Earnings Management to Tunnel: Evidence from China's Listed Companies*

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First draft: December 2002
This draft: February 2004

* Liu and Lu are from the Faculty of Business and Economics at the University of Hong Kong. An earlier version of the paper was completed and circulated while the first author was affiliated with McKinsey and Company. We thank Ross Watts and an anonymous referee for many insightful suggestions that have reshaped and greatly improved the paper. We are grateful to the many members of the Chinese business community and McKinsey's Asia Pacific Corporate Finance and Strategy Practice for sharing with us their thoughtful insights about the Chinese capital market and Chinese listed companies. We thank Chuntao Li for his excellent research assistance. Both authors acknowledge financial supports from the University of Hong Kong Research Initiation Grants and the Center for China Financial Research. Liu also thanks the Hong Kong Research Grants Council for their support (Competitive Earmarked Research Grant No. HKU7201/01H). This paper is also substantially supported by a grant from the University Grants Committee of the Hong Kong Special Administrative Region, China (Project No. AOE/ H-05/99). We are responsible for all remaining errors.

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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 controlling owners' tunneling activity. In the first stage, we relate our analyses to prior research on Chinese listed companies which has documented their strong incentives to manage earnings in order to meet certain return on equity (ROE) thresholds. We identify tunneling evidence in two scenarios where such practice has been 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 theories, strongly suggest that agency conflicts between controlling shareholders and outside investors are the main stimuli of earnings management in China's listed companies.

Key words: earnings management, tunneling, corporate governance, and Chinese listed companies
JEL classification: G32, G34, M41, M43

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)[1], recent finance theory, especially the legal approach to corporate governance advocated by La Porta et al. (1997, 1999, 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, La Porta, Lopez-de-Silanes, and Shleifer (2000) use the term tunneling to describe the transfer of resources away from firms for the benefits of their controlling shareholders. The "tunneling" 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.[2]

Tunneling 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 want 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 tunneling 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

[1] 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.

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

argument. For example, Leuz, Nanda, and Wysocki (2003) examine systematic differences in earnings management across 31 countries and find that earnings management decreases in investor protection. Studying a sample of 131 Chinese listed firms in basic material industries, Jian and Wong (2003) document that a group-controlled firm in China 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 that earnings management in China might be mainly induced by controlling shareholders' incentive to tunnel. In the first stage, we delve deeper into China's institutional background and study two specific situations where earnings management has been identified to be the most conspicuous, as suggested by numerous anecdotes and prior research.[3] They are: (1) a listed company needs to manage 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 (2) a listed company needs to manage 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 in the process.

If earnings management is indeed induced by a firm's tunneling need, we expect its pervasiveness to be closely related to the firm's corporate governance practices 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 shows that a firm tends to manage earnings less have less as it migrates to a

[3] See Chen et al. (2000), Chen and Yuan (2002), and Jian and Wong (2003) for anecdotal evidence and large sample evidence.

higher level of corporate governance practice. Our results, thus, lend strong support for the argument that agency conflicts between controlling owners and outside investors might be the fundamental drivers of earnings management in China.

This paper differs from prior research on Chinese listed firms' earnings management and contributes to the literature in several important ways. First, the paper moves beyond the previous studies that highlight earnings management as a way to meet ROE targets in China.[4] Typical incentives to manipulate earnings, found in more market-oriented economies, do not exist in China. For example, the majority of Chinese managers do not face the pressure of debt covenant constraints; incentive-based compensation plans are rare; and incentives to meet market expectation are minimal. Given that, we can minimize control variables to focus on the factors we are interested in. The paper makes full use of the unique experimental setting in China's capital market and identifies tunneling as the primary driver of earnings management in China. Second, the paper also establishes significant correlations between earnings management and various corporate governance variables. It shows that good corporate governance limits controlling shareholders' incentive to manage earnings. It thus complements Leuz, Nanda and Wysocki (2003) where evidence from China is void. Third, unlike pervious studies which only use a sub-sample of the Chinese listed companies,[5] this paper examines the universe of China's listed companies from 1999 to 2001. It thus, presents itself as a more comprehensive study on Corporate China's earnings management practice. Finally, the paper also builds on the recent advances in the corporate finance literature on tunneling. We extend this literature by presenting

[4] For example, Chen and Yuan (2002) find that Chinese listed firms manage earnings to exceed the ROE requirements for rights issues.

[5] 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 the 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.

corroborating evidence of tunneling in the context of China's capital market and by illuminating the role of earnings management in controlling shareholders' tunneling activity.

