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CHINA'S DECENTRALIZED PRIVATIZATION AND CHANGE OF CONTROL RIGHTS

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China's Decentralized Privatization and Change of Control Rights

Abstract

A distinct feature of China's privatization is that its design and implementation are decentralized and administered by the local governments. Based on a proprietary survey dataset containing 3,000 firms in over 200 cities, this paper studies how city governments choose among various privatization methods, how these methods transfer control rights, and how they influence privatization outcomes. We find that less political opposition to labor downsizing and greater fiscal capacity prompt cities to choose direct sales to insiders (MBOs) as their privatization method. This method transfers the most control rights to private owners, retains the least government supports and is associated with most hardened budget constraints, restructure most effectively, and achieves the greatest performance improvement.

Introduction

China's privatization during the late 1990s and the mid-2000s was arguably the largest in the world, and still has a profound influence on the governance of the Chinese economy.[1] Our understanding of this vast transformation, however, remains limited, because there is little data, other than that available from the small fraction of firms that underwent share issue privatization (SIP) and became publicly listed.

A distinct feature of China's privatization is that both its design and its implementation are highly decentralized and are administered by the local governments. This feature is in contrast to privatization in most other nations, which followed a nationwide policy and was implemented in a top-down manner.[2] No *de jure* national privatization policy took place in China. Instead, a few city governments first initiated China's *de facto* privatization at a time when the central government was cautious about privatization. Later, after the central government endorsed the practice of selling state-owned enterprise (SOE) assets to private owners, for most SOEs, city governments decided whether to privatize, and, if the decision was yes, what privatization approach to adopt. As a result, privatization methods across Chinese cities varied widely. This decentralized feature of China's privatization is not only critically important for understanding the Chinese economy, but also provides a rich laboratory to study privatization and institutions in general.

We design and conduct a large-scale nationwide survey of 3,000 firms in more than 200 cities. This proprietary survey data allows us to carry out a systematic study of China's decentralized privatization, in an attempt to draw implications for privatization design and, more generally, the design of economic institutions. We seek to understand how local governments choose different privatization methods and how these various methods transfer

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[1] As discussed in Section I.A, a conservative estimate of total industrial assets privatized is 5.7 trillion RMB, or roughly 700 billion USD based on the exchange rate at the time.

[2] For example, see privatization in transition economies such as Central and Eastern Europe and Commonwealth of Independent States (CEE-CIS), Mexico, India, and Brazil as in the surveys by Megginson and Netter (2001) and Estrin et al. (2009).

control rights of the firms differently, leading to diverse mechanisms with respect to restructuring and performance. Specifically, we ask the following questions: How do different privatization methods reallocate control rights among the stakeholders of the firm? Why do city governments choose a particular privatization method? Do firms still obtain favourable treatment and soft budget constraint after privatization? Which methods result in more effective post-privatization restructuring and which better enhances performance?

To understand how different privatization methods transfer control rights, we collect comprehensive information on re-allocation of control rights, to the detail of distribution of eight distinctive decision rights among five parties before and after privatization. Our findings show that, while privatization in China has made substantial progress in reallocating control rights from the government to private owners, the degree of remaining government influence on corporate decisions varies significantly across privatization methods. These methods include direct sales, either to insiders (through management buyouts, or MBOs hereafter) or to outsider private owners, public offerings, joint ventures, leasing, and employee shareholdings. The privatization method that transfers the most control rights to private owners is MBO, which accounts for close to half of all privatization programs. Accordingly, the government provides the least support, in the forms of subsidies, bank financing, and protected entry, to these MBOs, while imposing the most hardened budget constraint.

Our findings further indicate that city governments' decisions on how to privatize are critically determined by the political and fiscal constraints they face, and their choice of privatization approaches has a profound impact on the governance and performance of privatized firms. Specifically, when cities face less political opposition to labor downsizing and have stronger fiscal capacity, they tend to choose MBOs. Consistent with private owners' enhanced incentives to make changes, MBOs are most effective in implementing restructuring measures, including a change of core management teams, strengthening of managerial incentives through compensation policies, establishing boards of directors, and introducing international accounting and independent auditing. Not surprisingly, the performance of MBO

firms improves significantly after privatization, by 4.4% in ROA and close to 6000 RMB or 750 USD per employee per year. For other privatization methods, the government tends to retain its influence in key corporate decisions. These firms are less effective to restructure and do not achieve statistically detectable improvement in performance.

A common challenge in the privatization literature on performance comparison is the section bias, which arises because certain types of firms that are likely to have better future performance (e.g., due to stronger fundamentals or better government support) might be purposely chosen for MBOs. A distinctive advantage of our study is that our detailed data allows us to better deal with the selection concern, by explicitly examining why firms are chosen for MBOs, as well as the mechanisms of performance improvements, which is perhaps the strongest guard against endogeneity. To rule out the selection bias even further, we conduct a number of additional analyses, including examining whether there is any pre-existing trend in performance, fully accounting for city-level economic prospects by including city-year fixed effects, explicitly controlling for product market competition, and adopting an IV estimation using city characteristics (such as fiscal capacity and private sector development) as the instruments.

Our Chinese survey contributes to the literature in a number of ways. First, it supports and significantly extends an important theme in the literature, that is, reallocation control to different types of owners has disparate effects on restructuring and performance; thus looking only at aggregate results without knowing why could be misleading (Frydman et al. (1999) and Estrin et al. (2009)). There is a well-known but puzzling result from other transition economies, that is, privatization to managers does not result in efficiency gains in transition economies. This result appears to be in contrast to our findings that MBOs are the most effective means of privatization in China. The difference lies in to what extent managerial ownership is really market-based. Frydman et al. (1999) propose that ineffectiveness of privatization to managers in CEE and CIS nations is due to two "special characteristics" of managerial ownership. That is, managers are selected under the old regime and they are

offered to buy the shares at preferential prices but with restrictive terms, designed to favor existing employees. The Chinese MBOs do not share these characteristics and are much more in common with the managerial ownership in the mature market economies. In this sense, the Chinese MBOs constitute a nice counterfactual analysis for other transition economies (and vice versa). They confirm the conjectures in the literature regarding why managerial ownership does not work in CEE-CIS nations.

Our paper goes beyond the question of the type of owners and illustrates how the market-based managerial ownership in China improves performance by aligning other economic forces, namely the role of managers, product market competition, and hardened budget constraint, that have been documented as important in shaping privatization outcomes (e.g., Djankov and Murrel, 2002). To our knowledge, no prior work has answered, in one study, these many facets of questions as comprehensively as we have. In a number of these analyses, our Chinese survey offers advantages in dealing with measurement and identification challenges.

Our second contribution is that we explore two important aspects of privatization that the previous literature has not examined. Most notably, enabled by our detailed data, we substantially enrich the privatization literature by shedding new light on the privatization mechanism through the reallocation of control rights. As Jones and Mygind (1999) and Gupta (2005) point out, a common feature of privatization around the world is it is partial and transferring of control rights is incomplete. Thus, our finding regarding the impact of withdrawal of state control on performance is quite general. Some of our findings may not be directly applicable to other nations, but our focusing on the reallocation of control rights and its impact on post-privatization restructuring and performance provides a fruitful approach to understanding privatization around the world.

The second aspect that we are able to explore is the role of political factors in shaping the design of privatization programs (Xu, 2011). Despite that theoretical work and anecdotes all suggest a significant influence of political factors (e.g., Biais and Perotti, 2002), there have

been very few formal empirical studies and our paper joins a more recent effort, e.g, Dinc and Gupta (2011), on this important topic. In the Chinese setting, political economy considerations, specifically a lack of fiscal resources and political opposition to unemployment, prevent the commitment to withdrawal of state control and adoption of the more effective privatization method.

Finally, our analysis extends earlier empirical work on China's privatization and deepens our understanding of the Chinese economy. Previous work has documented the ineffectiveness of share issue privatization (SIP) (Sun and Tong, 2003; Deng, Gan, and He, 2010), a lack of a significant effect of privatization on performance (Jefferson and Su, 2006), and the importance of reducing state ownership in privatized firms to improve performance (Bai et al., 2009).[3] Our data permit us to cover a wide spectrum of privatization methods and to go beyond performance comparison by identifying the mechanisms of performance improvement (or a lack of it). Equally importantly, the decentralized privatization studied in this paper contributes to a growing literature on China's regionally decentralized authoritarian regime, particularly on local governments' decisions and career concerns (Maskin et al., 2000, Li and Zhou, 2005, Jin et al., 2005, Xu, 2011, Jia et al., 2015, Persson and Zhuravskaya, 2015).

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[3] Our findings on the central role of transferring control rights in privatization are consistent with these results, because the SIP does not involve transferring control rights due to ideological concerns (see the next section). The literature, however, disagrees on the impact of the remaining state shares on performances of SIP firms (Sun and Tong, 2003; Li et al., 2009; Tian and Estrin, 2010). Estrin et al. (2009) summarize that "in China the results to date are less clear cut." The mixed results highlight two identification challenges. First, other than Deng et al. (2010) which emphasize expropriation as the driver of impaired performance, the studies do not identify the mechanism and are subject to endogeneity problems. Second, the studies often cannot sharply identify privatization other that SIP. Thus, some infer privatization from census data by looking at changes in the registration of the firms, which, as our survey reveals, may suffer from substantial type II errors, (see the Appendix), whereas others have to rely small and/or non-representative samples (e.g., Li and Rozelle, 2000; Wang, Xu, and Zhu, 2004; Guo and Yao, 2005; Yusuf et al., 2005; and Dong, Putterman, and Unel, 2006).

I. Institutional Background of China's Privatization

In this section we first discuss how China's decentralized privatization evolves against the country's political and economic background in the 1990s. Then we introduce the different privatization methods adopted by the local governments. Finally, given that we later find that MBOs have distinctive features in government control and restructuring, we further discuss government considerations about MBOs, based on a careful reading of city government guidelines and documents.

I.A. *Political and Economic Background of Decentralized Privatization from the Late 1990s to 2005*

Similar to other transition economies, at the onset of the economic reform, the state sector or SOEs dominated the Chinese economy. Yet, in contrast to other transition economies, the governance regime of the Chinese economy is regionally decentralized authoritarianism (RDA).[4] In this RDA regime, political and personnel decisions are highly centralized and the central government appoints and assesses local government officials, whereas administrative and economic matters, including those of the SOEs, are mostly decentralized to local governments. In the case of SOEs, except for the very large ones, the control rights are assigned to the municipal governments. These control rights also give local governments the residual claims to enterprise earnings (Granick, 1990; Li, 1997). Thus, the local SOEs were very important for city government officials, both as a source of fiscal revenue and as a contributor to local GDP growth which is a critical criteria used by upper-governments in promotion decisions (Maskin, Qian, and Xu, 2000; Xu, 2011). In short, under China's RDA regime, political economy mechanisms at the level of city government drive China's privatization decisions.

Endowed with the "local" ownership of SOEs, China's state sector reforms have been mostly driven by regional competition and local experiments, sometimes before the central

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[4] This term is first used by Xu (2011) in summarizing the literature on the political economy of China. It has then been used in the subsequent literature (e.g., Jia et al., 2015).

government's official mandates (Xu, 2011). Privatization epitomizes this dynamic. For ideological reasons, privatization is a controversial subject in China, and the central government did not officially allow it until the late 1990s. However, the deteriorating performance of SOEs put increasing pressure on the fiscal conditions of local governments because they are the residual claimants of the SOE earnings and some of them were on the verge of insolvency following the losses of their SOEs.

