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Earnings Management and Tunneling through Related Party Transactions: Evidence from Chinese Corporate Groups*

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Abstract

This paper attempts to provide large sample evidence of opportunistic related party transactions in China where economic institutions, legal system and corporate structures are conducive to such dealings. We found that firms belonging to a corporate group report abnormally high levels of related party sales when they have incentives to manage earnings to avoid being delisted, or prior to issuing new equity. Our stock return results also support the conjecture that the market perceives these sales transactions as opportunistic. When the firms have free cash flows, they divert resources back to the controlling shareholders through generous trade credits and other loans. Tobin's Q and market-to-book equity results show that the market discounts these firms' share prices, suggesting that the market views such related lending as tunneling.

Keywords: Related party transactions, earnings management, tunneling, corporate governance.

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1. Introduction

There have been many examples of controlling shareholders looting their own firms during the emerging market crisis of 1997-1998. Through related dealings, cash and profits are diverted away from firms in a group either to controlling shareholders' pockets directly or to assist troubled firms within the same group. Using a number of well-known legal cases from Europe, Johnson et al. (2000) show that firms in developed markets also use related party transactions to transfer assets and profits out of firms for the benefit of those who control them.[1] This type of dealing has also been under the limelight in a number of recent US and European accounting scandals, such as transactions between Enron and its special-purpose entities.

Despite worldwide media and government attention, there is very little large sample evidence of related party transactions in academic research. This paper attempts to study the patterns of these transactions in China where such dealings are prevalent due to its corporate structures, economic institutions and legal system. More specifically, we would like to examine whether, and how, controlling shareholders use related party transactions in earnings management and tunneling, and the market response to such activities. According to the 2001 annual reports of Chinese listed firms, 90% of them are involved in different degrees of related party transactions (www.cnstock.com, 2002-03-19). Anecdotal evidence indicates that the current corporate governance system in China fails to constrain controlling shareholders from manipulating earnings and expropriating minority shareholders through related party transactions.[2]

Earnings manipulation has been a well-established research topic in accounting literature.[3] Much of the past research, including studies on Chinese listed firms, use accounting accruals and non-recurring earnings items, or simply examine the cross-sectional distribution of earnings and returns on equity, to detect earnings manipulations (Chen et al., 2000; Chen and Yuan, 2001; Aharony et al., 2000). Few studies have investigated related party transactions as a means to earnings management. Similarly, although there is a growing body of research that discusses

[1] Johnson et al. (2000) use the term "tunneling" to describe this type of related party transaction.
[2] One well-known example in China is Sanjiu Medicine (0999). The controlling shareholder (Sanjiu Group) and other related parties owed 2.5 billion yuan to the listed company, which amounted to 96% of the company's total assets (CSRC website: http://www.csrc.gov.cn/CSRCSite/default.htm).
[3] Watts and Zimmerman (1986) discuss the incentives underlying corporate managers' accounting decisions, using the political, contractual, compensation and financial perspectives. There have been numerous studies on earnings management, for example, DeAngelo (1988), Jones (1991), Teoh et al., (1998a & 1998b). Healy and Wahlen (1999) offer a comprehensive review of the academic evidence on earnings management and its implications for accounting standard setters and regulators.

extensively the possible tunneling and expropriation by large shareholders (Bae et al., 2002; Bebchuk et al., 2000; Johnson et al., 2000), most of these studies concentrate on the market valuation effects of these behaviors (Bae et al., 2002; Claessens et al., 2000; Claessens et al., 2002). This study attempts to provide direct evidence of earnings management and tunneling through related party transactions.

In this paper, we use a sample of 131 Chinese listed firms in the basic materials industries such as mining, lumber, chemicals and building materials. We find that group-controlled firms report higher levels of related party transactions than those of non-group-controlled firms. In addition, group-controlled listed companies report an abnormally high level of related party sales when they have incentives to inflate earnings in order to meet government requirements for new equity offerings or to avoid delisting. Our stock return results suggest that the market considers these related party sales more as opportunistic, rather than enhancing efficiency. When listed companies have generated substantial free cash flows, they will divert the resources to their controlling shareholders by offering them generous credits. Finally, firms with more related party lending are associated with lower Tobin's Q and market-to-book equity, which suggests that the market views related lending more as tunneling. These results are robust to alternative measures of related party sales and related lending.

The rest of the paper proceeds as follows. The next section discusses the institutional background of related party transactions in Chinese listed companies and reviews the relevant literature. Section 3 lays out the hypotheses. Section 4 presents the empirical findings. Section 5 discusses our sensitivity analyses, and section 6 concludes the paper.

2. Institutional Background and Literature Review

2.1 Formation of corporate groups

Prior to China's economic reform, all firms were under tight state control. Firms had no autonomy, as the government directed all aspects of their operation process. Markets for materials, products and labor were non-existent. Since China's economic reforms in the 1980s, the highly centralized structure of state enterprises was found to be inflexible and a hindrance to economic growth. This led to China's state-owned enterprise reform, which decentralized management decision rights to its state-owned firms, while allowing the government to remain as controlling

owner.

In addition to granting firms more autonomy, the Chinese government has encouraged the establishment of corporate groups, after witnessing the successful experience of the Japanese *Keiretsus* and Korean *Chaebols* in the 1970s and 1980s (Keister, 2000). The government has formed bureaus to assemble firms in similar industries or closely related industries, assist them to develop trades and other relations, and build their administrative structures. This government policy is underpinned by sound economic reasoning that group firms may function more efficiently than non-group firms in underdeveloped market conditions like China. Coase's (1937) argument that a firm is established when the cost of coordination within the firm is smaller than that of price mechanism can be extended to a group context. When external markets are not well developed, the formation of groups can help to improve efficiency and communication, identify and lock in partners, establish long-term business relations, reduce the environmental uncertainty (Cook, 1977), and increase member firms' market power.[4] Thus, driven by government directions and economic forces, some large groups were developed in the 1980s and 1990s, the largest of which consisted of primarily state-owned enterprises affiliated with the central government or provincial and municipal governments.

Not all firms in China belong to groups, however. In regions where state enterprises are poorly developed and small in scale, such as those in less developed inland provinces, firms report directly to a state asset management bureau (SAMB hereafter). Other non-group-controlled firms that are burgeoning in coastal regions are private businesses established by entrepreneurs, and township-village enterprises, which are under the supervision of the township or village governments. These firms are more likely to operate independently.

2.2 Initial public offerings of state enterprises

The Chinese government continued to decentralize control of state enterprises by allowing partial privatization, as they sold a minority portion of ownership to private investors. This led to the creation of China's stock markets in the early 1990s. Up to 2001, only about 1,160 out of a total of 369,000 state-owned firms were selected for listing in the stock exchanges.[5] Each listed

[4] Other institutional factors may also contribute to the formation of groups. Fisman and Khanna (1988) argue that the scale and scope of groups, and the de facto property rights enforcements within a group in weak legal environments, allow them to overcome difficulties that impair production in such underdeveloped economies.

[5] 'Communique on the Main Results of the Second National Census of Basic Units in China' by National Bureau of Statistics of the People's Republic of China, issued on January 17, 2003.

firm went through a long and competitive approval process by the central government. Needless to say, the listing status is a valuable resource to companies for raising new capital.

This new opportunity to raise capital in stock exchanges creates strong incentives for state enterprises to engage in opportunistic activities. In order to qualify for listing and increase the offering price in the initial public offering (IPO), a state enterprise usually carves out selected profitable business units for the new issue. The unprofitable units, such as hospitals and schools for the employees and their families, are either retained by the original state enterprise, which becomes the parent or holding company after listing, or by an SAMB, which serves as a holding company of various IPO firms in the municipality. Aharony et al., (2000) document that state enterprises attempt to manage earnings to boost their chances of being selected for IPO, since earnings performance is a government stated criterion for listing. As a controlling shareholder, the parent or holding company may inject valuable assets to its listed subsidiary in order to boost earnings. Also, the parent company or other group-members may absorb unprofitable units from the listed company prior to listing. In return, the holding company expects future payoffs by siphoning profits or cash back from the listed company.

2.3 The role of related party transactions

Many studies argue that formation of corporate groups and related party transactions among group members can help reduce transaction costs and enhance the enforcement of property rights and contracts (Coase 1937; Fisman and Khanna 1998; Fan and Goyal 2002; Khanna and Palepu 1997; Kim 2003; Shin and Park 1999). However, controlling shareholders can take advantage of these related dealings for opportunistic purposes. The Chinese listed state enterprises are particularly susceptible to engaging in earnings management and tunneling through related party transactions due to the institutional background associated with the IPOs. We will discuss how related party transactions, on the one hand, can benefit the group as a whole including all its shareholders, and on the other hand, be used by controlling owners to expropriate outside shareholders.

2.3.1 Enhancing efficiency or opportunistic earnings management

Business groups are popular not only in China but around Asia. Claessens et al. (2002), report that almost 70 percent of listed companies in their sample of nine East Asian economies, are group-affiliated. Compared with independent firms, group members are more likely to be involved in internal factor markets, which result in related party transactions. On the one hand,

these economic transactions might be optimal for all member firms within the group. On the other hand, the internal markets set up within the complex ownership and control structure of group-affiliated firms may lead to greater agency problems and opportunistic earnings management (Claessens and Fan, 2003). Earnings management tends to be pervasive in emerging markets like China because private benefit of control is large while outside investor protection is weak (Leuz et al. 2003).

Prior research has devoted considerable efforts in investigating the incentives and ways of earnings management. However, most of these studies have focused on earnings management through financial reporting, especially, managing accounting accruals.[6] There is also evidence that real transactions, rather than merely accounting manipulation, are involved in earnings management. Dechow and Sloan (1991) use firms' R&D spending to study earnings management, while some other studies examine how banks time the realization of gains/losses on investment securities to manipulate earnings (Moyer 1990; Scholes et al. 1990; Beatty et al. 1995; Collin et al. 1995). There are also other studies that examine the distribution of reported earnings in order to detect earnings management (Burgstahler and Dichev, 1997 & 1998; Degeorge et al., 1999; Jiang and Wei, 1998). Although quite a lot of anecdotal evidence suggests that firms do use related party transactions to manage earnings, there is very little academic research that investigates this type of earnings manipulation activities.[7]

2.3.2 Internal markets or tunneling

When external financing is scarce and uncertain, a corporate group maximizes the welfare and economic benefits of its entire group by allocating capital among member firms. Due to poorly-developed external financial markets, the creation of internal markets within corporate groups can enhance resource allocation in developing economies (Khanna and Palepu, 1997).

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[6] Jones (1991) develops a model to estimate discretionary accruals as a measure of earnings management. Several recent papers have developed estimates of the unexpected components of specific accruals, such as depreciation estimates and bad debt provisions (Teoh et al., 1998c), bank loan loss provisions (Beaver et al. 1989; Moyer 1990; Scholes et al. 1990), property-casualty insurance claim loss reserves (Petroni 1992; Beaver and McNichols 1998) and deferred tax valuation allowances (Visvanathan 1998; Miller and Skinner 1998; Ayers 1998). A number of other studies focused on the contracting effects of changes in accounting methods, estimates, or accruals at a point in time (Healy and Palepu 1990; DeAngelo et al. 1994; Holthausen and Leftwich, 1983).

