

# Enforceability and the Effectiveness of Laws and Regulations\*

**Ke Li**

Shanghai Stock Exchange  
[rocksonlee@yahoo.cn](mailto:rocksonlee@yahoo.cn)

**Lei Lu**

Shanghai Univ. of Finance & Economics  
[lu.lei@mail.shufe.edu.cn](mailto:lu.lei@mail.shufe.edu.cn)

**Jun “QJ” Qian**

Boston College & CAFR  
[qianju@bc.edu](mailto:qianju@bc.edu)

Last revised: May 2011

## Abstract

We examine how regulators tackle two types of widespread tunneling activities in China. Controlling shareholders and related parties can divert assets from listed firms or coerce firms to serve as guarantors on questionable loans. The government announced and enacted two new rules during the same period: the first rule prohibits asset diversion from listed firms for ‘non-operational’ purposes by large shareholders, while the second standardizes the practice of listed firms providing loan guarantees. Relative to firms not affected by either rule, firms complying with the *first* rule experience a reduction in the ownership stakes of controlling shareholders, an increase in investment, and significantly better performance. The second rule has no impact on firms. Our results highlight the importance of *enforceability*: laws and regulations that can be enforced at lower costs are much more likely to succeed, especially in countries with weak institutions.

**JEL Classifications:** G30, G34, K42.

**Keywords:** Enforceability, controlling shareholder, tunneling, loan guarantee, asset diversion.

---

\*We are grateful for valuable comments from Qianqian Du, Longkai Zhao, Ning Zhu, and seminar/session participants at Peking University (GSM), Central University of Finance and Economics, Shanghai University of Finance and Economics, the 2010 Econometric Society World Congress meetings (Shanghai), and the 2010 SAIF Summer Institute Corporate Finance Program. We are responsible for all the remaining errors.

# Enforceability and the Effectiveness of Laws and Regulations

**Last Revised: May 2011**

## **Abstract**

We examine how regulators tackle two types of widespread tunneling activities in China. Controlling shareholders and related parties can divert assets from listed firms or coerce firms to serve as guarantors on questionable loans. The government announced and enacted two new rules during the same period: the first rule prohibits asset diversion from listed firms for ‘non-operational’ purposes by large shareholders, while the second standardizes the practice of listed firms providing loan guarantees. Relative to firms not affected by either rule, firms complying with the *first* rule experience a reduction in the ownership stakes of controlling shareholders, an increase in investment, and significantly better performance. The second rule has no impact on firms. Our results highlight the importance of *enforceability*: laws and regulations that can be enforced at lower costs are much more likely to succeed, especially in countries with weak institutions.

**JEL Classifications:** G30, G34, K42.

**Keywords:** Enforceability, controlling shareholder, tunneling, loan guarantee, asset diversion.

## I. Introduction

The extensive literature on law and finance has established robust associations between legal protection of investors and better financial and economic outcomes across countries. But which types of laws and regulations are more effective in different countries remains elusive. For many developing countries characterized by weak institutional environments, the costs of developing legal and financial institutions can be enormous. Hence, the introduction of laws and regulations that have significant impact and can be enforced at reasonable costs should be given the highest priority. One of the key obstacles for developing financial markets and strengthening corporate governance in developing countries is powerful and entrenched controlling shareholders, who can ‘tunnel’ resources from firms to themselves.<sup>1</sup> While there are many possible solutions for this ‘self-dealing’ problem, a lot has to do with the enforcement of laws and regulations.

In this paper, we examine how regulators tackle two types of widespread tunneling activities in China. Controlling shareholders and their related parties can divert assets from listed firms or press firms to act as guarantors on questionable loans. The government announced and enacted two new rules during the same period: the first rule prohibits asset diversion from listed firms for ‘non-operational’ purposes, while the second standardizes the practice of listed firms providing loan guarantees. Relative to firms not affected by either law, firms complying with the *first* law experience a reduction in the ownership stakes of controlling shareholders, an increase in investment, and significantly better performance. The second regulation, however, has no impact on firms. We attribute the difference in the effects of these rules to *enforcement costs*: it is much easier for regulators to keep track of diversion of assets from a listed firm by a large shareholder than to monitor and verify the role of a particular guarantor in a loan agreement that typically involves

---

<sup>1</sup> For the literature on law and finance, see the work by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (LLSV; 1997, 1998), and others. Djankov, La Porta, Lopez-de-Silanes, and Shleifer (DLS (2008)) construct the self-dealing index and find it to be correlated with stock market development across a large sample of countries.

many parties. Our results extend the literature on law, institutions and finance by providing direct evidence that *enforceability* matters: laws and regulations that can be enforced at lower costs are more effective in practice, especially in countries with weak (formal) institutions.

China provides an intriguing case to study the effects of laws and legal enforcement on financial markets. Despite fast growth since its inception in 1992, China's stock market remains inefficient and dominated by insider trading, and corporate governance for listed firms is weak (e.g., Allen, Qian, and Qian, 2005, 2008). Tunneling by controlling shareholders is prevalent and takes on many forms. For example, through holding companies or other related parties, controlling shareholders frequently divert assets (cash or real assets) away from listed firms. Listed firms also 'involuntarily' provide loan guarantees for the subsidiaries or related parties of the controlling shareholders. While both forms of tunneling can lead to substantial losses for minority shareholders and destroy incentives for managers, an important difference between the two is the effort and cost required for an outsider (e.g., regulator or a court) to distinguish a legitimate transaction that is (potentially) value-increasing from tunneling. In the case of asset diversions, each and every transaction between a listed firm and its large shareholders must be recorded so that outside auditors can easily keep track of all the transactions. Our evidence also shows that the transactions between firms and their controlling shareholders are *one-sided*: only in a few cases a listed firm actually 'borrows' from its controlling shareholder; in the overwhelming majority of cases the listed firm 'lends' to its large shareholders.

On the other hand, multiple guarantors in addition to collateral are often needed to secure a loan for many firms in China—hence one legitimate reason for a firm to *provide* loan guarantee for another firm is to expect the other firm to reciprocate. As a result, we observe large networks of firms that provide guarantees for each other. While a listed firm must disclose the provision of a loan guarantee as well as the identity of the beneficiary of the guarantee (borrower firm) in its

annual report, the cash flow consequences of the guarantees will not be reflected in the balance sheet until the borrower defaults on the loan *and* when the guarantor(s) must pay to cover the losses.<sup>2</sup> Given the complicated structure of loan contracts, including multiple guarantors, collateral requirements, and covenants, and the lengthy and unpredictable loan workout and restructuring process, it is therefore difficult (and costly) to differentiate a guarantor on a ‘normal’ loan from that on a questionable loan structured by the controlling shareholder or its related party.

In 2005, China Securities Regulatory Commission (CSRC, equivalent to the SEC in the U.S.) announced two new rules specifically designed to tackle the two forms of tunneling mentioned above. The first rule prohibits controlling shareholders and related parties to divert assets from listed firms for ‘non-operational’ purposes. These include listed firms’ paying for the debt and expenses (salaries, advertising, etc.) of their large shareholders and related parties; in some cases the controlling shareholders would take assets without any explanation on the purpose for the diverted assets, resembling outright ‘stealing.’ All controlling shareholders, especially state-owned entities, must repay the diverted assets by the end of 2006. The enforcement process is also transparent in that both the Shanghai and Shenzhen Stock Exchanges provide details on both the paying and nonpaying controlling shareholders and the affected listed firms. The second rule aims to ‘standardize’ the practice of loan guarantees, but it does not provide specific guidelines on the implementation process or set restrictions on any aspect of loan guarantees.

We argue and provide evidence that the timing of the announcements of the two new rules was not anticipated by listed firms. Therefore, to examine the impact of these new rules on firms’ behavior and performance, we employ a standard ‘difference-in-difference’ approach. Relative to firms not affected by the new rules, we find that firms complying with the first rule (no asset diversion) experience a reduction in the ownership stakes of controlling shareholders. This is

---

<sup>2</sup> When the borrower defaults on the loan there is a renegotiation process between the creditors and the borrower; this process may lead to multiple, possible outcomes in which the guarantors may or may not pay to cover losses.

consistent with the hypothesis that the new rule makes it more difficult for controlling shareholders to tunnel assets, and as a result they reduce their ownership stakes. Moreover, these firms experience an increase in investment and significantly better performance, as measured by return on assets (ROA), sales (ROS), equity (ROE), and earnings per share (EPS). These firms also have higher (cumulative) abnormal stock returns over the period of the announcement and enforcement of the rule. On the other hand, we do not find the second rule (on loan guarantees) has any significant impact on affected firms' governance, investment or performance.

Overall, we conclude that given the complicated nature and large costs in verifying tunneling vs. normal business transactions, the government's handling of loan guarantees—more precisely, lack of action—is reasonable. On the other hand, the new rule and strong enforcement targeting the most egregious form of asset diversions (for non-operational purposes) are effective in stopping this form of asset diversion, *and* this has a spillover effect in that it reduces the incentive of controlling shareholders to tunnel and in turn increases the incentive of managers to create value for all shareholders through investment and growth.

Our paper contributes and extends the literature on law and finance, and in particular, conditions under which regulatory reforms would be effective. Our within-country study avoids the pitfalls of cross-country studies, and our difference-in-difference approach overcomes the endogeneity problems in separating the effects of the laws and regulations of interests from other factors. More importantly, by examining and comparing the impact of two distinct rules at the same time, we provide direct evidence that enforceability is a key determinant of the effectiveness of laws and regulations. This has important implications for developing countries as formal institutions in these countries are generally weak, so that the legal system cannot enforce complicated laws and regulations effectively. On the other hand, laws and regulations that are clearly defined so that verifications of 'right' from 'wrong' based on the law can be carried out at low costs will have a

much greater likelihood of success in practice, and, as a result, have a greater impact on firms and markets.<sup>3</sup> Finally, the paper contributes to the growing literature on China's capital markets and listed firms by investigating and comparing the effects of different regulations on listed firms' governance and performance. In particular, Jiang, Lee, and Yue (2010) examine tunneling by controlling shareholders through related lending practices and find that these activities can severely harm listed firms and their minority shareholders. By contrast, we confirm the damaging effects of these related lending practices but find that not all types of tunneling activities can be tackled effectively by the regulators, and enforcement cost is the key.<sup>4</sup>

This rest of the paper is organized as follows. Section II introduces the institutional background in China and describes the nature of two types of tunneling activities and enforcement costs and our data sets. Section III presents the empirical results on the impacts of the two different regulations on the controlling shareholder's behavior, investment and firms' performance. Finally, Section IV concludes the paper.

## **II. Tunneling Activities and Capital Markets Regulation in China**

As is the case in many other emerging countries with underdeveloped laws and formal institutions, controlling shareholders in Chinese listed firms frequently pursue private benefits at the cost of minority shareholders and other stakeholders. In this regard, the Chinese stock market is also unique and provides an interesting case for studying ownership structure, corporate governance, and securities regulations for several reasons (see, e.g., Allen, Qian, and Qian, 2008, for a review). First, many listed firms were converted from state-owned enterprises (SOEs), with the state being the

---

<sup>3</sup> Schoar and Lerner (2005) study different control mechanisms for private equity investors in different countries, Kaplan and Stromberg (2007) examine similar problems for venture capital investors, and Glaeser, Johnson, and Shleifer (2001) show that better incentives of regulators lead to better enforcement of laws in emerging markets.

<sup>4</sup> Several other recent papers examine the impact of ownership structure, including the role of government ownership, on firms' performance. Berkman, Cole, and Fu (2010) examine the significant difference in abnormal returns around the announcements of regulations for firms with different corporate governance. Fan, Wong, and Zhang (2007) study the adverse effects of political connections on firm performance.

dominant shareholder. During the partial privatization and IPO process, they sold minority equity ownership stakes to the public, and these stocks are tradable, while the government, through various entities, retains majority ownership (nontradable shares) and control; other legal entities, including SOEs, also hold large amounts of nontradable shares. As of February 2005, nontradable shares accounted for more than 60% of all outstanding stocks.

Second, there is considerable evidence showing that the stock market in China is inefficient and dominated by insider trading, while both internal and external corporate governance (e.g., hostile takeovers) is weak for most publicly listed firms. For example, institutional ownership (e.g., through mutual funds) has just begun to develop, and its impact on corporate governance and markets overall is still limited.<sup>5</sup> Third, despite the government's efforts in recent years to strengthen and reform the legal and financial systems, it remains a difficult process for minority shareholders to take actions against insider misconduct. Courts at all levels in China have had a long tradition of protecting state interests and have little experience with private plaintiff-driven litigations (Allen, Qian, and Qian, 2005). In summary, given the characteristics of emerging capital market, the tunneling problem is very severe.