Against this background, a few cities "quietly" initiated *de facto* privatization, without explicit approval from upper-level governments. One of the first local privatization attempts was in Zhucheng, a city in Shandong province, where more than two-thirds of the SOEs in 1992 experienced losses amounting to over 18 months of the city government's fiscal revenue. Facing this pressure, the city government sold many SOEs within its jurisdiction to the employees of these SOEs. Another example is the municipal government of Shunde in Guangdong. The Shunde city government also encountered a serious debt problem before it privatized most of its state and collective firms in 1992. When these experiments became publicly known, the central government did not prohibit the practice, which was interpreted as an implicit approval (Garnaut et al., 2008).

The continued deterioration of the state sector's financial performance imposed a severe strain on the country's banking system.[5] The central government gradually accepted privatization as a remedy for the country's ailing SOEs, as indicated in a number of progressively market-based reform policies. In 1993, the 3rd Plenum of the 14th Communist Party Congress endorsed a principle of diversifying ownership structure of state-owned firms. In 1995, the central government announced the famous policy of "retaining the large, releasing the small" (*zhuada fangxiao*). That is, the state was to keep a few hundred of the largest SOEs in strategic industries; for the remaining smaller local SOEs, which constitute the vast majority, the state intends to let competitive forces to make them more efficient. Finally, 15th Communist Party Congress (1997) further approved privatization, granting *de*

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[5] Nationwide, in 1998, the state sector incurred a total loss of 307 bn RMB, and the overwhelming bad-loan problem associated with these losses was regarded as the biggest threat to the economy (Xu, 2011).

jure ownership of local SOEs to local governments and authorizing the "owners," mostly city governments, of SOEs to design and implement privatization on their own.[6] Thus, China has no centrally designed nationwide privatization program, which makes its privatization distinctively different from that in the rest of the world.

This wave of privatization ended in 2005. This is both because the vast majority of SOEs had been privatized by then and because of the publicized controversies over some of the privatization programs in 2004 and 2005. While there is no explicit statistics on the percentage of all SOEs privatized by 2005, according to NSB's own report, close to three-quarters of large and medium industrial SOEs have been privatized (the NSB website). Given the "retaining the large, releasing the small" policy, the proportion is larger for smaller SOEs. Indeed, our reading of available city-level statistics shows that about 85% of SOEs were privatized by 2005. If we use three-quarters as a conservative estimate of proportion of firms privatized, given that total industrial SOE assets at the end of 1999 was 7.6 trillion RMB, we estimate that the total assets privatized during this important historical episode amounted to 5.7 trillion RMB, or roughly 700 billion USD, based on the exchange rate at the time.

I.B.   Privatization Methods

In practice, the city governments were responsible for whether, when, and how to privatize. They adopted a variety of methods determined by weighing potential costs and benefits. Our data show the most popular method was *direct sales (*or *open sales*), either to insiders or to outside private owners. Direct sales to insiders and outsiders accounted for, respectively, 47% and 22% of all the privatization programs. Other methods included *public offering* (1%)*, joint ventures* (2%), *leasing* (8%), and *employee shareholding* (10%). These patterns are consistent with Garnaut et al. (2005).[7]

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[6] Due to ideological aversion to capitalism, the term "privatization" was never used in the official documents; instead, government documents used the term "gaizhi," meaning "transforming the system."

[7] Another often-mentioned *gaizhi* measure is internal restructuring, including incorporation, spinning off, introducing new investors, and debt–equity swaps, as well as bankruptcy/reorganization. Internal restructuring

Under *direct sales*, the firm is openly sold to insiders (through MBOs) *or* outside private owners through auctions or negotiations between the local government and the potential buyers. Although we later find that MBOs are the most effective method in improving efficiency, it is also the most controversial privatization method because of its lack of transparency, which raises the public concern that state assets may have been sold too cheaply.

Public offering is Share issue privatization (SIP). Under the policy of "retaining the large, releasing the small," the large SOEs are privatized through SIP, in which non-controlling shares are sold in the public capital market. By design, SIP is not meant to transfer control rights. It accounts for only a tiny proportion (1% according to our survey) of all privatization programs in China. There is not any readily statistics, however, on their share in terms of total assets. We estimate that SIP accounts for around 10% of privatized assets.[8] Nevertheless, SIP is the most-studied type of privatization in China simply because of the availability of data.

Joint venture or *merger* involves privatization when an SOE forms a joint venture or merges with a private domestic or foreign firm. Under *leasing*, the company can be leased to the management, employees, outside private firms, or other SOEs. In reality, most leasing involved inside managers as the lessees, and the firms were often privatized later through MBOs.

Employee shareholding converts the company into a limited liability company or cooperative. It is one of the most important *gaizhi* measures employed at the early stage of local experiments, both because the central government requires that each privatization plan be approved by employees (excluding corporate executives) before implementation and because shares were often offered as part of the compensation for removing employees' "tenured" state-employment status. As our data verify, at later stages of *gaizhi*, the managers often

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often involves partial privatization but may also involve no privatization when the restructuring occurs among state-owned firms. The latter case is concentrated in large-scale SOEs owned by the central government, and they enjoy monopolistic powers in such markets as oil, electricity, telecommunication, and so on.

[8] Based on numbers reported in Huyghebaert and Quan (2009), SIP (exclude financial firms) between 1995 and 2005 involve 539 billion RMB of assets. As discussed in Section I.A, 5.7 trillion RMB of industrial assets is privatized, implying that SIP accounts less than 10% of assets privatized.

purchase the majority shares from employees. In most of these firms, managers own the majority of the shares, which qualifies the firms as MBOs.

I.C. Government Considerations about MBOs

We now further discuss government considerations regarding this method of privatization, based on a careful reading of local governments' guidelines. We choose 32 cities with the most MBOs and the least MBOs and review all the publically available documents related to MBOs decisions.

Interestingly, across all the cities, the governments share similar concerns and, as a result, they typically stipulate against MBOs in three types of firms: (1) firms with government-granted monopolistic permits to operate; (2) firms with government subsidies because of their responsibilities for social welfare; (3) firms that obtain land or other resources whose value cannot not be easily assessed. Moreover, small firms are often targeted to be "liberalized" and are often encouraged to be sold to managers. Thus, it is quite clear that MBOs are generally designed to cut their ties with the government both in terms of control and in terms of support and subsidies, in the hope that competitive forces would make them more efficient. Such a conclusion is perfectly consistent with what we later find in the data about post-privatization government support of MBO firms (Section III.B) and determinants of MBO choices (Section IV).

II. The Nationwide Survey and the Sample

II.A. The Nationwide Survey

Our large-scale nationwide survey was conducted in 2006. The sampling procedure involved two steps. We started with the 2004 National Bureau of Statistics (NBS) census, which contained all industrial firms with sales above 5 million RMB as the population, and drew a random sample of 11,000 firms stratified by region, industry, size, and ownership type. Given that only 20% of firms in the 2004 population were SOEs and our intention was to

study privatization, we supplemented the main survey sample with an additional random sample of 5,500 from the 1998 NBS database, again stratified based on region, industry, and size. We chose to use the 1998 NBS data because 1998 is the first year the database was available, and large-scale privatization started in the late 1990s. Thus, using the 1998 population maximized our chance of including SOEs not yet privatized. In total, we had 16,500 firms for the survey.

We designed the questionnaires through an "iterated" process. We started with a pilot survey of 720 firms in four provinces and nine cities, including Beijing, Laizhou (Shandong province), Taizhou and Changxing, (Zhejiang province), Changchun and Jilin (Jilin Province), Shijiazhuang, Pingshan, and Tangshan (Hebei province). It was conducted through both on-site interviews and telephone interviews. This pilot survey helped improve our survey design considerably and later guide our empirical analysis. For example, because of the controversy surrounding MBOs, many of the MBO firms disguised themselves by reporting other less controversial methods, for example, employee shareholding, which later led us to verify firms' reported privatization methods with their responses to questions on changes in ownership. In soliciting some (sensitive) financial variables, instead of asking for the information directly, we experimented with using multiple-choice questions (of percentage intervals), and the response rate increased substantially.

The main survey was conducted through telephone interviews. We hired a professional survey company that had a close relationship with the NBS and had previously helped NBS conduct its own surveys. We spent a week training the survey company's staff to understand each question. Throughout the survey, we worked closely with the staff and carefully supervised the progress. The chief executives of the firms (or their representatives), the chief accountants, or the heads of human resources answered the questions.

To facilitate a difference-in-differences analysis, we prepared two sets of questionnaires: one for privatized firms (the "treatment" group) and one for all other firms (including the "control" group). The survey asked every firm whether it was privatized, and

accordingly used the appropriate questionnaire. The two sets of questionnaires were identical except that for privatized firms, (1) we asked questions related to privatization, for example, the year in which the firm was privatized and the privatization method; (2) for questions on ownership and control, we asked the firms to provide information on both the pre- and post-privatization periods. Appendix 1 contains the survey questions that are relevant to this study.

We obtained 3,132 responses, yielding a response rate of 19%. Our survey sample contains 899 privatized firms, 475 non-privatized SOEs and collectively-owned enterprises (non-privatized SOEs hereafter), and 1,758 *de novo* private firms. In our survey, we do not notice any systematic selection bias of firms that responded to our survey. Indeed, as reported in Table 1, our survey sample matches the distribution of the population reasonably well in terms of both region and industry. The size distribution of our sample is skewed toward larger firms because we purposely over-sampled SOE firms, which tend to be larger for this study; otherwise, the sample size might be too small statistically. Figure 1A further shows the regional distribution of the privatization sample is roughly in line with the presence of SOEs in the country. Figure 1B reports the staggered nature of privatization by region (Appendix 2 shows the breakdown by province).

II.B.   The Data

We obtain the financial information of surveyed firms from the NSB database, which is equivalent to Compustat for US listed firms. NSB data is available to us from 1998 to 2007. While it is the most comprehensive data about Chinese firms, some scholars have questioned its data quality. Appendix 3 examines the NSB data in detail and demonstrated that its weakness does not significantly affect our results.

To ensure all privatized firms have at least one year of performance information prior to privatization, we drop 168 firms that were privatized prior to 1999. We then exclude firms without valid financial information. Given the staggered nature of privatization, our final

sample for regression analyses is an unbalanced panel of 717 privatized firms, 460 SOEs that have not been privatized, and 1,685 *de novo* private firms for the period of 1998-2007.

In our analysis of the role of government incentives in privatization decisions, we use the *China City Statistical Yearbook* to obtain city-level (at and above the prefecture level) fiscal and regional economic variables from 1997 to 2007.

We note that, while the data may seem old, they are suitable to study the largest wave of privatization in China (and worldwide), for two reasons. First, we conducted the survey in 2006, while this wave of privatization ended in 2005 (see discussions in Section I.A). Second, the survey data can be merged with 10 years of NSB data furing 1998-2007, which allows us to study performance before and after privatization. It is well known among scholars studying China that the quality of data available to researchers is low in 2008 and 2009, and that, due to tightened control of data, it is almost impossible to obtain the data after 2009. Thus, it is a nice coincidence that privatization occurred before the end of 2005 and quality NSB financial data was available till 2007, enabling us to cover this historical episode well and to the best extent.