Our paper is subject to several caveats as well. First, it is still possible that in China, incentives other than tunneling 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; also, they may manage earnings to fulfill certain political agenda rather than tunnel firm value. Although our two-stage analyses provide corroborating evidence of tunneling activity that immediately follows a firm's earnings management, they cannot completely eliminate these possibilities. However, given the fact that corporate governance related variables are able to explain cross-sectional and time-series variations in earnings management, we believe tunneling, if not the only one, is the most significant determinant of earnings management in China. Second, it is difficult to measure earnings management in China. We attempt to address this issue by computing two accrual- based proxies for earnings management in China. We obtain consistent results across the two measures. As prior literature shows (for example, Chen et al. (2000), Jian and Wong (2003)), Chinese listed companies mainly use some discretionary items such as accruals to management earnings. We believe our empirical findings based on the two measures reflect earnings management activities across the Chinese listed companies. Third, it is also difficult to measure firm-level corporate governance practice. We address this issue by using eight proxies for various aspects of corporate governance. Of course, we admit that these governance variables are often complementary and measured with error. In order to resolve this concern, we 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 hypotheses. Data collection, variables construction and sample summary statistics are discussed in Section 3. Section 4 discusses two situations where earnings management is most conspicuous. We present evidence of tunneling 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 Background and Hypotheses Development

2.1. Institutional Background

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 fewer than 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.[6]

2.1.1. The pervasiveness of tunneling in 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 introduced have been asymmetrically in favor of SOEs or companies with close ties

[6] In 1990, China's two stock exchanges, in Shanghai and Shenzhen, were opened with great fanfare. By 2001, there were already 1,200 public companies listed on them. One figure demonstrates the general public's enthusiasm towards China's fledgling stock market: the average subscription ratios for IPOs have been more than 200 times oversubscribed throughout the past decade.

to the government. For example, a quota system was used by the CSRC to assign the listing quota to the planning commissions of various provinces, 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 control benefits accruing to controlling shareholders in China are huge and cannot be easily competed away under normal circumstances. 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.[7] Local governments, instead of shareholder committees, appoint the management of listed firms. Therefore, the management often takes action to benefit the largest shareholder – government at various levels. It is however worth noting that such practice may add social values in other ways that offset the social costs it imposes through tunneling. For example, it may help reduce external financing constraints and transaction costs. However, determining whether its social values outweigh social costs is not focus of the paper.

Given the fact that only around 30% of listed companies' shares are publicly tradable, and that 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

[7] As shown in Table 1, more than 79% of Chinese listed companies are group controlled.

of punishment spectrum in the current securities laws[8]. Listed companies, therefore, are the nexus of a series of related party transactions carried out for the benefit of the controlling shareholders. Numerous anecdotes have suggested that controlling shareholders treat listed firms as cash machines, from which they can withdraw money as long as they wish. For example, 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 2001. In the same year, the largest shareholder of Sanjiu Pharma, one of the blue chips in China, extracted U$309.1 million, 96% of the listed company's total equity. According to a survey conducted by the Shanghai-based Shenying and Wangguo Securities Co., Ltd., the controlling shareholders of the 130 firms surveyed on average owe the listed companies US$ 40 million in the form of accounting receivables or parent borrowing. [9]

2.1.2 The pervasiveness of earnings management in Chinese listed companies

Earnings management has also been rampant in China's listed companies. Chinese investors and regulators are unsophisticated: they are usually fixated on reported earnings. For example, the China Securities Regulatory Commission (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. Whenever a contract or regulation is based on accounting numbers, managers have an incentive to manipulate those numbers to serve their own or the firm's interests.[10]

[8] 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.
[9] See Caijing Magazine (Finance and Economics), June 5, 2002.
[10] See Healy and Wahlen (1999) and Watts and Zimmerman(1990).

Unlike their counterparts in the U.S., Chinese listed companies rely more heavily on equity financing for two reasons. First, the banking sector in China is neither well developed nor efficient, which increases the external financing constraints. Second, equity financing carries relatively low costs, and leaves the listed companies with more flexibility. Listed companies are not placed under a great deal of pressure to report to minority shareholders how they have used the raised capital unless they are involved in serious civil litigation or criminal charges.[11] To be eligible for rights issue, a listed company has to satisfy several requirements. For example, 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 the 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.

Besides misallocating the raised capital, controlling shareholders can also tunnel through transfer pricing, asset swapping or many other forms of related party transaction. The control over listed companies, therefore, carries a special value for controlling shareholders.[12] To enjoy the 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.

[11] Our large sample evidence in a later section will show how inefficiently the raised capital has been used by the listed companies.

[12] A number of studies have been devoted to studying the size and determinants of the size of the value of corporate control. Although the term – tunneling – is not used in these studies, it is indeed the main contributor of the private benefits accrued to the controlling shareholders. See Zingales (1994, 1995); Nenova (2002); Doidge (2003); Dyck and Zingales (2002), etc.

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.[13] 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]

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 2 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

The thesis of the paper is that earnings management in China is mainly induced by tunneling. In order to test it, we need to first establish that a significant amount of earnings management is related to the two incentives: to gain rights to issue new equity; and to avoid de-

[13] 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.

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 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 tunneling 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 understand the main purpose of rights issues is to use the raised capital for the benefit of controlling shareholders, we can test the existence of tunneling by checking whether the investment of firms issuing new shares (SEO firms) is more responsive to their investment opportunities (measured by Tobin's Q).[14] 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 risks tend to have more earnings management.

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

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

[14] Bertrand, Mehta and Mullanianthan (2002) use a similar empirical design to test the existence of tunneling among Indian group companies.

