Bad News is Good News: Propping and Tunnelling Evidence from China [*]

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Abstract

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Abstract

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1   Introduction

On April 19, 2000, after suffering losses for two consecutive years, the company Hong Kong and Macau Industrial (HKMI), listed on the Shenzhen Stock Exchange, was designated a *special treatment* (ST) company by the Chinese regulatory authorities. According to the rules governing the ST designation, HKMI had only two years to turn profitable; otherwise it would be de-listed.[1] While facing these mounting pressures, HKMI's CEO - Mr. Bo Feng - found that he had a big puzzle on his hands. His company, HKMI, was hotly pursued in the market: while retail investors started to aggressively build up their long positions, various companies indicated their strong interest of purchasing the listed company at a premium price. Over the imposed two-year time frame, HKMI's stock price increased as much as 82.9%, outperforming the market by 59.8%. Meanwhile, the Beijing CCID purchased 90 million shares of HKMI's stocks with its core asset—the Computer Daily of China—and became the new controlling shareholder. In March 2001, the listed company (now named the ST CCID) disclosed a net profit of RMB 28 million from its 2000 operations, with RMB 67 million contributed by the Computer Daily of China. The listed company's ST label was removed in the same month as a result of the company's positive earnings in 2000.

Why would a piece of bad news (ST designation) have generated such overwhelmingly favorable reactions from the investors and the business community? Even more intriguingly, such stories are not uncommon. Since the Chinese regulatory authorities started the practice of classifying listed firms as ST in 1998, 66 firms had fallen into the ST category (up to 2000). These 66 ST firms on average outperformed the market by 31.8% during the period from 3 months before their ST designations to 24 months after.[2] Meanwhile, more than 50% of the 66 ST firms changed their largest shareholders within two years of their ST designations; 24 of them even had their core business changed. Where exactly does the 31.8% of extra value come from? Does it relate to the high turnover of the largest shareholders or the high rate

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[1]In China a firm has to be designated ST before it could be eventually de-listed.

[2]According to the rules governing ST designation, if an ST firm cannot turn its business around and make a profit in two years, it will be delisted. Therefore, 24 months is the critical time here.

of change in the core business of these ST firms?

In this paper, we hypothesize and present supporting evidence that the extra stock market performance is due to the emergence of a corporate control market triggered by a listed firm's ST designation. In China, when a listed firm has normal financial performance, its controlling shareholder—a state-owned enterprise (SOE) in more than 80% of cases—enjoys the support of the local government, the regulatory authorities, and other large shareholders. Its control over the listed firm is secure. However, when a listed firm is designated an ST firm and its incumbent controlling shareholder cannot immediately drag it out of financial trouble, it may lose all support. The local government, out of concerns that it may lose face and, more importantly, the valuable listing quota,[3] will either force the incumbent to present a credible restructuring plan, often requiring substantial resource commitment, or give up its control to another party whose restructuring plan is more convincing. Meanwhile, firms interested in the ST firm, especially those in the same region, will be encouraged to bid for the listed company.

Therefore, the ST designation system triggers the opening of a market for corporate control which otherwise does not exist. In fact, during the period from 1998 to 2000, fewer than 10% of non-ST firms changed their largest shareholder.[4] In contrast, more than 50% of ST firms changed their largest shareholders. In their contest for the control over the ST firm, the contestants compete by offering to prop up the ST firms either through injecting quality assets or through relieving those firms' overriding debt burdens, which eventually

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[3]Until recently, access to listing in China's stock markets was strictly administered by the central government. The China Securities Regulatory Commission (CSRC) assigned a quota to the planning commissions of the various provincial governments. These, in turn, allocated the quota to IPO candidates in their own provinces, mostly to state-owned enterprises. There was fierce competition among the local IPO candidates for the listing quota. In early 2001, the listing quota was abolished in favor of an expert-review system. All IPO candidates now have to go through a one-year preparatory phase before an application can be submitted. Investment banks must submit these applications on behalf of the candidates, and selected members from an 80-member expert committee review the qualifications of the candidates. However, the CSRC still tightly controls the number of IPO applications and the pace of IPOs. Even under the new system, going public is still very time-consuming and costly.

[4]The number has increased recently since a complete set of mergers and aquisitions (M&A) laws and regulations was put in place in 2002 to encourage takeover activities in China's stock market.

benefits minority shareholders. Therefore, propping — entrepreneurs use their private funds to prop up their firms (see Friedman, Johnson, and Mitton 2003) — is common among these ST firms and likely driven by a stiff contest over corporate control. We argue that the 31.8% of extra stock market value reflects the price a controlling shareholder—incumbent or entrant—is willing to pay in order to maintain or obtain the control rights, or equivalently the magnitude of the propping. Obviously, the price the controlling shareholder is willing to pay depends on the degree of competition in the corporate control markets and the size of private benefits he can enjoy after he secures the control over the firm. Thus, *how much to prop up depends on how much the controlling shareholders can tunnel in the future.*

In order to better understand the dynamics between propping and tunnelling and illuminate the role of the contest over control among the incumbent and potential entrants, we also introduce a simple game-theoretical model. We structure our empirical analysis around the main implications derived from our model. We find that the price the controlling shareholder pays to prop up the ST firms is positively correlated with our proxy for the degree of competitiveness in the markets for corporate control—a Herfindahl index measuring the degree of concentration of shares in the hands of large shareholders other than the controlling one, and negatively related to the listed firm's leverage ratio. The economic impact of the two variables is significant — a one-standard deviation increase in the Herfindahl measure of the share-holding concentration generates 12 percentage points of abnormal stock performance over the two years after being STed and a one-standard deviation decrease in leverage increases the abnormal stock performance by 11.9 %. Based on the model, we also find a way to estimate the value of private benefits of control, which amounts to 33.5% of a listed firm's market value.

This study contributes to the literature in four ways. First, this paper presents evidence of propping and the conditions under which it may prevail, which has not been provided by the existing literature. It also indirectly estimates the magnitude of tunnelling. Second, we prove that *the market works, even in a transition economy like China*, by showing the benefits

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to the shareholders as a whole brought about by the emergence of the market for corporate control triggered by ST designation. Third, our analysis also suggests an innovative approach to value the private benefits of control in China — estimating the price that controlling shareholders are forced to pay due to the emergence of a market for corporate control. This approach is valuable because there is still a paucity of evidence of control benefits, especially in markets where dual-class shares and bloc control trading are not common, e.g., China. Fourth, our game-theoretical model illuminates the process of the contest over corporate control by the incumbent and entrants, and identifies the important *determinants* of the private benefits tunnelled back to a listed company by the winning controlling shareholder.

The remainder of the paper is organized as follows. In Section 2, we review the literature and discuss the institutional setting. The main hypotheses are derived in Section 3, where we offer a simple game-theoretical model and discuss its empirical implications. Section 4 describes the data and Section 5 presents the empirical results. Section 6 extends our analysis and offers robustness checks on our main conclusions. Section 7 concludes the paper. Appendix 1 offers a detailed description of the ST designation in China. We build two case examples in Appendix 2, which provide direct evidence of propping and tunnelling. They also demonstrate how a corporate control market emerges due to the ST designation. Appendix 3 analyzes the model of the contest over corporate control introduced in Section 3.

2   Literature Review and Institutional Setting

2.1   Related Literature

This paper relates to a growing literature of tunnelling that studies the source, extent and determinants of the value of private benefits of control. Recent finance theory, especially the legal approach to corporate governance advocated by La Porta et al. (1997, 1998, 1999, 2000), has presented a powerful argument that corporate control is valuable simply because the

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controlling shareholder can extract private benefits through *tunnelling*, including activities ranging from outright theft to selling assets or products at lower than market price to a firm in which she has higher stake, or buying at high price from the firm. The tunnelling of firm value by the controlling shareholder has become a centerpiece of recent corporate finance and drawn widespread attention.[5] La Porta et al. (1999) even conclude, "...the central agency problem in large corporations around the world is that of restricting expropriation of minority shareholders by controlling shareholders..."

Private benefits of control are inherently difficult to measure, because a controlling party is able to use corporate resources to his or her benefit only if it is difficult or impossible to prove these actions in court. Two different approaches have been proposed in the literature to quantify the size of private benefits. The first approach focuses on firms with dual-class shares and infers the value of private benefits from the voting premium. For instance, using a sample of 661 dual-class firms from 18 countries, Nenova (2003) finds that the value of control ranges from about 0% of the firm market value in Denmark to 50% in Mexico. In an extreme example, Zingales (1994, 1995) estimates that the average voting premium is 82% in Italy compared to 10.5% in the U.S., and he argues that the difference in premium reflects the difference in the levels of corporate governance practiced in the two countries.[6] In line with Zingales's findings, Doidge (2003) finds that non-U.S. firms that cross-list on U.S. stock exchanges have voting premiums that are on average 43% lower than other non-U.S. firms that do not cross-list. He argues that migrating to a higher governance standard reduces the private benefits of control. The second approach studies the pricing of control blocks and measures the difference between the price per share paid for the control block and the market price of the shares. A recent paper by Dyck and Zingales (2002) studies 412 control transactions in 39 countries between 1990 and 2000 and documents that the value of control ranges from -4% of firm value in Japan to $+65\%$ of firm value in Brazil. On

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[5]For example, La Porta et al. (1997, 1998, 1999, 2000) and Johnson et al. (2000) laid out the general framework. Bertrand et al. (2000), Bae et al. (2000), and Claessens et al.(2000) provide empirical evidence in emerging markets. Shleifer and Wolfenzon (2000) present a theoretical model.

[6]For this line of research, also see Levy (1983) and Lease, McConnell, and Millelson (1983, 1984).

average, corporate control is worth 14% of the equity value of a firm. Papers along this line of research include Barclay and Holderness (1989) and Hanouna, Sarin, and Shapiro (2001).