II.C. Preliminary Observations from Our Sample

Table 2 reports the summary statistics of the main variables used in our empirical analysis. In Panel A of Table 2, we report some basic facts about China's privatization. Between 2000 and 2005, the number of privatizations increased steadily. Direct sales to insiders (MBOs) are by far the most widely used method, accounting for 47% of all privatized firms. The next is direct sales to outsiders, accounting for 22% of the firms. Thus, direct sales in total account for close to 70% of privatization programs in China. Other privatization methods include public offerings (1%), joint ventures (2%), leasing (8%), and employee shareholding (10%).

The ownership structure of Chinese privatized firms is highly concentrated. The largest shareholders on average hold 60% of the shares and the second- and third-largest

shareholders hold 26% of shares. Among different privatization methods, MBOs have the lowest ownership concentration, with the largest shareholders holding 37% of the shares, whereas the largest shareholder of the firms sold to outsiders has 64% ownership on average. For firms privatized by other methods, the largest shareholders on average hold 91% of the shares.[9][10]

Panel B is a summary of the financial variables of Chinese firms in our sample. We use two measures of operating performance: operating profits (earnings before interest, tax, and depreciation and amortization, or EBITDA) over assets, and operating profits over the number of employees. The top part of Panel B (Panel B1) compares privatized, non-privatized, and *de novo* non-state (private) firms. Compared with non-privatized SOEs, privatized firms tend to be larger and generally exhibit greater operating efficiency. Later we show that this is due to post-privatization performance. Compared with *de novo* private firms, privatized SOEs tend to be larger and less profitable.

The bottom part of Panel B (Panel B2) of Table 2 compares the financial variables before and after privatization for subsamples of privatized firms. Firm assets and sales generally increased after privatization. They tend to become less leveraged after privatization, consistent with a hardened budget constraint. While there is generally an improvement in performance (all at the 1% level except for the mean of *Profits/#Employee*), performance gain appears to be larger for MBOs, consistent with our later findings that MBOs drive the performance gain.

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[9] For the other method, the total ownership shares of the largest shareholders and the second- and third-largest shareholders are above 100%, because the ownership of the latter is based on the subsample that reports this information.

[10] *A priori*, the impact of concentrated ownership on performance is ambiguous. On the one hand, concentrated ownership has the benefit of mitigating the free-rider problem in monitoring managers and, in the case of insider ownership, aligning managerial interests with those of shareholders. On the other hand, a large shareholder can expropriate the resources from outside minority shareholders. This expropriation problem is potentially strongest in countries with weak property rights protection, where much privatization occurs. As Deng, Gan, and He (2008) point out, expropriation by large shareholders is the root cause of the failure of SIP in China. Thus, how the incentives of large shareholders play out among non-SIP remains to be seen.

II.D. Financial Aspects of Privatization

We now discuss the financial aspects of privatization, including the issuance method, payment arrangement and sources of funds for top managers. Other than SIPs which cover large companies in strategic industries, in other privatization methods, the transfer of ownership is through secondary offerings of existing shares, consistent with the government's stated intention of transferring of ownership and of "letting go" of these companies.

As reported in Table 3, in 77% of privatization cases, the government receives a lump sum payment, as opposed to multi-year installments. Reflecting a greater transfer of ownership, MBOs are significantly more likely to be paid with lump sum payments (80%), whereas leasing is least likely to use this payment method. If multiple installments are used, the first payment, on average, accounts for one third of the total proceeds and it takes about 5 years to complete the payment.

Personal saving is predominately the most important source of funds by the top managers, used with 99% of firms. 95% of firms report that personal savings account for at least 70% of financing (Panels A and B) and we further estimate that they contribute to 96% of all privatization payments (Panel C). Other sources of financing include borrowings from friends and relatives, bank loans, and future salaries, used by 8%, 5%, and 6% of firms, and each account for 1-2% of total payments.

III. Mechanisms of Efficiency Gain: Reallocation of Control Rights, Withdrawal of Government Support, and Restructuring

The essence of ownership structure is its allocation of control rights among the firms' stakeholders (Grossman and Hart, 1986; Hart and Moore, 1990). Thus, privatization affects a firm's performance through transferring the control rights from the government to private owners who would implement performance-enhancing restructuring. This section investigates this mechanism of performance gain.

III.A   Reallocation of Control Rights and the Impact of State Control on Performance

Our survey indicates that the government retains significant ownership of the privatized firms. The retained government ownership is 20% on average. It is much lower than share issue privatization in which the government retains more than half of the ownership, reflect the government's intention to transfer more control to the private sector. 20%, however, is still substantial and significant enough to exert influence.

There is, however, not readily available data on how the state exerts its influence. Reflecting the concept of property rights as a bundle of rights, we focus on a set of eight decision rights, including the appointment of senior managers, investment, hiring and laying off of employees, salary and bonus, distribution of profits, production and marketing, financing, and use of funds. We ask how these control rights are allocated, before privatization and after privatization, among five parties, including the government, the party committee at the firm, board of directors, general manager, workers representative committee, board of supervisors, and shareholder committee in making the above-mentioned key corporate decisions. The firms rank, for each of the corporate decisions, the importance of each decision maker on a 5-point scale (0 = *negligibly unimportant*, 5 = *indispensably important*).

Figure 2 virtualizes the reallocation of control rights and the detailed scores are summarized in Table 4. The most prominent change in control rights is the reduction of government influence. For non-privatized SOEs and pre-privatization SOEs, local governments exercise fairly strong control over these firms' major decisions, with average scores of 2.3 and 1.8, respectively (columns (1) and (3) in Panel A of Table 4). After privatization, average score drops from 1.8 to 0.4. The government's control rights are particularly strong in the appointment of top management, scoring 3 and 2.4. By contrast, the government has no control power over decisions within *de novo* private firms (column (2) in Panel A of Table 4).

Across privatization methods, the government's control rights decrease the most for MBOs, with the average score dropping from 1.8 to 0.1. Direct sales to outsiders are second, with average government control reducing from 0.9 to 0.4. For other methods, the average score reduces from 1.8 to 0.8.

A unique feature of corporate governance in China is that almost all firms in China, including domestic *de novo* private firms and foreign firms, have a committee of the Chinese Communist Party. As shown in Panels A and B of Table 4, party committees are involved in the firm's decision-making, and their influence is similar to that of the government for non-privatized SOEs and pre-privatization SOEs (columns (1) and (3)). After privatization, the party committees' control generally decreases less than the government's control.

Given that the government may influence corporate decisions through both its direct control rights and its intervention via firm-level party committees, we use the max of these two as the score for overall state influence (*State Influence Score*). Despite a drop in the score from 2.8 to 1.4 after privatization, state influence is still quite important in a significant proportion of firms, with 39% of firms having a score above 2 (*somewhat important*) and 15% above 3 (*moderately important*). In the following discussion, we consider firms with *State Influence Score* above 2 as under significant state influence.

Across privatization methods, MBO firms have the lowest level of state control. Only 1% of MBO firms have government ownership above 20% (an ownership level that is significant enough for influence), significantly lower than the sample average of 50% (Table 5). The state is also much less likely to intervene in MBOs' major decision-making (16% vs. 59% sample mean). Compared with MBOs, the other direct sales method, sales to outsiders, has substantially more state intervention. However, compared to other methods of privatization, firms sold to outsiders have less state intervention, though the difference is only significant for state control in corporate decision-making and not in state ownership.

Given that corporate decisions are multi-dimensional, we further examine government and party influences using Principal Component Analysis (PCA). PCA turns out to be very

effective in shrinking dimensionality: the first principal component accounts for 90% and 75% of the government and party influences respectively, whereas the second component accounts for only 4% and 6% respectively. Thus we report, in Panel B of Table 5, the first components and *PCA State Control*, defined as either the first component of government influence or the first component of party influence is above the mean. Consistent with Panel A of Table 5, *PCA State Control* is significantly lower in MBOs.

Other notable changes in control rights include the increased decision power of the board of directors and shareholder meetings, suggesting a general trend of professionalization of management in privatized firms. This change is prominent among MBOs, and in the case of shareholder meetings, privatization methods other than direct sales

III.A.1 The Influence of State Control on Post-privatization Performance

The preceding subsection highlights an important aspect of China's privatization: there is a varying degree of government influence in privatized firms. This subsection further shows that state control has a negative impact on post-privatization performance. Specifically, we estimate the following model on the sample of all privatized firms:

$$\text{Performance}_{it} = \alpha_i + \beta_t + \gamma \, \text{Post}_{it} + \lambda \, \text{State Control}_i \times \text{Post}_{it} + \delta X_{it} + \varepsilon_{it}, \quad (1)$$

where *Performance*$_{it}$ is measured by both ROA and earnings per employee. *Post*$_{it}$ is a dummy variable indicating years after privatization (it is set to zero for those SOEs that have never been privatized). *State Control* is one of the three binary variables: state ownership above 20%; *State Influence Score* above 2; and *PCA State Control*, defined in the same way as in Table 5. X_{it} are firm control variables that may be related to profitability, including size (measured as log of assets), leverage (debt over assets), and lag of profitability to account for potential mean reversion in profits. α_i is a firm fixed effect that controls for any time-invariant firm characteristics that may affect privatization decisions. β_t is a year fixed effect. Coefficient

γ is the difference-in-differences estimate of the effect of state control on post-privatization firm performance.

Linking detailed measures of government control rights to performance improves upon the existing literature which typically assigns a linear relationship between ownership and performance. Our analysis is similar in spirit to López-de-Silanes (1997) which finds, in Mexico's privatization, that transferring of controlling share packages is associated with a higher price premium - an ex ante measure of future performance.

Table 6 demonstrates that state control significantly hinders performance of privatized firms. In columns (1) and (2) of Table 6, higher state ownership is associated with significantly worse post-privatization performance, for both operating efficiency measures (at the 1% levels). In columns (3) - (6), both the measure based on *State Influence Score* above 2 and *PCA State Control* are associated with significantly lower operating efficiency. The results are all economically significant. Take the example of the point estimates of *State Influence Score* Above 2 (columns (3) and (4)). They imply that, all else equal, state control in decision making reduces ROA by 6% and earnings per employee by 6252 RMB (close to 800 USD) per employee per year. Both are substantial, especially considering the sample mean is 12.8% for ROA and 15.9K RMB for earnings per employee.

These results highlight that the success of privatization depends critically on whether the government could commit to withdrawing its control over the firms and refraining from using the firms to achieve its political objectives.

III. B Government Support

While ownership and decision rights are perhaps the most straightforward measures of government influence, there may be a tangled web of relation between the firm and the government. Specifically, it is possible that government exerts influence through other channels, such as connection of the manager to the party, subsidized loans or other subsidies, and regulatory barriers to entry. In our survey, we design survey questions that allow us to

further explore these other aspects of state influence. Given the previous finding of dramatic control change via the MBO route, we mainly focus on the comparison of MBOs with other methods of privatizations. These results will also serve as a nice background in understanding our later analysis of MBO performance.

Panel A of Table 7 shows the firm's political connections along three dimensions, namely, whether top officials are appointed by the government, whether the firm has are government officials on the board, whether the top manager is a former government official. It turns out that the strongest form of political connection in China's privatized firms is through personnel appointment: in 23% firms, the chairman or top manager is appointed by the government. Such connection, however, is much weaker in MBOs involving only 0.3% of the firms and the difference is significant at the 1% level. Political connection in the form of government officials on the board or being the top manager is not common and is in only 4% and 2% of privatized firms respectively. The numbers are even lower among MBOs, involving, respectively, 0.3% and 1% of firms, and the difference is significant at the 1% and 5% levels.