Since good corporate governance limits controlling shareholders' tunneling activity, if earnings management in Chinese listed companies is indeed induced by tunneling, we would expect its pervasiveness to be correlated with a firm's corporate governance practice. In line with the rationales in Leuz et al. (2003), we propose the following:

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

By the same logic, we have

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

This section describes the earnings management measures used in our empirical analyses. Drawing on the existing earnings management literature (see Healy and Wahlen, 1999; Dechow and Skinner, 2000) and taking into account the institutional features in China's capital market, we use two variables, the total accruals (*ACC*), and industry-median-adjusted accruals (*IAACC*), to proxy for earnings management. *ACC* is defined as the difference between net income (*NI*) and cash flows from operating activities (*CFO*) divided by average total assets (*TA*)[15]:

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

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

[15] The average of total assets at the beginning and the end of the year.

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 analyses can be attributed to the correlation between the discretionary component of the total accruals and the independent variables.

Most studies using U.S. 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[16]. 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:

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

[16] Therefore, both "above the line" and "below the line" items in an American income statement are included in China's operating income.

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 measures

Corporate governance has been characterized as a set of mechanisms protecting investors from opportunistic behavior (see Shleifer and Vishny, 1997; Dennis and McConnell, 2002). These mechanisms may be internal or external. Internal mechanisms include dispersed ownership structures, independent boards of directors, formal board processes, timely and accurate disclosure of relevant information, etc.; external mechanisms include the existence of active external take-over markets, a shareholder-friendly legal infrastructure, well-established capital markets, etc.[17] We use a number of variables to capture various aspects of a Chinese listed company's corporate governance practice. The same set of corporate governance mechanism measures have been used in Bai, Liu, Lu, Song and Zhang (2003).

3.2.1. Various corporate governance measures

Broadly speaking, both internal and external mechanisms help to resolve the 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, or $\frac{S_1}{S}$, where S_1 is the number of shares held by the largest shareholder and S is the total shares outstanding. This variable is a measure of the largest shareholder's interest in a company and also the largest shareholder's power in the board. Most corporate governance frameworks place positive values on a dispersed ownership structure[18]. Specifically, it has been argued that concentrated ownership (e.g., existence of one ultimate firm

[17] Luez, Nanda, and Wysocki (2003) put more emphasis on the investor protection aspect of corporate governance and use it as the major determinant of cross-country difference in earnings management.

[18] 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 assume dispersed ownership structure as a requirement for good governance.

owner) is one of the main causes of Asian companies' poor governance practice and poor accounting disclosure. [19] The ability of controlling shareholders to expropriate minority shareholders is directly related to the degree to which they control the company. Obviously, a higher *TOPSHARE* corresponds to a lower governance level and a higher incentive to tunnel. Therefore, we expect a **positive** correlation between *TOPSHARE* and earnings management measures, *ACC* and *IAACC*.

We define *TOPEXECSHARE* as the percentage of the shareholding 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 in line with those of controlling shareholders. We expect a **positive** correlation between earnings management measures, *ACC* and *IAACC*, and *TOPEXECSHARE*.

Klein (2002) finds that boards of directors are more effective in monitoring managers' 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' tunneling 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 equals 1, if the company's CEO is also the chairperson of the board; otherwise, it equals 0. When the CEO is also the board chair, they have more control over the board. It is more difficult for minority shareholders to have a say on important issues in the company. Tunneling is, therefore, more likely to happen. Again, we 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

[19] See Claenssens, Djanov, and Lang (2000); Fan and Wong (2001).

compensation from the company to the total number of directors. 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. 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.[20] 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

$$SHARE2\_10 = \sum_{n=2}^{10} \left(\frac{S_n}{S}\right)^2 , \qquad (3)$$

where S_n is the number of shares held by the n^{th} largest shareholder, and S is the number of shares outstanding. *SHARE2_10* is a Herfindahl index that measures the concentration of shares held by the top 10 shareholders, excluding the controlling one. We expect a **negative** correlation between *SHARE2_10* and *ACC* and *IAACC*.

The Chinese listed companies are regulated by Chinese jurisprudences with a few exceptions: the firms with shares listed on the Hong Kong Stock Exchange or firms with B-shares which are only issued to foreign investors. A dummy variable, *HBSHARE*, is constructed as a proxy for the effect of legal environment in enforcing corporate governance. Firms issuing H- or B-shares must adopt international accounting standards, and have their financial statements

[20] 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.)

audited by internationally recognized accounting firms. Generally, the managers of these firms are subject to strict scrutiny from more sophisticated investors. The largest shareholders of these firms are therefore less likely to tunnel. We therefore expect a **negative** correlation between *HBSHARE* and earnings management.

In addition to the above variables that capture the internal and external governance mechanisms, we compute two more variables that 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 tunneling is wider. The incentives to manage earnings are also stronger. We expect a **positive** sign between *PARENT* and earnings management.