Despite the success achieved with respect to empirical testing of tunnelling and private benefits, there is still a paucity of evidence in the literature. The ST mechanism in China offers us a unique opportunity to examine the tunnelling by controlling shareholders and study the source and extent of private benefits of control. This paper also complements the emerging literature on propping or negative tunnelling (Friedman, Johnson, and Mitton 2003). We present evidence of tunnleing, propose conditions for propping to prevail, and consider the dynamic linkage between propping and tunnelling.

2.2 Institutional Setting

The Chinese stock market was organized by the government as a vehicle for its state-owned enterprises (SOEs) to raise capital and improve operating performance. In less than 12 years, China's stock market has grown to the eighth largest in the world with market capitalization of over US$500 billion. Chinese companies, especially SOEs, have benefited greatly from rapid equity issuance growth and public enthusiasm for the equity market due to a lack of other attractive investment vehicles.[7]

Over the past decade, regulations have been evolving to address problems typically found in emerging markets. In particular, the China Securities Regulatory Commission (CSRC) has been managing the tradeoff between growth and control. Since the primary objective of developing equity markets in China is to help SOEs relax external financing constraints, regulations introduced have been asymmetrically in favor of SOEs or the companies with close ties to the government. For example, a quota system was used by the CSRC to assign the listing quota to the planning commissions of various provinces, then to IPO candidates.

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[7]In 1990, the Shanghai and Shenzhen Stock Exchanges were opened with great fanfare. By 2001, there were already 1,200 publicly traded companies. The public have shown tremendous enthusiasm for China's infant stock market: the average subscription ratio for new shares has been over 200 throughout the past decade, while retail investors dominate domestic issuance.

Because of the policy constraints, competition for the rights to go IPO is fierce. Another consequence of such policy practice is that the ownership of Chinese listed companies is concentrated on the hands of the government. On average, state-owned shares and legal-person shares (indirectly owned by government) account for over 70% of the total shares in China's listed companies. Furthermore, the largest shareholder (in 80% of cases, the government) controls 48% of listed companies' shares, while the second largest shareholder typically owns less than 10% of shares.

2.2.1 The Emergence of the Market for Corporate Control

Several reasons explain why the private benefits accruing to controlling shareholders in China are huge and cannot be competed away under normal circumstances. In China, most listed companies are spinoffs from large SOEs, and in most cases, they still share personnel functions, capital, and assets with their parent companies, which often are controlling shareholders. Local governments, instead of shareholder committees, appoint the management of listed companies. Therefore, the management often takes actions to benefit the largest shareholder - governments at various levels. It is worth noting that such practice may add social value in other ways that offset the social costs it impose through "tunnelling". It might help solve external financing constraints and help reduce transaction costs. We will not, therefore, be attempting to test whether the benefits dominate costs. Our humble goal is to test whether there is any tunnelling, and if so how much, the controlling shareholders tunnel.

Given the fact that only around 30% of listed companies' shares are publicly tradable, and that the controlling shareholders normally control more than 40% of the total shares, controlling shareholders are rarely challenged by other shareholders on important issues. Minority shareholders cannot take listed companies to court, due to limitations in civil law and to a lack of punishment spectrum in the current securities laws.[8] Listed companies,

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[8]For example, current Chinese securities laws do not allow proportionate legal enforcement. Regulators

therefore, are the nexus of a series of related-party transactions for the benefit of the controlling shareholder. A recent study conducted by the Shanghai-based Shenying and Wangguo Securities Co., Ltd, surveyed 130 listed firms and found that those companies' controlling shareholders on average owe the listed companies US$40 million in the form of accounts receivable or parent borrowings (Source: *Caijing magazine*, June 5, 2002.) In addition to the related-party transactions, loan guarantees and dilutive share issues are also widely used by the controlling shareholders.

The market for corporate control in the sense of Jensen and Ruback (1983) is poorly developed, perhaps even nonexistent, in China's stock market.[9] On average, state-owned shares and legal-person shares (indirectly owned by the state) account for 70% of the total shares outstanding. The public hold the remaining 30% of the shares. This ownership structure makes acquiring a listed company through tender offers or open market purchases almost impossible. The control of a listed company rarely changes hands unless there is consent from the government.[10]

A policy introduced by the CSRC in 1998 changed the landscape of China's corporate control markets. In order to enhance Chinese listed companies' governance practice and protect investors' interests, the CSRC introduced a special *delisting mechanism* in 1998. Under the guidelines set forth by the CSRC, China's two stock exchanges—the Shanghai and Shenzhen Stock Exchanges—started to classify some listed firms as ST firms.[11]

A firm will be designated an ST firm if there is any of certain abnormalities in its financial

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can only take extreme actions (prison sentences or warnings thereof); they cannot impose moderate penalties.

[9]Jensen and Ruback (1983) argue that the market for corporate control is best viewed as an arena in which managerial teams compete for the right to manage corporate resources. The markets for corporate control are thought to perform important governance functions in promoting greater shareholder orientation in corporate management.

[10]M&A markets have been very quiet in China: the total M&A transaction volume in 1997 was only 1% of China's GDP, according to Thomson Financial.

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

status or other aspects, resulting in investors' difficulty in judging the company's prospects, to the detriment of investors' benefits or interests. Typically, a listed firm becomes an ST firm if any of the following four conditions holds: (1) it has negative net profits for two consecutive years; (2) the shareholders' equity is lower than the registered capital (the par value of the shares); (3) on auditing the firm's financial report, the auditors issue negative opinions or declare that they are unable to issue opinions; (4) the firm's operations have been stopped and there is no hope of their being restored within three months, due to a natural disaster or serious accident; or the firm is involved in a damaging lawsuit or arbitration (see Appendix 1).

We believe that the system of ST designation triggers a contest over corporate control. After a company is designated ST, it is under more stringent monitoring by regulators and investors. The ST firms are pressured to restore normal financial status in order to remove the ST label and to avoid delisting. Given the strong incentives to have the ST label removed, the paternalistic instinct of the local government toward the incumbent controlling shareholder and the tendency of other large shareholders to collude with the controlling shareholder give way to their common desire to find a convincing restructuring plan. If the incumbent controlling shareholder does not offer a good one, others with a superior restructuring plan will take over the firm. The contestants for control rights are often the other large shareholders of the firm, working with the encouragement of the government.[12] Thus, a market for corporate control that otherwise would not exist emerges.

In a typical case, the contest over control rights is initiated by the government, which solicits bids from the incumbent and potential entrants. This kind of political reallocation of control mechanism works quite effectively. For example, in the case of HKMI (see Appendix 2A), it was the Ministry of Information Technology of China - the ultimate owner of HKMI's controlling shareholder, Guobang Group - that initiated the negotiation between HKMI and

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[12]For most interested parties, acquiring an ST firm probably is the only way they can take control of a listed company.

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Bejing CCID. In the case of Changgang (see Appendix 2B), the local government imposed a huge amount of pressure on the largest shareholder, they even worked together with the largest shareholder on the company's re-organization plan.

The incumbent and the potential entrants attempt to outbid each other. In most cases, they propose the injection of quality assets or even cash into the troubled firm to boost its performance (see both Appendix 2A and 2B for direct evidence of propping). Investors, as a whole, benefit from the contest over corporate control. Therefore, the positive stock market performance of ST firms may well reflect the price the incumbent or potential entrants are willing to pay in order to keep or gain the control rights.[13]

2.2.2 Does increase in an ST firm's market value reflect things other than the private benefits?

In the paper, we argue that the ST firms' extraordinary stock performance reflects the price that controlling shareholders are forced to pay for the control rights. There is, however, an immediate alternative explanation - an ST firm's stock price increase may also reflect the value-enhancing activities undertaken by the management in order to have the ST label removed. For example, an ST firm might sell unprofitable assets or operations, lay off unproductive employees, or strengthen its strategic position by focusing on the core business. Thus, the increase of market value for the ST firm might only reflect the capitalized value of an improvement in the future operating performance.

The improvement-in-operations hypothesis given above is unlikely to be true in the context of China's ST designation, for the following three reasons. First, if the increase in market value is indeed due to a series of value-enhancing activities after a firm is designated ST, why did it not happen before? As a matter a fact, a firm will be designated ST only

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[13]Zingales (1994) makes a similar point, arguing that as long as there is competition among parties interested in corporate control, the exchange price of common stock should include a "vote component". The size of the voting premium depends on the value of private benefits of control and the degree of competition in the market for corporate control.

after it has suffered two consecutive losses. Why didn't the firm take value-enhancing initiatives right after it reported its first loss? A reasonable explanation here is that the emergence of a market for corporate control after the firm has been STed forces the controlling shareholder to take the value-enhancing action. Therefore, although the increase in the ST firm's market value may result from those value-enhancing activities, it is fundamentally driven by the contest over control. Second, there is an interesting fact about Chinese ST firms: among the 66 ST firms in our sample, 35 had their controlling shareholders changed one or two years after their ST designation. Moreover, 24 of them even changed their core businesses. Even for those with no change in controlling shareholders or core businesses, we also observe a wealth transfer from controlling shareholders (or affiliated firms) to the ST firms (cash injection, spinoff of debts and other liabilities, etc.) The improvement in balance sheets is therefore mainly driven by the transfer of wealth from the controlling shareholders (incumbent or entrant). Last but not least, if the increase in an ST firm's stock price is driven by improvement in operations, then post-ST stock returns should be positively correlated with post-ST return on equity (ROE). As we will show in a later section, that is not the case.

The ST firms' outstanding market performance may be due to increased scrutiny by the regulators and stake-holders. Although this explanation can explain the overall improvement in ST firms' market performance, it can not reconcile easily with another empirical fact we will discuss in detail later - ST firms' market performance is *positively* related to the degree of competition in the markets for corporate control and *negatively* related to leverage. If this explanation is right, we should not expect any cross-sectional variation in the first place.