In the rest of this section we review the regulations on tunneling, introduce the data sets aimed to compare the effects of regulations on different types of tunneling activities, and compare the enforcement costs of the two types of activities.

## **II.1 CSRC Regulations toward Asset Diversions and Loan Guarantees**

While there are numerous ways in which controlling shareholders can “tunnel” resources from listed firms, two widespread activities became the focus for new regulations in 2005–2006:

---

<sup>5</sup> Yuan et al. (2008) find that the ownership stake by mutual funds has a positive impact on firm performance for the period of 2001–2005. However, Jiang et al. (2010) show that the average ownership by mutual funds is only 1.33% of total share outstanding (2.8% of tradable shares) for the period of 1999–2004. Given the limited ownership by mutual funds in Chinese markets, the role played by the mutual funds on corporate governance is still limited.



asset diversions, and related transactions between controlling shareholders and related parties (e.g., loan guarantee). We first use an example to show the negative effect of asset diversion on listed firms. The *Monkey King Co. Ltd.*, a manufacturing company, listed A-shares on the Shenzhen Stock Exchange (SZSE) in 1993, with its total assets totaling RMB 300 million, among which RMB110 million raised from the stock market. Beginning in 1994, the *Monkey King Group*, the parent company and largest shareholder of *Monkey King Co. Ltd.*, began to divert assets from the listed firm for itself and related parties; in several occasions the parent company did not specify any reason or purpose for the ‘borrowed’ funds and assets. The cumulated amount of diverted assets reached RMB 890 million in 1999. In its 2000 annual report, *Monkey King Co. Ltd.* revealed that its net assets is –RMB376 million with a net loss of RMB689 million, compared with a net gain (from operations) of RMB328 million in 1993. The revenue per share and return on equity dropped from RMB 0.57 and 19.56% in 1993 to –2.28 and –183.16% in 2000, respectively. The *Money King Group* filed for bankruptcy in 2001, which led to a total loss of RMB890 million and liability of RMB244 million for *Monkey King Co. Ltd.*, and its stock was added to the “ST” category for bankrupt (listed) firms.

The next example illustrates the nature and scale of loan guarantees. *HaiBo* is a listed firm on the Shanghai Stock Exchange (SHSE), and, as a holding company, most of its income comes from its (unlisted) subsidiaries. One of the main subsidiaries, *Shanghai HaiBo Taxi Co. Ltd.*, has generated large amount of profits for the parent company through aggressive acquisitions and expansions. Since it is difficult for small, unlisted firms in China, such as the subsidiaries of *Haibo*, to raise external capital, the loan guarantees from *HaiBo* (the parent and listed firm) are crucial to secure bank loans. In 2003, *HaiBo* provided *HaiBo Taxi* RMB 345 millions of loan guarantees to finance its continuing expansion, which accounted for more than 80% of its assets, exceeding the limit of 50% by the CSRC. However, the regulators did not stop the loan or punish *HaiBo* for

providing the guarantee since the process of securing the loan is backed by strong economic prospects and the loan clearly benefited both *HaiBo* and the beneficiaries (its subsidiaries); *HaiBo* is required by CSRC to disclose the information of loan guarantees in its financial statement.

While in this example the large scale loan guarantees were justified, similar scale guarantees on questionable loans can derail a good firm (see, e.g., Jiang et al., 2010, for such examples and large sample analyses). As mentioned above, CSRC (CSRC Rule 2003-56) set limits on the amount of loan guarantees—no more than 50% of the guarantor’s net assets, as well as on the qualifications of borrower firms (to receive guarantees). For example, a listed firm cannot provide loan guarantee to a company with its debt over assets ratio greater than 70%. However, these rules were often not enforced in practice—as illustrated by the *Haibo* example above—given the legitimate economic reasons behind loan guarantees.

In June 2005, CSRC issued “the Notice on Resolving Asset Diversions and Loan Guarantees” (CSRC Rule 2005-35, “Notice” hereafter) and ordered an evaluation of all listed firms (on SHSE and SZSE) according to the Notice. An important goal of the Notice is to stop asset diversions for ‘non-operational purposes’ by the end of 2005. The definition of ‘non-operational purposes’ include listed firms’ paying for the debt and expenses (salaries, advertising, etc.) of their large shareholders and related parties, and cases in which the controlling shareholders would take assets without any explanation on the purpose for the diverted assets.<sup>6</sup> In November 2005, on behalf of CSRC, the State Council authorized implementation of “Suggestions on Improving the Quality of Listed Firms.” It supported the CSRC mandate—strictly preventing all controlling shareholders (or firms’ ultimate owners) from diverting firms’ assets for non-operational purposes.

---

<sup>6</sup> CSRC specifies the following five categories as diverting assets for ‘non-operational purposes’: (1) expenses on salaries, pensions, and insurance of controlling shareholders paid by listed firms; (2) debt paid by listed firms on behalf of controlling shareholders and their affiliates; (3) both direct and indirect lending by listed firms to their controlling shareholders and their affiliates; (4) losses and liabilities incurred by listed firms from providing loan guarantee to controlling shareholders and their affiliates; and (5) assets of listed firms taken by their controlling shareholders and their affiliates without receipts.

Moreover, all controlling shareholders, especially SOEs and their related parties, must pay back the diverted assets by the end of 2006 (see Figure 1 for a summary of key dates and events). In accordance to the CSRC Notice, both the SHSE and SZSE required all listed firms to disclose detailed information regarding asset diversions by their controlling shareholders and related parties and specific plans and time tables to return all diverted assets (by the end of 2006) in their 2005 annual reports.

CSRC targeted both asset diversions and loan guarantees, but the enforcement process of the regulations was considerably different from the very beginning. For asset diversion, the government imposed new laws that explicitly prohibit controlling shareholders (and related parties) to divert assets from listed firms for non-operational purposes—i.e., the cases discussed earlier; severe punishments, including jail terms, follow violations. In 2006, both domestic exchanges frequently disclosed the names of the legal entities that had diverted assets from listed companies and the time and amount of returned (diverted) assets. On June 28, 2006, asset diversions from listed firms were classified as a “serious crime” according to “Amendment No. 6 to the Criminal Law of the People’s Republic of China.” The Amendment also stipulates that “members of the board, supervisors, and senior administrators of listed firms are subject to three- to seven-year imprisonment and fines if found to have manipulated the performance of listed firms and such manipulations have led to severe losses....” Controlling/ultimate shareholders will also be penalized on the same charges if they are found to have conducted similar activities.

For loan guarantees, on the other hand, CSRC only tried to standardize how listed firms should provide guarantees without imposing any specific regulations against doing such practices. While the law does allow minority shareholders to file lawsuits against the firm and/or controlling shareholders (for providing loan guarantees), it essentially leaves the burden of responsibility to the Board of Directors of the listed firms. Specifically, the Notice requires that (1) if the firm provides

loan guarantees to other firms, it must obtain the permission from either at least two thirds of its board members or at a shareholders' meeting; (2) the firm should disclose the maximum amount of loan guarantees in a timely fashion; and (3) the board members should be responsible for potential loss suffered from the default of loan guarantees. In summary, the Notice emphasizes that the firm should follow the strict monitoring process to provide loan guarantees, while it does not prohibit loan guarantees. Meanwhile, the exchanges and news media rarely mentioned any information associated with loan guarantees.

## **II.2 Data and Summary Statistics**

The central goal of our empirical work is to provide large sample analysis on the nature of the two types of tunneling activities and how the regulators deal with them in practice. To this end, we collect data on firms that are affected by at least one of the two new rules aimed to tackle asset diversion and problematic loan guarantees. Specifically, to collect information on firms affected by the rule regarding asset diversion, we manually search listed firms 2005 annual reports on asset diversion by controlling shareholders or their related parties, and the "Disclosure of Detailed Information about Asset Diversion by Listed Firms" from the website of SHSE, which includes detailed information about asset diversion for all firms listed on the exchange. For firms listed on the SZSE, we manually search information from the summary section of the firm's 2005 annual report. As part of the 2003 mandate, CSRC also required listed firms to disclose provision of loan guarantees (total amount and the identity of borrower receiving the guarantee) in the "Important Events" section of annual reports. We collect information on loan guarantees from the WIND database, which compiled data based on the annual reports beginning in 2003.

From Panel A of Table 1, there are 383 listed firms from which controlling shareholders and related parties diverted assets as of 2005, and 712 firms provided loan guarantees to their large shareholders in our sample; both of these events occurred for 265 firms. For each firm in the

‘treatment group,’ we also find matching firms (the ‘control group’) and they are used to isolate the effects of the new rules on the treatment firms from other contemporaneous events. Panel B shows the distribution of treatment group firms and the majority of firms are in manufacturing industries. For both treatment and control group firms, we collect information on accounting variables, stock prices and returns, ownership structure, and characteristics. As is common practice, we exclude firms in the financial services industries; we also exclude firms (IPO) listed after 2004, and each firm in our sample must maintain ‘listed’ status for at least one year. As Panel C of Table 1 indicates, this process yields a sample of 1,131 firms listed on SHSE and SZSE from 2003 to 2007.

We obtain the accounting variables from the China Stock Market and Accounting Research (CSMAR, included in WRDS) database. Panel C, Table 1 compares summary statistics on firm characteristics between treatment and control groups for the period 2003-2007. We find that the 383 firms in the asset diversion group (treatment group) are on average smaller than firms in the control group (no asset diversion); they also have lower return on assets (ROA, defined as earnings before interests and taxes, or EBIT, divided by lagged book value of total assets), lower return on equity (ROE, defined as net profits scaled by lagged book value of equity), lower earnings per share (EPS) and lower investment (capital expenditure over assets), higher leverage (ratio of book value of total liability to book value of total assets) and lower tangibility (Property, Plant and Equipment over assets) than firms in the control group. We obtain information on stock prices and returns from the WIND Information Company, and find that firms affected by asset diversion have lower average stock returns. In addition, the firms with asset diversion experienced higher CEO turnovers. Panel D compares the 712 firms that provided loan guarantees to their controlling shareholders and those that do not (as of 2005). Patterns similar to those in Panel C emerge in that the loan guarantee providers are on average in worse financial conditions and show worse performance than firms in the control group.

### **II.3 Comparing Enforcement Costs of Rules Targeting Asset Diversion and Loan Guarantees**

In this subsection, we compare the enforcement costs of the two new rules aimed at tackling the two types of ‘tunneling’ activities. While both types of tunneling activities can potentially bring severe damages to listed firms, the effectiveness of the laws and regulations depend on the enforcement costs—specifically, how difficult it is for the regulators to verify a particular transaction is lawful or illegal. To do this the regulators must be able to keep track of the transaction, differentiate legitimate business reasons behind the transaction from the incentive to tunnel assets from listed firms at the benefit of the controlling shareholders.

#### ***Asset Diversion***

According to the disclosure requirements and accounting rules, each and every transaction between a listed firm and its large shareholders must be recorded immediately. For example, each time when a controlling shareholder borrows cash from a listed firm, this transaction must be recorded in the accounting journal entry with the date and amount of the transaction as well as the identity of the borrower; the effect of the transaction must also be immediately reflected in the firm’s balance sheet: a decrease in cash/assets and an increase (by the same amount) in accounts receivable. These detailed records and frequent updates of the accounting books also make it easy for outside auditors to verify each and every transaction. In addition to reviewing the firm’s accounting journal entries and related documents, auditors can also verify the nature and purpose of a transaction between the controlling shareholder and the firm by reviewing journal entries and related documents (e.g., sales and leasing contracts) of the controlling shareholder and related parties. In fact, authorized auditors have the right to review accounting books of firms and controlling shareholders (and related parties) without an advanced notice. Overall, these accounting and auditing rules enable the CSRC to identify the five categories of asset diversions as for ‘non-operational’ purposes and strictly enforce the return of diverted assets in 2005 and 2006.