Panel B of Table 7 reports whether the firms receive various government subsidies. Land is the most important government subsidy. MBOs are significantly less likely to obtain land subsidy, 59% vs. 67% (a significant difference at the 1% level). The composition of land subsidy is also telling: MBOs are less likely to obtain direct allocation of land (19% v. 31%, significant at 1% level), which represents a large subsidy, whereas they are slightly more likely to purchase land at substantially subsidized prices (40% vs. 36%). Government funded R&D projects are not common, involving 3% of the firms. The number is even lower for MBOs, 1%, and the difference is significant at the 1% level.

Panel C of Table 7 presents government support in financing. While MBOs have a similar likelihood to have bank loans, their loan applications are significantly more likely to be rejected, 26% vs. 22% (a significant difference at the 10% level). When asked about the reasons for loan rejection, MBOs are more likely quote bank credit rationing (4% vs. 3%) –

state-owned banks typically have quarterly or annual limits imposed by their regulatory agents – and a lack of relationship with the government (4% vs. 3%). The differences are significant, respectively, at the 5% and 10% levels. Finally, there is no difference in the chance of obtaining government loan guarantees between the two groups of firms. Thus, MBOs overall has less government support in obtaining bank financing as compared with other privatized firms.

Panel D of Table 7 examines soft budget constraints in privatized firms. It should be noted that soft budget is not easy to measure, because the empirical measure has to meet two criteria. One is that it has to capture the expectation of future bailout; the other is that the expectation is contingent on financial distress. Neither is available in standard company financial statements. As noted by Djankov and Murrel (2002), a survey method provides measures that come closest to theoretically prescribed ones. In our survey, we ask detailed questions about a number of expected supports in case of financial distress, including tax reduction, subsidies, capital injection, and subsidized loans. The data shows that Chinese privatization is very effective in hardening soft budget constraints: each individual form of soft budget involves less than 1% of the firms, and the proportion of firms with any one form of the soft budget is 0.6%. MBOs are even less likely to have soft budget in terms of all forms of support, except for subsidized loans, arguably the weakest form of support.

Panel E of Table 7 reports government support in the form of protected entry, based on the question "How many competitors does your firm have?" The possible answers are none, few, some, and many. We categorize the firm as in a competitive market if there are some or many competitors. The vast majority of firms (75%) are in competitive markets. MBOs are even more likely to be in competitive markets, 84%, and the difference is significant at 1%. 14% firms are monopolies with no competitors, whereas significantly less MBOs, a mere 2%, are monopolies (at the 1% level). While most SOE monopolies in China arise from protected entry, it is theoretically possible that the firm has developed or purchased advanced technology. Our data shows that this is not true: only 4% of monopoly firms have

patents, much lower than the chance for other firms, 30%, and the difference is significant at the 1% level.

We further check the market structure of industries that are often perceived as having protected entry, including energy, utilities, car, and pharmaceuticals. It turns out that, among these industries, only utilities seems to possess monopolistic power: an average of 67% firms report themselves as an monopoly and only 13% report that the market is competitive. There is only one firm in oil and gas; although it is a monopoly, there is not a big enough sample to make a reliable inference.

Taken together, the results collectively indicate that, coupled with a substantial reduction in state ownership and control via MBO route, the government withdraws other forms of supports, and particularly so for MBOs. This is, however, not surprising. It is perfectly consistent with our discussions of the institutional background (Sections 1A and 1C). The guiding rule of China's privatization was "retaining the large, letting go of the small," which was repeatedly stated in government documents. The large ones were explicitly defined as those largest firms in "strategic" industries and thus enjoying monopolistic profits due to protected entry, whereas the smaller ones, which is the vast majority, were generally in competitive sectors and the government's stated intention is to use market forces to improve efficiency. For MBOs, given that the government keeps the least ownership and control and thus is not likely to reap the benefit, it is economically rational to reduce support even more.

III.C   Post-privatization Restructuring and Professionalization

In our survey, we asked about four restructuring measures. The first restructuring measure is whether the firm changed its core management team—the introduction of new human capital into management is shown to be important in improving efficiency in other privatization settings (e.g., Barberis, Boycko, Shleifer, and Tsukanova, 1996, López-de-Silanes, 1997 which emphasizes change of CEO). The second is whether the firm incentivizes its executives through increased performance-based pay. In restructuring corporate

governance, we asked whether the firm established a board of directors and whether it adopted international accounting standards.

Panel A of Table 8 reports the proportion of firms adopting the above restructuring measures by privatization methods. Compared to the overall privatization sample, MBO firms are significantly more likely to use performance-based bonuses (54% vs. 47%), to establish a board of directors (84% vs. 76%), and to adopt international accounting standards and professional independent auditing (11% vs. 8%), all significantly at the 1% or 5% level. MBO firms are not likely to have performance-based share compensation for their executives, which is not surprising, since owners of MBOs firms are, by definition, also managers. Compared with the whole sample, direct sales to outsiders are less likely to establish a board (67% vs. 76%) but are more likely to adopt performance-based share compensation (15% vs. 7%), both differences are significant at the 1% level.

The logit model in Panel B of Table 8 illustrates the significance of the marginal impact of privatization methods on restructuring. Except for change of management team which is statistically significant at 5%, the marginal impact of MBO is significant at the 1% for all three other restructuring measures. The economic magnitudes are substantial: the odds ratios for MBO firms to restructure their management teams, to adopt international accounting, and to establish a board are, respectively, 1.5, 2.7, and 2.2 times of non-MBOs.[11] Regarding compensation policy, the cash compensation of MBOs has 20% more in bonuses, whereas the odds ratio of MBOs to adopt share compensation is 71% below that of non-MBOs, consistent with owner-manager alignment. Selling to outsiders is more likely to restructure compensation policy. It is significantly more likely to use performance based share compensation (at the 1% level) and the odds ratio is 6 times of other methods; they also use significantly more bonuses in cash compensation (at the 1% level) and the incremental effect is 14%, lower than MBOs. But this privatization method is not more likely to undertake other restructuring measures. These findings are consistent with the fact that MBOs entail the

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[11] The odds ratio is *exp(β)* times of non-MBO firms, where *β* is the coefficient on MBO.

greatest transfer of control rights from the state to the firm and that thus have the most freedom in implementing performance-enhancing restructuring.

IV.   Political Constraints, Governments' Incentives, and MBO Choices

As we have shown in the previous section, MBOs are most effective in transferring the control rights to the private owners and in promoting post-privatization restructuring. This finding inevitably leads us to ask why many city governments choose not to privatize via the MBO approach. In this section, we address this issue by examining the local governments' incentives and the political and economic constraints the governments face at the time of privatization.

In addition to poor management, two well-documented factors result in poor SOE performance. One is surplus workers: according to Dong and Putterman (2003), surplus workers ranged from 23.5% to 44% of the SOE labor force during 1993−96 and a World Bank survey in 1994 indicates that one-third of firms reported a labor-redundancy rate exceeding 20% (Bai et al., 2006). The other is various policy burdens, such as pension, social welfare, and perhaps uncompensated uses of corporate resources by the local governments. As we have shown, MBOs represent a commitment from the local government to relinquish its control. Several factors could affect its incentive to make such a commitment.

The first is local political opposition to layoffs. Empirically, we measure it as the share of SOE employment in total urban employment. A greater share of SOE employment indicates slower development of the *de novo* private sector, which makes finding new jobs harder for the laid-off workers and increases political opposition to layoffs. Moreover, the implicit unemployment problem discussed above is most severe in cities dominated by SOEs, again resulting in stronger political opposition to layoffs. Thus, we expect that cities with a greater share of SOE employment are less likely to implement MBOs in privatization.

The share of SOEs may be negatively related to MBOs for a more subtle reason. Cross-region differences in the development of the *de novo* private sector are related to the

local governments' attitudes toward private ownership. In the earlier days of reform, some local governments provided *ad hoc* local protections (promises) and other supports to private firms when the constitution did not protect private ownership, whereas many others discouraged the development of the private sector. To the extent that MBOs represent a more "thorough" privatization, city governments that are more "pro" private ownership are more likely to choose MBOs.

The second factor is the ability of local governments to bear the costs of layoffs and social responsibilities. One measure of such ability is the government's fiscal resources. The more fiscal resources available, the greater the government's ability is to pay for the layoffs and/or redeployment of laid-off workers. Moreover, the impact of greater government fiscal capacity is likely to be non-linear: it is more important in regions where unemployment is a bigger concern, because larger fiscal capacity allows the government to provide better support for redeployment of laid-off workers in MBOs. Fiscal resources also reduce local governments' reliance on SOEs to achieve their social and political goals, as well as for uncompensated use of resources.

The political pressure against layoffs can be exerted through the Employee Representative Congress. At the early stage of privatization, most SOEs had an Employee Representative Congress, which may have influenced the redeployment of employees and the choice of privatization methods.[12,13] As a result, employment was an important negotiation point between the government and the potential buyers. The city government sometimes provided a monetary subsidy for each additional worker the firm would keep.

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[12] See http://china.findlaw.cn/lawyers/article/d28876.html and http://finance.sina.com.cn/chanjing/b/20120117/185911224916.shtml for rules (in Chinese) governing the power of Employee Representative Congress in Shanghai and Shijiazhuang. In both cities, the Employee Representative Congress must approve layoffs.

[13] In our interviews, we found that employment concern is also part of the reason why, at the initial period of privatization, a significant portion of SOEs were privatized through employee shareholding to avoid dispute between the firm and the employees. Later, because employee shareholding could not achieve efficiency, many of these firms introduced a second round of privatization through MBOs.

We also include policy subsidies including allocation of land (for free or at below-market price) and the city government's loan guarantees, two most probable type of government support. As we discuss earlier, SOEs obtaining significant government resources are explicitly discouraged to use the MBO method to privatize. Moreover, to the extent that these policy subsidies reflect pre-existing "ties" between the firm and the government, the government may have more difficulty committing to a more complete withdrawal of influence.

We estimate the following logit model to quantify the influence of government incentives on the choice of MBOs:

$$Prob(MBO = 1) = \Lambda(Y), \text{ where}$$
$$Y = a + b \text{ Government Incentives} + cX + \text{Industry Dummies} + \varepsilon, \quad (2)$$

and $\Lambda(.)$ is the logistic cumulative distribution function. *Government Incentives* include government fiscal resources as measured by government revenue as a percent of GDP, the share of SOE employment in total urban employment, government allocation of land, and government guarantee of loans. To capture the impact of fiscal resources in cities where unemployment is a greater concern, we also include an interaction term between fiscal resources and a dummy variable indicating a high share of SOE employment (defined as % of SOE employment greater than the sample median). All *Government Incentives* variables are measured in the year prior to privatization. X contains three sets of control variables: (1) city-level variables, including GDP per capita and population growth; (2) firm-level variables, including profitability (EBITDA over sales), size (log of assets), and leverage—again all measured in the year prior to privatization; (3) privatization-year dummies.

Panel A of Table 9 presents the summary statistics of the variables used. Indicative of our later findings, MBOs are significantly more popular among cities with better fiscal balance, or with a lower share of SOE output. Moreover, MBO firms are statistically less likely to have obtained land from the government, though the difference is not economically substantial.

Panel B of Table 9 presents our regression results. In column (1), the impact of a higher share of SOE employment is negative as expected (at the 5% level). The interaction term between *Fiscal revenue/GDP* and *High share of SOE employment* enters with a positive sign (at the 1% level), suggesting that, in cities where political opposition to layoffs is stronger, greater fiscal resources allow the government to provide better support for redeployment of laid-off workers, resulting in more MBOs. Government allocation of land is significantly negative (at the 1% level), suggesting pre-existing government-firm ties make committing to MBOs harder for the government.