3   Main Hypothesis

To better understand the contest for corporate control process and how it triggers propping, we offer a simple game-theoretic model. We analyze the main empirical implications of the

model in this section but present the modelling details and lengthy proofs in Appendix 3. We consider the following three-period game:

At $t = 1$

The incumbent largest shareholder proposes a restructuring plan with an investment of I_1. Assume that this investment will increase the firm's value by I_1.

At $t = 2$

After observing the offer made by the incumbent, other large shareholders or potential entrants may consider accepting the offer, I_1, or making a counteroffer, I_2.

When the shares are concentrated in the hands of large shareholders other than the controlling one, it is easier for them to form a coalition and collectively make a counteroffer, provided that it is profitable to do so. Let λ be the Herfindahl concentration index of the shares held by the second to the tenth largest shareholders. We assume that the probability of a coalition being formed to counter the largest shareholder is given by $\mu_1(\lambda)$ with $\partial \mu_1 / \partial \lambda > 0$.[14] Note that Zingales (1995) uses the Shapley value of small shareholders' votes to measure the intensity of competition for control. Our measure, though sharing the same spirit, has been tailored to China's specific institutional background.

We further assume that there is a random cost c of making a counteroffer. Given the presence of a coalition, the counteroffer will be made if and only if the payoff from making the offer is no less than c. The value of c is realized only after the incumbent chooses I_1.

At $t = 3$

If there is a contest for the control of the firm, the plan with the higher value wins. If there is no contest, the incumbent retains control. We assume that it is very costly for a bidder to break her promise to restructure when she wins the control of the firm. With restructuring plan I being carried out, there is a probability $\phi(I, d)$ for the firm to succeed,

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[14]Nenova (2000) suggests that the more concentrated the ownership is, the lower is the probability of a successful change of corporate control. In China, however, the competition for control is normally driven by the government, and potential contestants are more likely to be the firm's other large shareholders. The small outside investors play a more passive role.

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where d is the leverage ratio of the firm. We assume that $\partial \phi / \partial I > 0$, $\partial^2 \phi / \partial I^2 < 0$, and $\partial \phi / \partial d < 0$. The interpretation is that the more funds the contestants put into the firm, the more likely it is that the firm will improve its operating performance. Its chance of being saved is therefore higher. Similarly, given the same amount of fund injection, if the firm has heavier debt obligations, its likelihood of improving operating performance and keeping the listing status will be lower. For simplicity, we also assume that $\partial^2 \phi / \partial I \, \partial d = 0$.

Finally, we assume that the controlling shareholder of a listing firm enjoys private benefits of control, $B(d, \epsilon)$, with $\partial B / \partial d < 0$ and $\partial B / \partial \epsilon > 0$, where ϵ captures other factors that improve the private benefits of control.[15]

We present the detail about how we find solution to the model in Appendix 3. In the rest of the section, we focus on discussing the model's empirical implications and their economic meanings. In the subgame-perfect equilibrium as discussed in Appendix 3, we expect the investment amount to be the same, namely I_1^*, regardless of who wins the control contest. The intuition here is that although both the incumbent and the entrant's benefit from their investment in terms of increased probability of successful restructuring, the incumbent has one additional benefit from her investment, namely the reduced probability of facing a challenge. Therefore, the entrant should never make more investment than the incumbent does.

I_1^* is the investment made by the contestants to win the control of an ST firm. In non-ST firms, there is no danger of delisting and there is no contest for control because the control of the controlling shareholder is secure, and hence there is no investment I_1^*. Therefore, the market value of a firm should increase after the ST designation, and the size of the increase is I_1^*. I_1^* is the amount a contestant is willing to pay to gain the control rights. That is, it is

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[15]Private benefits of control include influence over the board of directors, appointment of CEOs, buildup of business empires, beneficial transfer pricing, executive perquisite consumption, etc. In China, the primary benefit for the controlling shareholders, as suggested by many members of Chinese business community, is being able to tap an ever-growing capital base at low cost through right offerings or seasoned equity offerings. Obviously, when the firm is highly levered, the controlling shareholder is more likely to be constrained by other stakeholders such as creditors. Therefore we assume $\partial \phi / \partial d < 0$.

a proxy for propping. If the market for corporate control is perfectly competitive, we should expect the following to hold:

$$\phi(I_1^*, d)B + \alpha I_1^* - I_1^* = 0, \tag{1}$$

where α is the winning controlling shareholder's shareholding. The intuition here is that a perfectly competitive control market will push the winning shareholder to the point where the private benefits she can extract is equal to the price she has to pay to obtain control. Immediately we have

$$B = \frac{(1-\alpha)I_1^*}{\phi(I_1^*, d)}. \tag{2}$$

We can estimate the value of private benefits of control, B, based on equation (2).

The comparative static analysis of I_1^* yields the following results (see Proposition 2 in Appendix 3).[16]

1. The more competitive (high λ) the market for corporate control is, the larger is the increase in an ST firm's stock price during the ST period.

2. The more debt-constrained (high d) the firm is, the smaller is the increase in its stock price during the ST period.

3. The more shares held by the controlling shareholder (the higher α_1), the larger is the increase in the ST firm's stock price during the ST period.

Some comparative statics about the probability of successful restructuring - ϕ - also follows the Corollary in Appendix 3.

4. The more competitive the market for corporate control (the higher λ) is, the more likely that the ST firm will have its ST label removed.

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[16] We drop the subscripts of I hereafter because $I_1^* = I_2^*$ at equilibrium.

5. The more debt-constrained (high d) the firm is, the less likely that it will have its ST label removed.

6. The more concentrated are the shares in the hands of the controlling shareholder (the higher α_1), the more likely that the ST firm will have its ST label removed.

4 Data

4.1 The Sample

To identify the firms that have been designated ST, we search the *WISE Information System* provided by the Shanghai Wind Co. Ltd. The *WISE System* covers all companies listed on the Shanghai and Shenzhen Stock Exchanges and includes information on stock prices and important economy-wide and firm-specific news events. When we search the WISE System for the ST announcements made during the period 1998–2000, we are able to identify 66 ST firms, among which 45 are listed on the Shenzhen Stock Exchange and 21 on the Shanghai Stock Exchange. For each ST announcement, we document the exact ST designation date and reason. We then search the literature for the following three pieces of information: whether these ST firms were able to have their ST labels removed before the two-year deadline; whether the ST firm had its largest shareholder changed within the two years; and whether the ST firm had its core businesses changed during the same period.

Table 1 summarizes the information on ST firms. Note that most ST firms are designated ST in April or May, following the release of their annual reports. Table 1 also shows that the most common reason for an ST designation is that a company has reported losses for two consecutive years (39 out of 66), and the second most common is an audited fiscal year report showing the shareholders' equity lower than registered capital (19 out of 66). Eight companies became ST firms simply because the auditors expressed negative opinions or were unable to express opinions. Two listed companies, Sinosinic Technology and China Sichuan

International, became ST firms because the stock exchanges and the CSRC believed that their financial conditions were abnormal and investors might be harmed if they continued to trade their stocks.

Among the 66 ST firms, 38 were able to have their ST labels removed within two years. We create a dummy variable, STOFF, which is equal to 1 if the ST label is removed and 0 otherwise.

With ST designation, an otherwise nonexistent market of corporate control is triggered. We search through the ST firms' annual reports and obtain information on changes in the controlling shareholder. The dummy variable DLARGE is equal to 1 if an ST company changes its controlling shareholder within 2 years and 0 otherwise. In stark contrast to non-ST firms (in a given year, fewer than 5% of listed firms manage to have their controlling shareholders changed), 35 ST firms (53%) change their controlling shareholders. This figure itself provides strong evidence that the ST designation jump-starts an active market for corporate control.

We create another dummy variable, CORE, to represent change in core business. CORE has the value 1 if an ST firm had its reported core business changed within the two years.[17] We find that 24 ST firms changed their core businesses within the two years.

4.2   The Measurement of the Magnitude of Propping — I^*

It is very difficult to directly measure I^* - the value the controlling shareholders (incumbent or entrant) tunnel back to the firm. The controlling shareholders' investment may take many forms. In the case of new asset injection or asset swaps, the appraisal value of those assets obviously is not a good measure of I^*, in that the way they are valued does not reflect their impact on future earnings.[18] In the case of cash injection, if the injected cash re-engineers

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[17]According to the Chinese securities law, the core business is defined as the business that generates more than 50% of the firm's total revenue.

[18]In China, such an appraisal is normally based on the assets' book value.

an ST firm's operations, then it should be valued beyond the actual amount injected. The difficulty also arises because it is difficult to identify the timing of restructuring activities. Although the CSRC requires a listed company to disclose to the public any events with material impact, such disclosure is normally incomplete and often only comes some time later.

The traditional event study approach does not apply here either. As a matter of fact, we find there is not an immediate announcement effect of being put in the ST category - the abnormal returns around ST announcement dates are ambiguous and not statistically significant. This may be due to the fact that ST designation is anticipated by the market once the firm issues its annual report. The market probably is waiting to see what exactly will follow the ST designation - a thorough restructuring or damaging looting of the company? It is also worth noting that the Chinese stock market, like most other emerging stock markets, has synchronous stock price movements (80% of Chinese stocks move together each week, as shown in Morck et al. 2000). Firm specific information poorly impounds upon prices.

Fortunately, a special feature of ST designation makes it possible for us to use ST firms' stock market performance as a measure of I^*. According to the rules governing ST practice, an ST firm is subject to a two-year time frame to turn around its performance. An ST firm runs on a very tight schedule to carry out the restructuring plan, especially in its second ST year.[19] Even though we don't know when the restructuring plan (if any) is implemented, we are certain that it has been carried out before the two-year deadline is actually reached. Therefore, the stock price movement during the two-year time window may be used as a measure of I^*. We choose an ST firm's market adjusted stock price performance from the third month prior to the ST announcement (month -3) to the twenty-fourth month after the announcement (month $+24$) as the measure.[20] The formula for firm j's performance is

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[19]When we search for the stories about an ST firm in the media, we find that the number of entries about the firm increases dramatically 6 months after its ST designation. In most cases, it reaches a peak somewhere in the firm's second ST year.