To gauge the extent of financial transactions between listed firms and their controlling shareholders, we use “other accounts receivable” of the listed firm as a proxy for asset diversion by the controlling shareholder, as this is the most likely account for which such transactions would be recorded based on the examples discussed above. This is also a commonly used proxy for tunneling in earlier work (e.g., Jiang, Lee, and Yue, 2010). On the other hand, when the controlling shareholder lends to the listed firm, this transaction is very likely to be recorded in “other accounts payable” of the firm. Table 2 reports and compares the transactions between listed firms and their controlling shareholders (and their affiliates) that are recorded in “other accounts receivable” (Panel A) and “other accounts payable” (Panel B) from 2003 to 2007.<sup>7</sup> The first column in both panels shows the number of listed firms for which a transaction with their controlling shareholders occurred and the second column presents the total amount of such transactions in a given year. The comparisons between Panel A and B are striking. The largest number of listed firms actually ‘borrowing’ from their controlling shareholders is 26 (in 2004) and in all other years less than 10 firms ‘borrow’ assets from their largest shareholder; by contrast, the number of listed firms that lend to their controlling shareholder ranges from 342 to 412 during 2003-2005, before the new anti-asset diversion rule was announced. The total amount of assets that listed firms get from their controlling shareholder is tiny fraction of that of assets controlling shareholders manage to get from the listed firms. Finally, the size of each transaction between the controlling shareholder and the listed firm (mean and median) is not much different for borrowing and lending. Overall, the comparisons in Table 2 provide strong evidence that the financial transactions between listed firms and their controlling shareholders are one-sided: controlling shareholders take much more from the listed firms than they give back.

---

<sup>7</sup> As mentioned earlier, detailed information on asset diversion is required to be disclosed in listed firms’ 2005 annual reports, and thus we cannot obtain such information directly for other years. We follow Jiang et al. (2010) and use information on other accounts receivables and payables to proxy for lending and borrowing between the controlling shareholder and the firm, and such information is obtained from the WIND and CRSMA databases.

## *Loan Guarantees*

According to CSRC Rule 2003-56, announced in 2003, listed firms must disclose the provision of a loan guarantee as well as the identity of the beneficiary of the guarantee (borrower) in the ‘important events’ section of its annual report. However, unlike the case of asset diversion in which the effects of a transaction are incorporated in the firm’s balance sheet immediately, the cash flow consequences of the loan guarantees will not be reflected in the balance sheet until the borrower defaults on the loan and when the guarantor(s) must pay to cover the losses. In most cases when the borrower defaults on a loan, there is a lengthy renegotiation process between the creditors and the borrower; this process may lead to multiple, possible outcomes in which the guarantors may or may not pay to cover losses. Hence, it may take years before a guarantor actually incurs cash losses on a bad loan, at which point massive losses from multiple defaulted loans guaranteed by the same firm can actually bankrupt the guarantor within a short period of time.

The second important difference between asset diversions and loan guarantees lies in the reasons and motives of the firm and its controlling shareholder behind a transaction. As described above, in the case of asset diversion it is almost always the controlling shareholder tunnels assets away from the listed firm. While providing guarantees on questionable loans of the controlling shareholder can also destroy a healthy firm, loan guarantees can be based on rational economic reasons. In addition to collateral and restrictive covenants, banks often require multiple guarantors to grant a loan to many firms in China, as illustrated by the example of *Haibo* above. Therefore, firms are willing to *provide* loan guarantees for others because they help each other to secure loans. Table 3 presents summary statistics on the provision of loan guarantees as well as receiving guarantees, and the observed patterns are clearly different from those in Table 2. Interestingly, in each year during the period 2003-2007, there were more firms receiving loan guarantees than providing one but the size of the two groups—loan guarantee providers and receivers—is



comparable. It is also not surprising to see that the total amount of loan guarantees received by a firm is greater than the amount of guarantee provided by a firm since a borrower firm often needs multiple guarantors. The results from Table 3 are consistent with the notion that a legitimate reason for a firm to provide loan guarantee for another firm is to expect the other firm to reciprocate.

Table 4 confirms the patterns shown in Table 3 in a multivariate regression setting, where the dependent variable is whether a listed firm provides a loan guarantee (over the period 2003-2007), the number of times loan guarantees and the amount of guarantees provided.<sup>8</sup> The main explanatory variables include whether a firm receives loan guarantees from other firms in the same year (Receiving); the logarithm of the number of times and total amount that the firm receives loan guarantees in the same year [ $\log(\text{times received})$  and  $\log(\text{amount received})$ ]; the ratio of the loan guarantee received in year  $t$  over lagged total assets (Receiving/assets); whether the firm received loan guarantees in the past [Receiving (past)]; and whether the firm provided loan guarantees in the past [Providing (past)]. Other controls include firm performance (ROA), size [ $\log(\text{assets})$ ], tangibility, leverage, a dummy variable (Gov) that equals one if the firm is majority state-owned and 0 otherwise, another dummy variable (ST) that equals one if the firm has “Special Treatment” (ST) status and 0 otherwise, and the ownership stake of the largest shareholder [Ownership (largest)]. We also include industry and year fixed effects in all models.

We first use Logit models to study whether a firm provides loan guarantees to other firms, and so the dependent variable is equal to 1 if the firm provides loan guarantees to other firms in a given year and 0 otherwise. The first column of Table 4 shows that firms with lower ROA, larger in size, higher leverage, lower tangibility, and smaller ownership stakes of the largest shareholder have a greater likelihood of providing loan guarantees to other firms. Hence it is not clear that only worse

---

<sup>8</sup> The WIND database collects the information on loan guarantees from firms’ annual reports but only the total amount of the guarantees, and not detailed information for each transaction—the amount of providing or receiving guarantee. To obtain detailed information about loan guarantees for each transaction, we also collect data from CSMAR.

performing firms and firms in worse financial conditions provide loan guarantees, which would be damaging to the providers and the decision to provide such guarantees would make little economic sense. Consistent with the results in Table 3, the second column of Table 4 present strong evidence that firms receiving loan guarantees in the same period have a higher probability of providing guarantees to other firms, after controlling firms' characteristics. The coefficient (we report marginal effects) indicates that the firm has a 10% higher probability (than the average) to provide loan guarantees conditional on it receiving at least one loan guarantee from another firm. In addition, if the firm received or provided loan guarantees in past years, it also has a higher likelihood (marginal effects are 3.6% and 36.7%) to provide guarantees in the current year.

To quantify the effect of receiving loan guarantees on providing loan guarantees, we run Tobit models (data is 'censored' at 0 if no guarantee is provided), and the results are reported in columns 3–5. From Column 3, for each loan guarantee received by a firm, the firm will provide 0.526 of one loan guarantee in the same year. From Column 4, for every RMB a firm received in loan guarantee the firm will provide RMB 0.373 of loan guarantee to other firms if it receives RMB 1 of loan guarantees in the same year. Finally, the coefficient in the last column implies that if the loan guarantees received by a firm in a given year is equal to 10% of its total assets, the firm will provide loan guarantees that equals 6.3% of its assets during the same year. All of the above coefficients are statistically significant at the 1% level. The results from Table 4 strongly indicate that firms have an incentive to provide loan guarantees to other firms in exchange for receiving loan guarantees from others when they need external financing.

In fact, we observe large and complicated networks of listed firms and other (privately owned) companies and subsidiaries that provide loan guarantees for each other. On November 4, 2003, the *Xinjiang HOPS Co. Ltd.* announced that its cumulated amount of all the loan guarantees reached RMB 79.98 million, of which RMB 35.48 million was for its (unlisted) subsidiaries, and it

also has an additional RMB 98.79 million of loan guarantees that were previously undisclosed. The total amount of loan guarantees, RMB 178.77 million, accounts for more than 80% of its total assets (RMB 221 million), and almost three times that of its net assets (RMB 60 million), far exceeding the upper bound set by CSRC. This announcement sent shock wave throughout the market, as many listed firms from *XinJiang* Province provide loan guarantees for each other including to and from *HOPS*. As Figure 2 illustrates, the so called “Xinjiang loan guarantee circle” includes more than twenty companies (listed firms are indicated by thick black boxes), and at the center of the network are *HOPS*, *Joinworld*, and *Tianshan Wool*. *HOPS* had solid operating performance since its IPO, but its deteriorated operating conditions, accompanied by the large amount of loan guarantees, expedited its downfall in 2003 and 2004. Shortly following its announcement of previously undisclosed loan guarantees, *HOPS*’ stock price fell for thirteen consecutive trading days from RMB 17 to RMB 5, and it was acquired by another company. CSRC fined *HOPS* RMB 600,000, its CEO RMB 300,000, and each of its five directors RMB 50,000, for their failure to disclose the large amount of hidden loan guarantees.

Similar loan guarantee circles formed by numerous companies located in the same region are common across China. Through disclosures in their annual reports, listed firms within a network often state that the main motivation for joining the loan guarantee circle is to have access to more bank credit by through mutually providing and receiving loan guarantees. On the other hand, the interconnectedness of the firms in the network also suggests that problems in one part can quickly spread to the entire network, and this type of ‘financial contagion’ imposes systemic risk in the region. However, the complicated structure of the networks makes it difficult, if not impossible, for the regulators to monitor and verify the nature of each of the loan guarantees and prevent firms in poor operating and financial conditions to secure loans and spread the ‘virus’.

The next case demonstrates the difficulty for regulators to ‘catch’ and monitor controlling

shareholders' tunneling activities. *Xizang Jinzhu* is a listed firm on the SHSE; in 2003, its largest shareholder, *Xizang Jinzhu Group*, sold 20% of its ownership stake to *Nanjing Changheng* and another 14.97% to *Jiangsu Zhongqiao*. Both of these companies are controlled by Mr. Ma Zhiping, and through these block acquisitions Mr. Ma became the largest shareholder of *Xizang Jinzhu*. In addition, Mr. Ma has an indirect ownership stake (29.01%) of *Kejian* through *Nanjing Changheng* and *Jiangsu Zhongqiao*, as shown in Figure 3. One of the subsidiaries of *Xizang Jinzhu*, *Shenzhen Jinzhu South Trading Co. Ltd. (Jinzhu South)*, acted as the agent of *Kejian* to import mobile phone parts and charges a 3% commission fee, which became the main source of profits of *Jinzhu South*. Both *Jinzhu South* and *Kejian* incurred losses in 2004 due to the downturn in the mobile phone market. To alleviate *Kejian*'s financial problems, *Jinzhu South* provides a Letter of Credit (L/C) for *Kejian* under the requirement that its parent company, *Xizang Jinzhu*, provides guarantee on the loan to *Jinzhu South*. This implies that if *Kejian* suffers further losses and cannot repay the loan to *Jinzhu South*, *Xizang Jinzhu* will be on the hook to bear the losses. By September 2004, *Xizang Jinzhu* had provided RMB 641.5 million in loan guarantees for *Jinzhu South*, which accounted for 191% of its net assets, while RMB 365.64 million is reflected on *Jinzhu South*'s other accounts receivables (to be received from *Kejian*). Therefore, through the above chain of actions, the operating risk of *Kejian* was transferred to *Xizang Jinzhu* through loan guarantees, and the controlling shareholder of *Xiang Jinzhu*, Mr. Ma, tunneled assets through a complex channel.

The regulators actually realized the potential risk in the loan guarantees of *Xizang Jinzhu*, but they did not intervene because providing loan guarantee is one of the normal business and operating activities of any listed firm. In September 2003, SHSE reported the loan guarantee problem of *Xiang Jinzhu* to CSRC and investigated *Xizang Jinzhu* in June 2004 regarding its practice of providing loan guarantees. *Xizang Jinzhu* admitted high risk and potential losses in providing the loan guarantees but refused to withdraw its financial support to *Kejian*. Then in

October 2004 CSRC notified *Xizang Jinzhu* to ‘correct’ its questionable practice in providing loan guarantees within two months and to publicly disclose its plans for the ‘correction.’ However, no concrete action was taken (followed the CSRC notice) before the deadline, because its board and management cannot reach any agreement on the correction plan.

In summary, given the complicated structure of loan contracts, including multiple guarantors, collateral requirements, and covenants, and the lengthy and unpredictable loan workout and restructuring process, it is therefore difficult and costly to differentiate a guarantor on a ‘normal’ loan from that on a questionable loan structured by the controlling shareholder or its related party. The large shareholders can use loan guarantee to tunnel assets from listed firms for their private benefits, while the listed company also can use loan guarantees to raise funds. While providing a loan guarantee is typically disclosed in firms’ annual report, the cash flow consequences are not reflected in the balance sheet of guarantor’s firm until the borrower defaults on the loan and the guarantor must pay to cover the losses. By contrast, the nature of asset diversion is often clear, the direction is one-sided, and all transactions between the controlling shareholder and the listed firm are recorded and effects reflected in the firm’s balance sheet immediately. Based on these comparisons, we conclude that the enforcement costs to solve the problem of asset diversion are significantly lower than those for the provision of loan guarantees.