Finally, we define *SOE*, a dummy variable that capture whether the controlling shareholder is the government or not. It is believed that the government may have goals such as maintaining employment and social stability rather than value maximization. Therefore, the controlling government may use the listed company as a vehicle to meet these policy goals that may conflict with shareholders' interests. Additionally, it has been argued that soft budget constraint is a major problem facing many SOEs in a transition economy like China. We believe earnings management could be more serious for SOEs. Therefore, 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 two concerns, we also construct a composite index to quantify and evaluate a firm's relative corporate governance performance. Since the above eight variables describe various aspects of Chinese listed companies' corporate governance practice, they carry

different weights. To specify the appropriate weight for each of the governance variables, we apply principal component analysis (PCA). PCA allows us to identify linear combinations of the eight variables that best represent the variation in the eight variables (See Greene, 1993, pages 271-273). We define our composite index, *CGRANK*, as the first principal component of the PCA. The factor loadings for the eight raw 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.*[21] Based on the above factor loading, we calculate the composite raw score that measures a firm's overall corporate governance performance. We then divide observations in each year into quintiles based on their raw 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 analyses require both financial and corporate governance data. The corporate governance data used in our tests are manually collected from annual reports. [22] 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, etc. Also, there was a major change in regulations governing rights issues in March 1999.[23] Our analyses therefore focus on the period from 1999 to 2001.

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[21] We also compute the aggregate measure using equal weight for the governance variables, which yields the same results.

[22] The Taiwan Economic Journal (TEJ) Database, a popular database for research on Chinese listed companies, has provided 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.

[23] Refer to Section 2 for detail.

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. Due to the fact that 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 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%).

[Table 1]

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 huge efforts made in collecting information and constructing the

variable, we believe the variable should be considered on a discretionary basis. It is not only the board composition that matters, formalized board decision-making mechanisms play an even more important role. However, it is not captured in this study.

TOPSHARE describes the percentage of shares held by the largest shareholders. As we have discussed, 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 ¥1,729 (¥544) million, which is about US $ 209 ($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 that earnings management is primarily induced by tunneling. As we explained above, there are two situations where earnings management is most conspicuous: (1) a firm needs to earn the rights to issue new equity; and (2) a firm needs to avoid being de-listed. We therefore study earnings management in each situation

and try to illuminate how controlling shareholders use earnings management to tunnel the resources out of listed companies.

4.1. Tunneling 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 tunneling 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[24]. The second group consists of firms that did not reach the threshold. We test hypothesis H1a, that is, the average *ACC*/*IAACC* for firms reaching the rights issues requirement is significantly higher than that for firms failing to satisfy the requirement.

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 2, on China's standardized income statement, 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

[24] 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%.

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.

[Table 2]

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* in companies exceeding the threshold is significantly larger than that in 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. The non-parametric test yields the same conclusion.

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 is mainly induced by tunneling.

Anecdotal evidence lends immediate support. We search the CSMAR Financial Databases and identify 364 rights issues during 1999-2001. One interesting observation about these rights issues is that in almost all cases, large shareholders[25] choose to give up the 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 controlling shareholders typically control more than 40% of the shares, they are not particularly concerned with potential share dilution as a result of not purchasing additional 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.[26] 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.

[Table 3]

[25] Include controlling shareholders, legal persons and government at various levels.
[26] 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.

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

$$INVESTMENT = \alpha + \beta_1 Tobin's\ Q + \beta_2 SEO*Tobin's\ Q + \gamma_1 Cash\ Flow + \gamma_2 SEO*Cash\ Flow + \varepsilon \quad (4)$$

where *INVESTMENT* is defined as capital expenditures in year t deflated by total assets in year t-1, SEO is a dummy variable that equals 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's Q (a proxy for investment opportunity) for SEO firms. However, as shown in Panel B of Table 3, the regression coefficient of Tobin's Q for the SEO firms is negative. In a a stark contrast, the coefficient of Tobin's Q for non-SEO firms is significantly positive. Furthermore, in the pooled regression, the interactive variable, SEO*Tobin's Q, carries a negative sign. Overall, the results suggest that SEO firms' investment is not responsive to investment opportunities at all.

More intriguingly, the coefficient of the interactive variable, SEO*Cash Flow, is significantly positive, which suggests that SEO firms are more likely to be financially constrained than 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. Consider the fact that majority of Chinese listed firms are group-controlled and listed companies represent the benefits of parent firms (controlling shareholders), the above results naturally point to the most likely possibility: tunneling. That is, 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 practices. They attribute the value loss to possible misallocation of capital resources, which is consistent with our evidence.

4.2. Testing Hypotheses H2a and H2b

Besides rights issues, tunneling also takes many other forms. Studying the corporate behaviors of firms facing serious de-listing risks provides us with a unique opportunity to understand the connections between earnings management and tunneling in the context of China's capital market.

4.2.1. Earnings management to avoid de-listing

According to the guideline introduced by the 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 labeled as ST. If tunneling 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]

Table 4 reports results of both the t- and the Kruskal-Wallis test. Twenty-nine 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 suggests 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 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 gauge the size of private benefits controlling shareholders can extract or the size of private benefits that will be forfeited as a result of de-listing, then we can understand a listed company's urge 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.

We believe that the system of ST designation triggers a contest over corporate control. [27] 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.[28]

[27] Also see Bai, Liu, and Song, 2003.