[20]The starting month has little effect on the magnitude of stock performance. We also started with months -4, -2, and -1, and no significant difference in an ST firm's stock market performance was found. We

as follows:

$$\text{PER}_j = \sum_{t=-3}^{24} (r_{j,t} - m_t), \tag{3}$$

where $r_{j,t}$ is the monthly return for firm j and m_t is the monthly market return. We calculate the average performance of all ST firms as follows:

$$\text{PER} = \sum_{t=-3}^{24} \frac{\sum_{j=1}^{N} (r_{j,t} - m_t)}{N}, \tag{4}$$

where N is the number of ST firms in our sample, 66.[21]

4.3 Summary Statistics

The monthly stock returns and annual accounting data for our sample firms are retrieved from the two CSMAR databases, which are compiled jointly by the Shenzhen GTA Information Technology Co. and the Hong Kong Polytechnic University. The structures of the two CSMAR databases are very similar to those of CRSP and COMPUSTAT. We calculate PER in equation (4).

We calculate for each ST firm the total market value (the year-end stock price multiplied by the number of total shares outstanding),[22] Tobin's Q (the market value divided by the firm's total assets), the leverage ratio (book value of debt divided by the sum of equity market value and the book value of debt) and the return on equity (ROE). Note that we apply the total market value, Tobin's Q, the leverage ratio, and the ROE in year $t-1$ to explain PER. By doing so, we ensure that the information is known to the investors and potential control contestants. In order to control for the skewness of market value, we take

choose month -3 as the beginning month to capture any possible leak of information.

[21]We also use the buy-and-hold approach to compute an ST firm's market adjusted stock market performance, which yields the same qualitative results. The results are available from the authors upon request.

[22]Note that not all shares are tradable in China's stock market. In this paper, we use the number of total shares outstanding to calculate the firm market value. As a robustness check, we also use the number of tradable shares and find similar results. Throughout the paper, we only report the results of using the number of the total shares outstanding.

the logarithm.

The shareholding variables are key to our empirical study. We obtain the information on them mainly from the TEJ China Database (Taiwan Economic Journal Co., Ltd). For several ST firms without shareholding information in the TEJ database, we check their annual reports to obtain the data. For each ST firm, we define two shareholding variables: LARGEST and CONCEN. LARGEST measures the percentage of shares owned by the largest shareholder prior to the ST designation. CONCEN is the Herfindahl index, which measures how concentrated are the shares held by the top 10 shareholders except the controlling one, prior to the ST designation. That is,

$$\text{CONCEN} = \sum_{i=2}^{10} S_i^2, \tag{5}$$

where S_i is the fraction of shares owned by the ith largest shareholder. CONCEN measures λ and LARGEST measures α in our model.

Panel A of Table 2 presents the summary statistics for the variables used in our empirical analysis. The average PER is as high as 31.81%, with a standard deviation of 47.79%. The minimum of PER is -57.15%, and the maximum is 248.99%. The mean of LARGEST is 38.62%. Its standard deviation is 15.61%. The minimum of LARGEST is just 10.55%, and the maximum is 72.45%. Obviously, in general, an ultimate shareholder with a significant number of shares owns an ST firm. The degree of shareholding concentration for large shareholders other than the controlling one, CONCEN, has a mean of 225.34×10^{-4} and a standard deviation of 296.97×10^{-4}. The mean of Tobin's Q is 2.31. There is a large variation in this measure: it ranges from 0.68 to 6.21. The size variable, which is measured by the logarithm of the firm's equity market value in year $t - 1$, has a mean of 21.15 and a standard deviation of 0.60. Interestingly, size does not vary much across the ST firms in our sample.[23] We define leverage ratio as the book value of debt divided by the sum of equity

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[23]This is due to the listing quota system that had been used to guide China's IPO application. The local government used to split the quota among as many companies as it could, which resulted in a very small

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market value and book value of debt. Again, we use the figure in year $t-1$ as the measure of leverage ratio in year t. As shown in Table 2, the ST firms' average leverage ratio is 25.76%. Its standard deviation is 17.18%. ST firms' leverage ratio varies significantly: it ranges from 2.16% to 99.18%. We also calculate the ST firms' ROE in year $t-1$; it has a mean of -48.09%. That is not surprising, since having negative earnings is the most common reason for ST designation. The standard deviation of ROE in year $t+1$ is 209.75%. ROEs in year t and $t-1$ have mean of -44.71% and -8.97% respectively. The mean of ROE in year $t+2$ becomes positive and it is 2.627%, which implies that an average ST firm manages to turn profitable in two years.

Panel A of Table 2 also presents the summary statistics for several other variables. The dummy variable STOFF has a mean of 57.58%. That is, 57.58% of ST firms are able to turn their business around and have their ST label removed within the two-year window. The mean of DLARGE is 53.03%. That is, 53.03% of ST firms have their controlling shareholders changed within the two-year time window. The mean of another dummy variable, CORE, is 36.36%, which implies that 36.36% of ST firms change their core businesses within the imposed two-year deadline.

Panel B of Table 2 presents the Pearson correlation coefficients among the variables. Consistent with our hypothesis, PER is positively related to LARGEST, although the relationship is not statistically significant. There is a significantly positive correlation between PER and CONCEN, which supports the argument that competition in corporate control market drives up propping. PER is positively related to STOFF (correlation coefficient 0.4108, p-value 0.0006. The result is not surprising given that the chance of having the ST label removed should be larger when the controlling shareholder (incumbent or entrant) has put more investment into the listed company. The correlations of PER with DLARGE and CORE are both positive. The latter is significant at the 10% level.

The correlation between Tobin's Q and PER is only 0.0865 (p-value 0.4896). The

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variation in listed companies' size.

correlation of the size measure with PER is positive but not significant. There is a significantly negative correlation between the leverage ratio and PER, with a coefficient of -0.2595 and a p-value of 0.0354. Obviously the private benefits of control are low when the leverage ratio is high. High leverage also makes restructuring more difficult. Therefore, the controlling shareholder (incumbent or entrant) of a highly levered firm is not likely to put a large I^* into the ST firm.

The correlations between PER and ROEs around ST designation deserve particular attention. As we hypothesize that the purpose of propping is to have the ST label removed, ROEs in this situation are therefore manipulated and distorted. As shown in Panel B of Table 2, all ROEs (from years t-1 to t+2) are not significantly correlated with PER. Very likely, PER is not driven by an ST firm's balance sheets. This evidence however is consistent with our hypothesis that PER is driven by the wealth transfer from the controlling shareholders, not by improvement in operations.

5   Main Empirical Results

5.1   The determinants of the Magnitude of Propping — I^*

If our explanation about the ST firms' extraordinary stock market performance is correct, we expect it to be positively related to the shares held by large shareholders other than the largest one (CONCEN) and the percentage of shares owned by the largest shareholder (LARGEST), negatively related to leverage. In this section, we study the relationship between the measure for I^* (PER) and CONCEN, LARGEST, and leverage. We summarize our regression results in Table 3.

In model I, we only put the two ownership variables - LARGEST and CONCEN - on the right-hand side. The 'endogeneity concern' of the two ownership variables is not severe due to two reasons: (i) the Chinese listed companies' ownership structure is pretty much pre-

determined during the IPO process because of the 'quota system' (see Section 2.2). Without government intervention and exogenous shocks such as ST designation, it tends to be quite stable; (ii) we found that almost all of the ownership changes occurred after a firm became an ST firm. It is unlikely that firms choose a particular ownership structure because someone expects they will become ST.[24] As shown in Column 1, the two ownership variables have the predicted signs. CONCEN - a measure for the degree of competition in the markets for corporate control - is significant at the 5% level. Obviously, when the competition for corporate control is stiff (CONCEN is larger), the controlling shareholder has to pay more to gain control. That is propping (or negative tunnelling) is more likely to be observed in firms where stiff competition for corporate control is anticipated. This result clearly supports our main hypothesis that the control market initiated by ST designation benefits outside shareholders.

In model II, we add other control variables such as Size, Tobin's Q, and ROE in year t-1. One may concern with the potential multi-collinearity between the regressors. However, as shown in Table 2B, the main regressors are not pair-wise highly correlated. Furthermore, the multi-collinearity problem is likely to reduce the significance level of CONCEN. But the result from model II shows that the sign and significance of CONCEN remains unchanged.

In models III and IV, we add leverage ratio in year t-1 as one explanatory variable. While the sign and significance of CONCEN remains unchanged, the estimated coefficient of leverage ratio is significantly negative (-0.7801, with P-value 0.074). The evidence shows that higher debt burden reduces the private benefits of control and also makes it more difficult to save a financially troubled firm. Therefore, it reduces propping. The evidence is consistent with the implication derived from our game-theoretical model.

Note that the economic effect of CONCEN and leverage ratio on the magnitude of propping — I^* — is significant. From model I, we can easily calculate that a one-standard

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[24]We compute LARGEST and CONCEN in year t-2 and year t-1 and find that they remain largely unchanged.

deviation increase in CONCEN — a Herfindahl type of measurement for the competitiveness of the control market — generates abnormal stock performance as much as 12 percentage points ($0.000429 \times 6.77 = 0.12$). The estimates in model III shows that a one-standard deviation decrease in leverage ratio leads to 11.9% of abnormal stock performance ($0.7081 \times 0.1718 = 0.119$).

Also Note that Size and Tobin's Q are both added in models II-IV. Neither Size nor Tobin's Q is significant. Note that Tobin's Q has a negative sign, which may imply that one is more likely to see improvement of a listed company's market performance if it is previously undervalued (low Q). The negative size coefficient may suggest that it is more difficult to restructure large firms. Also note that ROE in year t-1 is not significant in regressions. Obviously, a firm's pre-ST operating performance has nothing to do with I^*.