In column (2) of Table 9B, we further add firm-level variables in the year prior to privatization, including size, profitability, and leverage. Firm size is significantly related to MBO choices with a negative sign (at the 10% level), consistent with our earlier discussion that small firms are targeted for MBOs (Section I.C). The findings in this section further suggest that the cost of layoffs and policy burdens tends to be greater for larger firms, thus making them "too hard" to be privatized via MBOs. Notably, profitability is not statistically significant in determining the restructuring choices.

The results are economically significant for measures of city governments' incentives. Using the point estimates in Column (2) of Table 9B, a 10% increase in SOE shares reduces the odds ratio of MBOs by 7.3% (=1-exp(-0.754*0.1)). In cities with high share of SOEs and thus greater political pressure against layoffs, a 10% increase in fiscal resources increases the odds ratio of MBOs by 1.3 times. The odds ratio of MBOs among firms with government land subsidies is 13% lower than those without.

V. Choice of Privatization Methods and Firm Performance

Results in the previous sections show that, compared with other privatization methods, MBOs are much more effective in reallocating control rights from the state to private owners and in implementing restructuring measures. Thus, MBOs are likely to bring about the most efficiency gain. In this section, we empirically evaluate the performance of different

privatization methods. Specifically, we focus on the difference-in-differences estimates of the performance gain of MBOs versus other methods of privatization.

In our sample, firms are privatized in different years since the late 1990s, whereas the NSB's financial information is only available during 1998-2007. Thus, to fully utilize the data, we use the following panel regression:

$$Performance_{it} = \alpha_i + \beta_t + \gamma\ Post_{it} + \lambda\ MBO_i \times Post_{it} + \delta X_{it} + \varepsilon_{it}, \qquad (3)$$

where $Performance_{it}$ is measured as earnings over assets (or ROA) and earnings per employee. $Post_{it}$ is a dummy variable indicating years after privatization. X_{it} contains firm control variables, including size (measured as log of assets), leverage (debt over assets), and lag of profitability to account for potential mean reversion in profits. α_i is the firm fixed effect, which controls for any time-invariant firm characteristics. β_t is the year fixed effect, which captures changes in macro-economic conditions that might affect performance. Coefficient γ is the difference-in-differences estimate and captures the differences in performance improvement after privatization. Similarly, the coefficient λ captures the differences between MBOs and other methods of privatization.

V.A. A First Look at the Performance of Chinese Firms

Before we report the effect of different privatization methods on performance, we first present an overall picture of the operating performance of Chinese firms, by estimating Equation (3) on the sample of all firms including privatized firms, non-privatized SOEs, and *de novo* private firms. Columns (1) and (2) of Table 10 show that, consistent with popular reports that SOEs are in a much weaker competitive position as compared to *de novo* private firms, the SOE dummy is significantly negative for both performance measures (at the 1% levels). In columns (3) and (4), we add a dummy indicating privatized firms, it is not significantly different from zero. Meanwhile, the *Post* dummy is insignificant, suggesting that,

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when we pool all privatized firms together, regardless of how they were privatized, we find no evidence that privatization has any impact on performance.

V.B. *The Impact of Privatization Methods on Firm Performance*

We now examine the differing effect of privatization methods on firm performance, by estimating Equation (3) on the sample of all privatized firms. In the first two columns of Table 11 the interaction between *MBO* and the *Post* dummy is significantly positive for both measures of performance (at the 1% level). The coefficient on the *Post* dummy itself is not significant, suggesting privatization methods other than MBOs do not improve performance. In columns (3) and (4) of the table, we add firm fixed effects. The coefficient on *MBO*Post* remains positive and significant. The results are economically significant. The point estimate is -0.044 in column (3), implying that, all else equal, MBOs outperform non-MBOs by 4.4% in ROA and by close to 6000 RMB, or roughly 750 USD, in earnings per employee per year.

In columns (5) and (6) of Table 11, when we add an interaction between *Direct Sales to Outsiders* and *Post*, it is not significantly different from zero, suggesting direct sales to outsiders do not improve performance. This result is fully consistent with our earlier findings about the state control and a general lack of restructuring measures in this kind of privatization program in China. Finally, the *Post* dummy itself is insignificant, suggesting that there is generally not any change in performance for non-MBOs.

V.C. Further Analysis: The Selection Concern

A common concern about performance evaluation of privatized firms is the selection bias. For example, one may worry MBO firms have significantly better post-privatization performance because better firms are systematically chosen for MBOs; or managers may have incentives to buy out the firms if they have information about government implicit promises (e.g., in the form of protected entry) or future prospects of the firms; or managers may have

manipulated the earnings downward prior to MBOs so that they could buy out the firms more cheaply, causing a mechanical increase in earnings post privatization.

We should stress that compared with the previous literature, our data allow us to deal with the selection bias more seriously. The analysis in the previous sections has in fact already addressed the selection issue in several ways. First, we do not simply make performance comparisons, but rather, we have identified the mechanism of performance improvement. Specifically, our earlier evidence indicates that the government transfer control rights to private owners more completely in MBOs (Tables 4 and 5) and that state control has a negative impact on performance (Table 6). Moreover, the government withdraws support to MBO firms in the forms of various subsidies, bank loans, protected entry, and soft budget constraint (Table 7). We also show and that MBOs restructure more effectively (Table 8). Second, we explicitly examine the factors that affect the chances of firms being selected for MBOs. The fact that we find political and fiscal incentives, rather than the above-mentioned economic considerations, determine the choice of privatization method (Table 9) is reassuring. It suggests better-quality firms being selected for MBOs is not likely to drive the better performance of MBOs.

In the following sub-sections, we perform several additional analyses to rule out the selection bias even further.

V.C.1 Pre-existing trend in performance

We first examine whether any pre-existing trend is present in performance between MBOs and non-MBOs. If MBO firms were better firms or firms with greater growth potential, one should observe better performance prior to privatization. As Figure 3 shows, there is not any preexisting trend in performance.

V.C.2 Controlling for the impact of city-level economic prospects

One might worry that MBOs perform better because of city-level economic prospects. Specifically, if a greater share of SOEs and low fiscal resources symbolize a lack of future prospects for the privatized firms, there would be less managerial incentives in buying out the firms, resulting in a positive relationship between MBO and performance. To address this concern, we use Columns (3) and (4) in Table 11 as the base estimation and add the interactions between city and year dummies, thus fully purging of all city-level time varying trends. We note that this is a strong test, as there are 205 cities and 10 years of data, resulting in 1481 dummies being included in the estimation.[14] It is also worth pointing out that in our earlier estimation, we already have firm fixed effects which controls for time-invariant firm-level variables including time-invariant component of economic prospects in the city where the firm is located. The present test further controls for time-variant city-level economic conditions.

The results are presented in Panel A Table 12 and shows that, while adding 1481 city-year dummies slightly weakens the significance level in one estimation (not surprisingly), it does not qualitatively change any of the earlier results. Further, the point estimates of *MBO*Post*, our main variables of interest, remain of similar magnitudes, implying that the time-variant component of city level influence does not drive the results.

V.C.3 Accounting for the role of product market competition

In the previous sections, we already systematically document, both through careful review of government guidelines regarding MBOs and through our survey data, that MBOs reflect government commitment to relinquishing both control and support of SOEs. Specifically, MBOs are rarely in strategic and therefore monopolistic industries; they receive

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[14] We find that in the NSB data, the names of the cities where firms are located are sometimes missing, involving 149 firms and 1040 firm-years. We manually identify the cities based on company names or addresses. Sometimes only county information is available; we then manually match the county with the city to which it belongs to. In a few cases where even the addresses do not contain city or county information, we search the internet for information, assuming there is no change in company location.

significantly less support from the government than other privatized firms. All these suggest that the better performance of MBOs is not likely driven by strategic industries or regulatory barrier to entry. This is an important finding. We now extend our performance analysis by explicitly including the reported competition by firms in our earlier estimation.

We note that this analysis is interesting and important in its own right. It helps understand the impact of product market competition on privatization outcomes. The answer is not ex ante clear: on the one hand, firms with monopoly power generally do better and more likely so when they also receive various government support; on the other hand, firms facing competition has a stronger drive to improve efficiency because if they do not they may not even survive. Evidence from market economy has been mixed and identification is difficult due to endogenous market structure. Since trade liberalization often accompanies privatization, data from transition economies offer an opportunity to better deal with the identification challenge (Djankov and Murrell, 2002). This advantage is even stronger in the Chinese setting, because at the time of privatization, there is already a variation in market structure across industries. To the extent that it is endogenous, it is endogenous to firm performance prior to privatization.

Again using Columns (3) and (4) in Table 11 as the base estimation, we add variables on product market competition (Panel B of Table 12). We find that firms with monopoly power perform worse than other privatized firms in terms of return on assets. Moreover, better MBO performance is not due to those very few MBOs that are monopolies. When we include a variable indicating market power, that is both monopoly firms and firms reported to have few competitors, market power does not have significant impact on performance. In all estimations, our main variable of interest, *MBO*Post*, remain significantly positive. Thus, our main results are not driven by government support in the form of regulated entry. Moreover, when firms in monopolistic industries are privatized, they do not have a strong incentive to improve efficiency.

V.C.4   Controlling for the impact of government supports

To further confirm that improved performance by MBOs is not due to the fact that they receive favorable treatment from the government, we compare MBOs with their private sector benchmark. If they have advantages arising from their government ties they would outperform *de novo* private firms. In Panel C1 of Table 12, we rerun Equation (3) by including only MBOs and *de novo* private firms. The insignificant coefficient of MBO*post suggests that MBOs have similar performance to the private sector benchmark. In Panel C2 of Table, we perform a diff-in-diffs analysis based on industry-and-size matching. The results are highly robust to alternative matching criteria and we do not find any evidence that MBOs outperform their private sector peers.

V.C.5   Instrumental variable estimation

We use city government's political incentives as instruments to estimate MBO choices on performance. The instruments include %SOE Employment, Fiscal Revenue/GDP, government allocation of land, and loan guarantees. The first-stage regression is the same as that in column (1) of Table 9B in Section IV. We employ the limited information maximum likelihood (LIML) estimation of the two-stage least square (TSLS) regressions, which is more robust to weak IV problems.[15] Table 13 reports the results. The IV difference-in-differences estimates are quantitatively similar to our OLS estimates, further confirming selection does not drive improved post-privatization performance of MBOs.

VI.   Generality of the Chinese Experience

We now discuss the generality of the findings from China, particularly, what we can learn from the Chinese survey about the processes that may have occurred elsewhere and the current state of knowledge. At a high level, as pointed out by Frydman et al. (1999) and Estrin et al. (2009), reallocation of ownership and control to different types of owners have disparate

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[15] We report LIML results because they are more robust to weak IV. A simple IV estimation yields very similar results and is available upon request.

effect on restructuring and performance; thus looking only at aggregate results without knowing why could be misleading. The Chinese experience is perfectly consistent with this insight: when we pull all privatization methods together, we do not have any performance improvement. In fact, our survey is designed to advance this line of research by asking directly the firms detailed questions on transfer of ownership and control, as well as restructuring.