[28] 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.

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.[29] In most cases, such "propping" (negative tunneling) 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 "tunneling". 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. For each ST designation, we calculate the listed firm's market adjusted stock price performance from the third month prior to the ST announcement (month -3) to the twenty-fourth month after the announcement (month +24) as follows:[30]

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

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*.

[29] 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 tunneling. 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 saving a listed firm from being de-listed presents itself as a good example of propping in China.

[30] 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.

[Table 5]

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 the urgency to manage earnings when facing a delisting risk.

5. Do firms with good governance have less earnings management?

Our analyses in the first stage have established the evidence of tunneling closely related to the two situations where earnings management has been identified to be the most conspicuous in China. As suggested in Leuz, et al. (2003), good corporate governance limits controlling shareholders' tunneling activity. If earnings management in China is indeed primarily induced by tunneling, then we should observe that firms with good governance tend to have less earnings management.

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 tunneling 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.

[Table 6]

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:

$$ACC_{i,t}(IAACC_{i,t})=\alpha+\beta_1 ln(SHARE2\_10_{i,t})+\beta_2 OUTSIDEDIR_{i,t}+\beta_3 TOPSHARE_{i,t}+ \beta_4(TOPSHARE_{i,t})^2+ \beta_5 TOPEXESHARE_{i,t} + \beta_6 CEO\_DIR_{i,t}+ \beta_7 HBSHARE_{i,t} + \beta_8 PARENT_{i,t} + \beta_9 SOE_{i,t} + \beta_{10} SIZE_{i,t} + year\ dummies + \varepsilon_{i,t} \quad (6)$$

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 tunneling 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 analyses, 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*.

$$ACC_{i,t}(IAACC_{i,t})=\alpha+\beta_1 CGRANK_{i,t} + \beta_2 SIZE_{i,t} + year\ dummies + \varepsilon_{i,t} \qquad (7)$$

[Table 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:

$$D ACC_{i,t} (DIAACC_{i,t}) = \alpha + \beta\ DCGRANK_{i,t} + year\ dummies + \varepsilon_{i,t,} \qquad (8)$$

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

[Table 8]

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 analyses show 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 mainly driven by tunneling. While we present strong evidence of controlling shareholders managing earnings to tunnel, we are not able to completely exclude the possibility that in China, earnings management is driven by incentives other than tunneling. 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 on the above concern. 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 the results in Table 7 show, 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.[31] 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 tunneling, if not the only one, is the most significant determinant of earnings management in China. Last but not least, we have presented evidence of tunneling in the two situations where earnings management has been most conspicuous. In the case of rights issues, controlling shareholders (managers) have been using the raised capital in a discretional manner; in the case of managing earnings to avoid de-listing, controlling shareholders benefit since they do not have to give up their control benefits. Although controlling shareholders or managers may benefit from earnings management in forms other than tunneling, they are unlikely to be the main incentives.

6. Conclusion

This paper hypothesizes that earnings management in the Chinese listed companies is mainly induced by tunneling. To provide supporting evidence, we conduct our analyses in two stages. In the first stage, we study the 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

[31] Results not reported but available from authors upon request.

example, we document the misallocation of raised capital by controlling shareholders 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, tunneling 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 tunneling incentive and other incentives (e.g., maintain social stability, please superiors, etc.) are therefore, not yet well understood and hence difficult to disentangle.

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Figure 1 The ROE Histogram for China's Listed Companies, 1999-2001