### **III. Empirical Tests on the Effects of Anti-Tunneling Regulations**

In the previous section we have described the two new rules announced by CSRC in 2005—prohibiting assets diversion for non-operational purposes and returning of diverted assets and standardizing the practice of providing loan guarantees— and present evidence showing that the enforcements costs related to asset diversion are much lower than those related to loan guarantees. The difference in enforcement costs can also explain different approaches taken by CSRC to deal

with asset diversion and loan guarantees, the most common tunneling activities that have led to massive losses for many listed firms. For asset diversion, CSRC clearly defined what types of activities are prohibited and set a clear deadline for the return of all diverted assets, and imposed severe punishments for violations. The enforcement process is both forceful and transparent. For loan guarantees, CSRC only attempted to standardize the process through which listed firms provide loan guarantees without imposing any specific constraints in practice. Essentially the burden of proof is on the Board of Directors of the listed firms to determine whether and how much the firm should provide guarantee on a questionable loan.

In this section we examine the effects of the two new rules on the behaviors of controlling shareholders and firm performance. Given the differences in enforcement costs and enforcement process of the two rules, our main hypothesis is that the anti-asset diversion rule will reduce controlling shareholder's incentive to continue divert assets, which will in turn improve managers' incentive to maximize (minority) shareholder value. This, along with the return of diverted assets, will boost affected firms' investment and operating performance. On the other hand, the standardization of the loan guarantee process will have little effect on the controlling shareholder or the firm, because it is practically impossible for regulators to differentiate a 'good' guarantee from a bad one and prevent bad loans and guarantees from destroying listed firms.

We first show that the announcement of the anti-asset diversion rule provides a plausibly exogenous shock to firms. Thus we need to check whether controlling shareholders and firms 'anticipated' this new rule and manipulated the transactions between them in order to avoid the rule. As discussed above, transactions between controlling shareholders and firms, including diverted assets, are typically included in 'other accounts receivables' of the firms' balance sheets. We use other receivables held by controlling (or ultimate) shareholders as a measure for diverted assets; the percentage of assets diverted by controlling shareholders is defined as the ratio of other receivables

owed by controlling shareholders to the total amount of other receivables. The top panel of Figure 4 plots the percentage of assets diverted by controlling shareholders during the period 2002-2007. While there is a slight drop in the scale of asset diversion by the controlling shareholders from 2002 to 2004, we find no significant difference between 2004 and 2005—the year the CSRC announcement came out. On the other hand, there is a sharp drop in the scale of asset diversion from 2005 to 2006, suggesting that the enforcement of the rule was effective—recall that diverted funds (for non-operational purposes) must be returned to listed firm by the end of 2006. The bottom panel of Figure 4 plots the number of diversion firms for the same period. While the number of firms dropped from 2004 to 2005, we observe an overall steady number of firms affected by asset diversion prior to 2005. And, the number of firms dropped significantly from 2005 to 2006, consistent with the pattern observed in the top panel. Based on these patterns, we conclude that the timing of the anti-asset diversion rule was not anticipated by listed firms, and provides the basis of our empirical tests.

Figure 5 plots the scale of loan guarantees—the ratio of total amount pledged through loan guarantees to total assets (top panel)—and the number of firms providing loan (bottom panel) from 2003 to 2007. Similar patterns emerge from both panels in that the level and scale of loan guarantees stay more or less the same before and after the CSRC rule (standardizing loan guarantees) announced in 2005. These patterns imply that the announcement of the new regulation on loan guarantees has no significant impact on firms' practice of providing guarantees.

Following Bertrand and Mullainathan (2003), we use the difference-in-differences method to examine the effects of the anti-asset diversion regulation on the ownership structure, investment, and firm operating and stock performance. If the anti-asset diversion rule increases the costs of controlling shareholder's tunneling activities and thus reduce their incentive to continue to do so, we expect their ownership stake in the firm to drop. With less tunneling and weaker control by the

controlling shareholder (to pursue private benefits at the cost of other stakeholders), firm managers should have a stronger incentive to maximize (minority) shareholder value. This, along with the return of diverted assets, will in turn increase firms' investment and improve operating performance, which will also boost stock returns once the market incorporate all of the above changes in incentives and performance. On the other hand, the standardization of the loan guarantee will have little effect on the controlling shareholder or the firm in terms of their practice of loan guarantee, and thus will have little effect on firm performance.

The main explanatory variable is the interaction of indicator variables  $Post*Diversion$ : the indicator  $Post$  is equal to 1 if the time period is after 2005 (the year when the rule is introduced), and 0 otherwise; the indicator  $Diversion$  takes on the value of 1 if a firm is affected by asset diversion by its controlling shareholder in 2005 ('treatment group'), and 0 otherwise ('control group'). Similarly, we can define the interaction term of  $Post*Guarantee$ , with the indicator  $Guarantee$  taking on the value of 1 if the firm provides loan guarantees for its controlling shareholders or related parties in 2005, and 0 otherwise. The control variables include whether the firm implemented the split-share reform, in which part or all of the government, nontradable shares were floated to the market, between 2003 and 2007 (SPLIT), the average annual stock return for the same period, and those variables used in Table 4 above. We have a panel data set such that each firm in the sample has multiple observations over time, and, following common practice, we cluster standard errors at the firm level (e.g., Bertrand, Duflo, and Mullainathan, 2004; Petersen, 2005).

### ***Changes in the Ownership Stake of Controlling Shareholders***

Table 5 reports the regression results for the effects of the two rules on the changes in ownership stake held by the largest shareholder. The first column demonstrates that the largest shareholder reduces 0.8% of her ownership stake after the regulation of asset diversion is imposed. One explanation is that the regulation increases the cost for controlling shareholders to pursue



private benefits through tunneling, and therefore she reduces the ownership stake. An alternative explanation is that controlling shareholders reduce their ownership stakes due to the share structure reform that also began in 2005. After controlling for the effect of share structure reform (SPLIT)—leading to a reduction of 3.3% of the ownership stake—and other firm characteristics, we find that the controlling shareholder reduces 0.7% of her stake after the anti-asset diversion regulation was announced (Column 2, significant at the 1% level). From Columns 3 and 4, we find the regulation of loan guarantees has no significant impact on ownership stakes. The last column reports the regression result for the effects of the two regulations in a ‘horse race,’ and the impact of the anti-asset diversion regulation in reducing the controlling shareholders’ stake is robust to the inclusion of the regulation on loan guarantees, while the effect caused by the regulation of loan guarantees remains insignificant.

### ***Investment***

Figure 6 plots the median level of investment (capex over book value of assets; top panel) and industry-adjusted median level of investment (bottom panel) for both the treatment and control groups before and after the anti-asset diversion rule is imposed. From the top panel, the median investment level of the treatment group increased from 2.1% in 2005 to 2.7% in 2007, while the median investment level of the control group decreased from 4.6% in 2005 to 4.2% in 2007. The difference in the patterns of investment is stronger after controlling for industry effects. From the bottom panel, we find that the median investment level of the treatment group (with asset diversion) is below the industry average level while the control group is above the average. We also find that the industry-adjusted median investment of the treatment group increased from -1.5% in 2005 to -0.6% in 2007, while it decreased from 0.6% in 2005 to 0.2% in 2007 for the control group. These patterns suggest that the anti-asset diversion regulation had a positive impact on firms’ investment.

Table 6 presents regression results on the effects of regulations on firms’ investment.

Column 1 shows that the total effect of the anti-asset diversion regulation on investment of the treatment group is 1.2% (of assets; significant at the 1% level). When we control firm characteristics, the impact of this regulation becomes stronger: investment increases by 2.2% relative to the control group after the regulation is imposed. Column 3 shows that the regulation on loan guarantees has a weak effect (0.9%, significant at 10% level) on firms that provide guarantees for their controlling shareholder (and related parties). However, this effect disappears once we include firm controls (Column 4). Finally, the positive effect of the anti-asset diversion regulation on firm investment is also robust to the inclusion of the regulation of loan guarantees (Column 5).

### ***Firms' Operating Performance***

The top panel of Figure 7 plots the median ROA for both the treatment and control groups related to the anti-asset diversion regulation. The median ROA decreased from 3.3% (of lagged assets) in 2003 to 2.1% in 2005 for the treatment group, and from 6% to 4.7% for the control group. Both groups' median level ROA improved after 2005, but the improvement for the treatment group is more pronounced: ROA increased from 2.1% in 2005 to 5.7% in 2007 for the treatment group, while it increased from 4.7% to 6.5% for the control group. The lower panel of Figure 7 compares median ROA for treatment and control groups related to the regulation of loan guarantees. Throughout the sample period (2003-2007), including before and after 2005 when the new regulation was announced, both groups show very similar patterns and levels of ROA. These preliminary findings suggest that the anti-asset diversion regulation had a positive impact of firms' ROA, while the regulation on loan guarantees did not.

Table 7 provides the regression results for the effects of the two regulations on ROA. From Column 1, firms affected by asset diversion showed an increase of 3.9% in ROA relative to firms not affected and after the anti-asset diversion regulation was announced in 2005 (significant at the 1% level). In Column 2, we control for the effects of the share structure reform, which had no

significant effect on ROA, as well as changes in the ownership structure and management, and continue to find a significant and positive impact (an increase of 2.9% with significance at the 1% level) of the anti-asset diversion regulation on firm performance. Columns 3 and 4 show that the regulation of loan guarantees has no impact ROA. Finally, the positive impact of the anti-asset diversion regulation on firm performance is robust to the inclusion of the regulation on loan guarantees (Column 5).

In addition to using return on assets (ROA) to measure firms' operating performance, we also use alternatives measures—return on equity (ROE), return on sales (ROS), and earnings per share (EPS), and the results are reported in Table 8. Columns 1, 4 and 7 are similar to Column 1 of Table 7, and we continue to find a positive and significant impact of the anti-asset diversion regulation on other measures of firms' operating performance (the result on ROS is marginally significant at 10% level in Column 4). While we observe a positive and significant (5% level) effect of the regulation on loan guarantees on ROE (Column 2), such effect disappears once we include the effect of the anti-asset diversion regulation (Column 3); in all other models we do not observe any effect of the regulation on loan guarantees on firm performance. Finally, the positive effect of the anti-asset diversion regulation on ROE and EPS are robust to the inclusion of the regulation on loan guarantees (Columns 3 and 9) as well as changes in the firms' ownership structure and management and the share-split reform; the impact of this regulation loses its statistical significance in the ROS regression once we add the additional controls (Column 6). Overall, we conclude that the regulation aimed at solving asset diversion problem had a positive impact on firms' (in the treatment group) operating performance, while the regulation on loan guarantees has no effect.

#### ***Additional Tests and Robustness Check***

Table 9 reports the cumulative abnormal returns (CARs) sorted on veracious firm characteristics. Panel A presents CARs for firms affected by the regulation of asset diversion around

its announcement date (2005). For the full sample, CARs of the treatment group are higher over (different windows of) the horizon of 8 months prior to the announcement date to 12 months post announcement, and the difference is significant at the 1% level. These comparisons are robust when we drop firms that also issue H shares (listed in the Hong Kong Stock Exchange, and follow different rules set by the exchange) or ST shares. Panel B reports the CARs for firms affected by the regulation of loan guarantees around the announcement date. CARs for the treatment group (firms providing loan guarantees for their controlling shareholders) are indifferent or lower than those for the control group over the same horizon. We conclude that the reaction of the stock market (A share market in mainland China) is consistent with the hypotheses that the regulation on asset diversion had a positive impact on firms but the regulation on loan guarantees did not.

From the summary statistics in Table 1 we observe the treatment and control groups have differences in some dimensions of firm characteristics. This might lead to biases (overestimation) in the effect of regulations on firm performance (e.g., ROA). To correct for this potential problem, we use the matching method of propensity score (Abadie and Imbens, 2002) to find the control group firms. First, we calculate the changes in ROA for the two groups when the regulations were announced in 2005—that is, the difference between the average firm performance for the years 2006–2007 and that for years 2003–2005. Second, we calculate the difference of average firm performance between the two groups. Third, we calculate the propensity scores for matching firms. We select one firm from the treatment group and  $N$  firms from the control group; these firms have the closest characteristics and belong to the same industry. Table 10 reports the results using the matching method of propensity scores. The estimates show that the firm performance of the treatment group relative to the control group increased when the regulation on asset diversion was exercised in 2005. In the table,  $N$  denotes the number of firms selected from the control group to match the firm from the treatment group. In the first model  $N = 1$ , so that the matching firms

selected from the control group have the closest level of total assets. In Model (2), we add another matching variable so that firms are matched on total assets *and* whether firms have loan guarantees in 2005; we also matched on total assets and sales. Finally, we added leverage and tangibility to the models with two matching variables ( $N = 4$ ). We find that the estimate is 0.032 for  $N = 1$  in Model (1) with a 1% significance level. This means that, when we match firms using only the size of assets, the ROA of the treatment group increased by 3.2% relative to the control group under the regulation of asset diversion. When we either increase the number of firms selected from the control group (e.g.,  $N = 2$  and 4) or add more matching variables (e.g., models (2)–(4)), we arrive at a similar conclusion. The same results can be found in the other three models.