[7] For example, it is reported (Security Market Week, April 6, 2002) that Nankai Gede (000537), a company listed on the Shenzhen Stock Exchange, is facing operating difficulties. This firm reported enormous profits in the years before 2002 with 99.9% of its sales from related party transactions. When the new accounting rule about related party transactions was implemented on December 21, 2001, any such sales with a mark-up of more than 20% above book value could no longer be counted towards profits and flow through the income statement. This new standard will significantly undermine Nankai Gede's accounting performance after 2001.

There has been more recent research evidence suggesting that comparing with unaffiliated firms, group-affiliated firms have a lower probability of liquidation by banks (Kim, forthcoming), are less sensitive to firms' cash flows in investment decisions (Shin and Park, 1999), and have better performance when transfers of products and managerial expertise within the group increase (Chang and Hong, 2000).

However, there are greater agency problems associated with using internal markets inside a corporate group. Wolfenzon (1999), Bebchuk et al., (2000), and Shleifer and Wolfenzon (2002) present theoretical illustrations of such minority shareholder expropriation. Empirical evidence to date is far from conclusive on the benefits and costs of group-affiliation (Claessens and Fan, 2003). Claessens et al. (2000) report that the separation of ownership and control is negatively associated with firm valuation of East Asian listed companies. This evidence points to the market effects of possible minority shareholder expropriation. Other prior research confirms that in environments with limited protection of minority shareholder rights, the controlling shareholders bear the agency costs in the form of share price discounts and monitoring costs (Claessens et al., 2002; Lins, 2003; Black et al., 2002; Gompers et al., 2001).

Besides linking share price discounts and agency problems of group firms, there are two recent studies that offer more direct evidence of resource diversions within corporate groups. First, Bertrand et al. (2002) find that group members in India are less sensitive to industry profitability shocks but are more influenced by other members' profitability level within the same group, suggesting possible diversion of profits among group members. Second, using a Korean sample, Bae et al., (2002) report significantly negative stock returns for Chaebol bidders who acquired poorly performing targets within the same group and/or with concentrated equity ownership by owner-managers. The authors regard this as tunneling evidence that firms belonging to business groups make takeover decisions that are beneficial only to controlling owners of the group at the expense of minority shareholders of the bidder firms.

In summary, most prior research has focused on the wealth effects of possible tunneling without directly examining how these tunneling activities are conducted. Studying related party transactions would provide more insight into how tunneling is done in a group context.

3. Hypothesis Development

3.1 Earnings management

As discussed in section 2, firms conduct related party transactions for two reasons. One is to minimize transaction costs, especially in underdeveloped markets like China. We refer to these as *normal* related party transactions. The other is to use related party transactions to manage earnings. We refer to these as *abnormal* related party transactions. In this paper, we consider two situations where firms would have incentives to manipulate earnings through abnormal related party transactions. First, firms want to inflate earnings to avoid reporting losses. In view of stakeholders' use of information-processing heuristics and prospect theory, firms are reluctant to report a slightly negative earnings figure. They would rather manage earnings to stay just above zero (Burgstahler and Dichev, 1997). Perhaps a stronger incentive for China's listed companies to manage earnings is that they will be under heavy government scrutiny or even subject to delisting if they report consecutive years of losses.[8]

Another situation when firms have strong incentives to manipulate earnings is rights issue offering. Subsequent to initial public offering, rights issue offering is an important source of funds for listed firms. In order to control the allocation of such key resources to listed firms, the China Securities Regulatory Commission (CSRC) has set bright line rules for rights issues. From 1996 to 1998, one of the basic requirements was that companies had to have a minimum of 10% ROE for the three consecutive years prior to the offering (CSRC Notice No.17, 1996). In 1999, the rule was modified to requiring an average ROE of at least 10% as well as a minimum of 6% in each of the three years prior to the offering (CSRC Notice No.12, 1999). Many prior studies provide evidence of listed companies managing earnings to reach the 10% mark (Chen and Yuan, 2001; Jiang and Wei, 1998; Chen, 1998; Haw et al., 1998; Chen et al., 2000). Despite of the modification from a 10% to a 6% minimum, it is reasonable to assume that listed companies still use 10% as a reference point. Though the new target only requires an average of 10% over three years, an apparently stable and persistent earnings pattern at around 10% over the three years sends a more positive signal to the market and regulators. In the later analyses, we classify firms with ROE from 0% to 1.5%, or from 10% to 11.5%, together with firms that have rights issue in the following year,

[8] According to Article 157 of Company Law in China, if a listed company sustains losses for three consecutive years, it will be temporarily delisted by China Securities Regulatory Commission (CSRC) and subject to 'particular transfer' (the stock can only be traded in the stock exchange on Fridays) and other transfer limitations. If it sustains losses for two consecutive years, it will have 'ST' (special treatment) prefixed to its name as a warning.

as firms with high incentives to inflate earnings, while the rest are classified as having low incentives to manage earnings.

In this paper, we focus on related party sales as a key related party transaction item for earnings management.[9] Previous studies use non-core earnings (net income minus core operating earnings) to measure earnings management and implicitly assume core operating earnings as a measure of pre-managed earnings (Chen and Yuan, 2001).[10] However, Khanna and Yafeh (2000) find that group-controlled firms can manipulate profits by adjusting either the volume or price of intra-group trade. When related party transactions, especially related party sales, are involved, operating earnings can be managed. A Chinese listed company can inflate its overall sales level by selling more products to its parent company. Hence, manipulation of operating earnings and non-operating earnings are alternative ways for meeting ROE targets.[11] Firms can better conceal their opportunistic behavior by manipulating related party sales since such sales figure is disclosed only in the footnote (not in the income statement). Also, the normal and abnormal levels of related party sales cannot be easily distinguished.[12] Because of reasons related to processing costs and cognitive limitations (Bloomfield 2002; Hirshleifer and Teoh 2002), it may be hard for investors to separate abnormal transactions from normal ones. Non-operating earnings, on the other hand, can catch the attention of investors and regulators, because they are often one-off items reported separately in the income statement. However, whether and to what extent the market can see through earnings manipulation through related party sales is an empirical issue, which will be examined in the next hypothesis. Perhaps a greater advantage of using related party items to inflate operating earnings is that it can escape government scrutiny. In the CSRC's regulations for rights offerings issued in 1999, infrequent items such as gains and losses from investments and sales of

[9] There are other types of recurring items besides sales and purchases with related parties, such as interest revenues and expenses, service revenues and expenses, rents, and sales and purchase commissions. They have similar patterns (not presented here) to the related party sales and purchases. Related party sales play the most important role in related party recurring revenue (on average 86.17% of total related party revenues), as related party purchases do in expenses (on average 82.05% of recurring related party expenses).

[10] In China, operating earnings are divided into core and non-core operating earnings. Core operating earnings refer to revenues derived from a company's main or principal business less all associated expenses.

[11] We use operating earnings instead of core operating earnings in all our reported results. Our conclusions remain qualitatively the same if we use core operating earnings.

[12] Research on whether markets can see through disclosure items is far from conclusive. Archival studies find that stock prices reflect footnote information (Landsman 1986; Harris and Ohlson 1987; Barth 1994; Aboody et al., 2001), suggesting that investors view disclosed information as relevant and at least minimally reliable. However, several studies have concluded that prices partially ignore note disclosures, relative to the expected impact of this information (Harris and Ohlson, 1987; Landsman and Ohlson, 1990; Sami and Schwartz, 1992), and individuals do not adjust for financial statement ratios for disclosed items (Harper et al. 1987, 1991). In summary, the research indicates that investors discount information disclosed in the footnotes relative to information recognized on the face of financial

fixed assets are not allowed to be included in ROE calculation, which suggests that government regulators regard non-recurring items as potential earnings management items. Our formal hypothesis is as follows:

H1: Listed companies will report more abnormal related party sales when they have incentives to inflate earnings.

Next, we want to examine whether the market applies a different valuation to related party sales than to non-related party sales. In an emerging market like China, setting up internal markets within the group can benefit all the member firms. Related party sales might be an important part in a firm's normal business and hence contribute as importantly to the firm's performance and return as do non-related party sales. However, if related party sales are misused by controlling owners for opportunistic earnings management purposes, the credibility and persistence of these sales numbers should be lower than that of non-related party sales, which are less subject to manipulation.

If managers have access to information that is not available to outside investors, the latter could not easily see through the earnings management (Teoh et al., 1998a; Teoh et al., 1998c; Sloan, 1996; Xie, 1998; Healy and Wahlen, 1999). In terms of related party transactions, investors might attach the same or similar value to related party sales as to non-related party sales. However, if there is adequate information about these transactions available to the market, investors should, to some extent, be able to detect these earnings management behaviors (Hirst and Hopkins, 1998). As a result, in the return-earnings regression, the association between returns and related party sales should be smaller than the association between returns and non-related party sales. Our formal hypothesis is as follows:

H2: The returns associated with related party sales are smaller than those associated with non-related party sales.

3.2 Tunneling

Membership in groups can create values for firms that benefit all shareholders, but it can exacerbate the conflicts of interests between controlling shareholders and minority shareholders. Formation of groups may result in misallocation of capital among member firms, with cash flows generated by profitable members being invested in unprofitable ventures, even though this may

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statements.

not be in the interest of outside shareholders (Khanna and Palepu, 2000). Loans may well be an important mechanism by which stronger group members assist weaker members (Khanna and Yafeh, 2000). However, La Porta et al. (2002) find that corporate groups often channel loans at favorable terms from banks they control to member firms. In the China context, considering the sacrifice made by the parent companies during the IPO process, most of them have strong incentives to extract cash from their listed subsidiaries after the listing.[13]

Based on the stable and long-term relationships developed among group members, firms should have more assurance in the collection of related party loans. As a result, listed companies might offer larger amounts of credits to affiliated firms, and in return, they should receive reciprocal treatments from them. However, if credit offering is employed as a tool for tunneling, a listed company that offers generous credits to related parties does not necessarily receive the same credit terms from them. In other words, listed companies would lend more to their controlling owners and other related parties than borrow from them. The formal hypothesis is as follows:

H3: Listed companies offer more credits to, than obtain credits from, related parties.

Following Jensen's free cash flow theory (Jensen 1986), if a listed company is considered by its parent to be a provider of financial resources, it is natural to expect that once the listed firm accumulates extra funds, the parent company may have access to at least part of them. Moreover, when the listed companies have more cash, they can better afford to provide generous credits to affiliated firms. As a result, there should be a positive relation between the amount of funds the listed company accumulates and the credits offered to its related parties. The formal hypothesis is as follows:

H4: When listed companies accumulate more funds, they will lend more to related parties.