5.2   The determinants of STOFF

As our model shows, the probability of an ST firm successfully restructuring itself and having its ST label removed within two years - ϕ - depends on two factors: the leverage ratio d, and the investment the controlling shareholder makes, I^*. In equilibrium, I^* is determined by LARGEST, CONCEN, and the leverage ratio. Therefore, we expect that the same set of variables used in Table 3 will be able to explain ϕ. This intuition is further confirmed by the significantly positive correlation between PER and STOFF as shown in panel B of Table 2 (0.4108 with p-value 0.0006).

To test the above conjecture, we conduct the probit regressions and summarize the results in Table 4. The dependent variable is the dummy variable, STOFF, which takes the value of 1 if an ST firm has its ST label removed within two years and zero otherwise. The same set of variables used in Table 3 are included as explanatory variables. In model I, we only include the two ownership variables that capture the largest shareholders' stake and the degree of competition in the control market. Both have the predicted signs although they are not significant at the 10% level. Adding control variables like Size, Tobin's Q, and ROE

does not change the sign and significance of the two ownership variables (as shown in models I-II). Interestingly, size, Tobin's Q, and pre-ST ROE do not explain whether an ST firm succeeds. In models III-IV, we add leverage in year t-1 to the right hand side and find it enter the regressions significantly. The negative coefficient of leverage support our argument that higher debt burden reduces the likelihood of removing ST label, which is consistent with our model implication.

6 Extension and Further Discussion

6.1 Estimating the Value of Private Benefits of Control — B

One important contribution of this analysis is that we can use equation (2) to estimate the private benefits of control, B. This experiment is invaluable given that empirical evidence of private benefits, especially the evidence of China, is still lacking in the literature. As shown in equation (2), when the market for corporate control is competitive, $B = (1 - \alpha)I^*/\phi(I^*, d)$, where α is the winning controlling shareholder's shareholding. Therefore, we will be able to compute an ST firm's private benefits of control if we know I^*, α, and the expected probability of having the ST label removed, ϕ^*.

In order to obtain ϕ^*, we leverage the results from Table 4, where various probit regressions are carried out. Specifically, we calculate ϕ^* as the fitted value of STOFF derived from model IV in Table 4. It measures the probability of an ST firm successfully restructuring itself and having its ST label removed conditional on the firm's pre-ST ownership structure, leverage ratio, size, and various measures of performance. Using the results from Table 4, we compute ϕ^* for each ST firm. We then plug ϕ^* back to equation (2) to get B. Note that here α represents the percentage of shares held by the new controlling shareholder; we therefore use the largest shareholder's shareholding in year $t + 2$ as the measure for α.

Table 5 reports the summary statistics for ϕ^* and B. The mean of ϕ^* is 0.5777, which is

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amazingly close to the actual mean of STOFF (0.5757). Its standard deviation is 0.2367. The minimum and maximum of ϕ^* are 8.28×10^{-6} and 0.9804, respectively. When we calculate B, we drop one outlier (the observation with the minimal ϕ^*, 8.28×10^{-6}). The mean of B is 0.3351, and its standard deviation is 0.3762. The minimum and maximum of B are -1.39 and 2.22 respectively. The results show that the magnitude of private benefits of control in China is on average as large as 33.51% of the firm value. It ranges from -139% to $+222\%$ of the firm value.[25]

Equation (2) also suggests another way of computing the average of B. Since 57.57% of ST firms are able to have their ST labels removed within the two-year deadline, we can also assume $\phi^* = 0.5757$. Meanwhile, we know the average α and average I^* for our ST firms are 39.41% and 31.8% respectively. A simple calculation yields $B = (1 - 0.3941) \times 0.3181/0.5757 = 33.48\%$, which is quite similar to the mean of B based on individual estimation.

6.2 Alternative Explanations

As argued in Section 2.2.2, we strongly believe the increase in ST firms' stock prices reflects the amount of private benefit given up by the controlling shareholder (incumbent or entrant) in order to secure its control over the firm (the price paid for control). In other words, it captures I^* — propping — rather than other things. Having said that, we do not exclude the possibility that the ST designation also works as a "bonding mechanism" which helps to discipline the managers and reduce malfeasance on the part of highly ranked executives. However, as we explained in Section 2.2.2, if it is the main cause of ST firms' outstanding market performance, we are not likely to observe any cross-sectional variation in stock performance across ownership variables and leverage.

Another competing explanation is that ST firms' market performance is driven by

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[25]Note that the range of private benefits identified by this approach is largely consistent with the range of private benefits for emerging markets identifed in Nenova 2000, and Dyck and Zingales 2002.

improvements in their operations. We set out to test this possibility in the rest of the subsection. If this argument is correct, we should observe two things. First, we should observe a positive correlation between an ST firm's stock market performance (PER) and its post-ST ROEs. Second, the post-ST ROEs should also be correlated with the set of determinants of PER. However, as shown in Table 2B, post-ST ROEs - ROE_t, ROE_{t+1}, and ROE_{t+2} - are all uncorrelated with stock market performance (PER).

We test the second conjecture and report the results in the first two columns of Table 6. In the first columns of Table 6, we regress the ROE in the ST year against the set of variables used in Tables 3 and 4. Only two variables are statistically significant: CONCEN, and Size. However, the sign of CONCEN is negative, which contradicts both conjectures above. Intriguingly, Size has significantly positive sign and we do not have a good explanation. In column 2, we use ROE_{t+1} as the dependent variable and find no support for the second conjecture either.[26]

In column 3 of Table 6, we add ROE_t to the regression in Table 3 (model IV). It turns out that ROE in the ST year does not explain an ST firm's post-ST stock market performance. We also add ROE_{t+1} to the regression and report the results in column 4. Again, we do not observe any impact of ROE on PER.[27]

It is worth pointing out that our proxy for I^* (PER) might not be a precise measure of Propping (the price the winning controlling shareholders pay to obtain control) due to another possibility, namely, the controlling shareholder also have to pay to other stake-holders such as the main lending banks, supervisory authorities, and local government, etc. If that is true, the extraordinary stock market performance - PER - may only reflect a lower bound of I^*. The private benefits computed based on equation (2) also may only reflect a lower bound of private benefits. It is hard to tell whether such wealth transfer to other stake-holders is common among ST firms. Although we should treat our measures of propping and private

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[26]We also use ROE_{t+2} as dependent variables and find no CONCEN and leverage do not enter regressions significantly either.

[27]Adding ROE_{t+2} does not change results qualitatively.

benefits with reservation, the main message of our analysis - a market of corporate control leads to propping which benefits outside shareholders - is still an innovative and important contribution to the literature.

7   Conclusion

It is well understood that the controlling shareholder or the manager of a firm derives private benefits from her control. Actions taken by the controlling shareholder to increase her private benefit at the expense of other shareholders are sometimes called "tunnelling". Existing empirical evidence indicates that the magnitude of the private benefits is substantial. However, when there is competition for the rights of control, contestants have to bid for them, benefiting ordinary outside shareholders in the process. There is not much systematic evidence about the size of the benefits enjoyed by ordinary outside shareholders from increased competition for control, and even less evidence about the determinants of the benefits.

This paper attempts to fill this void in the literature by using evidence from China's emerging market for corporate control. In China, when a publicly listed firm gets into serious financial trouble, it will be designated a "special treatment" firm. We find that the average market-adjusted stock market performance for ST firms within the imposed two-year deadline for turning profitable is as high as 31.81%. We also find that firms with the ST status are much more likely to experience a turnover of the largest shareholder and a change in core business than other firms, indicating that the ST designation may have triggered an increase in the competition for the control of the firm.

Our analysis shows that ST firms' post-ST stock market performance is a measure of the benefits enjoyed by ordinary shareholders from the increased competition (propping). It also offers some insights about the determinants of the benefits. In particular, we find empirically that the market-adjusted stock market performance within the two-year time

window (PER) decreases with increasing leverage ratio of the firm and increases with the Herfindahl concentration index of shareholding for the second to the tenth largest shareholders, which is an indicator of the degree of competition for the control of the firm faced by the incumbent controlling shareholder. We also find empirically that the probability for the ST firm to successfully remove its ST label decreases with increasing leverage ratio and increases with the concentration index. Finally, our analysis also suggests an innovative approach to compute the private benefits enjoyed by the controlling shareholder or the manager. Given that the traditional approaches to estimating the magnitude of the private benefits (e.g., using block trading and voting premium) do not apply to China easily, our approach represents itself as an intuitive alternative. Based on our computation, the value of private benefits of control in China is around 33% of a firm's market value.

The above findings have important policy implications. First, the magnitude of private benefits is large in an emerging market like China. Without a mechanism to force the controlling shareholder to pay for the benefits, the incentives for small shareholders to invest will be seriously affected. Second, even in a very imperfect market like China where many market institutions are lacking, mechanisms such as the ST system that encourage the competition for corporate control are still effective in protecting small shareholders' interests. To further the development of emerging stock markets, more such mechanisms should be introduced to improve the efficiency of the market for corporate control.

Appendix 1: Special Treatment System in China's Stock Market

When a listed company displays some abnormal phenomena with regard to its financial status or other aspects, resulting in investors having difficulty judging the company's prospects, which might harm the investors' benefits and interests, the company receives "special treatment" and is classified as a special treatment firm (ST firm). The special treatment includes the following:

1. The company's share and its derivatives are marked by putting "ST" before the abbreviation, and its trading quotation are published on another board.

2. The daily quotation fluctuation for the company's shares is limited to 5%.

3. During the ST period, the company's midterm report must be audited.

A listed company may be classified as an ST firm if any of the following financial abnormalities are observed:

1. The audited results of the most recent two FYs show that it has suffered a loss.

2. The audited results of the most recent FY show that the shareholders' equity is lower than the registered capital (i.e., the net assets per share is lower than the par value of the share).

3. While auditing the financial report of the most recent FY, a registered accountant expresses a negative opinion or says that she is unable to arrive at an opinion.