Another potential problem with our results is that the regulation announced in 2005 only has an effect on firms' current performance, while it has no effect on firms' corporate governance and does not affect firms' future performance. To eliminate this possibility, we remove the data of 2005 and rerun the regression to investigate the relationship between the regulation and firms' performance (not reported here). We find that, by preventing controlling shareholders from diverting firms' assets, the ROA of the treatment group relative to the control group is significantly increased about 3% at the 1% significance level when controlling firms' characteristics.

Finally, the ST firms have poor performances and their corporate governance is relatively weak. Since firms with H-Shares are listed in Hong Kong, they must satisfy the regulatory requirements of the Hong Kong exchange. We remove firms with either special treatment (ST) or H-shares, and rerun the above regressions. We find that these two factors do not change the results qualitatively (not reported here).

## **V. Conclusion**

In this paper, we examine how regulators tackle two types of widespread tunneling activities

in China. China provides an intriguing case to study the effects of laws and legal enforcement on financial markets. Despite fast growth since its inception in 1992, China's stock market remains inefficient and dominated by insider trading, and corporate governance for listed firms is weak. Tunneling by controlling shareholders is prevalent and takes on many forms. Controlling shareholders (and related parties) can divert assets from listed firms or ask firms to serve as guarantors on questionable loans. The government announced and enacted two distinct laws during the same period: the first law prohibits asset diversion from listed firms for 'non-operational' purposes, while the second law standardizes the practice of listed firms providing loan guarantees.

Relative to firms not affected by either law, firms complying with the *first* law experience a reduction in the ownership stakes of controlling shareholders, an increase in investment, and significantly better performance. We do not find such relationships for the second law. We attribute the difference in the effects of these rules to *enforcement costs*: it is much easier for regulators to keep track of diversion of assets from a listed firm by a large shareholder than to monitor and verify the role of a particular guarantor in a loan agreement that typically involves many parties. Our results extend the literature on law, institutions and finance by providing direct evidence that *enforceability* matters: laws and regulations that can be enforced at lower costs are more effective in practice, especially in countries with weak (formal) institutions.

## References

- Abadie, A. and G. Imbens. 2002. "Simple and Bias-Corrected Matching Estimators. Working paper, Department of Economics," Working Paper at UC Berkeley.
- Allen, F. J. Qian, and M. Qian, 2005, "Law, Finance, and Economic Growth in China," *Journal of Financial Economics* 77, 57-116.
- Allen, F. J. Qian, and M. Qian, 2008, "China's Financial System: Past, Present, and Future," Ch. 14 of *China's Great Economic Transformation*, L. Brandt and T. Rawski, eds., Cambridge University Press.
- Atanasov, Vladimir, 2005, "How Much Value can Blockholders Tunnel? Evidence from the Bulgarian Mass Privatization Auctions" *Journal of Financial Economics*, 76, 191-234.
- Barclay, M. J., and C. G. Holderness, "Private Benefits from Control of Public Corporations", *Journal of Financial Economics*, 25, 371-395.
- Barclay, M. J., C. G. Holderness, and J. Pontiff, 1993, "Private Benefits from Block Ownership and Discounts on Closed-end Assets", *Journal of Financial Economics*, 33, 263-291.
- Bebchuk, Lucian A., and Alma Cohen, 2005, "The Costs of Entrenched Boards", *Journal of Financial Economics*, 78, 409-433.
- Berkman, Henk, Rebel A., Cole and Lawrence Fu, 2010, "Political Connections and Minority Shareholder Protection: Evidence from Securities-Market Regulation in China", *Journal of Financial and Quantitative Analysis*, 45,
- Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan, 2004, "How Much Should We Trust Differences-in-Differences Estimates?" *Quarterly Journal of Economics*, 119, 249-275.
- Bertrand M. and S. Mullainathan, 2003, "Enjoying the Quiet Life? Corporate Governance and Managerial Preferences", *Journal of Political Economy*, 111, 1043-1075.
- Brockman, Paul, and Dennis Y. Chung, 2003, "Investor Protection and Firm Liquidity", *Journal of Finance*, 58, 921-937.
- Claessens, Stijn, Simeon Djankov, and Larry H. P. Lang, 2000, "The separation of ownership and control in East Asian Corporations", *Journal of Financial Economics*, 58, 81-112.
- Claessens, Stijn, Simeon Djankov, Joseph P. H. Fan, and Larry H. P. Lang, 2002, "Disentangling the Incentive and Entrenchment Effects of Large Shareholdings", *Journal of Finance*, 57, 2741-2771.
- Dyck, Alexander and Luigi Zingales, 2004, "Private Benefits of Control: An International Comparison", *Journal of Finance*, 59, 537-600.
- Glaeser, E., S. Johnson, and A. Shleifer, 2001. "Coase vs. Coasians," *Quarterly Journal of Economics* 116.
- Gompers, P., J. Ishii and A. Metrick, 2003, "Corporate Governance and Equity Prices", *Quarterly Journal of Economics* 118 107-155.

Jensen, M., and W., Meckling, 1976, "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure", *Journal of Financial Economics*, 3, 305–360.

Jiang, G.H., Lee, C.M., and H. Yue, 2010. "Tunneling through Inter-corporate Loans: The China Experience," *Journal of Financial Economics*, 98, 1-20.

Johnson, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 2000, "Tunneling", *American Economic Review*, 90, 22–27.

Joseph, P.H. Fan, T.J. Wong, and Tianyu Zhang, 2007, "Politically Connected CEOs, Corporate Governance, and Post-IPO Performance of China's Newly Partially Privatized Firms," *Journal of Financial Economics*, 84, 330-357.

Kaplan, S., F. Martel, and P. Stromberg, 2007. "How do Legal Differences and Learning Affect Financial Contracts?" *Journal of Financial Intermediation*,

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 1997, "Legal Determinants of External Finance", *Journal of Finance* 52, 1131-1150.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 1998, "Law and Finance", *Journal of Political Economy* 106, 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 1999, "Corporate Ownership around the World", *Journal of Finance*, 54, 471–518.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 2000, "Investor Protection and Corporate Governance", *Journal of Financial Economics* 58, 3-27.

La Porta, R., F. Lopez-De-Silanes, A. Shleifer and R. Vishny, 2002, "Investor Protection and Corporate Valuation", *Journal of Finance*, 57, 1147–1170.

Lemmon Michael L., and Karl V. Lins, 2003, "Ownership Structure, Corporate Governance, and Firm Value: Evidence from the East Asian Financial Crisis", *Journal of Finance*, 58, 1445-1468.

Lerner, J., and A. Schoar, 2005. "Does Legal Enforcement Affect Financial Transactions? The Contractual Channel in Private Equity," *The Quarterly Journal of Economics* 120, 223-246.

Lins, Karl V., 2003, "Equity Ownership and Firm Value in Emerging Markets", *Journal of Financial and Quantitative Analysis*, 38, 159-184.

Nenova, Tatiana, 2003, "The Value of Corporate Voting Rights and Control: A Cross-country Analysis", *Journal of Financial Economics*, 68,325-351.

Yermack, D., 1996, "Higher Market Valuation for Firms with a Small Board of Directors", *Journal of Financial Economics*, 40, 185–211.

Yuan, Rong L., Jason Z. Xiao, and Hong Zou, 2008, "Mutual Funds' Ownership and Firm Performance: Evidence from China", *Journal of Banking and Finance*, 32, 1552-1565.



**Table 1 Summary Statistics (2003-2007)**

The table reports firms' characteristics by categorizing the firms into the treatment and control group. Panel A and Panel B present the distribution of asset diversion and loan guarantees for full samples and across nine industries. In Panel C, controlling shareholders in the treatment group diverted firms' assets before 2006, while firms in the control group did not. In Panel D, firms in the treatment group have loan guarantees before 2006, while firms in the control group did not. The data on assets diverted by controlling shareholders is manually collected from each firm's annual report; the information of loan guarantee and stock price is obtained from WIND; the information about actual controlling shareholders is obtained from CCER database, and other financial variables are obtained from the CSMAR database.  $ROA=EBIT/assets$ ;  $ROS=EBIT/sales$ ;  $ROE=EBIT/equity=EBIT/(assets-debt)$ ;  $EPS=earnings/total\ number\ of\ shares$ ;  $Leverage=debt/total\ assets$ ;  $Tangibility=fixed\ assets/total\ assets$ . \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10%, respectively.

<b>Panel A: Full Sample</b>		
	# of Affected Firms	# of Unaffected Firms
Asset diversion	383	748
Loan guarantee	712	419
Both	265	
<b>Panel B: Industry Classifications</b>		
	Asset diversion	Loan guarantee
Agriculture	13 (3.39%)	18 (2.53%)
Conglomerate	26 (6.79%)	58 (8.15%)
Housing	8 (2.09%)	14 (1.97%)
Information technology	27 (7.05%)	49 (6.88%)
Manufacturing	251 (65.53%)	426 (59.83%)
Real estate	10 (2.61%)	31 (4.35%)
Services & Culture	15 (3.92%)	31 (4.35%)
Trade	21 (5.48%)	62(8.71%)
Transportation	12 (3.13%)	23 (3.23%)
Total	383	712

**Table 1 Summary Statistics (continued)**

<b>Panel C: Diversion of assets</b>							
	Full Samples		Treatment Group		Control Group		Difference
	Mean	Std	Mean	Std	Mean	Std	Mean
ROA	0.052	0.103	0.026	0.129	0.066	0.084	-0.040***
ROS	0.138	0.916	0.117	1.262	0.149	0.671	-0.033
ROE	0.045	0.411	0.007	0.594	0.064	0.269	-0.057***
EPS	0.157	0.448	-0.007	0.5	0.242	0.393	-0.249***
Investment of assets	0.067	0.08	0.049	0.066	0.076	0.085	-0.027***
Leverage	0.569	0.406	0.67	0.561	0.517	0.283	0.153***
log (assets)	21.24	1.019	21	0.991	21.37	1.01	-0.373***
Tangibility	0.299	0.179	0.293	0.169	0.302	0.184	-0.009*
Average annual return (%)	0.511	1.092	45.37	1.088	54.11	1.093	-8.73***
CEO turnover	0.333	0.471	0.387	0.487	0.305	0.46	0.082***
Change in largest SH	0.039	0.194	0.039	0.193	0.039	0.194	0
# of Firms	1,131		383		748		
# of Obs	5,599		1,908		3,691		

<b>Panel D: Loan guarantees</b>							
	Full Samples		Treatment Group		Control Group		Difference
	Mean	Std	Mean	Std	Mean	Std	Mean
ROA	0.052	0.103	0.046	0.104	0.063	0.102	-0.018***
ROS	0.138	0.916	0.133	0.979	0.147	0.796	-0.014
ROE	0.045	0.411	0.035	0.472	0.062	0.274	-0.027**
EPS	0.157	0.448	0.114	0.456	0.231	0.425	-0.117***
Investment of assets	0.067	0.08	0.064	0.077	0.071	0.086	-0.008***
Leverage	0.569	0.406	0.624	0.444	0.476	0.31	0.148***
log (assets)	21.24	1.019	21.24	0.978	21.26	1.085	-0.022
Tangibility	0.299	0.179	0.288	0.168	0.319	0.195	-0.031***
Average annual return (%)	51.13	1.092	49.94	1.114	53.17	1.053	-3.24
CEO turnover	0.333	0.471	0.333	0.472	0.331	0.471	0.002
Change in largest SH	0.039	0.194	0.038	0.191	0.041	0.199	0.003
Number of firms	1,131		712		419		
Number of obs	5,599		3,536		2,063		

**Table 2 Financial Transactions between Listed Firms and Controlling Shareholders**

The table reports the summary statistics of other receivables and other payables between listed firms and large shareholders (and their affiliates) from 2003 to 2007. The data of other receivables and other payables is obtained from the WIND and the CSMAR, respectively. We define the ratio of other receivables (other payables) is the percentage of other receivables (other payables) of large shareholders and their affiliates over the total amount of other receivables (other payables).