Researchers have investigated the relationship between firm valuation and the expropriation of minority shareholders. For example, Claessens et al. (1999) demonstrate that the separation of voting rights from cash-flow rights, through the use of pyramids and cross-shareholdings, is associated with lower firm valuation. Other studies find evidence that stock performance is related to the quality of corporate governance around the world (Black et al., 2002; Gompers et al., 2001; Klapper and Love, 2001; Durnev and Kim, 2002). Direct lending to controlling owners and their

[13] For example, Jinan Qingqi (600698) offered over RMB two billion yuan to its shareholder Qingqi Group and other related parties by the end of 2001. It casts more doubts about these transactions when the related parties used physical assets instead of cash to pay back the debts in several installments (China Securities 2002-1-7).

affiliates is one way that controlling owners divert resources for their own benefits. If this related lending is opportunistic and if investors can see through it, they would discount the share prices of firms that lend out relatively more to their controlling owners and other related parties.

H5: The market valuation is lower for companies with more related party lending than those with less related party lending.

4. Empirical Tests

4.1 Sample and data

The sample in this study consists of China's listed companies in the raw materials industry, which contains a relatively large number of firms with various types of ownership structures.[14] All financial and ownership data are from the Genius database produced by Shenzhen Genius Information Technology Ltd, and the market data are from the Taiwan Economic Journal (TEJ) database. Only the 137 companies in the raw materials industry that had their IPO between 1997 and 2000 are included.[15] Based on the first annual report following the IPO, we identified the largest shareholders and classified firms into three general types according to their largest shareholders: *government-controlled* firms are firms whose largest shareholder is a SAMB, *group-controlled* firms are firms whose largest shareholder is a state-owned group company,[16] and the remaining firms are all labeled as *others*. The firms in the 'others' category are the firms held by local factories, joint ventures, nonprofit institutions and other non-state-owned entities.

Table 1 shows the sample composition. To minimize the effects of ownership change on related party transactions and earnings, the six firms that experienced the largest shareholder change during the sample period are excluded from the original sample of 137 firms that were listed between 1997 and 2000. If the firm's largest shareholder changes during the sample period, it may be that no long-term trading relationship is established between the listed company and the

[14] The industry classification is based on the industry analysis report in the 2001CITIC (China International Trust and Investment Corporation) Securities Co., Ltd. According to this classification, listed companies in China are in 14 general categories based on their revenue and profits structures, among which 'raw materials' has the code 15. When we compare it with the US SIC classification, it includes two-digit SIC codes 10 (metal mining), 24 (lumber and wood products), 26 (paper and allied products), 28 (chemicals and allied products), 30 (rubber and miscellaneous products), and 52 (building materials and garden supplies).

[15] The regulation for disclosure of related party transaction was not in effect until January 1, 1997 and hence corresponding data are not available prior to that date.

[16] State-owned groups are usually formed out of a number of related large-scale state-owned enterprises. Because of their planned economy tradition, they tend to have more related party transactions within the group. There is a handful

shareholder. Moreover, the restructuring charges associated with the change in large shareholders might distort the earnings figures. Thus, the final sample is composed of 131 firms with 350 firm-year observations, with 12 government-controlled firms, 83 group-controlled firms, and 36 firms in the "others" category.

[Insert Table 1 Here]

4.2 Descriptive statistics

Panel A of Table 2 provides the sample summary statistics. On average, group-controlled firms are larger in size, almost twice as big as non-group-controlled firms. This difference in size results from the evolution of Chinese state-owned enterprises.[17] To control for size effect that might bias our later analysis, in addition to using either total assets or total sales as common deflator, we include the natural log of total assets as an additional independent variable in the regressions.

[Insert Table 2 Here]

The mean operating ROA is 3.08% for government-controlled firms versus 6.24% for group-controlled firms (the difference is significant at 0.01 level), and 6.96% for firms in the 'others' category (barely significantly different from that of group-controlled firms at 0.1 level). Consistent with prior research (Xu and Wang, 1999; Firth et al., 2002; Sun and Tong, 2003; Wang 2003), it appears that government-controlled firms have lower return on assets (both operating ROA and net ROA) than the other two types of firms. However, our evidence reported in a later section supports the conjecture that group-controlled firms use related party transactions to inflate ROA. Thus, unless we control for earnings manipulation due to related party transactions, using ROA or operating ROA to measure true accounting performance across different ownership types may introduce a bias.

Panel B of Table 2 presents the major shareholders' ownership percentage. Group-controlled firms have more concentrated ownership – the largest shareholder holds on average 61.73% of total shares outstanding in the IPO year, while that of government-controlled firms holds only 43.68%, and for firms in the 'others' category, 46.73%. Among the second- to fifth-largest

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of firms that are controlled by non-state-owned group companies which are classified under the "other" category.

[17] According to the prospectus or annual reports, state-owned groups usually evolved from large state-owned plants or firms, developed with the blessing of the central or local government, and became key players in the region. One common statement that appears in these documents is: "this company (or group) was previously ranked as one of the top-tier large national firms, a 'pillar' enterprise in the area."

shareholders, those in group-controlled firms only hold around 5% of total shares, while those in the other two categories hold around 15% of the shares.[18] The largest shareholder's high ownership concentration in group-controlled firms may increase its ability to manipulate earnings and expropriate minority shareholders, since no competing shareholder exists to challenge or monitor his/her behavior. In later analysis, we combine the government-controlled firms with firms in the 'others' category as 'non-group-controlled' firms, since they have almost equal ownership concentration, and compared with group-controlled firms, fewer opportunities to manipulate earnings through related party transactions. Although the ownership data are from the IPO year, we believe that excluding the six firms that have changed largest shareholders has eliminated most of the significant ownership changes in the sample.

4.3 General pattern of related party transactions

Related party transactions include items such as sales and purchases of products and materials, borrowing and lending, interests, rents, purchase and sales commissions, and exchange of fixed assets. In this paper, we focus only on recurring transactions because they belong to the normal operations of a company and manipulation of these transactions is hard to detect.

[Insert Figure 1 Here]

As depicted in Figure 1, the listed company's related parties include its major shareholders (for simplicity only top two shareholders are shown in the figure), its major shareholders' affiliates and its own affiliates. All transactions with the major shareholders and their affiliates are classified as related party transactions with the major shareholders. Another important related parties are affiliated companies where the listed companies own 20% to 50% shares and thus can 'exert significant influence' over them but do not consolidate their financial statements.[19]

[Insert Table 3 Here]

Panel A to D of Table 3 report the level (measured as a percentage of total assets) and frequency (measured as a percentage of firms that incur such transactions) of the four types of most frequently recurring related party transactions. There is clear evidence that most of the

[18] The difference in shareholding percentage might result from the listing process of China's companies. To each firm, the government gives a quota that specifies the exact number of shares to be issued in the stock market. If the firm is small (as most SAMB-controlled firms are) and cannot fully utilize the quota, it will be bundled together with other entities. These entities are invited to contribute physical assets and hold significant stakes in the listed firm.

[19] Chinese listed companies use the 'incomplete equity method' in recognizing the earnings of these affiliated firms. Related party transactions between the listed companies and their affiliated firms are not offset in the earnings

transactions occur between the listed entity and its largest shareholder or the shareholder's affiliates. This is more so for group-controlled than for non-group-controlled firms. For example, over 95% of group-controlled companies' total related party sales are directed to their largest shareholders, with a mean (median) of 11.09% (2.64%) of total assets. The non-group-controlled companies with sales directed to their largest shareholders make up only a mean (median) of 5.27% (0%) of total assets, and the difference is statistically significant (t=2.94 for mean; z=5.70 for median). The government-controlled firms have the lowest level and frequency of related party sales. Their mean level of related party sales to the largest shareholder is 0.06% of total assets (RMB 0.26 million), and only 7.5% of them have such transactions. It is worth noting that government-controlled firms, in comparison with group-controlled firms, have a higher level of related party transactions with associates where the listed companies hold 20%-50% shares. The difference, however, is not statistically significant. The proportions of sales to other related parties are not significantly different between group-controlled and non-group-controlled firms. If we add up each type of transaction with all related parties, group-controlled companies dominate the other two types in both level and frequency. A similar pattern exists for related party purchases, which is shown in Panel B of Table 3.

Panel C and D of Table 3 show the amounts of total credits offered to and received from related parties, respectively, and Panel E reports the net credits offered or received. Group-controlled firms are net lenders to their related parties, with a mean (median) of 4.09% (1.50%) of total assets as reported in Panel E. They tend to offer more trade credits and other lending (in the forms of trade accounts receivable, notes receivable, other receivables and prepayments) with a mean of 5.72% of total assets (Panel C) to their related parties than they borrow from them (in the form of trade accounts payable, notes payable and other payables) with a mean of 1.63% of total assets (Panel D), despite the fact that their mean related party purchases (15.19% of the total assets in Panel B) are higher than their sales (11.47% of the total assets in Panel A) to those parties. This suggests that group-controlled firms provide loans to their related parties above and beyond the trade credits resulting from related party sales and purchases. Although the non-group-controlled firms are shown to be net lenders as well, they are more likely related to trade credits because their mean related party sales (6.18% of total assets in Panel A) are higher than the mean related party purchases (4.73% of total assets in Panel B). In our later analyses, we will adjust for the level of related party sales and purchases when measuring the abnormal levels of related party lending and

recognition. Thus, they can use related party transactions with these firms to inflate earnings.

borrowing.

As evident in Table 3, most related party transactions are carried out between the listed firm and its major shareholders (at least 5% shareholding in the listed company) or these shareholders' affiliates (ranging from 86% to 98% of respective related party transactions across the four types of related party items). In all later analyses, we consider only related party transactions with the major shareholders for two reasons. First, shareholders with less than 5% shares probably have very little influence on the firms' operation decisions. The level of related party transactions between them and the listed companies are usually very low. For instance, the average sales to related parties other than shareholders with at least 5% ownership and associates are only 0.28% of total assets, compared to 8.90% with the largest shareholders. Second, shareholders with at least 5% shares in the listed company are likely to be more influential and have greater abilities to manage earnings through related party transactions. Concentrating on the related party transactions with these entities will increase the power of our tests. Related party transactions with listed companies' associates are also excluded because their magnitudes are generally small. Hereafter, we define related parties as shareholders with more than 5% ownership and their affiliated companies.

4.4 Using related party sales to manage earnings

In this subsection, we examine whether firms reported more related party sales when they have strong incentives to manage earnings. We focus on related party sales because it is the most significant recurring related party transaction item that has a direct impact on earnings. In the diagnostic section, we also examine related party purchases. We do not consider such items in the main analysis because we cannot accurately gauge how related party purchases directly affect cost of goods sold, which in turn determines net earnings.