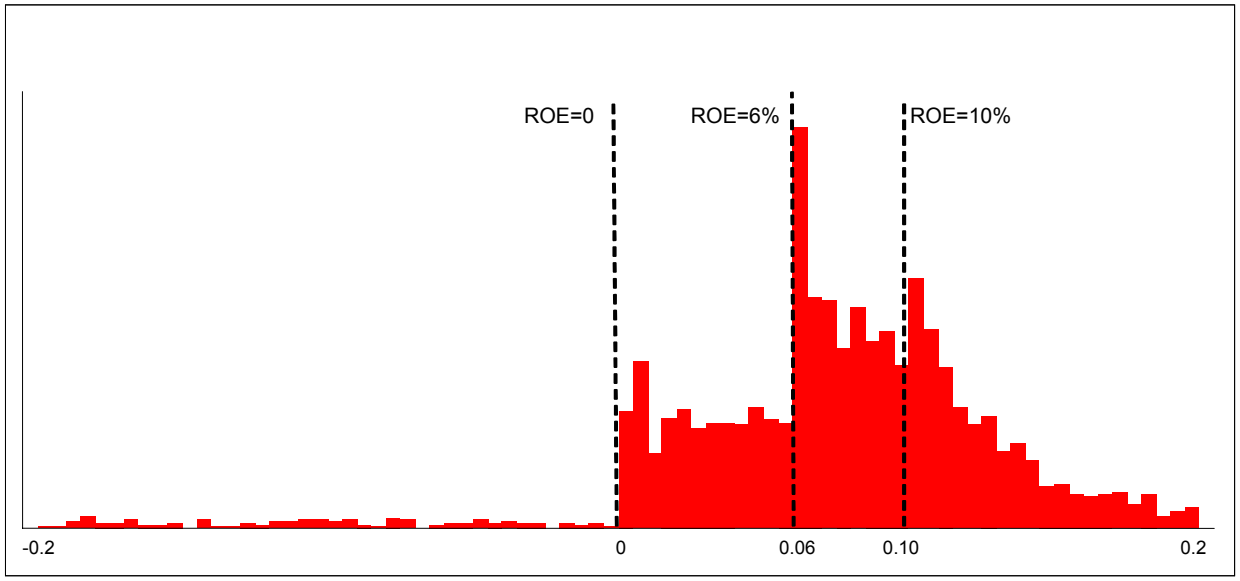

Table 1
Summary Statistics of the Variables.
The Sample Consists of 2504 Firms Year Observations from 1999 to 2001

Variables[a]	*Mean*	*Median*	*Std. Dev.*	*Minimum*	*Maximum*
$ACC_{i.t}$	-0.0184	-0.0091	0.1393	-2.8634	0.7711
$IAACC_{i.t}$	-0.0109	0	0.1378	-2.8334	0.7669
$SHARE2\_10_{i,t}$	0.01749	0.0048	0.0258	0.0000	0.1702
$RAWSHARE2\_10_{i,t}$	0.1693	0.1352	0.1357	0.0022	0.6197
$OUTSIDEDIR_{i,t}$	0.4721	0.5052	0.2731	0	1
$TOPSHARE_{i,t}$	0.4418	0.4324	0.1771	0.1949	0.8858
$TOPEXESHARE_{i,t}$	0.0006	0.0002	0.0039	0	0.0149
$CEO\_DIR_{i,t}$	0.3686	0	0.4825	0	1
$PARENT_{i,t}$	0.7923	1	0.4057	0	1
$SOE_{i.t}$	0.5567	1	0.4968	0	1
$ASSETS_{i,t}$ (in mil.)	1,729.502	1,101.821	2,377.871	36.659	58,042.060
$REVENUE_{i,t}$(in mil.)	544.448	152.197	1,311.790	-30.0644	20,467.58
$SIZE_{i,t}$	20.8667	20.8202	0.8476	17.3894	24.7844
$\ln(SHARE2\_10)_{i,t}$	-5.9387	-5.3316	2.7164	-14.4339	-1.7706
$(TOPSHARE)^2_{i,t}$	0.2265	0.1870	0.1631	0.0004	0.7845
$HBSHARE_{i,t}$	0.1030	0	0.3041	0	1

[a]Variable definitions:

$ACC_{i,t}$	=	difference between net income and cash flows from operating activities divided by average total assets
$IAACC_{i,t}$	=	difference between ACC_i and the median ACC_i of the industry a company belongs to
$SHARE2\_10_{i,t}$	=	sum of squares of the percentage of shareholding held by the second to the tenth largest shareholders
$RAWSHARE2\_10_{i,t}$	=	sum of the percentage of shareholding held by the second to the tenth largest shareholders
$OUTSIDEDIR_{i,t}$	=	ratio of the number of directors who do not receive any compensation from the company to the total number of directors
$TOPSHARE_{i,t}$	=	percentage of shares held by the largest shareholder
$PARENT_{i,t}$	=	a binary dummy variable that equals 1 if a company has a parent company and 0 otherwise
$SOE_{i,t}$	=	a binary dummy variable that equals 1 if a company is controlled by the state and 0 otherwise
$TOPEXESHARE_{i,t}$	=	percentage of shareholding by the top executives
$CEO\_DIR_{i,t}$	=	a binary dummy variable that equals 1, if the company's CEO is also the chairperson of the board and 0 otherwise
$ASSETS_{i,t}$	=	total assets at the end of the year(in millions Yuan).
$REVENUE_{i,t}$	=	total revenue at the end of the year(in millions Yuan).
$SIZE_{i,t}$	=	$\ln(ASSET_{i,t})$.
$\ln(SHARE2\_10)_{i,t}$	=	$\ln(SHARE2\_10_{i,t})$.
$(TOPSHARE)^2_{i,t}$	=	$(TOPSHARE_{i,t})^2$.
$HBSHARE_{i,t}$	=	a dummy variable with value equal to 1 if a listed company has H- or B-shares traded

Table 2 The T-Test and Kruskal-Wallis Test of the Difference in Accruals (*ACC/IAACC*) Between Firms Passing the Rights Issues Threshold and Firms Failing to Pass the Threshold

H2a: ACC (IAACC) of firms passing the threshold ≠ ACC (IAACC) of firms failing to pass the threshold

Panel A: Rights Offering Threshold Based on "core" ROE

		Firms Passing the Threshold (N=1565)	Firms Failing to Pass the Threshold (N=576)	t-statistic (p-value)	Chi-square (p-value)
ACC	Mean	-0.008	-0.026	3.171 (0.001)	2.099 (0.147)
IAACC	Mean	0.001	-0.023	4.376 (0.000)	7.377 (0.007)