At a more detailed level, despite that the institutional details may be different across nations, the previous literature has pointed to a common set of economic factors governing the success or failure of privatization programs. By synthesizing the results of a large number of studies using meta-analysis, Djankov and Murrell (2002) show that this set of factors includes the type of owners, management turnover, product market competition, and hardening of budget constraints. While our findings may appear to be in contrast with the first one, they are actually consistent with all four factors. More importantly, a careful reading of the literature also reveals that these factors affect performance through their impact on restructuring, which is also consistent with our results.

We first discuss the types of owners, or, more generally, how ownership and control is re-allocated. There is a well-known result in the literature, that is, privatization to insiders, employees, or managers, does not result in efficiency gains in transition economies, which appears to be inconsistent with our findings that MBOs are the most effective means of privatization in China. This, however, is a surface contrast. Our results do support findings in other countries that privatization to employees does not work, a quite intuitive result given that drawbacks of employee ownership are well recognized (e.g., Hansmann 1996).

The ineffectiveness of managerial ownership, however, is somewhat puzzling, as it has usually been found to be effective in market economies since Morck, Shelifer, and Vishny (1988). Frydman et al. (1999) provide two explanations, both pointing to "special characteristics" of managerial ownership in transition economies. First, in CEE-CIS nations, managers are selected under the old regime and they may not have the talent or skill set

needed in the new market economy. The second characteristic is that managers are offered to buy the shares at preferential prices but with restrictive terms, designed to favor existing employees. Thus, these "insider" privatizations or, more specifically, MBOs, preclude formation of new human capital and impose direct limitations on other restructuring measures aiming to enhance labor efficiency.

The Chinese MBOs, on the contrary, are much more "market-based." As we discussed earlier, they are explicitly chosen to be "liberalized," in the hope that competitive market forces would make them more efficient. Moreover, the types of owners affect performance through its impact on restructuring. Consistent with this insight, Chinese MBOs are more likely to change their management teams and undertake other restructuring measures.

Thus, the difference in the results on managerial ownership between China and other transition economies lies in to what extent it is market-based. The Chinese MBOs are much more in common with the managerial ownership in the mature market economies, whereas those in CEE-CIS nations are distinctively different from it. In this sense, the Chinese MBOs constitute a nice counterfactual analysis for the studies of other transition economies, and vice versa. They confirm the conjectures in the literature regarding why managerial ownership does not work in CEE-CIS nations.

Our paper goes beyond the question of the type of owners and illustrates how the market-based managerial ownership in China improves performance by aligning other important economic forces, namely the role of managers, product market competition, and hardened budget constraint. To our knowledge, no prior work examines, in one study, these many facets of the privatization programs as comprehensively as we have. In a number of these analyses, our Chinese survey offers advantages in dealing with measurement and identification challenges.

On the role of managers, the literature has emphasized the role of managerial incentives and formation of new human capital in improving performance (Boycko et al., 1996, Frydman et al, 1999, Cuervo and Villalonga, 2000). Based on our detailed survey on

managerial compensation and turnover, we find that MBOs are associated with better aligned incentives and is significantly more likely to changes the top management team.

On the effect of product market competition, based on the quantitative survey by Djankov and Murrell (2002), while there are regional variations, it is significantly positive overall. That is, competitive forces are needed to induce incentives to implement efficiency-enhancing restructuring. Similarly, we find that monopoly power does not improve performance and that MBOs, the type of privatized firms that is almost never monopolies, restructure the most and achieve the most performance gain. The Chinese setting provides an advantage in testing the effect of product market competition on performance, because at the time of privatization, there is already a variation in market structure across industries and, to the extent that it is endogenous, it is endogenous to firm performance prior to, not after, privatization.

Finally, the Chinese experience is consistent with the findings in the literature that hardening of budget constraints has a positive effect on enterprise restructuring. While soft budget is generally hardened for privatized firms, MBOs face even more hardened budget constraints and perform better. Given the difficulty in measuring soft budget, which is about expectation in distress, ours is among the very few studies that tackle this question directly. We also add to the literature by measuring a rich set of possible government support in distress.

In addition to supporting and extending the issues studied in the existing literature, our paper explores two important aspects of privatization not previously examined, both of which have general implications. Most notably, we collect detailed data on re-allocation of control rights, including eight decision rights and among five parties, and show that withdrawal of state control in MBOs is the driving force behind restructuring and performance improvement. This is a general finding and has important implications for other privatization programs. So far, despite that most privatization around the world is partial, in the sense that state transfers control incompletely, the role of retained state influence has not been thoroughly studied. The

exception is perhaps more recent studies finding that political connections in privatized firms hinder performance enhancement (Boubakri et al, 2008) and that state ownership is associated with less accounting transparency (Guedhami et al., 2009). The Chinese experiences are consistent with both findings.

The second area that we explore is the role of political factors in shaping the design of privatization programs (Xu, 2011). Despite that theoretical work and anecdotes all suggest a significant influence of political factors (e.g., Biais and Perotti, 2002), there have been very few formal empirical studies and our paper joins a more recent effort, e.g, Dinc and Gupta (2011), on this important topic. In the Chinese setting, political economy considerations, specifically a lack of fiscal resources and political opposition to unemployment, prevent the commitment to withdrawal of state control and adoption of the more effective privatization method.

Taken together, while the institutional details may differ, the Chinese experience shares much commonality with the findings in the literature. It highlights the importance of withdrawal of state control and market-based practices, which are implemented in the Chinese MBOs. It also demonstrates the importance of political economy in shaping privatization decisions. Finally, we show that the success of the Chinese MBOs embodies all economic factors that the literature has found to be significant in improving performance. In fact our survey is designed to advance the literature by providing the most comprehensive data so far in studying of a country's privatization practice.

VII. Conclusion

China's privatization is unique in that instead of being designed by the national government, it is initiated, designed, and implemented by city governments. Consequently, privatization policies and outcomes vary widely across Chinese cities. This distinctive experience provides a rich laboratory in which one can observe how city governments, influenced by political constraints and financial interests, choose different privatization

methods, how these methods lead to different mechanisms for efficiency gain in privatized firms, and what the outcomes of these different mechanisms are. The literature, however, has not explored this valuable laboratory, partly because of a lack of detailed data.

This paper fills this gap. We conduct a large-scale nationwide survey of over 3,000 firms from nearly one-third of China's cities, based on a random sampling stratified by size and industry. The survey is designed to advance the literature by collecting detailed information on the mechanism of privatization, including the change of ownership and shareholding structure, reallocation of five corporate decision rights among five parties, remaining government tie and support in four aspects, as well as soft budget constraints, and four measures of post-privatization restructuring. Thus, the data we collect is, to our knowledge, the most comprehensive data available to researchers in studying a single country's privatization.

Our results indicate that, while privatization in China has made substantial progress in reallocating control rights from the government to private owners, the degree of remaining government influence in corporate decisions varies substantially across different privatization methods. The MBO method, which accounts for about half of all privatization programs, represents the strongest commitment to withdrawing state both control and support. Our evidence further suggests the city governments' incentives and political constraints are the key determinants of their choices of privatization methods. In cities where political opposition to layoffs is weaker and where the city government has more fiscal resources to bear the cost of layoffs and to fill the gap in social welfare, the government is more likely to choose the MBO method. Finally, MBOs restructured more effectively and improved their performance significantly. In contrast, in direct sales to outsiders and other methods, the state retains substantial control, resulting in less restructuring and a lack of post-privatization performance improvement.

Our Chinese survey contributes to the literature in several ways. First, it supports and significantly extends an important theme in the literature, that is, reallocation control to

different types of owners has disparate effects on restructuring and performance; thus looking only at aggregate results without knowing why could be misleading (Frydman et al. (1999) and Estrin et al. (2009)). While that MBOs are the most effective means of privatization in China appears to be in contrast to the findings of ineffective privatization to managers in CEE-CIS nations, the difference lies in to what extent managerial ownership is really market-based. Frydman et al. (1999) emphasize two "special characteristics" of managerial ownership in other transition economies, that is, managers are selected under the old regime and they accept restrictive terms favoring existing employees in exchange for lower purchase prices. The Chinese MBOs do not share these characteristics. They constitute a nice counterfactual analysis for the studies of other transition economies (and vice versa) and confirm the conjectures in the literature regarding why managerial ownership does not work in CEE-CIS nations.

In addition to the types of owners, we further illustrate how the market-based managerial ownership in China improves performance by aligning other important economic forces, namely the role of managers, product market competition, and hardened budget constraint, that have been documented as important in shaping privatization outcomes (e.g., Djankov and Murrel, 2002).

Our second contribution is that, enabled by our detailed survey data, we explore two important aspects of privatization not previously examined. First, based on re-allocation of control rights in eight corporate decisions, we identify withdrawal of state control in MBOs as the driving force behind restructuring and performance improvement. Second, we investigate the role of political economy in shaping the design of privatization programs.

Finally, our analysis extends earlier empirical work on China's privatization and deepens our understanding of the Chinese economy. The decentralized privatization studied in this paper extends a growing literature on China's regionally decentralized authoritarian regime, particularly on local governments' decisions and career concerns.

The dynamics between the state and the firms during privatization provide an important perspective for understanding the Chinese economy. Political constraints and state intervention are the main reasons why some privatization programs fail to enhance performance. The same dynamics govern the Chinese economy till today. In a period of rapid economic growth, the state has no urgency to push for further economic reforms, and political compromises result in greater state influence and thus economic inefficiencies in many sectors of the economy. Given the current economic slowdown, however, resolving these inefficiencies is important for future economic growth. Indeed, reforming the remaining often ultra-sized SOEs is back on the agenda and insights garnered from our study have important implications for SOE reforms in the future.

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Figure 1. Regional Distribution of Privatized Firms in the Survey