In examining managerial optimism using related party sales, we need to separate sales that are part of normal operations and those that are abnormal or opportunistic. Due to differences in operational and institutional factors, different firms have different normal levels of related party sales. We use the firm's own mean related party sales (as the percentage of total sales) over the sampling period as a proxy for its normal sales level[20] and use the actual level minus the normal level to proxy abnormal related party sales. A positive number indicates a higher related party

[20] Annual medians of related party sales for group-controlled firms and non-group-controlled firms are used as alternative proxies for normal related party sales for firms of that specific type. The results are qualitatively the same.

sales level than the firm's own average (a sign that the related party sales might be managed upward) while a negative number implies the opposite. Since we need to calculate the average percentage of related party sales for each firm, we only include firms with at least two years of observations in the analysis.

Table 4 presents a two-by-two analysis (DeFond and Park, 1997) of abnormal related party sales (sales of products, materials, and utilities) according to earnings management incentives and the level of non-operating earnings. The columns partition the sample by the incentives to manage earnings, as defined in section 3. Firms with ROE between 0 and 1.5% or between 10% and 11.5%, and firms with rights issue in the next year are classified as firms with high incentives to manage earnings. The rest are classified as firms with low incentives to manage earnings. The rows partition the sample by the level of non-operating ROE, an earnings management alternative used in the literature.[21] With high incentives to manage earnings, a firm may use more related party sales to push up earnings if the option of using non-operating earnings is less readily available. We predict that firms with high manipulating incentives and low non-operating ROE, which are firms falling in cell (iii) of the table, are most likely to inflate their related party sales (i.e. have higher abnormal related party sales). For the full sample (Panel A), the higher the non-operating ROE level, the lower the level of abnormal related party sales, suggesting that there is a substitution effect between the two earnings management methods (t =1.97, Wilcoxon z =2.4086). Similarly, higher incentives to manage earnings are associated with higher levels of abnormal related party sales, but the difference is not statistically significant. The pattern is more obvious if we take a closer look at each cell of the table. Consistent with H1, firms with higher incentives to manage earnings and lower non-operating ROE (cell (iii)) have significantly positive abnormal related party sales (t =1.986, p =0.05), while no other cells report positive abnormal related party sales.

[Insert Table 4 Here]

Panel B and C of Table 4 report results using group-controlled firms sample and non-group-controlled firms sample, respectively. Evidence in Panel B suggests that group-controlled firms treat recurring related party sales and non-operating earnings management as two alternative means of earnings management, when there are strong incentives to manage earnings upward. For example, when a group-controlled firm's earnings management incentives

[21] Compared to related party sales, it is probably easier to detect earnings management using non-operating earnings items. However, prior research has documented that Chinese firms did use this method to manipulate ROE (Chen and Yuan, 2001).

are high and its non-operating ROE is relatively low, the firm's abnormal related party sales level is statistically significantly positive (t=2.5031, p=0.02). We do not find a similar pattern among non-group-controlled firms.

One concern in our two-by-two analysis of abnormal related party sales is that we happened to pick up the observations with high operating earnings in cell (iii), causing a spurious relationship between earnings management incentives and abnormal related party sales. The pattern in Table 4 might simply result from a positive mechanical relation between operating ROE and related party sales.[22] As a diagnostic analysis (Appendix I), we conduct a two-by-two analysis on operating ROE (adjusted by annual sample median). There is a negative correlation between the operating ROE and non-operating ROE; but the firms with higher incentives to manage earnings do not have significantly higher operating ROE. This suggests that the abnormal related party sales results in Table 4 are unlikely to be driven by its spurious correlation with operating ROE.

In summary, our evidence consistently supports H1 that when Chinese listed firms have strong incentives to manage earnings and when the alternative earnings opportunity (non-operating earnings) is less readily available, they are more likely to use abnormal related party sales to inflate earnings.

4.5 Market valuation of related party sales and non-related party sales

Next, we examine whether the market applies the same valuation to related party sales as to non-related party sales. Prior research has investigated the relations between annual stock returns and different components of accounting earnings for assessing the persistence and value relevance of these components. For example, Subramanyam (1996) demonstrates how the stock market prices non-discretionary accruals, discretionary accruals and operating cash flows. In a similar manner, we decompose the net income into four parts. The first three components constitute operating earnings: sales to non-related parties (Non_RP sales), sales to related parties (RP sales), and cost of goods sold (COGS). The last component is net income minus operating earnings (NIMOE). Obviously, these four components sum to net income (NI), that is:

NI= Non-RP sales + RP sales – COGS + NIMOE

The main focus is to see if there is any significant difference in the pricing of related party

[22] Univariate tests show that there is a positive correlation between related party sales (as a percentage of total sales) and operating ROE: the Pearson correlation of these two variables is 0.0968 (p =0.0864, marginally significant),

sales and non-related party sales.[23] The regression model is as follows:

$$CAR_{it} = \alpha + \beta_1 \times NonRPsales_{it} + \beta_2 \times RPsales_{it} + \beta_3 \times COGS_{it} + \beta_4 \times NIMOE_{it} + \beta_5 \times BM_{it} + \beta_6 \times SIZE_{it} + \beta_7 \times Lev_{it} + (FixedEffects) + \varepsilon_{it} \quad (1)$$

where, for firm *i*

CAR_{it} = cumulative net-of-market twelve-month stock return at year t (April in year t to March in year t+1);

$RPsales_{it}$ = sales revenue from related parties at year t divided by market value of equity[24] at the beginning of year t;

$NonRPsales_{it}$ = sales revenue from non-related parties at year t divided by market value of equity at the beginning of year t;

$COGS_{it}$ = cost of goods sold at year t divided by market value of equity at the beginning of year t;

$NIMOE_{it}$ = net income minus operating earnings at year t divided by market value of equity at the beginning of year t;

BM_{it} = book value of equity at the end of year t divided by market value of equity at the end of March in year t+1;

$Size_{it}$ = natural logarithm of book value of total assets at the end of year t;

Lev_{it} = total liability divided by total assets at the end of year t;

Fixed Effects = dummy variables controlling for fixed effects of calendar years;

ε_{it} = error term at year t.

Fama and French (1992) suggest that size and book-to-market equity (BM) provide a simple and powerful characterization of the cross-section of average stock returns. Collins and Kothari (1989) suggest that growth opportunities are likely to be positively associated with future earnings levels and earnings persistence. The higher the book-to-market ratio, the lower the expected earnings growth and earnings persistence. In addition, the book to market ratio may also reflect firm risks, which will weaken the earnings-return association. High growth firms are usually more risky, which might result in a high book-to-market ratio and a low earnings-return association. Hence, book-to-market ratio and natural log of total assets, a proxy for size, are included in the model as control variables. We also incorporate leverage ratio (Lev), which proxies for default risk

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which indicates on average, related party sales generate higher than average returns.

[23] Here earning levels instead of earning changes are used in the return-earnings regression. This is consistent with Ohlson and Shroff (1992), which shows that the earnings levels variable could have higher explanatory power for returns, even though earnings follow a random walk.

[24] The market value of equity here is calculated as the total number of shares multiplies the price per share in the stock

(Dhaliwal et al., 1991), in the regression.

We run a GMM regression in order to control for possible heteroscedasticity. The results are reported in Table 5. In the pooled regression with 240 firm-year observations (column one), the coefficients on both related party sales and non-related party sales are positive (β_1=3.903, β_2=3.550) and statistically significant (p_1=0.003, p_2=0.007), suggesting that related party sales, as well as non-related party sales, are value relevant in determining stock returns. One possible explanation is that while related party transactions are generally opportunistic, some are conducted to increase firm efficiency. Transactions that increase firm efficiency are credible and recognized by investors, and hence their relation with stock returns is positive and statistically significant. An alternative interpretation is that even though most related party sales are manipulated, the investors are not sophisticated enough to fully discount this manipulation. However, consistent with the prediction of H2, the magnitude of the coefficient of related party sales is significantly smaller than that of non-related party sales (F=8.150, p=0.004), which indicates that investors tend to have higher discounts on related party sales than non-related party sales.

[Insert Table 5 Here]

The correlation analysis indicates that cost of goods sold (COGS) is highly correlated with other independent variables, and could cause multicollinearity problems.[25] Thus, COGS is dropped from the regression model and the result is reported in column two of Table 5. The difference in coefficients on related party sales and non-related party sales remains statistically significant (F=11.910, p=0.001), and the magnitude of the coefficient of non-related party sales is more than double that of related party sales. The increase in economic significance for the difference in coefficients implies that firms may also manipulate cost of goods sold through related party purchases. In the diagnostic section, we present regression results using related and non-related party purchases instead of cost of goods sold.

To investigate whether the markets price related party sales of group-controlled firms differently from those of non-group-controlled firms, a group dummy is added to the regression

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market.

[25] Tolerance (TOL) = 0.00250. This measures the strength of inter-relationships among the explanatory variables in the model. It is 1-R^2 for the R^2 that results from the regression of explanatory variable on the other explanatory variables in the model. If all variables are orthogonal to each other, tolerance should be 1. If a variable is closely related to other variables, the tolerance goes to 0.

model and the result is reported in column three of Table 5.

$$CAR_{it} = \alpha + \alpha_1 \times GroupDummy + \beta_1 \times NonRPsales_{it} + \beta_2 \times RPsales_{it} + \beta_3 \times RPsales_{it} \times GroupDummy + \beta_4 \times COGS_{it} + \beta_5 \times NIMOE_{it} + \beta 6_6 \times BM_{it} + \beta_7 \times SIZE_{it} + \beta_8 \times Lev_{it} + (FixedEffects) + \varepsilon_{it} \quad (2)$$

The coefficients of related party sales and non-related party sales remain significantly different (F=17.410, p<0.0001) but it appears that investors do not discriminate against related party sales of group-controlled companies (β_3=0.197, p=0.265). One explanation for this result is that compared to non-group-controlled firms, group-controlled firms have stronger incentives to use related party sales for both efficiency (strengthen the earnings-return relation) and opportunistic (weaken the earnings-return relation) purposes. The two effects may have offset each other.

To mitigate the effects of influential observations, we used *Dffits*[26] (Fox, 1991) and run the GMM regression on the trimmed sample. The results are qualitatively the same (reported in columns four to six). In summary, our results suggest that investors do discount related party sales, relative to non-related party sales. However, they do not distinguish related party sales between group-controlled firms and non-group-controlled firms.

4.5 Financing activities

A second objective of this paper is to see whether tunneling is prevalent in China. One common way for tunneling to occur is to directly loan to related parties by recognizing the other receivables account in the financial report.[27] In our sample, the average amount of related party loans amount to 3.20% of total assets; however, some of the companies' related party loans can be as large as 30 to 40% of total assets. Consistent with H3, our univariate test shows that, on average, listed companies lend more to their related parties (in the form of other receivables) than borrowing from them (in the form of other payables). The mean of net other receivables/payables with related parties (RP_OROP), which is related party other receivables minus related party other payables all divided by year-end total assets, is 1.978 (t=5.57; Signed rank S=6971.9, p<0.001).

Next, we examine whether Chinese firms engage in more related party lending once they have accumulated more funds. In this paper, we consider three sources of funds for a listed company.