4. When amounts not confirmed by registered accountants or the departments concerned are subtracted, the shareholders' equity after auditing is less than the registered capital.

5. When the last FY's profit is adjusted by the latest audited financial report, the result shows that the company has suffered losses for two fiscal years.

6. The company's financial condition is considered abnormal by the stock exchanges or the China Securities Regulatory Commission (CSRC).

If a listed company displays any of the following phenomena, it is considered abnormal in other aspects and can be classified as an ST firm:

1. Because of a natural disaster or serious accident, the main business equipment suffers serious damage, the company's production is forced to stop, and there is no hope of restoring production within three months.

2. The company is involved in a lawsuit or an arbitration, has received legal documents from a court or an arbitration organization, and may have to pay a compensation which will surpass 50% of the company's net assets listed in the latest annual report.

3. The company's bank account is frozen, affecting its normal operations.

4. The company is in some other abnormal situation, affecting its normal operations.

5. A court has accepted the company's bankruptcy case and may announce that it is bankrupt.

6. The company's shares have temporarily been suspended from floating, and with the approval of the CSRC, they are beginning to float again.

7. The company is considered abnormal in other aspects by the stock exchanges or the CSRC.

When a listed company's financial situation has been restored to normal and other abnormal conditions have been removed, it can apply at the stock exchanges for cancellation of the ST status.

Appendix 2A
Hong Kong and Macau Industrial (000504)

April 2000   **September 2000**   **March 2001**

- Hong Kong and Macau Industrial (000504), a real estate company listed on Shenzhen Stock Exchange, was designated an "ST" firm after its 1999 fiscal year results were disclosed

- Its name was changed to ST Hong Kong Macau Industrial (000504)

- The Ministry of Information Technology of China initiated the reorganization negotiation between Beijing CCID and the listed company's controlling shareholder, the Guobang Group

- On September 27, 2000, Beijing CCID and Guobang Group started a series of asset/equity, debt/equity, debt/asset swaps. As a result, Beijing CCID obtained 90 million legal person shares from Guobang Group and became the largest shareholder

- Beijing CCID injected its core asset, Computer Daily of China, into the listed company

- The listed company was renamed as ST CCID Media (000504) and its core businesses were changed from real estate to media and IT

- 2000 annual report was released. ST CCID Media (000504) made net profit RMB 28 million (RMB 0.266 per share), among which RMB 67 million were contributed by ST CCID Media's new core asset – Computer Daily of China

- On March 9, 2001, Shenzhen Stock Exchange removed the company's ST label. Its name was changed to CCID Media (000504)

Source: literature search   31

Appendix 2B
Changgang (000569)

June 1998 **August 1998** **June 1999**

- Changgang (000569), a special steel producer listed on the Shenzhen Stock Exchange, was declared an "ST" firm. It had suffered a big loss in 1997, as a result of which its net asset per share was lower than the face value of the stock

- Its name was changed to ST Changgang (000569)

- Under the pressure imposed by the local government, the listed company's largest shareholder carefully planned and structured a series of related party transactions between the parent company and the listed company

- ST Changgang (000569) sold its account receivables, inventories and some fixed assets to the parent company at premium price for RMB 107 million

- ST Changgang (000569) hired Sichuan Junhe as its new auditor

- 1999 annual report was released. ST Changgang (000569) made net profit RMB 11 million, among which RMB 107 million was from the sales of its bad assets and inventories to its parent company

- The newly hired auditor released standard opinion

- On June 9, 2002, the Shenzhen Stock Exchange remove the company's ST label. Its name was changed to Changgang (000569)

Source: literature search

Appendix 3: A Simple Model of Corporate Control Contest

The layout and sequence of events have been discussed in the text. Here we focus on how to solve out the sub-game perfect equilibrium. Let us start from $t = 2$. Obviously, if an entrant emerges and decides to make a counteroffer, she chooses I_2 to maximize

$$\phi(I_2, d)B + \alpha_2 I_2 - I_2, \qquad (A. 1)$$

where α_2 is the entrant's shareholding after she wins the control contest. If $I_2 < I_1$, the entrant will not win control of the firm. Therefore, $I_2 \geq I_1$. Let $v(I_1, d)$ be the maximum value of (A. 1) subject to the constraint that $I_2 \geq I_1$. Then, the probability that a counteroffer is made is

$$\mu(\lambda, I_1, d) = \mu_1(\lambda) \operatorname{Prob}[v(I_1, d) \geq c]. \qquad (A. 2)$$

Knowing the potential entrant's strategies, the incumbent chooses I_1 to maximize

$$U = [1 - \mu(\lambda, I_1, d)][\phi(I_1, d)B + \alpha_1 I_1 - I_1], \qquad (A. 3)$$

where α_1 is the incumbent's shareholding.

We have

Proposition 1: *In the subgame-perfect equilibrium of the game of the competition for control, the probability that a counteroffer is made, μ, is decreasing in I_1 and d but is increasing in λ. If the entrant decides to make a counteroffer, her offer should be $I_2^* = I_1^*$, and I_1^* is determined by the condition*

$$\frac{\partial U}{\partial I_1} = (1 - \mu)\left(\frac{\partial \phi}{\partial I_1}B + \alpha_1 - 1\right) - \frac{\partial \mu}{\partial I_1}(\phi B + \alpha_1 I_1 - I_1) = 0. \qquad (A. 4)$$

Proof: If the entrant decides to make a counteroffer, her offer I_2 has to be no less than I_1 for her to be able to win. Therefore, we only need to prove that I_2^* cannot be greater than I_1^*. We prove this result by contradiction. Suppose $I_2^* > I_1^*$. Then I_2^* is the unconstrained maximum of $\phi(I_2, d)B + \alpha_2 I_2 - I_2$, and $v(I_1, d)$ is independent of I_1. In this case, maximizing the incumbent's payoff U is equivalent to maximizing $\phi(I_1, d)B + \alpha_1 I_1 - I_1$. If the entrant makes an offer and succeeds in gaining control, she takes over the incumbent's shares and becomes the largest shareholder. Therefore, $\alpha_1 = \alpha_2$ and $I_2^* = I_1^*$, which contradicts our earlier assumption that $I_2^* > I_1^*$.[28] Given that $I_2^* = I_1^*$, the constraint $I_2 \geq I_1$ in the entrant's optimization problem is binding. Therefore, $v(I_1, d)$ is decreasing in I_1. It is clear that $v(I_1, d)$ is also decreasing in d. Consequently, μ is decreasing in I_1 and d but is increasing in λ.

The incumbent chooses I_1 to maximize U. Therefore, her optimal choice I_1^* should satisfy the first-order condition (A. 4).

Q.E.D.

The intuition for Proposition 1 is clear. The entrant's benefit from her investment is the increased probability of successful restructuring, but the incumbent has an additional benefit from her investment, namely the reduced probability of facing a challenge. Therefore, the

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[28]Even if α_1 is not equal to α_2, our main results in Proposition 1 are still valid, except that we will have weak monotonicity in the case of $\alpha_1 < \alpha_2$.

entrant should never make more investment than the incumbent does. Proposition 1 also says that, regardless of who wins the control contest, the investment amount is the same, namely I_1^*. I_1^* is the investment made by the contestants to win the control of an ST firm.

To conduct more powerful tests of our story, it is useful to derive additional implications of our model. Proposition 2 gives a few of these implications in terms of comparative statics of the equilibrium investment level I_1^*.

Proposition 2: *The equilibrium investment level I_1^* is increasing in the degree of concentration of shareholding by other large shareholders, λ; decreasing in the leverage ratio d; and increasing in the shareholding of the largest shareholder, α_1.*

Proof: To get these comparative statics, we consider how the parameters affect the incumbent's marginal benefit of investment, $\partial U / \partial I_1$. To help us sign the comparative statics, we first note that the incumbent's first-order condition (A. 4) implies that $(\partial \phi / \partial I_1)B + \alpha_1 - 1$ has the same sign as $(\partial \mu / \partial I_1)(\phi B + \alpha_1 I_1 - I_1)$ and therefore both of them are negative, since $\partial \mu / \partial I_1 < 0$ and $\phi B + \alpha_1 I_1 - I_1 > 0$. Differentiate (A. 4) with respect to λ. Then we have

$$\frac{\partial^2 U}{\partial I_1 \partial \lambda} = -\frac{\partial \mu}{\partial \lambda}\left(\frac{\partial \phi}{\partial I_1}B + \alpha_1 - 1\right)\frac{\partial^2 \mu}{\partial I_1 \partial \lambda}(\phi B + \alpha_1 I_1 - I_1) > 0, \qquad (A. 5)$$

where $\partial^2 \mu / \partial I_1 \partial \lambda$ is negative as implied by Proposition 1. Therefore, the incumbent's marginal benefit of investment is increasing in λ, and hence so is his optimal level of investment. That is, $\partial I_1^* / \partial \lambda > 0$.

Differentiating (A. 4) with respect to d and α_1 respectively and omitting the second-order term $\partial^2 \mu / \partial I_1 \partial d$, we have

$$\frac{\partial^2 U}{\partial I_1 \partial d} = (1-\mu)\frac{\partial \phi}{\partial I_1}B'(d) - \frac{\partial \mu}{\partial d}\left(\frac{\partial \phi}{\partial I_1}B + \alpha_1 - 1\right) - \frac{\partial \mu}{\partial I_1}\left((\phi B' + B\frac{\partial \phi}{\partial d}\right) < 0 \qquad (A. 6)$$

and

$$\frac{\partial^2 U}{\partial I_1 \partial \alpha_1} = (1-\mu) - \frac{\partial \mu}{\partial I_1}I_1 > 0. \qquad (A. 7)$$

From (A. 6)–(A. 7), we have $\partial I_1^* / \partial d < 0$ and $\partial I_1^* / \partial \alpha_1 > 0$.
Q.E.D.