Figure 1A. Geographical Distribution of Privatized Firms in the Survey
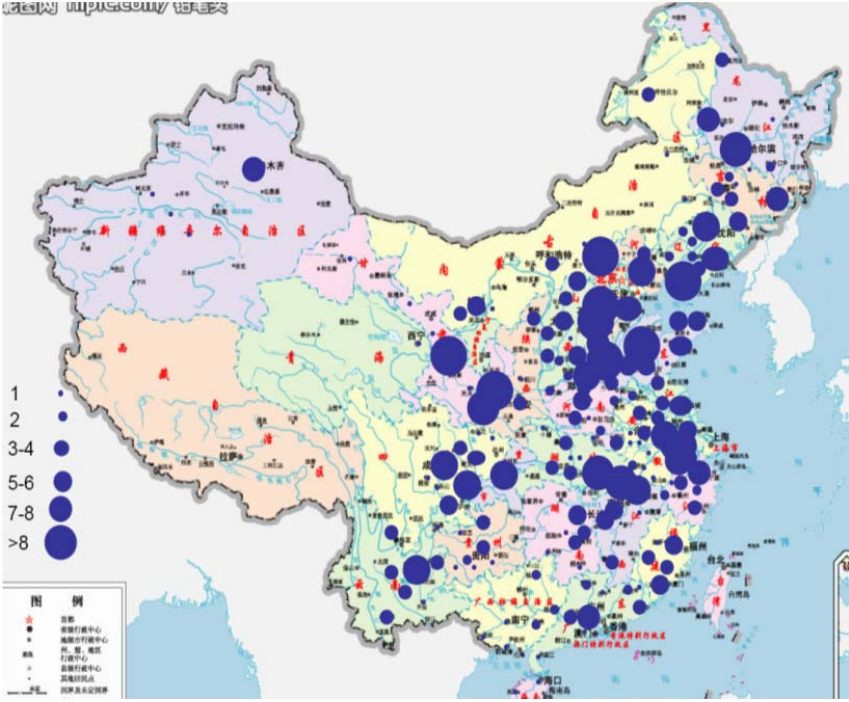
Figure 1B. Regional Distribution of Privatization over Time
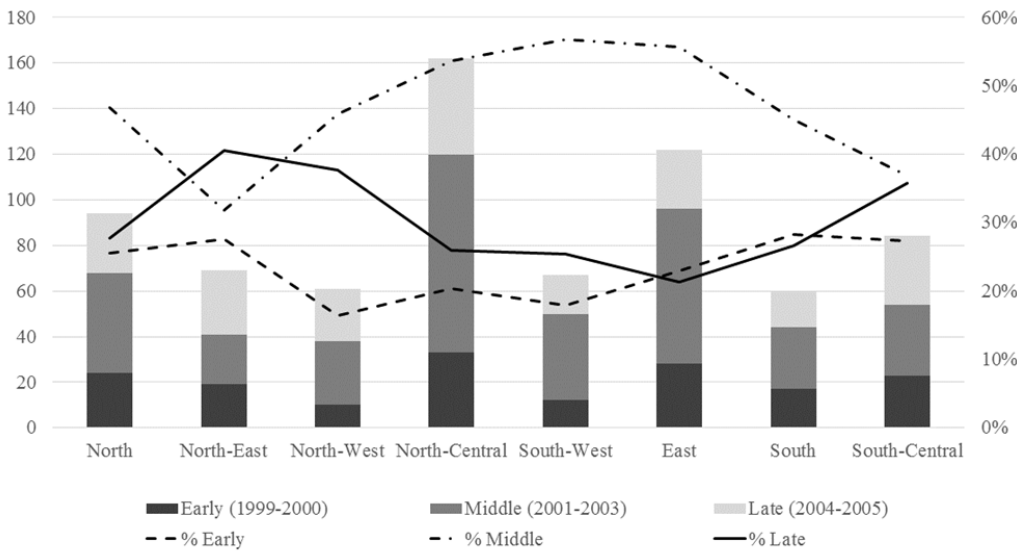
Figure 2. Reallocation of Control Rights Before & After Privatization
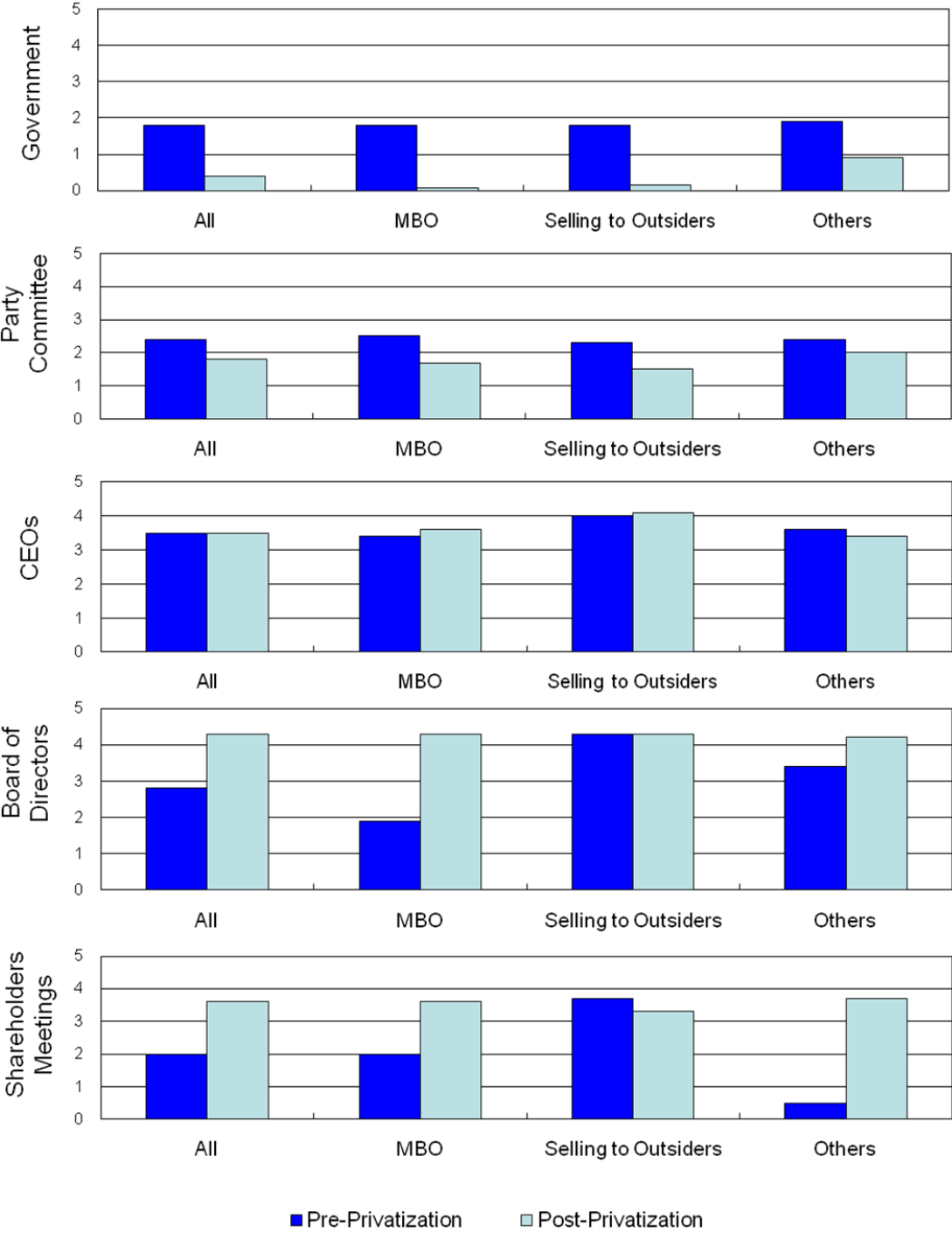
Figure 3. No Pre-existing Trend of Performance Differences between MBOs and Other Privatization Methods
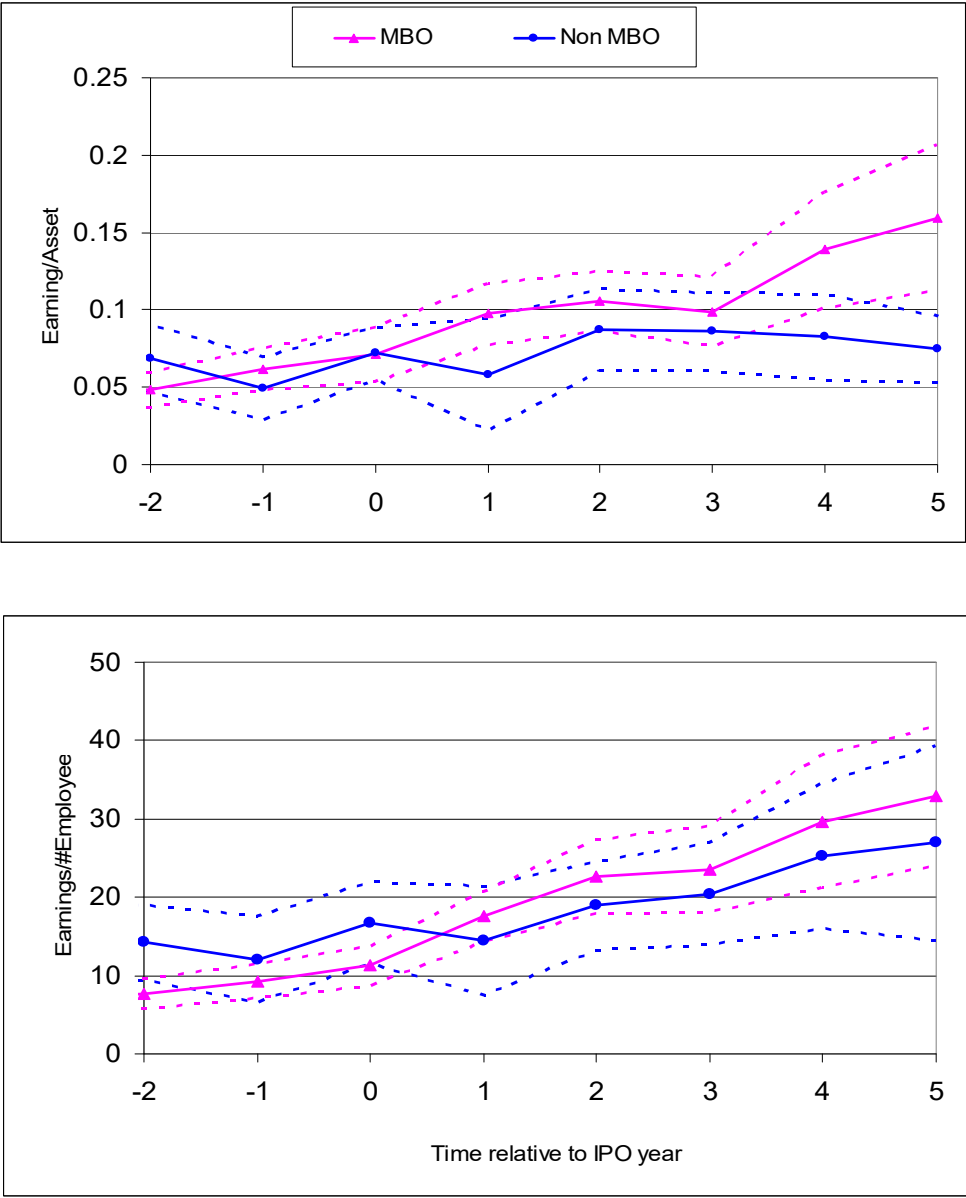
Note: Solid lines are the mean; dashed lines are 90% confidence intervals.

Table 1. Sample Distribution of Ownership, Size, Location and Industry

This table compares the distribution of our survey sample with that of the population by size, location, and industry. North China includes Beijing, Tianjin, Hebei; North-East: Heilongjiang, Jilin, Liaoning; North-West: Xinjiang, Qinghai, Ningxia, Gansu, Shaanxi, Innermongolia; North-Central: Shanxi, Henan, Shandong; South-West: Xizang, Yunnan, Guizhou, Sichuan, Chongqing; East: Shanghai, Jiangsu, Zhejiang; South: Guangxi, Guangdong, Fujian, Hainan; South-Central: Hubei, Hunan, Jiangxi, Anhui.