[26] The *Dffits* statistic (F_i) is a scaled measure of the change in the predicted value for the ith observation. Large absolute values of F_i indicate influential observations. A general cutoff to consider is 2; however, in our test, we use the size adjusted cutoff recommended by Belsley, Kuh, and Welsch (1980), 2*SQRT (p/n), where p is the number of parameters in the model and n is the number of observations used to fit the model.

[27] Some firms only report a lump sum of total receivables from related parties. In such cases, we classify the entire

The first is cash proceeds from rights issues (Rissue); the second is new debt borrowed from banks, both long-term and short-term (ΔDebt); and the third is free cash flow before any credits are given (FCF) – cash from operating activities minus the amount used in investment activities, plus the increase in receivables over the period.[28]

If listed companies choose to divert resources to their related parties through direct lending, the amount of net other receivables/payables with related parties should be higher than that with non-related party. In the following regression analysis, we take the difference between the change (current year minus prior year) in net other receivables/payables with related parties and that with non-related party (ExΔRP_OROP) as dependent variable. We then run a number of regressions to test whether listed firms provide more net lending to related parties when they have accumulated funds from rights issues (Rissue), debt issues and free cash flows. We also include two other independent variables, leverage ratio (Lev) and log of total assets (SIZE), as control for growth opportunities and firm size. First, we run the regression separately for the group-controlled firms and non-group-controlled firms. Then, we run another regression combining two subsamples with a dummy variable, which equals one for group-controlled firms and zero otherwise. The two regression models are as follows:

$$Ex\Delta RP\_OROP = \alpha + \beta_1 \times FCF + \beta_2 \times \Delta Debt + \beta_3 \times Rissue + \beta_4 \times Lev + \beta_5 \times Size + \varepsilon \quad (3)$$

$$Ex\Delta RP\_OROP = \alpha_0 + \alpha_1 \times Dummy + \beta_1 \times FCF + \beta_2 \times \Delta Debt + \beta_3 \times Rissue + \beta_4 \times Dummy \times FCF + \beta_5 \times Dummy \times \Delta Debt + \beta_6 \times Dummy \times Rissue + \beta_7 \times Lev + \beta_8 \times Size + \varepsilon \quad (4)$$

Table 6 columns one to three present the results of the regressions. Higher free cash flow is associated with a more positive change in net other receivables/payables (for example, for regression with group dummy in column three, if the firm's free cash flow is increased by 1% of total assets, its net lending to the related parties will increase by 0.084% of total assets). However, when firms borrow more from the banks or when they raise funds from rights issue, they do not necessarily lend more to their related parties immediately. In addition, group-controlled firms, when compared to non-group-controlled firms, appear to be more restrained by their creditors from giving out credits to their related parties. In the pooled regression with the group dummy in

amount to related party accounts receivable.

[28] FCF has a different definition from the usual free cash flow. According to the indirect method of calculating cash flow, *ceteris paribus*, an increase in receivables in the period results in a lower free cash flow. Hence changes in receivables are added back to free cash flow to avoid this negative correlation between the free cash flow and

column three, a significantly positive α_1 (p=0.0258) indicates that group-controlled firms on average lend more to their related parties.

[Insert Table 6 Here]

Next, we consider a different measure of related party lending, termed "abnormal related lending", in the regressions. In this measure, we consider only related party lending (receivables) (Ex△RP_AROR), which includes two components, abnormal trade account receivables (Ex△RP_AR) as well as abnormal other receivables (Ex△RP_OR), both divided by total assets at the beginning of the year. We use the corresponding non-related party receivables as a benchmark for normal related party receivables in both components. For the first component, we use a sales adjusted change in non-related party accounts receivables (NRP_AR) as our benchmark estimate. This is because the difference between related party accounts receivables (RP_AR) and non-related party accounts receivables may result from the difference in the relative levels of related party credit sales (RP_sales) and non-related credit sales (NRP_sales) and not firm opportunism. The equation for abnormal related lending is presented as follows:

$$\text{Ex}\Delta\text{RP\_AROR}_t = (Ex\Delta RP\_AR_t + EX\Delta RP\_OR_t) / TA_{t-1} \times 100$$

where,

$$Ex\Delta RP\_AR_t = (RP\_AR_t - RP\_AR_{t-1}) - (NRP\_AR_t - NRP\_AR_{t-1}) \times \frac{RP\_sales_t - RP\_sales_{t-1}}{NRP\_sales_t - NRP\_sales_{t-1}}$$

$$Ex\Delta RP\_OR_t = (RP\_OR_t - RP\_OR_{t-1}) - (NRP\_OR_t - NRP\_OR_{t-1})$$

The new set of regressions using abnormal related lending (Ex△RP_AROR) as dependent variable is presented in Table 6 from columns four to six. For group-controlled firms in column five, the increase in debt or equity financing does not necessarily lead to higher abnormal related lending, but a higher free-cash-flow level does (β_1=0.49256, p=0.0346). In the pooled regression in column six, group-controlled and non-group-controlled firms behave differently in that group-controlled firms are more willing to lend to related parties when they have higher free cash flows (β_4=0.4397, p=0.0793). These additional results show that the relation between free cash flow and loans to related firms is robust to alternative measures of related party lending.

So far, we have documented that Chinese firms are generally net lenders to their related parties and they provide more loans to related firms when they have a larger amount of free cash flow. We

receivables.

cannot conclude that this lending activity is tunneling as long as it benefits the entire group including the listed firm itself. However, if controlling shareholders, through related lending, divert resources out of the listed company for opportunistic rather than efficiency enhancing purposes, investors would likely show their disapproval by discounting the firm's share price.

To test whether market applies a share price discount to firms with related party lending, we use Tobin's Q[29] as the dependent variable in the regression. To quantify the amount of asset transfer through related party lending and borrowing, we calculate other receivables from related parties (RP_OR) and other payables to related parties (RP_OP), both as a percentage of total assets. Tobin's Q is regressed on these two items, to see if higher lending to related parties leads to lower valuation, an indication that investors have lower confidence in the company when there are signs that controlling shareholders are diverting out resources through related lending. The regression model is as follows:

$$TQ_{it} = \alpha + \beta_1 \times RP\_OR_{it} + \beta_3 \times RP\_OP_{it} + \beta_5 \times SIZE_{it} + \beta_6 \times Lev_{it} + \beta_7 \times ROA_{it} + \beta_8 \times 1/b\Pr c_t + \varepsilon_{it} \quad (7)$$

where, for firm *i* in year *t*:

TQ_{it} = Price per share multiplies total number of shares, plus book value of liabilities, divided by the book value of total assets at year end;

RP_OR_{it} = the amount of related party other receivables as a percentage of year-end total assets;

RP_OP_{it} = the amount of related party other payables as a percentage of year-end total assets;

$Size_{it}$ = natural logarithm of book value of year-end total assets;

Lev_{it} = total liability divided total assets at year end;

ROA_{it} = return on assets;

$1/bPrc_{it}$ = price per share at the beginning of the year;

ε_{it} = error term.

Natural logarithm of book value of assets is included to control for size effect. We also incorporate the leverage ratio in the regression since this variable may in part capture the value of

[29] The common definition of Tobin's Q is the market value of assets divided by the replacement cost of assets (Morck et al., 1988; Barclay and Holderness, 1989; McConnel and Servaes, 1990; Claessens et al., 1999). In this paper, the Tobin's Q in the regression models are calculated as the price per share multiplied by the total number of shares outstanding, plus the book value of liability, divided by the book value of total assets. As stated before, only around 34% of total shares in our sample firms can be traded in the stock markets. Since there is a significant liquidity discount associated with non-tradable shares (Xu and Wang, 1999), the Tobin's Q numbers calculated here might be

corporate tax shields. Alternatively, according to the pecking order theory, debt is negatively correlated with firm profitability, and hence, with TQ (Morck et al., 1988). ROA is included because a higher return on assets is more positively valued by the market, thus resulting in a higher Tobin's Q (Chen 2001). Finally, the inverse of price per share is used to control for liquidity in the stock market.

The GMM regression results are reported in Table 7. As an alternative measure of firm valuation, we use market-to-book of equity ratio as another dependent variable in the regression. Columns one and two present the regression results without *dffits* adjustments, and columns three and four present results with the adjustments. The level of related party lending is negatively associated with Tobin's Q (columns one and three), which indicates that the more the listed company lends to its related parties, the lower its market valuation. However, the results are statistically significant only when influential observations are excluded from the sample (β_1=-0.013, p=0.022) in column three. The results also show that they remain qualitatively the same with market-to-book of equity ratio, an alternative measure of valuation.

[Insert Table 7 Here]

5. Diagnostic Checks

5.1 Related party sales to manage earnings

We have performed a number of robustness checks for the analyses in Table 4. First, we replicate the analyses using related party sales without subtracting the firms' own average (the normal related party sales proxy) and the results are qualitatively similar. These results are robust to using total assets instead of total sales as deflator for related party sales. Other sensitivity tests include adding firms with only one year of observation, using different ROE ranges around zero and 10% to capture high earnings manipulation incentives, winsorizing the upper and lower 1% of abnormal related party transactions, deleting influential observations, and using multivariate regressions instead of the two-by-two analysis.[30] All results remain qualitatively the same in these

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overstated. However, such overstatement is unlikely to bias our results.

[30] We also conduct the following multivariate regressions:

$$ExRP\_Sales/TA = \alpha + \beta_1 \times IncentiveDummy + \beta_3 \times Debt + \beta_4 \times \log TA + \varepsilon \quad (9)$$

$$ExRP\_Sales/TA = \alpha + \beta_1 \times IncentiveDummy + \beta_2 \times IncentiveDummy \times GroupDummy + \beta_3 \times Debt + \beta_4 \times \log TA + \varepsilon \quad (10)$$

Incentive Dummy equals one when ROE is between zero and 1.5%, or between 10% and 11.5%, and when there is a

robustness checks.

In addition to related party sales, we have also considered related party purchases in our analyses (not reported). In the two-by-two analysis, we document that firms with high earnings management incentives and low non-operating ROE report a statistically significantly positive combined level of abnormal related party sales and purchases. However, when we examine abnormal related party purchase by itself in the two-by-two analysis, we find the positive abnormal related party purchase figure in cell (iii) to be statistically insignificant. One possible reason is that a high level of related party purchase does not necessarily translate into lower cost of goods sold for the year. The amount of cost of goods sold that is directly associated with related party purchase is not available for our analysis. The test on returns-earnings-components association suggests that the correlation between stock returns and related party sales and purchases remains weaker than that between returns and non-related party sales and purchases.