<b>Panel A: Other Receivables</b>						
Year	Amount in RMB millions				Ratio	
	# of firms	Total	Mean	Median	Mean	Median
2003	412	19,315.78	46.88	7.21	0.25	0.10
2004	396	22,653.17	57.20	8.50	0.23	0.10
2005	342	25,130.11	73.48	6.85	0.23	0.10
2006	163	11,279.94	69.20	1.89	0.13	0.03
2007	174	12,217.28	70.21	1.66	0.12	0.03

<b>Panel B: Other Payables</b>						
Year	Amount in RMB millions				Ratio	
	# of firms	Total	Mean	Median	Mean	Median
2003	1	5.50	5.50	5.50	0.05	0.05
2004	26	1,583.68	60.91	9.59	0.64	0.64
2005	7	296.73	42.39	9.00	0.38	0.29
2006	8	677.79	84.72	79.13	0.69	0.65
2007	4	259.13	64.78	59.48	0.39	0.43

**Table 3 Summary Statistics on Loan Guarantees**

The table reports the summary statistics of providing loan guarantee and receiving loan guarantee of listed firms from 2003 to 2007. The data is obtained from the CSMAR. Panel A presents the distribution of the number and amount of providing loan guarantee. Panel B presents the distribution of the number and amount of receiving loan guarantee.

<b>Panel A: Providing Loan Guarantee</b>									
year	NO.	Number of Firms				Amount (RMB millions)			
		mean	median	min	max	mean	median	min	max
2003	196	4.62	2	1	31	132.51	66.11	0.50	575.00
2004	277	6.21	2	1	130	152.48	60.00	0.03	884.06
2005	274	6.68	3	1	137	201.02	80.79	0.20	1160
2006	269	6.75	3	1	275	203.24	101.08	0.10	1035
2007	305	6.63	3	1	89	269.12	105	0.03	1694.00

<b>Panel A: Receiving Loan Guarantee</b>									
year	NO.	Number of Firms				Amount (RMB millions)			
		mean	median	min	max	mean	median	min	max
2003	305	2.71	2	1	41	274.07	160.76	0.04	1297.00
2004	469	3.01	2	1	43	328.37	190.95	0.03	1860.00
2005	515	3.88	2	1	55	369.86	200.00	0.03	2277.00
2006	475	4.10	2	1	54	427.24	201.81	0.08	3102.22
2007	475	4.19	2	1	46	428.47	190.36	0.02	2656.34

**Table 4 Determinants of Providing Loan Guarantees**

The table reports the effects of receiving loan guarantee on providing loan guarantee. The data is obtained from the CSMAR. Receiving denotes whether the firm receives loan guarantee in year t; log(times received) and log(amount received) denotes the log of times and amount of loan guarantee firm receives in year t; Receiving/assets is the ratio of loan guarantee received in year t to total assets in year t-1; Receiving (past) and Providing (past) denotes whether the firm received and provided loan guarantee, respectively. The control variables include ROA, log(assets), tangibility, leverage, Gov (=1 if the firm is state-owned otherwise 0), ST(= 1 if it is ST otherwise 0), Ownership (largest) (ownership of the largest shareholder), Industry (industry-fixed effect) and Year (year-fixed effect). The numbers in the brackets are standard deviations. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

	Whether to Provide Loan Guarantee		Log(# of times Providing Guarantee)	Log (Amount of Guarantee Provided)	Amount guarantee provided/Total assets
	Logit (1)	Logit (2)	Tobit (1)	Tobit (2)	Tobit (3)
	Margin	Margin	Coeff	Coeff	Coeff
Receiving		0.101*** (0.013)			
log (times received)			0.658*** (0.064)		
log(amount received)				0.373*** (0.049)	
Receiving/assets					0.063*** (0.024)
Receiving (past)		0.036** (0.015)	0.142 (0.116)	2.453** (1.060)	0.039*** (0.007)
Providing (past)		0.366*** (0.017)	2.371*** (0.120)	21.91*** (1.00)	0.146*** (0.007)
ROA	-0.337*** (0.062)	-0.196** (0.061)	-1.422*** (0.493)	-13.89*** (4.24)	-0.052*** (0.029)
log(assets)	0.049*** (0.006)	0.033*** (0.006)	0.439*** (0.055)	2.512*** (0.464)	0.016*** (0.003)
Tangibility	-0.134*** (0.036)	-0.078** (0.035)	-0.116 (0.293)	-5.624** (2.512)	-0.027 (0.018)
Leverage	0.072*** (0.015)	0.048*** (0.015)	0.654*** (0.124)	3.887*** (1.105)	0.058*** (0.007)
Gov	0.019 (0.013)	0.021* (0.012)	0.114 (0.107)	1.488 (0.917)	-0.002 (0.006)
ST	-0.009 (0.021)	-0.023 (0.020)	0.241 (0.179)	-1.853 (1.511)	-0.010 (0.011)
Ownership (largest)	-0.145*** (0.039)	-0.119*** (0.038)	-1.371*** (0.322)	-9.532*** (2.739)	-0.059*** (0.020)
Intercept	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes
Pseudo R <sup>2</sup>	0.036	0.160	0.132	0.062	0.351
Number of obs	5584				

**Table 5: Effect of Regulations on the Ownership Stakes of the Largest Shareholder**

The table reports the regression results for ownership change of the largest shareholder. *Post\*Diversion* and *Post\*Guarantee* denote asset diversion by controlling shareholders and loan guarantee in 2005, respectively. *controls* include variables of log(assets), tangibility, leverage, share structure reform (Split), actual controller type (Gov=1 if it is state-owned otherwise 0), ST(which equals 1 if it is ST, otherwise 0), percentage change of stock price, CEO turnover (equals 1 if CEO is changed otherwise 0), change in large SH (equals 1 if large shareholder is changed otherwise 0), ownership of the largest shareholder, and ownership of first three large shareholders; *Firm* and *Year* denote firm- and year-fixed effect, respectively. The numbers in the brackets are standard deviations. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Post*Diversion	-0.008* (0.005)	-0.007** (0.003)			-0.007** (0.003)
Post*Guarantee			-0.002 (0.004)	-0.002 (0.003)	-0.001 (0.003)
log(assets)		0.017*** (0.004)		0.018*** (0.004)	0.017*** (0.004)
Tangibility		0.024* (0.013)		0.024* (0.013)	0.024* (0.013)
Leverage		0.001 (0.004)		0.001 (0.004)	0.001 (0.004)
Split		-0.033*** (0.005)		-0.033*** (0.005)	-0.033*** (0.005)
Gov		0.002 (0.005)		0.002 (0.005)	0.002 (0.005)
ST		0.001 (0.005)		0.000 (0.005)	0.001 (0.005)
Average annual return		0.000 (0.002)		0.000 (0.002)	0.000 (0.002)
CEO Turnover		-0.001 (0.002)		-0.001 (0.002)	-0.001 (0.002)
Change in large SH		0.000 (0.009)		0.000 (0.009)	0.000 (0.009)
Ownership (largest)		0.647*** (0.030)		0.648*** (0.030)	0.647*** (0.030)
Ownership (first three)		-0.048 (0.035)		-0.050 (0.035)	-0.048 (0.035)
Intercept	Y	Y	Y	Y	Y
Firm fixed effect	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y
R-Square	0.274	0.577		0.576	0.577
adj R-Square	0.030	0.431		0.430	0.431
Number of obs	4526	4505	4526	4505	4505

**Table 6: Effects of Regulations on Investment**

The table reports the regression results for investment of assets. *Post\*Diversion* and *Post\*Guarantee* denote asset diversion by controlling shareholders and loan guarantee in 2005, respectively. *controls* include variables of log(assets), tangibility, leverage, share structure reform (Split), actual controller type (Gov=1 if it is state-owned otherwise 0), ST (which equals 1 if it is ST, otherwise 0), percentage change of stock price, CEO turnover (equals 1 if CEO is changed otherwise 0), change in large SH (equals 1 if large shareholder is changed otherwise 0), ownership of the largest shareholder, and ownership of first three large shareholders; *Firm* and *Year* denote firm- and year-fixed effect, respectively. The numbers in the brackets are standard deviations. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Post*Diversion	0.012*** (0.005)	0.022*** (0.005)			0.022*** (0.005)
Post*Guarantee			-0.009* (0.005)	-0.004 (0.005)	-0.005 (0.005)
log(assets)		0.037*** (0.006)		0.033*** (0.006)	0.037*** (0.006)
Tangibility		-0.081*** (0.021)		-0.082*** (0.021)	-0.080*** (0.021)
Leverage		0.018*** (0.005)		0.019*** (0.004)	0.018*** (0.005)
Split		-0.002 (0.005)		-0.003 (0.005)	-0.002 (0.005)
Gov		-0.001 (0.005)		-0.001 (0.005)	-0.001 (0.005)
ST		-0.006 (0.004)		-0.004 (0.004)	-0.006 (0.004)
Average annual return		0.006*** (0.002)		0.007*** (0.002)	0.007*** (0.002)
CEO Turnover		-0.003* (0.002)		-0.003 (0.002)	-0.003 (0.002)
Change in large SH		-0.007 (0.005)		-0.007 (0.005)	-0.007 (0.005)
Ownership (largest)		0.006 (0.033)		0.004 (0.033)	0.007 (0.033)
Ownership (first three)		0.040 (0.035)		0.044 (0.035)	0.039 (0.035)
Intercept	Y	Y	Y	Y	Y
Firm fixed effect	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y
R-Square	0.544	0.572	0.543	0.568	0.572
adj R-Square	0.426	0.459	0.425	0.455	0.459
Number of obs	5568	5544	5568	5544	5544

**Table 7: Effects of Regulations on ROA**

The table reports the regression results for the following model

$$ROA_{it} = a(Post_{it} * Diversion_{it}) + b(controls_{it}) + Firm_i + Year_t + \varepsilon_{it}$$

where *Post\*Diversion* denotes the asset diversion by controlling shareholders in 2005, respectively. *controls* include variables of log(assets), tangibility, leverage, share structure reform (Split), actual controller type (Gov=1 if it is state-owned otherwise 0), ST(which equals 1 if it is ST, otherwise 0), percentage change of stock price, CEO turnover (equals 1 if CEO is changed otherwise 0), change in large SH (equals 1 if large shareholder is changed otherwise 0), ownership of the largest shareholder, and ownership of first three large shareholders; *Firm* and *Year* denote firm- and year-fixed effect, respectively. The numbers in the brackets are standard deviations. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Post*Diversion	0.039*** (0.009)	0.029*** (0.008)			0.029*** (0.008)
Post*Guarantee			0.003 (0.007)	-0.004 (0.006)	-0.005 (0.006)
log(assets)	0.015 (0.013)	0.026* (0.013)	0.008 (0.013)	0.020 (0.013)	0.025* (0.013)
Tangibility	-0.103*** (0.033)	-0.083*** (0.031)	-0.105*** (0.033)	-0.085*** (0.031)	-0.083*** (0.031)
Leverage	-0.021 (0.024)	-0.035 (0.024)	-0.020 (0.024)	-0.035 (0.024)	-0.035 (0.024)
Split		-0.011 (0.009)		-0.013 (0.009)	-0.010 (0.009)
Gov		-0.016 (0.010)		-0.015 (0.010)	-0.016 (0.010)
ST		0.061*** (0.010)		0.064*** (0.010)	0.061*** (0.010)
Average annual return		0.024*** (0.003)		0.025*** (0.003)	0.024*** (0.003)
CEO Turnover		-0.005* (0.003)		-0.006* (0.003)	-0.005* (0.003)
Change in large SH		-0.003 (0.012)		-0.003 (0.012)	-0.003 (0.012)
Ownership (largest)		0.083* (0.046)		0.080* (0.047)	0.084* (0.046)
Ownership (first three)		0.116** (0.054)		0.122** (0.054)	0.115** (0.054)
Intercept	Y	Y	Y	Y	Y
Firm fixed effect	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y
R-Square	0.413	0.469	0.406	0.465	0.469
adj R-Square	0.262	0.331	0.253	0.326	0.331
Number of obs	5598	5575	5598	5575	5575



**Table 8: Effects of Regulations on Alternative Measures of Operating Performance**

The table reports the regression results for the ROE, ROS and EPS. *Post\*Diversion* denote asset diversion by controlling shareholders (existed by the end of 2005) after regulation issued in 2005, respectively. *controls* include variables of log(assets), tangibility, leverage, share structure reform (Split), actual controller type (Gov=1 if it is state-owned otherwise 0), ST(which equals 1 if it is ST, otherwise 0), percentage change of stock price, CEO turnover (equals 1 if CEO is changed otherwise 0), change in large SH (equals 1 if large shareholder is changed otherwise 0), ownership of the largest shareholder, and ownership of first three large shareholders; *Firm* and *Year* denote firm- and year-fixed effect, respectively. The numbers in the brackets are standard deviations. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