Panel B: Rights Issues Threshold Based on "non-core" ROE

		Firms Passing the Threshold (N=1100)	Firms Failing to Pass the Threshold (N=1041)	t-statistic (p-value)	Chi-square (p-value)
ACC	Mean	0.009	-0.035	10.526 (0.000)	65.042 (0.000)
IAACC	Mean	0.014	-0.027	10.014 (0.000)	59.582 (0.000)

ACC = difference between net income and cash flows from operating activities divided by average total assets
IAACC = difference between *ACC* and the median *ACC* of the industry a company belongs to
"Core" ROE = profit from operations divided by book value of equity.
"Non-core" ROE = total profit divided by book value of equity.
Effective from 1999, the CSRC mandates that to be eligible for right offerings, listed companies must have a three-year average ROE no less than 10%, and ROE no less than 6% in each of the three years

Table 3 Is SEO Firms' Investment More Efficient?

Panel A: Descriptive statistics of CAPRAISED (N=364)

	Mean	Median	Std. Dev.	Minimum	Maximum
CAPRAISED (in million)	226	172	184	22.5	1410
CAPRAISED / MARKET CAP	0.044	0.040	0.022	0.006	0.153
CAPRAISED/ TOTAL ASSETS	0.139	0.126	0.069	0.013	0.469

Panel B: The regressions of corporate investment (dependent variable = capital expenditures/total asset in prior year)[*]

	SEO Firms (N=364)	Non-SEO Firms (N=2140)	Full Sample (N=2504)
Tobin's Q_{t-1} / Total $Asset_{t-1}$	-0.0017	**0.0030**[a]	**0.0025**[a]
	(0.141)	**(0.003)**	**(0.003)**
SEO*Tobin's Q_{t-1}/Total $Assets_{t-1}$			-0.0009
			(0.191)
Cash $Flow_t$ / Total $Asset_{t-1}$	**0.2596**[a]	**0.0064**[c]	**0.0065**[c]
	(0.010)	**(0.100)**	**(0.093)**
SEO*Cash $Flow_t$/Total $Asset_{t-1}$			**0.2378**[b]
			(0.016)
Year Dummies	Yes	Yes	Yes
Constant	-0.0034	**-0.0162**[a]	**-0.015**[a]
	(0.743)	**(0.000)**	**(0.000)**
Adjusted R-square	2.04%	1.60%	1.86%

* P-values based on robust standard errors are reported in parentheses.
SEO = a binary dummy that equals 1 if a firm issues new equity in that year
CAPRAISED = the issuing price multiplied by the number of new shares – the amount of capital paid out as dividends
Tobin's Q = (market capitalization + book value of debt) / total assets

[a]significant at the 0.01 level
[b]significant at the 0.05 level
[c]significant at the 0.10 level

Table 4 The T-Test and Kruskal-Wallis Test of the Difference in Accruals (*ACC/IAACC*) Between Firms Reporting Net Loss in the Previous Two Years and Net Income in the Third Year and Firms Reporting Net Loss in Three Consecutive Years

H2a: ACC/IAACC of firms reporting net loss in the previous two years and net income in the third year ≠ ACC/IAACC of firms reporting net loss in three consecutive years

		Firms Reporting Net Loss in the Previous Two Years and Net Income in the Third Year (N=54)	Firms Reporting Net Loss in Three Consecutive Years (N=29)	t-statistics (p-value)	Chi-square (p-value)
ACC	Mean	-0.028	-0.464	3.606 (0.001)	27.196 (0.000)
IAACC	Mean	-0.023	-0.452	3.575 (0.001)	22.606 (0.000)

ACC = difference between net income and cash flows from operating activities divided by average total assets
IAACC = difference between *ACC* and the median *ACC* of the industry

Table 5 The Amount of Wealth Tunneled Back into a Listed Company By its Largest Shareholders In order to Save it From De-listing - PER

We use an ST firm's market adjusted stock market performance from 3 months before the ST designation to 24 months after as the measure of the value of "propping"(negative tunneling) $PER_j = \sum_{t=-3}^{t=24}(r_{j,t} - m_t)$ *, where* PER_j *measures a firm's abnormal stock market performance,* $r_{j,t}$ *is the monthly return for firm j in month t; and* m_t *is the monthly market return in month t.*

Descriptive Statistics of PER (N=66)

	Mean	Median	Std. Dev.	Minimum	Maximum
PER	0.3181	0.3361	0.4779	-0.5715	2.4899

Table 6 Pearson Correlations Between the Regression Variables (N=2504)