We have also studied non-recurring related party transaction items such as sales and purchases of properties, shares and assets swap in the two-by-two analysis and returns-earnings-component regressions but we failed to find evidence that these items are used extensively for earnings management purposes. One possible explanation for the lack of evidence is that low frequency of such events reduces the power of test. Also, some of the non-recurring transactions might be part of normal operations. Not being able to tease out the opportunistic component in non-recurring transactions might undermine our ability to find evidence of earnings management. Moreover, Chinese regulators may all along suspect that these one-off related party transactions as opportunistic. This is evident in the new 2001 regulation that all non-recurring related party items are excluded from the ROE calculation for rights issue qualification.[31]

Finally, to see if China's listed companies use discretionary accruals as an alternative means to manage earnings, we conduct a two-by-two analysis on discretionary accruals (estimated using the modified cross-sectional Jones model). The results show that firms with high incentives to manage earnings and low non-operating ROE do not necessarily report statistically significantly positive discretionary accruals. This suggests that firms in our sample do not commonly use discretionary accruals to manage earnings.[32]

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rights issue in the following year, and zero otherwise.

[31] This regulation is published in the 2001 Chinese Ministry of Finance (No. 64) document titled 'Temporary accounting rules about sales of assets between related parties'.

[32] Previous studies demonstrate that firms whose earnings are just above the thresholds have unusually high

5.2 Financing activities

We have performed a few diagnostic checks for the analyses in Table 6. First, we use related party lending (RP_OR) and relate party net lendings (RP_OROP) as alternative dependent variables in the regression and the results are qualitatively the same. Second, we apply winsorization of extreme values (top and bottom 1%) to all regression variables and the results remain qualitatively unchanged.

Finally, as an alternative measure of tunneling, we examine the amount of debt guarantee granted by listed firms to their related parties and vice versa. The frequency of such transactions is relatively low in our sample: 13.71% of firms offer guarantees to related parties and only 2.57% receive debt guarantees from related parties. However, the direction is similar to related party loans, in that listed companies offer more debt guarantee to related parties than that received from these parties, perhaps because their listing status gives them better access to bank loans. Because of small sample size and low frequency, it is difficult for us to conduct more comprehensive tests using loan guarantees in this paper.

6. Conclusions and Implications for Future Research

This paper provides evidence consistent with the notion that Chinese listed companies use recurring related party sales to manage earnings in order to meet government's ROE requirements for rights issues or to avoid being delisted. In addition, through related lending, listed companies divert resources they obtain from operations to their major shareholders and their affiliates. These earnings management and tunneling activities are more pronounced for group-controlled companies. The results are robust to alternative measures of related party sales and related party lending. We also document evidence that Chinese investors are aware of these related party transactions, in the sense that the contemporaneous annual stock returns association with related party sales are lower than that with non-related party sales, and they apply a share price discount to firms that engage in more related lending.

This study provides direct evidence on how large shareholders expropriate minority

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discretionary items such as accounts receivables, abnormal accruals and non-core earnings (Haw et al. 1998; Chen et al. 2000; Chen 1998). This is inconsistent with our diagnostic check in which we find firms with a higher incentive to manage earnings (firms with slightly positive ROE, slightly higher than 10% ROE and firms with rights issue in the next year) might not have statistically significantly positive discretionary accruals. Our limited sample size might be one explanation for the insignificant results.

shareholders, and develops some new research methodology for detecting opportunistic related party transactions. Future analyses should focus on exploring how earnings management and tunneling are achieved using a more comprehensive set of related party transactions other than sales and receivables. Also, identifying institutional settings and corporate governance structures that can reduce opportunistic related party transactions, are relevant issues that deserve further attention.

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Figure 1

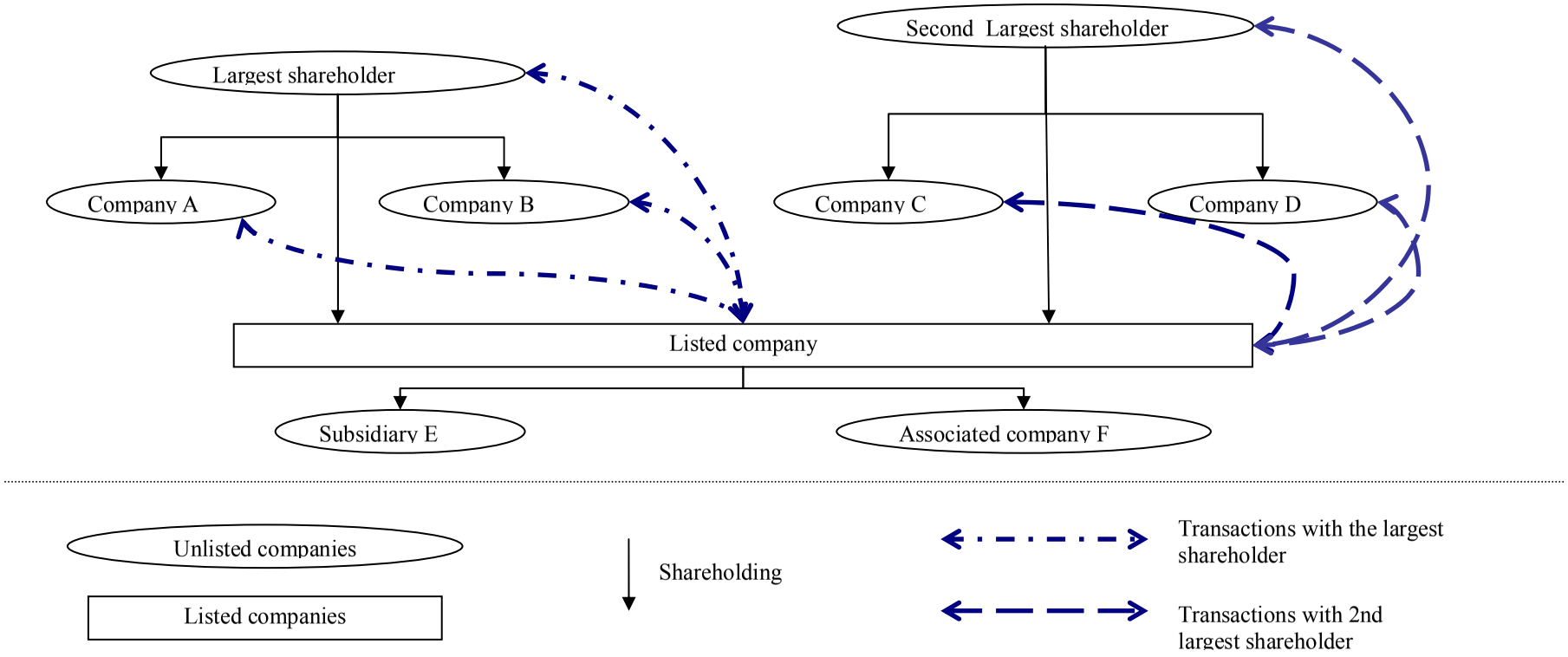
Second Largest shareholder
Largest shareholder
Company A
Company B
Company C
Company D
Listed company
Subsidiary E
Associated company F
Unlisted companies
Listed companies
Shareholding
Transactions with the largest shareholder
Transactions with 2nd largest shareholder

Table 1: Firms in the sample[1]

Types of firms[2]	1997	1998	1999	2000	Total
Group-controlled firms[3]	28 (28)	18 (46)	15 (61)	22 (83)	83 (218)
Government-controlled firms[4]	8 (8)	2 (10)	0 (10)	2 (12)	12 (40)
Others[5]	13 (13)	5 (18)	7 (25)	11 (36)	36 (92)
Total number of firms (firm-years) in analysis	49 (49)	25 (74)	22 (96)	35 (131)	131 (350)

1. The main entries are the numbers of firms that went IPO during the year. The cumulative number of firm-year observations for the year is in parentheses. We have excluded a total of six firms that experienced change in the largest shareholder during the sample period.
2. The classification is based on the largest shareholder type in the IPO year.
3. Group-controlled firms are those whose largest shareholders are state-owned group companies.
4. Government-controlled firms are those whose largest shareholders are state-owned assets management bureaus, state-owned assets management companies or local government agencies.
5. 'Others' are the remaining firms in the sample, controlled by non-group and non-government entities, for example, research institutions, joint ventures and factories.

Table 2 : General descriptive statistics

		Government[1]	Others[3]	Non-group[4]	Group[2]	Pooled
Panel A: Accounting data						
Total Assets	Mean	1077.72	1302.85	1234.63	2278.65	1884.91
(RMB million yuan)	Median	763.37	866.75	807.06	1410.22	1121.96
	STD	1113.91	987.08	1028.11	3242.08	2681.24
Owners' Equity	Mean	519.90	777.25	699.27	1341.95	1099.57
(RMB million yuan)	Median	334.82	606.41	547.73	831.04	704.73
	STD	551.06	503.68	529.83	2067.01	1690.93
Operating Revenue	Mean	424.70	741.56	645.54	1569.46	1221.01
(RMB million yuan)	Median	202.37	363.91	304.03	635.44	500.77
	STD	548.60	970.52	874.79	2826.03	2335.41
Operating ROA	Mean	3.08	6.96	5.78	6.24	6.07
(%)	Median	3.90	6.98	6.47	5.96	6.04
	STD	5.60	3.37	4.52	3.80	4.09
Non-operating ROA	Mean	0.73	-0.43	-0.08	-0.50	-0.34
(%)	Median	0.43	-0.24	-0.08	-0.54	-0.41
	STD	2.22	1.39	1.76	1.29	1.50
ROA	Mean	3.81	6.53	5.71	5.74	5.73
(%)	Median	4.41	6.49	5.83	5.58	5.68
	STD	5.53	2.76	3.99	3.10	3.46
Total firm-years		40	92	132	218	350
Panel B: Shareholding information						
Largest shareholder holding	Mean	43.68	46.73	45.97	61.73	55.96
(%)	Median	36.98	49.09	41.50	63.44	58.40
	STD	17.55	18.39	18.05	14.32	17.47
Largest five shareholders	Mean	60.09	63.18	62.41	67.14	65.41
holding (%)	Median	61.90	65.14	65.07	68.09	66.80
	STD	10.42	11.11	10.92	10.84	11.07
Sum of square of largest five	Mean	2345.21	2727.17	2631.68	4065.54	3540.16
shareholders' (%)	Median	1612.26	2857.53	2082.58	4028.19	3550.80
	STD	1610.57	1599.38	1593.71	1600.36	1736.30
Total firm-years		12	36	48	83	131

1. Government-controlled firms are those whose largest shareholders are state-owned assets management bureaus, state-owned assets management companies or local government agencies.
2. Group-controlled firms are those whose largest shareholders are state-owned group companies.
3. 'Others' are the firms in the sample controlled by non-group and non-government entities, for example, research institutions, joint ventures and factories.
4. Non-group firms are the combination of government-controlled and other firms.

