate ownership structure and the informativeness of accounting earnings in East Asia, *Journal of Accounting and Economics*, 33, 401-426.
- [13] Fazzari, Steven, Glenn Hubbard, and Bruce Petersen, 1988, Financing constraints and corporate investment, *Brookings Papers on Economic Activity*, 141-185.
- [14] Firedman, Eric, Simon Johnson, and Todd Mitton, 2003, Propping and tunneling, *Journal of Comparative Economics*, forthcoming.
- [15] Greene, William, H, 1993, *Econometric Analysis*, 2nd edition, Prentice Hall.

- [16] Healy, P., J. Wahlen, 1999, A review of the earnings management literature and its implications for standard setting, *Accounting Horizons*, 13, 365-383.
- [17] Jensen, Michael C, and William H. Meckling, 1976, Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, Vol.3, 4: 305-360.
- [18] Jian, Ming, and T. J. Wong, 2003, Earnings management and Tunneling through related party transactions: evidence from Chinese corporate groups, working paper.
- [19] Johnson, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 2000, Tunneling, *American Economic Review Papers and Proceedings*, XC, 22-27.
- [20] Klein, April, 2002, Audit committee, board of director characteristics, and earnings management, *Journal of Accounting and Economics*, 33: 375-400.
- [21] La Porta, Rafael, Flowrencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1997, Legal determinants of external finance, *Journal of Finance*, 52:1131-1150.
- [22] La Porta, Rafael, Flowrencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1998, Law and finance, *Journal of Political Economy*, 106, 6,1113-1155.
- [23] La Porta, Rafael, Flowrencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 2000, Investor protection and corporate governance, *Journal of Financial Economics*, 58:3-28.
- [24] Leuz Christian, Dhananjay Nanda and Peter Wysocki, 2003, Earnings management and investor protection: an international comparison, *Journal of Financial Economics*, forthcoming.
- [25] McKinsey and Company, The McKinsey Quarterly, various issues in 1999-2003.
- [26] Nenova, Tatiana, 2000, The value of corporate votes and control benefits: a cross-country analysis, working paper, Harvard University.
- [27] Shleifer, Andrei and Robert W. Vishny, 1997, A survey of corporate governance, *Journal of Finance*, 52:737-83.
- [28] Shleifer, Andrei and D. Wolfenzon, 2002, Investor protection and equity market, *Journal of Financial Economics*, 66(1), 3-27.
- [29] Watts, R.L. and J.L. Zimmerman, 1990, Positive accounting theory: a ten year perspective, *The Accounting Review*, 65, 131-156.
- [30] Zingales, Luigi, 1994, The value of the voting right: a study of the Milan Stock Exchange Experience, *The Review of Financial Studies*, 7:125-48.
- [31] Zingales, Luigi, 1995, What determines the value of corporate votes, *Quarterly Journal of Economics*, 110:1047-107