Some comparative statics about the probability of successful restructuring, ϕ, follows from Proposition 2.

Corollary 1: *The equilibrium probability of successful restructuring, $\phi = \phi(I^*, d)$, is increasing in the degree of concentration of shareholdings by other large shareholders, λ; decreasing in the leverage ratio d; and increasing in the shareholding of the largest shareholder, α_1.*

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Table 1 Listed companies designated ST, 1998-2000

Searching the *WISE Information System* provided by the *Shanghai Wind Co. Ltd.*, we identify 66 ST designations during the period 1998-2000. For each of them, we document the date of ST designation and the reasons. We also follow up an ST firm and identify whether it is able to have its ST label removed within the two-year time frame and whether its largest shareholder and core businesses have been changed during the process. In the table, STOFF is a dummy variable that takes value of 1 if the firm exits the ST status within 2 years and 0 otherwise. DLARGE is a dummy that takes value of 1 if the firm's controlling shareholder has been changed within 2 years and 0 otherwise. CORE is a dummy with value of 1 if an ST firm changes its core business within two years and 0 otherwise. According to the guidelines governing ST designation, a listed firm will become an ST firm if any of the following four conditions is met: (1) the external auditors express negative opinions or clearly state that they are unable to express opinions on a firm's annual report; (2) the firm's financial conditions are considered to be abnormal by the stock exchanges or China Security Regulatory Commission (CSRC); (3) when the most recent FY's profit is adjusted by the latest audited financial report, it shows that the company has suffered two consecutive losses; (4) the audited report shows that the shareholders' equity is lower than the registered capital. N=66.

Stock Code	Company Name	ST Date	Reason	STOFF	DLARGE	CORE
4	Beida High-Tech.	1999 04 27	4	1	1	1
9	Baoan	1999 04 30	3	1	0	1
10	Shenzhen Huaxin	2000 04 27	4	1	1	0
11	Shenzhen Properties	2000 05 09	4	0	0	0
14	Huayuan Inudstrial	1998 06 15	1	0	0	1
17	China Bicycle	1999 05 04	3	0	0	0
20	Huafa Electronics	1999 04 27	3	1	0	0
25	Tellus	2000 04 19	4	0	0	0
30	Lionda	1998 06 15	1	0	0	0
34	Shenxin Taifeng	1999 04 30	3, 4	1	0	0
38	Shenzhen Capstone Industrial	2000 04 11	3	1	1	0
49	Shen Worldsun	1998 06 10	3	1	0	0
411	Kaidi Silk	2000 04 07	3	0	1	1
413	Baoshi Electronic Glass	1998 05 04	3	1	0	0
502	Hainan New Energy	1999 05 04	4	1	1	0
503	Sea Rainbow	1998 06 15	3	1	0	1
504	Hongkong Macao Industrial	2000 04 19	3	1	1	1
506	Dong Tai Holdings	1998 04 30	4	0	1	1
507	Fuhua	1999 04 22	3	1	1	1
511	Yinji Development	1998 04 28	3	1	1	1
518	Shuan Biology	1998 05 04	3	0	1	1
522	Baiyunshan Pharmaceutical	1999 04 27	3	0	0	0
526	Xiamen Haifa Investment	1999 04 19	3	1	1	1
536	Mindong Electric	1999 04 29	4	0	0	0
548	Hunan Investment	1998 04 29	3	1	1	1
555	Guizhou Kaidi	1999 04 29	3	1	1	1
556	Nanyang Shipping	1999 05 04	4	0	0	0
558	Shenyang Fangtian	1998 04 29	3	1	1	0
566	Hainan Haiyao	1999 04 29	3	1	0	0
569	Changcheng Special Steel	1998 06 09	3	1	0	0

585	Northeast Machinery	2000 05 09	1	0	0	0
592	CFC Industrial	2000 05 09	3	0	0	0
602	Golden Horse Group	2000 05 11	1	1	1	1
607	Holly Holding	1999 04 22	3, 4	1	1	0
613	Dadonghai Tourism	1999 05 04	1	0	0	0
639	Qingyun Development	1999 04 30	4	1	1	0
669	Sinosinic Technology	1998 05 18	2	1	1	1
689	Hongye Group	2000 04 28	4	0	1	0
600083	Hongguang Industry	1998 05 04	3	0	1	0
600137	Changjiang Packaging Paper	2000 04 26	4	1	0	0
600610	China Textile Mach	1999 04 27	3	1	1	0
600629	Lengguang	2000 04 28	4	0	1	0
600633	Shuanglu Ele	1998 05 04	3	0	0	1
600647	GD Enerprise	1998 04 29	4	0	1	1
600658	Beijing Tianlong	2000 04 18	3	0	1	1
600670	CCGS	1998 05 05	3, 4	0	1	1
600683	Ningbo Hualian	2000 04 13	3	1	1	0
600691	Dongxin Carbon	1999 04 29	3	1	1	0
600696	Hawson (Fujian)	2000 05 09	3	1	0	0
600715	Songliao Automobile	1999 04 29	3	1	1	0
600721	Xiajiang Baihuacun	2000 04 07	3	0	0	0
600758	Liaoning Jindi	1999 05 04	1	1	0	0
600759	Hainan Overseas	1999 05 04	4	0	0	0
600762	Hengyang Jinli Tech.	2000 04 26	3, 4	1	0	0
600775	Panda Electronics	1999 05 26	3	1	0	0
600806	Kunming Machine	2000 04 13	3	1	1	0
600813	Anshan No.1 Constr	1998 05 04	3	0	0	0
600818	Forever	1999 04 29	3	0	0	0
600831	Huanghe Mach	1998 04 29	4	0	1	1
600833	Commercial Re	1999 05 18	4	0	1	1
600845	Steel Tube	2000 04 28	3	1	1	1
600847	Chongqing Wanli	1999 04 23	4	1	0	0
600852	China Sichuan Int'l	1998 06 05	2	1	1	0
600874	Venture Environmental Protec	1999 05 18	1	1	1	1
600876	Luoyang Glass	1999 04 29	3	1	0	0
600892	Shijiazhuang Quanye	1998 06 08	4	0	1	1

Table 2 Summary statistics and correlation coefficients
The table presents the summary statistics of the variables and the Pearson correlation coefficients. *PER* is defined as an ST firm's market adjusted stock performance from 3 months before the ST announcement to 24 months after. *LARGEST_{t-1}* measures the percentage of shares held by the largest shareholder in year t-1. *CONCEN_{t-1}* is a Herfindahl index capturing the degree of concentration of shares held by top 10 largest shareholders other than the largest one, again we use the measure in year t-1. *STOFF* is a dummy variable with the value of 1 if the firm exits the ST status within two years and zero otherwise. *CORE* is a dummy with the value of 1 if the ST firm changes its core business within two years and 0 otherwise. *DLARGE* is a dummy with value of 1 if the ST firm has its controlling shareholder changed within two years and 0 otherwise. *Tobin's Q* is computed as the equity market value divided by the firm's total assets, here we use its value in year t-1 as a measure of Tobin's Q in year t. *Size_{t-1}* is defined as the logarithm of the firm's equity market value in year t-1. *Leverage_{t-1}* is defined as the book value of debt over the sum of equity market value and the book value of debt in year t-1. *ROE_{t-1}, ROE_t, ROE_{t+1}* and *ROE_{t+2}* are return on equity in years t-1, t, t+1 and t+2, respectively. There are 66 observations.

 * significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

Panel A: Summary Statistics (N=66)

	Mean	Median	St. Deviation	Minimum	Maximum
PER	0.3181	0.3361	0.4779	-0.5715	2.4899
LARGEST_{t-1}	0.3862	0.3715	0.1562	0.1055	0.7245
CONCEN_{t-1} (x10^4)	225.34	111.31	296.77	0.0712	1166.965
STOFF	0.5758	1	0.4980	0	1
CORE	0.3636	0	0.4847	0	1
DLARGE	0.5303	1	0.5029	0	1
Tobin's Q_{t-1}	2.3076	1.8401	1.3543	0.6816	6.2139
Size_{t-1}	21.1554	21.0715	0.6010	19.8463	22.5299
Leverage_{t-1}	0.2576	0.2318	0.1718	0.0216	0.9918
ROE_{t-1}	-0.4809	-0.3701	2.0975	-7.3698	5.5994
ROE_t	-0.4471	-0.0960	1.8475	-6.7856	6.1237
ROE_{t+1}	-0.0897	0.0308	1.5432	-4.5444	4.9031
ROE_{t+2}	0.02627	0.0751	1.1476	-2.1215	2.2301

Panel B: Pearson correlation among variables (p-value under the coefficient, N=66)