Table 3: Different major types of related party transactions with different related parties

Related parties[6]		Government[1]	Others[3]	Non-group[4]	Group[2]	Pooled	Test statistics[5]
Panel A: Related Party Sales							
Largest shareholder	Mean	0.06	7.53	5.27	11.09	8.90	-2.94 ***
	Median	0.00	0.11	0.00	2.64	0.76	-5.70 ****
(% of Total Assets)	STD	0.23	19.86	16.91	18.61	18.19	
	Frequency(%)	7.50	52.17	38.64	69.27	57.71	
Major shareholder with	Mean	0.06	8.06	5.63	11.23	9.12	-2.82 ***
>5% ownership	Median	0.00	0.62	0.00	3.14	1.06	-5.37 ****
(% of Total Assets)	STD	0.23	19.80	16.91	18.59	18.15	
	Frequency(%)	7.50	56.52	41.67	71.10	60.00	
Associates with 20-50%	Mean	0.29	0.04	0.12	0.04	0.07	1.47
shares	Median	0.00	0.00	0.00	0.00	0.00	0.45
(% of Total Assets)	STD	0.91	0.37	0.59	0.28	0.43	
	Frequency(%)	10.00	2.17	4.55	3.67	4.00	
Total[7]	Mean	0.63	8.59	6.18	11.47	9.47	-2.67 ***
(% of Total Assets)	Median	0.00	1.06	0.00	3.53	1.75	-4.82 ****
	STD	1.64	19.85	16.97	18.55	18.13	
	Frequency(%)	20.00	60.87	48.48	73.85	64.29	
Panel B: Related Party Purchases							
Largest shareholder	Mean	0.00	6.19	4.31	14.83	10.87	-5.16 ****
	Median	0.00	0.00	0.00	4.15	0.98	-7.51 ****
(% of Total Assets)	STD	0.00	15.13	12.93	25.09	21.92	
	Frequency(%)	0.00	45.65	31.82	72.02	56.86	
Major shareholder with	Mean	0.00	6.47	4.51	14.96	11.02	-5.14 ****
>5% ownership	Median	0.00	0.22	0.00	4.41	1.68	-7.27 ****
(% of Total Assets)	STD	0.00	15.06	12.90	25.04	21.87	
	Frequency(%)	0.00	52.17	36.36	73.85	59.71	
Associates with 20-50%	Mean	0.04	0.00	0.01	0.10	0.07	-1.72 *
shares	Median	0.00	0.00	0.00	0.00	0.00	-0.03
(% of Total Assets)	STD	0.16	0.00	0.09	0.77	0.61	
	Frequency(%)	7.50	0.00	2.27	2.29	2.29	
Total[7]	Mean	0.64	6.51	4.73	15.19	11.25	-5.15 ****
(% of Total Assets)	Median	0.00	0.30	0.00	5.35	2.33	-6.96 ****
	STD	1.88	15.07	12.89	24.96	21.81	
	Frequency(%)	17.50	55.43	43.94	75.69	63.71	
Panel C: Total Credits offered to Related Parties							
Largest shareholder	Mean	1.99	3.22	2.84	5.33	4.39	-3.21 ***
	Median	0.00	1.11	0.08	1.68	1.11	-3.75 ***
(% of Total Assets)	STD	6.14	5.64	5.80	8.64	7.77	
	Frequency(%)	27.50	60.87	50.76	70.18	62.86	
Major shareholder with	Mean	2.07	3.91	3.35	5.41	4.64	-2.61 ***
>5% ownership	Median	0.00	1.43	0.52	1.69	1.20	-2.81 ***
(% of Total Assets)	STD	6.13	5.95	6.04	8.69	7.85	
	Frequency(%)	37.50	66.30	57.58	71.56	66.29	
Associates with 20-50%	Mean	0.31	0.02	0.11	0.13	0.12	-0.21
shares	Median	0.00	0.00	0.00	0.00	0.00	0.05
(% of Total Assets)	STD	0.92	0.24	0.55	0.88	0.77	
	Frequency(%)	17.50	1.09	6.06	5.96	6.00	
Total[7]	Mean	5.11	4.09	4.40	5.72	5.22	-1.49
(% of Total Assets)	Median	0.44	1.55	1.20	1.99	1.86	-1.87 *
	STD	10.59	5.98	7.65	8.71	8.34	
	Frequency(%)	60.00	69.57	66.67	74.31	71.43	

Table 3: continued.

Related parties[6]		Government[1]	Others[3]	Non-group[4]	Group[2]	Pooled	Test statistics[5]
Panel D: Total Credits obtained from Related Parties							
Largest shareholder	Mean	0.00	0.68	0.47	1.55	1.14	-2.95 ***
	Median	0.00	0.00	0.00	0.00	0.00	-5.42 ****
(% of Total Assets)	STD	0.00	3.06	2.57	4.26	3.74	
	Frequency(%)	0.00	25.00	17.42	45.41	34.86	
Major shareholder with	Mean	0.31	0.75	0.62	1.59	1.22	-2.64 ***
>5% ownership	Median	0.00	0.00	0.00	0.00	0.00	-3.85 ***
(% of Total Assets)	STD	0.96	3.07	2.62	4.26	3.75	
	Frequency(%)	15.00	33.70	28.03	47.25	40.00	
Associates with 20-50%	Mean	0.04	0.00	0.01	0.01	0.01	-0.18
shares	Median	0.00	0.00	0.00	0.00	0.00	-0.74
(% of Total Assets)	STD	0.21	0.00	0.12	0.12	0.12	
	Frequency(%)	5.00	0.00	1.52	2.75	2.29	
Total[7]	Mean	0.40	0.83	0.70	1.63	1.28	-2.53 **
(% of Total Assets)	Median	0.00	0.00	0.00	0.00	0.00	-2.52 **
	STD	0.98	3.06	2.62	4.25	3.75	
	Frequency(%)	25.00	45.65	39.39	49.08	45.43	
Panel E: Net Trade Credits Offered to Related Parties							
Largest shareholder	Mean	1.99	2.54	2.37	3.78	3.25	-1.64 *
	Median	0.00	0.45	0.00	0.95	0.32	-1.47
(% of Total Assets)	STD	6.14	6.22	6.18	9.88	8.69	
	Frequency(%)	27.50	57.61	48.48	59.17	55.14	
Major shareholder with	Mean	1.77	3.16	2.74	3.82	3.41	-1.24
>5% ownership	Median	0.00	1.20	0.16	0.95	0.60	-0.73
(% of Total Assets)	STD	6.28	6.49	6.44	9.95	8.80	
	Frequency(%)	32.50	63.04	53.79	59.17	57.14	
Associates with 20-50%	Mean	0.27	0.02	0.10	0.11	0.11	-0.18
shares	Median	0.00	0.00	0.00	0.00	0.00	-0.15
(% of Total Assets)	STD	0.96	0.24	0.57	0.86	0.76	
	Frequency(%)	17.50	1.09	6.06	5.50	5.71	
Total[7]	Mean	4.72	3.26	3.70	4.09	3.94	-0.40
(% of Total Assets)	Median	0.15	1.25	0.71	1.50	1.20	-0.31
	STD	10.79	6.53	8.04	9.98	9.28	
	Frequency(%)	57.50	63.04	61.36	61.47	61.43	
Total firm-years		40	92	132	218	350	

1. Government-controlled firms are those whose largest shareholders are state-owned assets management bureaus, state-owned assets management companies or local government agencies.
2. Group-controlled firms are those whose largest shareholders are state-owned group companies.
3. 'Others' are the remaining firms in the sample controlled by non-group and non-government entities, for example, research institutions, joint ventures and factories.
4. Non-group firms are the combination of government-controlled and 'other' firms.
5. The t-statistic (z-statistic) shows the mean (median) difference between group-controlled firms and non-group-controlled firms (two-tailed test).

   **** Significant at 0.001 level; *** Significant at 0.01 level; ** Significant at 0.05 level; * Significant at 0.1 level. Two-tailed tests.
6. The first column identifies major related parties (listed company's largest shareholder and its affiliates, major shareholders with more than 5% of shares and their affiliates, associated companies with 25% to 50% shares held by the listed company)
7. The sum of transactions with all related parties, including all shareholders and their affiliates, associated companies and other related parties (for example, subsidiaries).

Table 4: Related party sales in earnings management

Panel A: Full Sample			Incentives to Manipulate Earnings						
			High			Low		Total	
			Firm with an ROE of [0,1.5%) or [10%,11.5%) or with rights issue next year			Otherwise			
Non Operating ROE (adjusted by annual median)	High	Mean[1]	(i)	-1.7421	*	(ii)	-0.3847	-1.0033	
		Median[1]		-0.1224	**		0.0000	0.0000	**
		%Positive		22	***		26 ***	24	***
		N[2]		72			86	158	
	Low	Mean[1]	(iii)	2.5082	**	(iv)	-0.0457	1.1095	
		Median[1]		0.1456	**		0.0000	0.0000	
		%Positive		52			37 **	44	*
		N[2]		71			86	157	
	Total	Mean[1]		0.3682			-0.2150	0.0498	
		Median[1]		0.0000			0.0000	0.0000	
		%Positive		37	***		31 ***	34	
		N[2]		143			172	315	

Panel B: Group-controlled firms[3]			Incentives to Manipulate Earnings						
			High			Low		Total	
			Firm with an ROE of [0,1.5%) or [10%,11.5%) or with rights issue next year			Otherwise			
Non Operating ROE (adjusted by annual median)	High	Mean[1]	(i)	-2.3126		(ii)	-1.8849	-2.0883	*
		Median[1]		-0.1719	*		-1.3125 *	-0.8927	***
		%Positive		23	***		26 ***	20	***
		N[2]		39			43	82	
	Low	Mean[1]	(iii)	3.6804	**	(iv)	-0.6798	1.3473	
		Median[1]		1.2644	**		-0.1137	0.0000	
		%Positive		57			36 **	46	
		N[2]		53			61	114	
	Total	Mean[1]		1.1399			-1.1781	-0.0900	
		Median[1]		0.0000			-0.8871 *	-0.1297	
		%Positive		42	*		32 ***	37	
		N[2]		92			104	196	

1. Mean (median) of abnormal related party sales (i.e. current observation's related party sales as percentage of total sales - this firm's average related party sales percentage).
2. Number of observations in each cell. For each firm, a historical average needs to be calculated. Hence only firms with at least two years' data are used in the analysis.
3. Group-controlled firms are those whose largest shareholders are state-owned group companies; Non-group firms are those whose largest shareholders are not state-owned group companies, which might be state-owned assets management bureaus, state-owned assets management companies or local government agencies and non-government entities, for example, research institutions, joint ventures and factories.
4. *** Significant at 0.01 level; ** Significant at 0.05 level; * Significant at 0.1 level. Two-tailed tests.
5. The binomial tests for the null hypothesis that p=50% could not be rejected in cell(iii), that is, the percentage of firms that have higher than average related party sales are not significantly higher than 50%. This is because there are a lot of observations with zero related party sales (around 30% of total observations). If we exclude the firms with no related party transactions, the observations with high incentives to manage earnings and low non-operating ROE would have significantly higher frequency of positive related party sales than other observations in the sample.