	ROE			ROS			EPS		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post*Diversion	0.078*** (0.033)		0.057* (0.032)	0.123* (0.074)		0.077 (0.069)	0.093*** (0.028)		0.056** (0.026)
Post*Guarantee		0.044** (0.021)	0.028 (0.020)		0.001 (0.060)	-0.040* (0.058)		0.023 (0.025)	-0.0002 (0.024)
log(assets)	-0.050 (0.035)	-0.060* (0.035)	-0.031 (0.037)	-0.261 (0.169)	-0.286 (0.165)	-0.243 (0.178)	0.080** (0.037)	0.064* (0.036)	0.124*** (0.038)
Tangibility	-0.077 (0.114)	-0.084 (0.114)	-0.073 (0.112)	-0.348 (0.462)	-0.355 (0.462)	-0.134 (0.449)	-0.403*** (0.104)	-0.410*** (0.104)	-0.361*** (0.101)
Leverage	-0.013 (0.054)	-0.010 (0.053)	-0.036 (0.053)	0.462 (0.369)	0.467 (0.369)	0.397 (0.380)	-0.157** (0.061)	-0.154** (0.061)	-0.208*** (0.063)
Split			0.041 (0.040)			-0.022 (0.076)			-0.041 (0.030)
Gov			-0.033 (0.057)			-0.048 (0.118)			-0.057 (0.037)
ST			0.211*** (0.057)			0.143 (0.089)			0.284*** (0.040)
Average annual return			0.048*** (0.011)			0.156*** (0.055)			0.080*** (0.010)
CEO Turnover			-0.017 (0.016)			0.008 (0.033)			-0.048*** (0.012)
Change in large SH			0.002 (0.049)			0.015 (0.125)			-0.025 (0.034)
Ownership (largest)			0.069 (0.153)			0.745** (0.328)			0.056 (0.165)
Ownership (first three)			0.437** (0.179)			0.475 (0.490)			0.436** (0.201)
Intercept	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y
R-Square	0.208	0.207	0.228	0.206	0.205	0.221	0.556	0.554	0.593
adj R-Square	0.004	0.002	0.026	0.001	--	0.017	0.442	0.440	0.487
Number of obs	5574	5574	5551	5588	5588	5565	5598	5598	5575

**Table 9: Regulations and Cumulative Abnormal Returns**

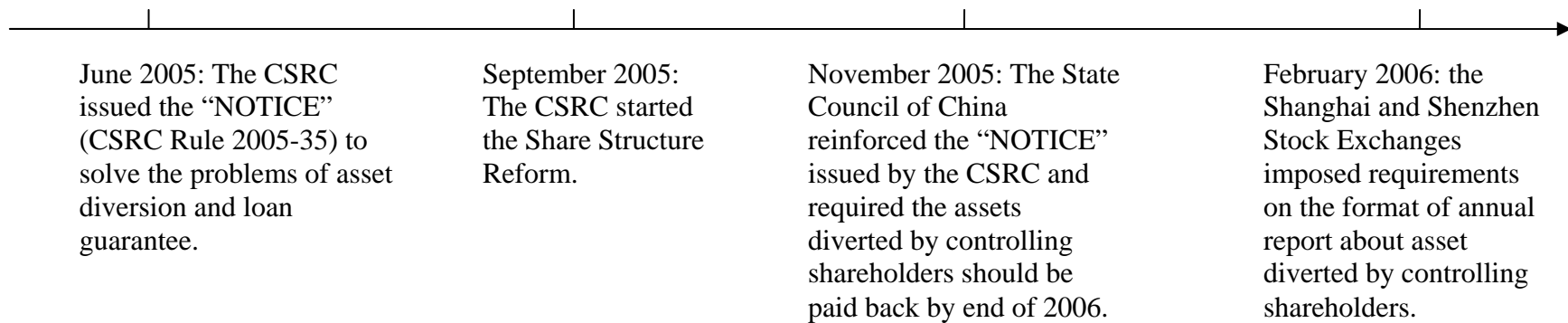
The table reports the average cumulative abnormal returns (CAR) for various windows. The announcement of regulations of asset diversion occurred in June 2005, the CARs are calculated from  $m$  months (negative) before and  $n$  months (positive) after the regulation announcements. The deadline for regulations to be executed is December 2005, which corresponds to 6 months after the regulation announcement. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

	Treatment (1)	Control (2)	(1)-(2)
<b>Panel A: Asset Diversion</b>			
<b>Full Samples</b>			
[0, 8]	0.026	-0.046	0.072***
[0, 12]	0.075	-0.028	0.103***
[-8, 12]	0.068	-0.011	0.078***
<b>Excluding firms with H shares</b>			
[0, 8]	0.026	-0.041	0.067***
[0, 12]	0.077	-0.017	0.095***
[-8, 12]	0.069	-0.005	0.074***
<b>Excluding firms with ST shares</b>			
[0, 8]	-0.019	-0.062	0.043*
[0, 12]	0.037	-0.051	0.088**
[-8, 12]	0.063	-0.019	0.082***
<b>Panel B: Loan Guarantee</b>			
<b>Full Samples</b>			
[0, 8]	-0.013	-0.036	0.023
[0, 12]	-0.008	0.030	-0.039
[-8, 12]	-0.004	0.048	-0.052**
<b>Excluding firms with H shares</b>			
[0, 8]	-0.013	-0.027	0.014
[0, 12]	-0.005	0.047	-0.052
[-8, 12]	-0.002	0.056	-0.058**
<b>Excluding firms with ST shares</b>			
[0, 8]	-0.041	-0.061	0.020
[0, 12]	-0.034	-0.008	-0.026
[-8, 12]	-0.010	0.029	-0.039

**Table 10: Robustness Tests: Propensity-score Matching and ROA**

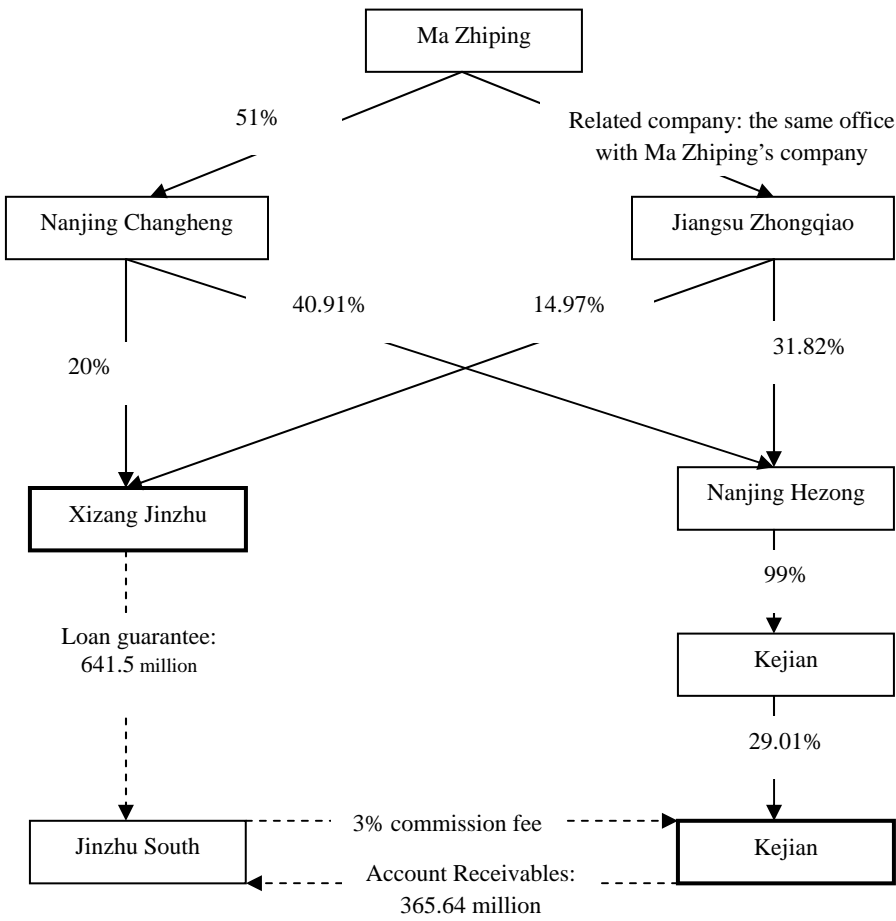
The coefficients denote the difference between average ROA before 2005 (including 2005) and average ROA after 2005. **ROA** is EBIT scaled by assets. **N** is the number of matched firms. **Model 1** estimates the propensity score based on size for each industry in 2005. **Model 2** estimates the propensity score based on size and loan-guarantee for each industry in 2005. **Model 3** estimates the propensity score based on size and sales for each industry in 2005. **Model 4** estimates the propensity score based on size, sales, leverage and tangibility for each industry in 2005. Standard errors are reported in parentheses. \*\*\*, \*\*, and \* denote the differences between affected and unaffected groups are significance at confidence levels of 1%, 5%, and 10%, respectively.

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
N=1	0.032 <sup>***</sup> (0.008)	0.023 <sup>***</sup> (0.008)	0.035 <sup>***</sup> (0.008)	0.017 <sup>**</sup> (0.007)
N=2	0.030 <sup>***</sup> (0.008)	0.026 <sup>***</sup> (0.008)	0.032 <sup>***</sup> (0.008)	0.017 <sup>**</sup> (0.007)
N=4	0.030 <sup>***</sup> (0.008)	0.026 <sup>***</sup> (0.007)	0.028 <sup>***</sup> (0.007)	0.019 <sup>***</sup> (0.007)

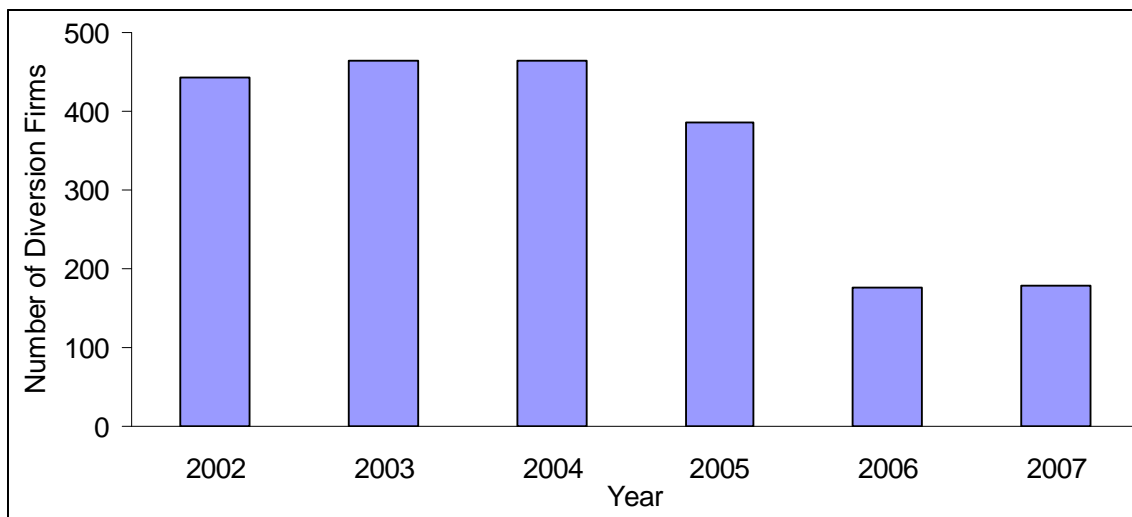
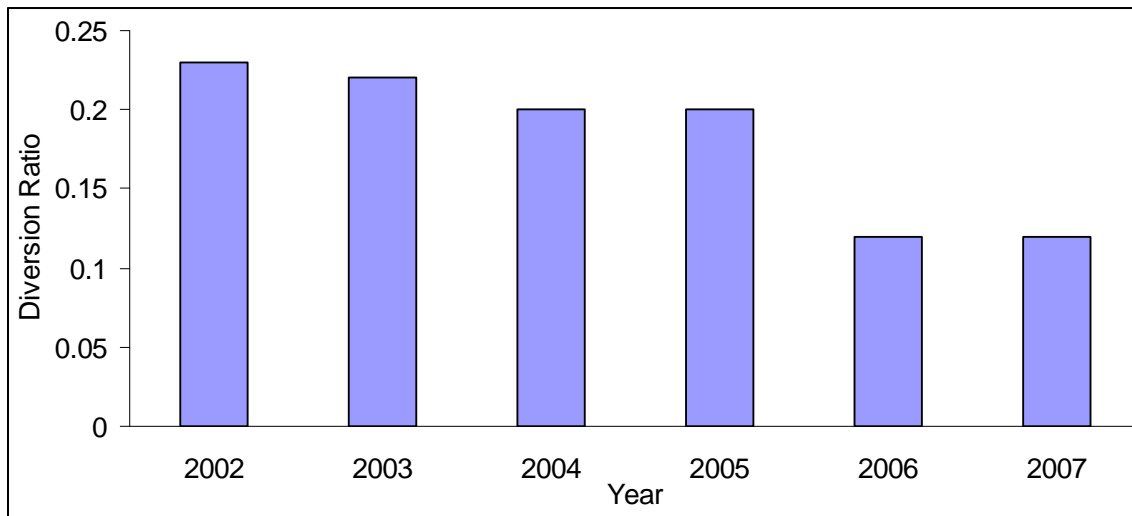