	ACC	IAACC	ln(SHARE 2-10)	OUTSIDE DIR	TOP SHARE	(TOP SHARE)^2	TOPEXE SHARE	CEO_DIR	PARENT	SOE	SIZE	HB SHARE
ACC	**1.000**[a]	**0.992**[a]	-0.011	0.002	**0.044**[b]	**0.033**[c]	**0.034**[c]	**0.035**[c]	0.012	-0.001	**0.109**[a]	**-0.092**[a]
IAACC		**1.000**[a]	-0.022	0.003	**0.052**[a]	**0.041**[b]	**0.035**[c]	0.025	0.011	0.018	**0.124**[a]	**-0.098**[a]
ln(SHARE 2-10)			**1.000**[a]	**0.1415**[a]	**-0.668**[a]	**-0.699**[a]	0.028	0.009	**-0.233**[a]	**-0.195**[a]	**-0.187**[a]	**0.092**[a]
OUTSIDE DIR				**1.000**[a]	**-0.089**[a]	**-0.083**[a]	-0.015	**-0.337**[a]	**0.041**[b]	**-0.076**[a]	0.019	0.008
TOPSHARE					**1.000**[a]	**0.985**[a]	**-0.037**[b]	**-0.078**[a]	**0.382**[a]	**0.221**[a]	**0.218**[a]	-0.029
(TOP SHARE)^2						**1.000**[a]	**-0.041**[b]	**-0.077**[a]	**0.354**[a]	**0.196**[a]	**0.231**[a]	**-0.041**[b]
TOPEXE SHARE							**1.000**[a]	0.028	0.001	**-0.049**[b]	-0.022	0.021
CEO_DIR								**1.000**[a]	**-0.113**[a]	0.030	0.005	**-0.036**[c]
PARENT									**1.000**[a]	0.009	**0.145**[a]	0.009
SOE										**1.000**[a]	**0.116**[a]	0.027
SIZE											**1.000**[a]	**0.262**[a]
HBSHARE												**1.000**[a]

Variables are defined in Table 1.
[a]Correlation is significant at the 0.01 level (2-tailed).
[b]Correlation is significant at the 0.05 level (2-tailed).
[c]Correlation is significant at the 0.10 level (2-tailed).

Table 7 Multivariate Regressions of ACC/IAACC
(N=2504)

Independent Variable	*Expected sign*	*Model 1* *ACC**	*Model 2* *ACC**	*Model 3* *IAACC**	*Model 4* *IAACC**
Intercept	?	**-0.087[a]**	**-0.026[a]**	**-0.099[a]**	-0.008
		(0.005)	**(0.000)**	**(0.001)**	(0.264)
ln(SHARE2-10)	-	-0.001		0.001	
		(0.618)		(0.754)	
OUTSIDEDIR	-	-0.021		0.019	
		(0.238)		(0.269)	
TOPSHARE	+	**0.254[a]**		**0.262[a]**	
		(0.002)		**(*0.001*)**	
$(TOPSHARE)^2$	-	**-0.233[b]**		**-0.239[a]**	
		(0.012)		**(*0.009*)**	
TOPEXESHARE	+	**0.937[b]**		**0.951[c]**	
		(0.047)		**(*0.067*)**	
CEO_DIR	+	**0.008[c]**		**0.008[c]**	
		(0.081)		**(*0.087*)**	
HBSHARE	-	**-0.044[a]**		**-0.044[a]**	
		(0.000)		**(*0.000*)**	
PARENT	+	-0.002		-0.003	
		(0.776)		(0.612)	
SOE	+	0.001		0.003	
		(0.922)		(*0.653*)	
CGRANK	-		**-0.003[c]**		**-0.004[b]**
			(0.087)		**(0.034)**
SIZE	?	**0.027[b]**	**0.001[a]**	**0.029[b]**	**0.008[a]**
		(0.045)	**(0.000)**	**(0.022)**	**(0.004)**
YEAR DUMMIES	?	Yes	Yes	Yes	Yes
Adjusted R^2		**2.32%**	**1.11%**	**2.83%**	**0.78%**
		(0.000)	**(0.000)**	**(*0.000*)**	**(*0.001*)**

***** Columns report estimated coefficients and adjusted R^2 for the regressions. P-values based on robust standard errors are in parentheses.
Variables except CGRANK are defined in Table 1.
CGRANK = the aggregate measure of a listed firm's corporate governance based on principal component analysis (PCA) of the eight governance mechanisms with scale 1 to 5 where 1 represents the worst-governed quintile and 5 represents the best governed quintile.

[a]significant at the 0.01 level
[b]significant at the 0.05 level
[c]significant at the 0.10 level

Table 8 Regressions of DACC/DIAACC against DCGRANK
(N=1443)

Independent Variable	*Expected sign*	*DACC**	*DIAACC**
Intercept	?	**-0.021[a]**	**-0.011[a]**
		(0.000)	**(0.010)**
DCGRANK	-	**-0.015[c]**	**-0.016[c]**
		(0.093)	**(0.078)**
YEAR DUMMIES	?	Yes	Yes
Adjusted R^2		**0.20%**	**0.22%**
		(0.090)	**(*0.078*)**

* Columns report estimated coefficients and adjusted R^2 for the regressions. P-values based on robust standard errors are in parentheses.

CGRANK = the aggregate measure of a listed firm's corporate governance based on principal component analysis (PCA) of the eight governance mechanisms with scale 1 to 5 where 1 represents the worst-governed quintile and 5 represents the best governed quintile.

DACC = $ACC_t - ACC_{t-1}$

DIIACC = $IAACC_t - IAACC_{t-1}$

DCGRANK = $CGRANK_t - CGRANK_{t-1}$

[a]significant at the 0.01 level
[b]significant at the 0.05 level
[c]significant at the 0.10 level