Table 5: Market returns and related party sales

	Full Sample[2]			Delete influential Observations[3]		
Group dummy[1]			-0.808			0.534
			(0.798)			(0.848)
Non_RP sales	3.903 ***	0.640 ***	3.987 ***	6.064 ***	0.663 ***	5.881 ***
	(0.003)	(<.0001)	(0.003)	(<.0001)	(<.0001)	(<.0001)
RP sales	3.550 ***	0.226 **	3.515 ***	5.627 ***	0.148 ***	5.403 ***
	(0.007)	(0.038)	(0.009)	(<.0001)	(0.092)	(<.0001)
RP sales * Group dummy[1]			0.197			0.082
			(0.265)			(0.537)
COGS	-3.463 **		-3.573 **	-5.700 **		-5.531 ***
	(0.012)		(0.012)	(<.0001)		(<.0001)
NIMOE	4.096 ***	1.361	4.095 ***	6.652 ***	2.065 **	6.433 ***
	(0.009)	(0.151)	(0.010)	(<.0001)	(0.011)	(<.0001)
BM	-1.357 ***	-1.577 ***	-1.354 ***	-1.222 ***	-1.508 ***	-1.203 ***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Size	-2.062	2.415	-1.881	-5.361	2.104	-5.612 **
	(0.471)	(0.354)	(0.532)	(0.065)	(0.414)	(0.039)
Lev	-0.070	-0.198 *	-0.064	0.015	-0.154	0.020
	(0.518)	(0.094)	(0.562)	(0.886)	(0.176)	(0.842)
Wald Test for Difference between RP and non-RP sales	8.150 ***	11.910 ***	17.410 ***	21.780 ***	24.180 ***	25.790 ***
	(0.004)	(0.001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
N	240	240	240	231	234	230
Adj. R^2	0.400	0.375	0.396	0.454	0.372	0.438

1. Group-controlled firms are those whose largest shareholders are state-owned group companies; Non-group firms are those whose largest shareholders are not state-owned group holding companies, which might be state-owned assets management bureaus, state-owned assets management companies or local government agencies and non-government entities, for example, research institutions, joint ventures and factories. Group Dummy equals one if the observation is from a group-controlled firm, and zero otherwise.
2. The GMM method is employed in the regressions to investigate the association of market return and different earnings components. The dependent variable, CAR, is cumulative net-of-market twelve-month stock returns starting from April of year t to March of year t+1. Net earnings are decomposed into sales to non-related parties (Non_RP sales), sales to related parties (RP sales), cost of goods sold (COGS) and non-operating earnings (NIMOE), all divided by the market value of equity at the beginning of year t. BM is the book to market of equity. Size is the natural logarithm of book value of total assets. Leverage (Lev) is the book value of total liabilities divided by the book value of total assets.
3. In the second part of the table (column 4-6), influential observations are deleted according to their Dffits statistics (Fox 1991) before the GMM regressions are run.
4. All the p-values are in parentheses.
5. *** Significant at 0.01 level; ** Significant at 0.05 level; * Significant at 0.1 level. Two-tailed tests.

Table 6: GMM regression of related party lending

Independent variables	ExΔRP_OROP			ExΔRP_AROR		
	Non-group-Controlled[1]	Group-controlled[1]	Pool Regression	Non- group-controlled[1]	Group – controlled[1]	Pool Regression
Intercept	7.455311	30.91439	18.9062	-0.3174	58.1235 **	31.1224 *
	(0.4585)	(0.1886)	(0.1797)	(0.8437)	(0.0435)	(0.0795)
FCF[2]	0.026382	0.09234 **	0.083944 *	0.09193	0.49256 **	0.05201
	(0.8550)	(0.0430)	(0.0558)	(0.2639)	(0.0346)	(0.5146)
ΔDebt[2]	-0.05385	-0.30988 *	-0.06042	0.01443	-0.17304	-0.08705
	(0.5874)	(0.0641)	(0.4957)	(0.9173)	(0.3895)	(0.4327)
Rissue[2]	0.049253	-0.0573	0.041309	-0.0004	-0.09606	-0.06105
	(0.4060)	(0.2092)	(0.4924)	(0.4225)	(0.2125)	(0.2651)
Group Dummy[1]	--	--	4.142759 ***	--	--	4.7318 *
			(0.0059)			(0.0793)
Group Dummy[1] * FCF	--	--	0.05814	--	--	0.4397 *
			(0.7024)			(0.0809)
Group Dummy[1] * ΔDebt	--	--	-0.2506	--	--	-0.045
			(0.1663)			(0.7875)
Group Dummy[1] * Rissue	--	--	-0.09214	--	--	-0.01876
			(0.2227)			(0.8364)
Lev[3]	0.106286 *	0.118459 *	0.11835 **	-0.03197	0.12886	0.08666
	(0.0907)	(0.0829)	(0.0210)	(0.7799)	(0.2573)	(0.3181)
Size[3]	-0.83028	-2.49878	-1.84587	0.40727	-4.69678 **	-2.78184 *
	(0.3446)	(0.2169)	(0.1414)	(0.7774)	(0.0478)	(0.0807)
Adj. R^2	0.0425	0.0298	0.0296	-0.03089	0.1256	0.1027
N	84	135	219	84	135	219

1. Group-controlled firms are those whose largest shareholders are state-owned group holding companies; Non-group firms are those whose largest shareholders are not state-owned group holding companies, which might be state-owned assets management bureaus, state-owned assets management companies or local government agencies and non-government entities, for example, research institutions, joint ventures and factories. Group Dummy equals one if the observation is from a group-controlled firm, and zero otherwise.
2. FCF is cash from operating activities minus the amount used in investment activities, plus the increase in receivables over the period, divided by the beginning total assets. ΔDebt is change in debt, deflated by beginning total assets. Rissue is the amount from right issue of the year, deflated by beginning total assets
3. Size is the natural logarithm of book value of total assets. Leverage (Lev) is the book value of total liabilities divided by the book value of total assets.
4. All the p-values are shown in parentheses.
5. *** Significant at 0.01 level; ** Significant at 0.05 level; * Significant at 0.1 level. Two-tailed tests.

Table 7: Firm valuation and related party lending

	Full Sample[1]		Delete influential observations[5]	
Dependent variable[2]	Tobin's Q	M/B	Tobin's Q	M/B
RP_OR[3]	-0.007	-0.020 *	-0.013 **	-0.011 ***
	(0.606)	(0.062)	(0.022)	(0.019)
RP_OP[3]	0.011	-0.024 *	0.007	-0.021 ***
	(0.496)	(0.096)	(0.608)	(0.001)
Size[4]	-1.158 ***	-2.038 ***	-0.991 ***	-1.771 ***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Lev[4]	-0.008 *	0.022 ***	-0.005	0.013 ***
	(0.080)	(<.0001)	(0.126)	(<.0001)
ROA	0.099 ***	0.191 ***	0.105 ***	0.211 ***
	(0.000)	(<.0001)	(<.0001)	(<.0001)
1/bPrc	-0.107	1.138	-0.023	0.599
	(0.845)	(0.347)	(0.960)	(0.404)
N	240	240	226	227
Adj. R^2	0.580	0.742	0.657	0.641

1. The GMM method is employed in the regressions to investigate the market valuation of lending to related parties.
2. Tobin's Q is calculated as the market value of equity, plus the book value of liabilities, divided by the book value of total assets. M/B is the ratio of book value and the market value of equity.
3. RP_OR is the amount lent out to related parties, divided by the total assets (total equity when market-to-book is the dependent variable) at the end of the year. RP_OP is the amount borrowed from related parties, divided by the total assets (total equity when market-to-book is the dependent variable) at the end of the year.
4. Size is the natural logarithm of book value of total assets. Leverage (Lev) is the book value of total liabilities divided by the book value of total assets (total equity when market-to-book is the dependent variable). ROA is the return of assets. 1/bPrc is the inverse of beginning price per share.
5. In columns 4 to 6, influential observations in the sample are deleted according to Dffits statistics before the GMM regressions are run. Tobin's Q is calculated as market value of equity plus book value of debt, divided by book value of total assets.
6. *** Significant at 0.01 level; ** Significant at 0.05 level; * Significant at 0.1 level. Two tailed tests.

Appendix I: Two-by-two analysis of operating ROE

Panel A: Full Sample

			Incentives to Manipulate Earnings: High		Low		Total
			Firm with an ROE of [0,1.5%) or [10%,11.5%) or with rights issue next year		Otherwise		
Non Operating ROE (adjusted by annual median)	High	Mean[1]	(i) -2.9470 ***		(ii) -3.9975 ***		-3.5188 ***
		Median[1]	-1.7698 ***		-2.8944 ***		-2.3880 ***
		N[2]	72		86		158
	Low	Mean[1]	(iii) 3.0035 ***		(iv) 0.9330		1.8693
		Median[1]	2.4073 ***		2.6028 ***		2.4589 ***
		N[2]	71		86		157
	Total	Mean[1]	0.0074		-1.5323		-0.8833
		Median[1]	0.3955		-0.1184		0.0465
		N[2]	143		172		315

Panel B: Group-controlled firms[3]

			Incentives to Manipulate Earnings: High		Low		Total
			Firm with an ROE of [0,1.5%) or [10%,11.5%) or with rights issue next year		Otherwise		
Non Operating ROE (adjusted by annual median)	High	Mean[1]	(i) -3.8601 ***		(ii) -3.3359 ***		-3.5852 ***
		Median[1]	-2.3988 ***		-2.9274 ***		-2.8432 ***
		N[2]	39		43		82
	Low	Mean[1]	(iii) 2.8778 ***		(iv) 2.7855 ***		2.8284 ***
		Median[1]	2.1781 ***		2.6018 ***		2.4389 ***
		N[2]	53		61		114
	Total	Mean[1]	0.0215		0.2545		0.1452
		Median[1]	0.7750		-0.0131		0.5368
		N[2]	92		104		196

Panel C: Non-group-controlled firms[3]

			Incentives to Manipulate Earnings: High		Low		Total
			Firm with an ROE of [0,1.5%) or [10%,11.5%) or with rights issue next year		Otherwise		
Non Operating ROE (adjusted by annual median)	High	Mean[1]	(i) -1.8680 ***		(ii) -4.6591 ***		-3.4472 ***
		Median[1]	-1.3329 ***		-2.7494 ***		-2.0129 ***
		N[2]	33		43		76
	Low	Mean[1]	(iii) 3.3736 ***		(iv) -3.5871		-0.6733
		Median[1]	2.4964 ***		3.8138 ***		2.5874 ***
		N[2]	18		25		43
	Total	Mean[1]	-0.0180		-4.2650		-2.4449
		Median[1]	-0.0246		-0.7230		-0.2222
		N[2]	51		68		119

1. Mean (median) of annual adjusted operating ROE (operating ROE of the firm - annual median of operating ROE of all firms).
2. Number of observations in each cell. For each firm, a historical average needs to be calculated. Hence only firms with at least two years' data are used in the analysis.
3. Group-controlled firms are those whose largest shareholders are state-owned group companies; Non-group firms are those whose largest shareholders are not state-owned group holding companies, which might be state-owned assets management bureaus, state-owned assets management companies or local government agencies and non-government entities, for example, research institutions, joint ventures and factories.
4. *** Significant at 0.01 level (two tailed test); ** Significant at 0.05 level; * Significant at 0.1 level. Two-tailed tests.