**Figure 1: Timeline of Main Events**

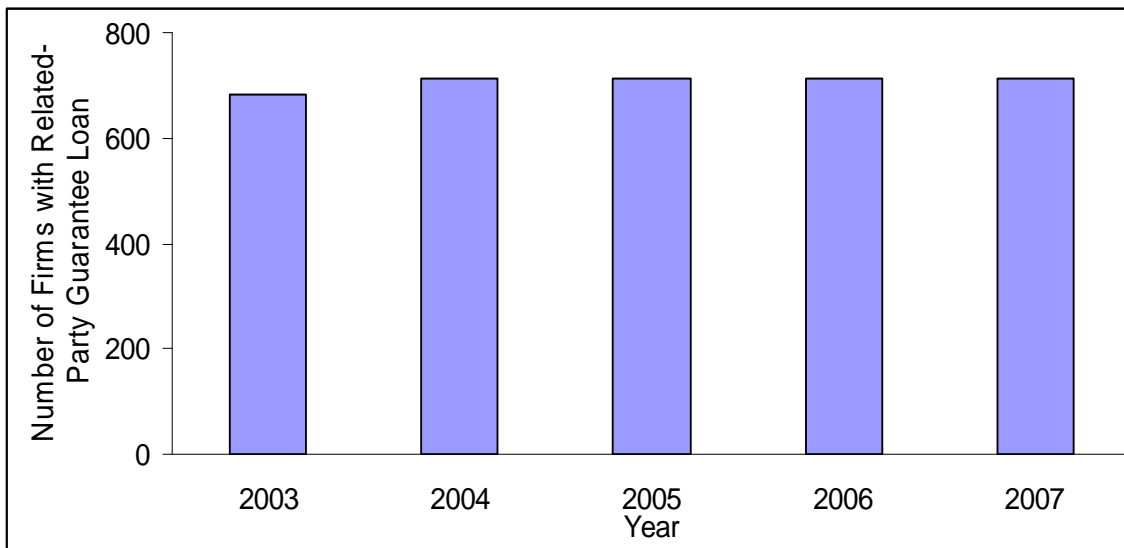
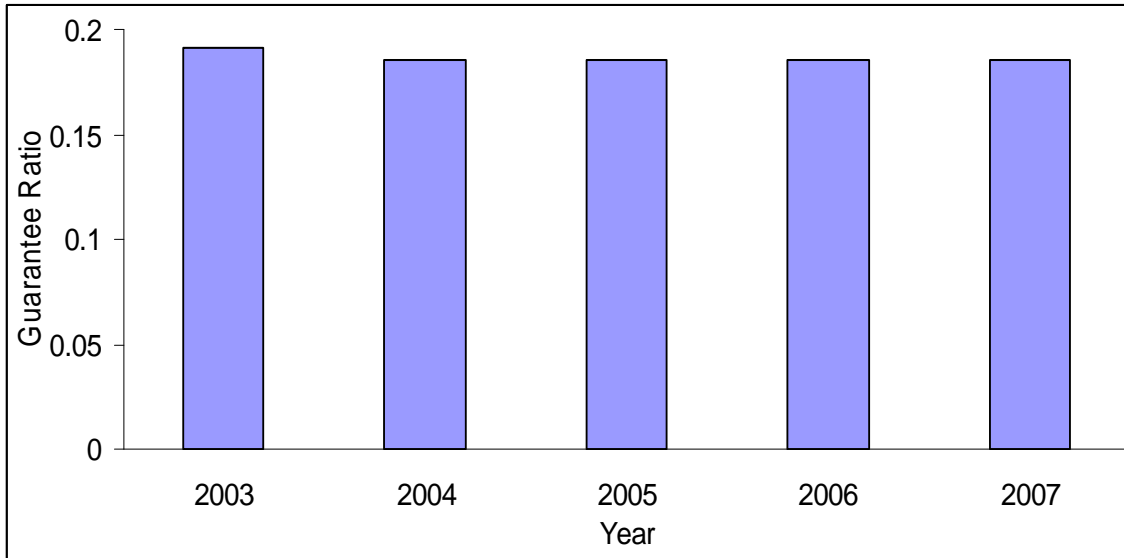




**Figure 3: Chain of Activities of Xizang Jinzhu.** The listed companies are shown in thick-bordered boxes. The shareholding is denoted by thick lines and loan guarantee and related business are denoted by dotted lines.

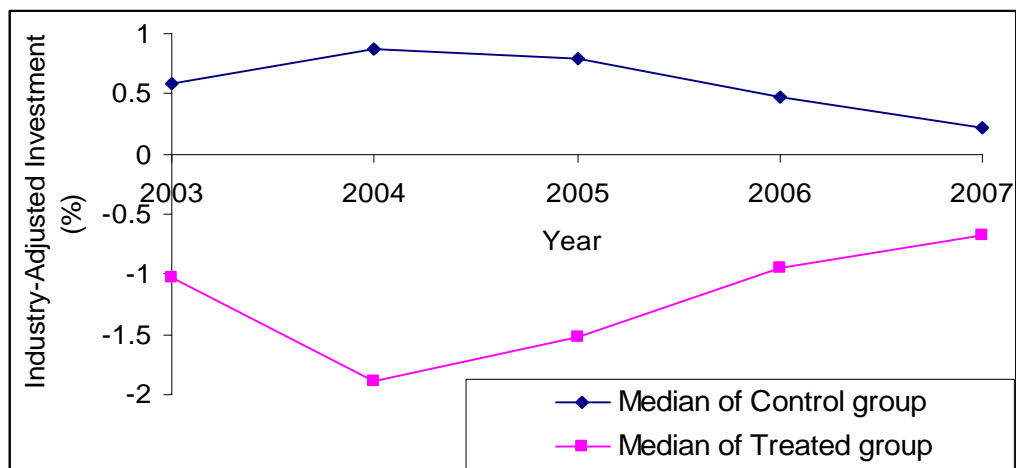
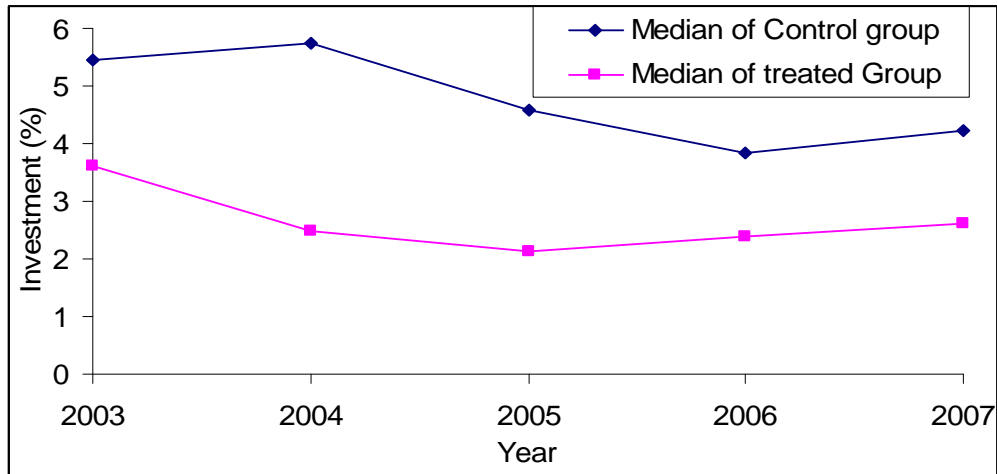


**Figure 4:** The two pictures plot the pattern of diversion ratio and the pattern of number of diversion firms through 2002 to 2007. The diversion ratio is defined as the ratio of other receivables owed by controlling shareholders to the total other receivables.

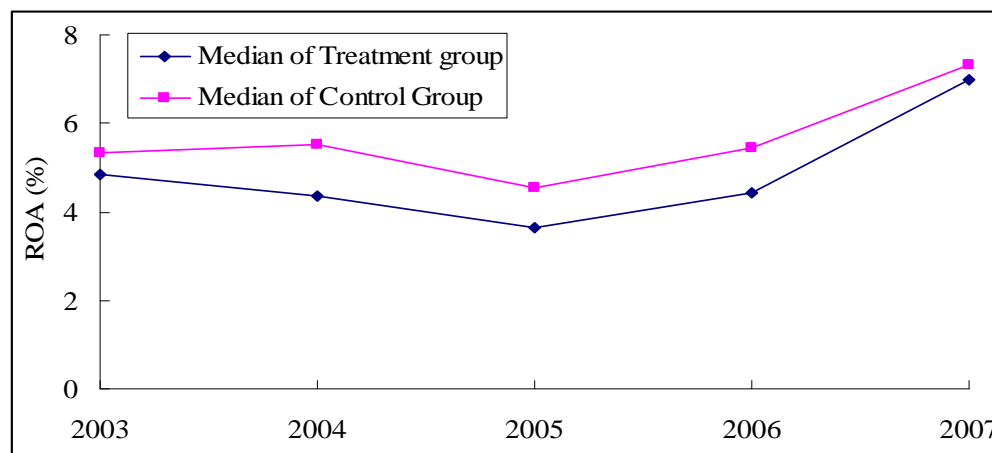
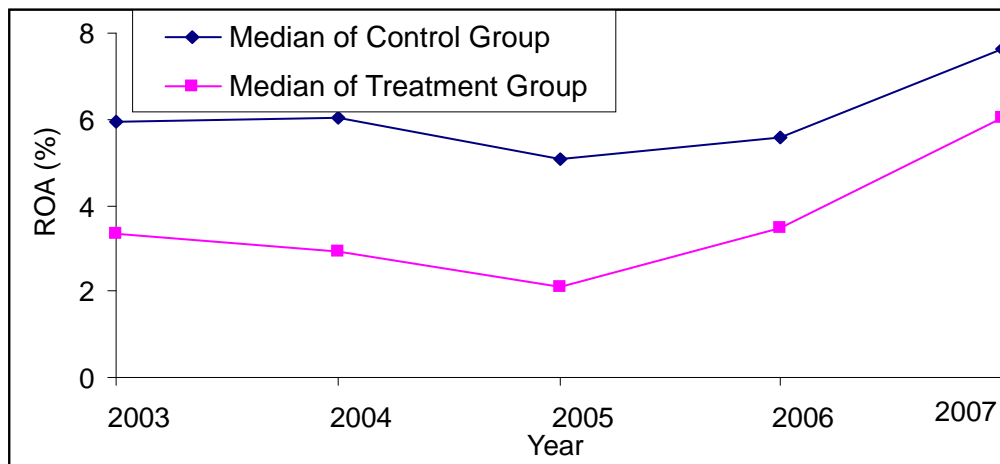


**Figure 5:** The upper figure plots the percentage of assets through loan guarantees, which is defined as the ratio of assets through loan guarantees to total assets. The lower figure plots the firms with loan guarantees. The information of regulation on loan guarantees is manually collected from the WIND.





**Figure 6:** The two pictures plot the median investment of assets for firms in which controlling shareholders diverted assets before 2006 (treatment group) comparing with firms without asset diversion (control group). The investment of assets in the upper picture is not adjusted by industry median, while it is adjusted by industry median in the lower picture.



**Figure 7:** The upper picture plots the median ROA for firms in which controlling shareholders diverted assets before 2006 (treatment group) comparing with firms without asset diversion (control group). The lower picture plots the median ROA for firms which has loan guarantee before 2006 (treatment group) comparing with firms without loan guarantee (control group).