	PER	LARGEST$_{t-1}$	CONCEN$_{t-1}$	Leverage$_{t-1}$	Tobin's Q$_{t-1}$	Size$_{t-1}$	ROE$_{t-1}$	ROE$_t$	ROE$_{t+1}$	ROE$_{t+2}$	CORE	DLARGE	STOFF
PER	1.0000*** (.0000)												
LARGEST$_{t-1}$	0.0805 (.5206)	1.0000*** (.0000)											
CONCEN$_{t-1}$	**0.2426**** **(.0497)**	-0.0811 (.4816)	1.0000*** (.0000)										
Leverage$_{t-1}$	*-0.2595*** *(.0354)*	0.0131 (.9166)	-0.0677 (.5890)	1.0000*** (.0000)									
Tobin's Q$_{t-1}$	0.0865 (.4896)	**-0.2755**** **(.0252)**	0.0703 (.5750)	-0.4842*** (.0000)	1.0000*** (.0000)								
Size$_{t-1}$	0.0329 (.7930)	**0.2849**** **(.0204)**	**0.3859***** **(.0014)**	-0.1383 (.2683)	-0.0347 (.7818)	1.0000*** (.0000)							
ROE$_{t-1}$	-0.0962 (.4422)	-0.0336 (.7890)	0.0428 (.7330)	0.1220 (.3290)	-0.0249 (.8426)	-0.0448 (.7207)	1.0000*** (.0000)						
ROE$_t$	-0.0693 (.5801)	0.0563 (.6534)	-0.0579 (.6441)	-0.1374 (.2712)	0.1437 (.2497)	-0.0125 (.9223)	-0.0663 (.5966)	1.0000*** (.0000)					
ROE$_{t+1}$	-0.0737 (.5567)	-0.0090 (.9429)	-0.0163 (.8965)	-0.1040 (.4061)	0.1689 (.1752)	-0.0362 (.7728)	0.1228 (.3260)	0.1083 (.3982)	1.0000*** (.0000)				
ROE$_{t+2}$	0.1739 (.1694)	0.0673 (.4134)	0.0269 (.8329)	-0.1101 (.4134)	0.0851 (.5037)	0.1538 (.2249)	-0.0248 (.8458)	0.0596 (.6537)	**0.2219*** **(.0857)**	1.0000*** (.0000)			
CORE	**0.2202*** **(.0757)**	**-0.3225***** **(.0083)**	-0.0546 (.6633)	0.0081 (.9487)	0.0590 (.6381)	-0.1589 (.2026)	-0.0003 (0.9979)	-0.0214 (.8680)	0.1707 (.1739)	0.0722 (.5769)	1.0000*** (.0000)		
DLARGE	0.1148 (.3587)	**-0.2787**** **(.0234)**	-0.0791 (.5277)	**-0.2175*** **(.0794)**	**0.2096*** **(.0913)**	**-0.2852**** **(.0203)**	0.0025 (.9838)	-0.0736 (.5569)	-0.0602 (.6312)	0.1373 (.2793)	**0.4590***** **(.0001)**	1.0000*** (.0000)	
STOFF	**0.4108***** **(.0006)**	0.0904 (.4706)	0.1808 (.1463)	**-0.3802***** **(.0016)**	0.0973 (.4369)	0.0900 (.4725)	-0.1387 (.2669)	0.1812 (.1453)	0.0938 (.4537)	0.1569 (0.2157)	-0.0521 (.6776)	0.1750 (.1600)	1.0000*** (.0000)

Table 3 The determinants of the price paid by the controlling shareholder for gaining control , I[*]

The table presents the regressions of *PER* against several firm-specific variables suggested by the model. *PER* is defined as an ST firm's market adjusted stock market performance from 3 months before the ST announcement to 24 months after. $LARGEST_{t-1}$ measures the percentage of shares held by the largest shareholder in year t-1. $CONCEN_{t-1}$ is a Herfindahl index that measures the degree of concentration of shares held by top 10 largest shareholders other than the largest one, again we use the measure in year t-1. *Tobin's Q* is computed as the equity market value divided by the firm's total assets, here we use its value in year t-1 as a measure of Tobin's Q in year t. $Size_{t-1}$ is defined as the logarithm of the firm's equity market value in year t-1. $Leverage_{t-1}$ is defined as the book value of debt over the sum of equity market value and the book value of debt in year t-1. ROE_{t-1} is defined as the firm's return on equity in year t-1. There are 66 observations. P-values based on robust standard errors are under the coefficients.
* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

	Model I	Model II	Model III	Model IV
Constant	0.1055	2.0287	2.5594	2.3771
	(0.524)	(0.388)	(0.272)	(0.378)
$LARGEST_{t-1}$	0.0031	*0.0050*	0.0042	0.0042
	(0.403)	*(0.226)*	(0.312)	(0.310)
$CONCEN_{t-1}$	0.0004**	0.0005**	0.0005**	0.0002**
	(0.043)	(0.030)	(0.031)	(0.038)
$Leverage_{t-1}$			-0.7081*	-0.5410
			(0.074)	(0.206)
$Size_{t-1}$		-0.099	-0.1089	-0.1152
		(0.382)	(0.330)	(0.375)
Tobin's Q_{t-1}		0.0329	-0.0135	-0.0031
		(0.468)	(0.793)	(0.953)
ROE_{t-1}		-0.0244	-0.0183	-0.0223
		(0.388)	(0.511)	(0.416)
ST reason Dummy	No	No	No	Yes
Year Dummy	No	No	No	Yes
Adj. R-Square	0.0398	0.0262	0.0622	0.1164
# of obs.	66	66	66	66

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Table 4 The Probit Regressions of STOFF

The table presents the Probit regressions of *STOFF*, a dummy variable which measures whether a firm is able to remove its ST label in 2 years, against several firm-specific variables suggested by our model. *LARGEST$_{t-1}$* measures the percentage of shares held by the largest shareholder in year t-1. *CONCEN$_{t-1}$* is a Herfindahl index that measures the degree of concentration of shares held by top 10 largest shareholders other than the largest one, again we use the measure in year t-1. *Tobin's Q* is computed as the equity market value divided by the firm's total assets, here we use its value in year t-1 as a measure of Tobin's Q in year t. *Size* is defined as the logarithm of the firm's equity market value in year t-1. *Leverage$_{t-1}$* is defined as the book value of debt over the sum of equity market value and the book value of debt in year t-1. *ROE$_{t-1}$* is defined as the firm's return on equity in year t-1. There are 66 observations. P-values are under the coefficients.
* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

	Model I	Model II	Model III	Model IV
Constant	-0.3655 (0.421)	0.1708 (0.979)	2.8972 (0.662)	2.4615 (0.794)
LARGEST$_{t-1}$	0.0094 (0.359)	*0.0124 (0.266)*	0.0091 (0.431)	0.0142 (0.291)
CONCEN$_{t-1}$	0.0009 (0.120)	0.0011 (0.121)	0.0011 (0.136)	0.0014 (0.188)
Leverage$_{t-1}$			-5.0186 *** (0.004)	-6.2947** (0.022)
Size$_{t-1}$		-0.0469 (0.879)	-0.0703 (0.825)	-0.0740 (0.874)
Tobin's Q$_{t-1}$		0.1128 (0.381)	-0.2506 (0.6297)	-0.2619 (0.365)
ROE$_{t-1}$		-0.1352 (0.256)	-0.0960 (0.462)	-0.1640 (0.284)
ST reason Dummy	No	No	No	Yes
Year Dummy	No	No	No	Yes
Log Likelihood	-43.412	-41.990	-36.6913	-28.272
Pseudo R-square	0.0350	0.0460	0.1844	0.3554
# of obs.	66	66	66	66

Table 5 Estimating the probability of having ST label removed - ϕ^*, and the private benefits of control , B

We compute the predicted value of STOFF based on model III in Table 5. We call it the predicted ϕ^*. We then use the equation (6) in the text to estimate the private benefits of control, B. That is,

$B = \dfrac{(1-\alpha)I^*}{\phi^*}$, where ϕ^* is the predicted value of STOFF , α is the winning controlling

shareholder's shareholding. I^* is PER for each ST firm, where it is defined as an ST firm's market adjusted stock market performance from 3 months before the ST announcement to 24 months after. The table reports the descriptive statistics of predicted ϕ^* and predicted B. Note that when we calculate B, we drop one outlier that has the predicted ϕ^* equal to 8.28×10^{-6}.

	No. of obs	Mean	St. Deviation	Minimum	Maximum
Predicted ϕ^*	66	0.5777	0.2367	8.28×10^{-6}	0.9804
Predicted B	65	0.3351	0.2367	-1.390	2.060

Table 6 The test of the competing hypothesis – whether the extraordinary stock market performance is driven by the improvement in operations

The table presents the results of four regressions. In the first two columns, the ST firms' ROEs in year t (ST designation year) and t+1 are used as dependent variables respectively. In Columns 3 and 4, *PER* are used as dependent variables while ROE_t and ROE_{t+1} are used as control variables. Note that in all four regressions, year dummies and ST dummies are included. *PER* is defined as an ST firm's market adjusted stock market performance from 3 months before the ST announcement to 24 months after. $LARGEST_{t-1}$ measures the percentage of shares held by the largest shareholder in year t-1. $CONCEN_{t-1}$ is a Herfindahl index that measures the degree of concentration of shares held by top 10 largest shareholders other than the largest one, again we use the measure in year t-1. *Tobin's Q* is computed as the equity market value divided by the firm's total assets, here we use its value in year t-1 as a measure of Tobin's Q in year t. $Size_{t-1}$ is defined as the logarithm of the firm's equity market value in year t-1. $Leverage_{t-1}$ is defined as the book value of debt over the sum of equity market value and the book value of debt in year t-1. ROE_{t-1} is defined as the firm's return on equity in year t-1. There are 66 observations. P-values based on robust standard errors are under the coefficients.
* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

Dependent Variable	ROE_t	ROE_{t+1}	PER	PER
Constant	-25.8997***	0.8133	2.0574	2.3396
	(0.006)	(0.911)	(0.410)	(0.359)
$LARGEST_{t-1}$	-0.0055	0.0030	0.0041	0.0042
	(0.740)	(0.818)	(0.320)	(0.306)
$CONCEN_{t-1}$	-0.0014*	-0.0001	0.0004**	0.0005**
	(0.082)	(0.895)	(0.050)	(0.046)
$Leverage_{t-1}$	-0.6861	-0.2391	-0.7489*	-0.7492*
	(0.650)	(0.843)	(0.058)	(0.060)
$Size_{t-1}$	1.2167***	-0.0615	-0.0845	-0.0985
	(0.006)	(0.859)	(0.479)	(0.420)
$Tobin's\ Q_{t-1}$	0.2318	0.1681	-0.0105	-0.0076
	(0.242)	(0.288)	(0.841)	(0.884)
ROE_{t-1}	0.1123	-0.3123	-0.0093	-0.0123
	(0.540)	(0.682)	(0.491)	(0.476)
ROE_t			-0.0163	-0.0063
			(0.632)	(0.523)
ROE_{t+1}				-0.0302
				(0.866)
Adj. R-Square	0.0762	-0.0665	0.0590	0.0495

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