	Survey Sample	Population
	(1)	(2)
Panel A. Size Distribution		
Large	3%	1%
Meidum	17%	11%
Small	80%	88%
Panel B. Regional Distribution		
North	10%	8%
North-east	7%	7%
North-west	5%	4%
North-central	16%	15%
South-west	6%	5%
East	34%	35%
South	14%	18%
South-central	8%	8%
Panle C. Industry Distribution		
Mining	9%	12%
Food, Beverage & Tobacco	9%	9%
Textiles	12%	15%
Timber and Paper Products	9%	9%
Petroleum & Chemical	17%	15%
Metals	21%	21%
Machine and Electonics	17%	16%
Electricity, Gas and Water	6%	3%

Table 2. Basic Facts and Summary Statistics

Panel A presents basic facts of China's privatization during 1999-2005. In Panel A3, differences between the MBO firms and other methods and between Direct Sales to Outsiders and other methods are tested. Panel B reports the summary statistics of financial variables used in the empirical analysis during the sample period of 1998-2007. Profits are defined as earnings before interest, tax, and depreciation. Significance levels are all based on two-tailed tests of differences. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Panel A. Basic Facts of China's Privatization

A1. Year of Privatization

Year	# Firms	Percentage
1999	60	8%
2000	103	14%
2001	102	14%
2002	109	15%
2003	129	18%
2004	95	13%
2005	119	17%

A2. Methods of Privatization

	# Firms	Percentage
Direct Sales		
To Insiders (MBO)	338	47%
To Outsiders	157	22%
Other Methods		
Public Offering	8	1%
Joint Venture	11	2%
Leasing	56	8%
Employee Holding	70	10%
Others	77	11%
Total	717	100%

A3. Ownership of Privatized Firms

		MBO	Direct Sales to Outsiders	Others	All
Ownership by the Largest Shareholder	Mean	37%***	64%	91%***	60%
	Median	30%***	70%	100%***	51%
Ownership by the Second and Third Largest Shareholder	Mean	27%**	20%***	30%*	26%
	Median	22%**	15%***	30%**	20%

Table 2. Basic Facts and Summary Statistics (Cont'd)

Panel B.Financial Information of Chinese Firms
B1. Overview of Financial Information of Chinese Firms

		Whole Sample	State-Owned Enterprises (SOEs)			Non-SOEs	Difference
			Privatized	Non-Privatized	Difference		
		(1)	(2)	(3)	(2)-(3)	(4)	(2)-(4)
Assets (RMB '000)	Mean	181,801	354,285	252,388	101,897***	51,996	-302,289***
	Median	26,250	58,023	45,903	12,120***	15,926	42,097***
Sales (RMB '000)	Mean	135,102	239,621	155,860	83,761***	64,706	174,914***
	Median	23,911	31,060	23,311	7,749***	21,395	9,665***
Leverage	Mean	0.085	0.129	0.136	-0.006	0.040	0.090***
	Median	0.001	0.051	0.041	0.010	0.000	0.051***
Profits/Assets	Mean	0.132	0.091	0.069	0.022***	0.180	-0.088***
	Median	0.077	0.051	0.041	0.010***	0.109	-0.058***
Profits/# Employee (RMB '000)	Mean	30.658	13.446	23.769	-10.323	43.393	-29.948***
	Median	11.876	8.387	5.837	2.550***	17.000	-8.613***
Number of Firm-Years		17,609	5,340	3,351		8,918	

B2. Financial Variables Before and After Privatization

		All Privatized SOEs			MBO		
		Before	After	Difference	Before	After	Difference
		(1)	(2)	(2)-(1)	(3)	(4)	(4)-(3)
Assets (RMB '000)	Mean	260,276	449,856	189,580***	117,114	195,703	78,589***
	Median	54,706	61,084	6,378***	44,237	43,215	-1,022
Sales (RMB '000)	Mean	155,549	325,057	169,509***	77,595	178,131	100,536***
	Median	24,685	40,235	15,551***	22,121	30,390	8,269***
Leverage	Mean	0.143	0.115	-0.028***	0.132	0.102	-0.030***
	Median	0.072	0.031	-0.041***	0.069	0.021	-0.047***
Profits/Assets	Mean	0.054	0.128	0.074***	0.047	0.153	0.106***
	Median	0.039	0.068	0.030***	0.036	0.078	0.043***
Profits/# Employee (RMB '000)	Mean	10.963	15.898	4.934	7.901	2.659	-5.241
	Median	5.242	14.616	9.374***	4.449	14.743	10.293***

Table 3. Financial Aspects of Privatization

This table presents the financial aspects of China's privatization. In Panel A, significance levels are based on two-tailed tests of differences between a particular privatization method and other methods. Significance at the 1%, 5% and 10% levels is indicated by ***, ** and *, respectively. In Panel C, for each source of funds, firms are asked to specify the percentage of funding from this source. The possible answers are: 0, 1-20%, 21-40%, 41-70% and 71-100%. To estimate the monetary share of each of the financing source, we assume that the median of the range is the actual percentage.

Panel A. Details of Privatization Payment Schemes

	All Privatized SOEs	MBO	Direct Sales to Outsiders	Leasing
% Lump-sum Cash Payment	77%	80%**	74%	55%***
% First Payment if by Installment	33%	34%	28%**	33%
# Years to Pay if by Installment	4.9	4.7	5.5	4.7

Panel B. Sources of Managers' Funds

	Personal Savings	Borrowings from Friends and Relatives	Bank Loans	Future Salaries
% Firms Using This Method	99%	8%	5%	6%
% As an Above 20% Source	99%	2%	2%	3%
% As an Above 70% Source	95%	0%	0%	0.2%

Panel C. Estimated Monetary Share of Each Source of Funds

Personal Savings	96%
Borrowings from Relatives	1%
Bank Loans	1%
Future Salaries	2%

Table 4. Privatization and Change of Control Rights

This table reports allocation of control rights in Chinese firms. The importance of each decision maker is given a score from 0 to 5, where 0 means negligibly unimportant and 5 indispensably important. Average scores across firms are reported; standard deviations are in parentheses. Significance levels in columns (4), (6), (8), and (10) are based on two-tailed tests of differences before- and after- privatization. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

					Privatization Methods											
					All Privatizatized SOEs				MBO				Direct Sales to Outsiders			
	Non-Privatized SOEs		De Novo Private Firms		Before		After		Before		After		Before		After	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Panel A. Control Rights of Government																
Appointment of Top Management	3.0	4.0	0.0	0.0	2.4	2.0	0.6***	0.0***	2.4	3.0	0.1***	0.0***	2.6	2.0	0.4***	0.0***
Employment/Layoff	2.2	2.0	0.0	0.0	2.0	2.0	0.4***	0.0***	2.0	2.0	0.1***	0.0***	2.2	2.0	0.5***	0.0***
Wages/Compensations	1.9	2.0	0.0	0.0	1.6	0.0	0.4***	0.0***	1.6	0.0	0.1***	0.0***	1.8	1.0	0.4***	0.0***
Investment	2.6	3.0	0.0	0.0	2.0	2.0	0.4***	0.0***	2.0	2.0	0.1***	0.0***	1.9	2.0	0.4***	0.0***
Fund Raising	2.4	2.0	0.0	0.0	1.9	0.0	0.4***	0.0***	1.9	0.0	0.1***	0.0***	1.8	1.0	0.4***	0.0***
Fund Using	2.1	2.0	0.0	0.0	1.7	0.0	0.4***	0.0***	1.6	0.0	0.1***	0.0***	1.8	1.0	0.3***	0.0***
Distribution of Profits	2.0	2.0	0.0	0.0	1.7	0.0	0.4***	0.0***	1.7	0.0	0.1***	0.0***	1.8	0.0	0.4***	0.0***
Production and Marketing	1.8	1.0	0.0	0.0	1.6	0.0	0.3***	0.0***	1.5	0.0	0.0***	0.0***	1.7	0.0	0.3***	0.0***
Average	2.3	2.3	0.0	0.0	1.8	0.8	0.4	0.0	1.8	0.9	0.1	0.0	1.9	1.1	0.4	0.0
Number of Firms	454		1550		717		714		338		337		89		88	
Panel B. Control Rights of Party Committee																
Appointment of Top Management	2.7	3.0	2.0	2.0	2.8	3.0	1.7***	2.0***	2.9	3.0	1.5***	2.0***	2.5	3.0	1.3***	1.0***
Employment/Layoff	2.7	3.0	2.2	2.0	2.8	3.0	1.7***	2.0***	3.0	3.0	1.6***	2.0***	2.4	3.0	1.3***	1.0***
Wages/Compensations	2.4	3.0	2.2	2.0	2.7	3.0	1.7***	2.0***	2.8	3.0	1.6***	2.0**	2.3	2.0	1.3***	1.0**
Investment	2.5	3.0	2.0	2.0	2.2	2.0	1.3***	1.0***	2.2	2.0	1.2***	0.0***	2.1	2.0	1.1***	1.0**
Fund Raising	2.4	3.0	1.7	2.0	2.1	2.0	1.3***	1.0***	2.1	2.0	1.2***	1.0***	2.2	2.0	1.1***	1.0***
Fund Using	2.3	2.0	1.6	2.0	1.9	2.0	1.2***	1.0***	1.9	2.0	1.1***	0.0***	2.1	2.0	1.0***	1.0***
Distribution of Profits	2.4	3.0	1.8	2.0	2.5	2.0	1.6***	2.0***	2.6	3.0	1.4***	1.0***	2.3	2.0	1.2***	1.0**
Production and Marketing	2.2	2.0	1.8	2.0	2.4	2.0	1.5***	1.0***	2.5	2.0	1.3***	1.0***	2.2	2.0	1.1***	1.0***
Average	2.5	2.8	1.9	2	2.4	2.4	1.5	1.5	2.5	2.5	1.3	1.1	2.2	2.3	1	1
Number of Firms	320		181		611		611		285		285		67		67	

Table 4. Privatization and Change of Control Rights (Cont'd)

	Non-Privatized SOEs		De Novo Private Firms		Privatization Methods											
					All Privatizatized SOEs				MBO				Direct Sales to Outsiders			
					Before		After		Before		After		Before		After	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Panel C. Control Rights of CEOs																
Appointment of Top Management	3.9	4.0	4.3	5.0	3.6	4.0	3.6	4.0	3.4	3.0	3.5	4.0	4.1	4.0	4.3**	5.0*
Employment/Layoff	4.1	4.0	4.3	5.0	3.7	4.0	3.6**	4.0	3.6	4.0	3.5	4.0	4.1	4.0	4.3	5.0
Wages/Compensations	4.0	4.0	4.2	5.0	3.7	4.0	3.6**	4.0	3.6	4.0	3.6	4.0	4.2	4.0	4.3	5.0*
Investment	3.8	4.0	4.3	5.0	3.2	4.0	3.3*	4.0	2.9	3.0	3.3***	4.0**	4.1	4.0	4.3	5.0*
Fund Raising	3.8	4.0	4.0	5.0	3.1	4.0	3.3**	4.0	2.9	3.0	3.2***	4.0**	3.9	4.0	4.2	5.0*
Fund Using	3.8	4.0	4.2	5.0	3.1	4.0	3.2	4.0	2.9	3.0	3.2**	4.0**	4.0	4.0	4.2	5.0
Distribution of Profits	3.9	4.0	4.2	4.0	3.6	4.0	3.6	4.0	3.4	3.0	3.5	4.0	4.2	4.0	4.4	5.0
Production and Marketing	4.0	4.0	4.1	5.0	3.8	4.0	3.7	4.0	3.6	4.0	3.6	4.0	4.3	4.0	4.5	5.0
Average	3.9	4.0	4.2	4.9	3.5	4.0	3.5	4.0	3.3	3.4	3.4	4.0	4.1	5.0	4.3	5.0
Number of Firms	466		1667		717		716		338		338		89		88	
Panel D. Control Rights of Boards of Directors																
Appointment of Top Management	4.5	5.0	4.5	5.0	3.3	4.0	4.4**	5.0**	2.6	4.0	4.3**	5.0***	4.7	5.0	4.6	5.0
Employment/Layoff	3.9	5.0	3.9	4.0	3.5	4.0	4.3*	5.0	2.8	4.0	4.3*	5.0*	4.7	5.0	4.3	5.0
Wages/Compensations	3.9	5.0	3.6	4.0	3.2	4.0	4.0	4.0	2.7	4.0	3.9	4.0	3.7	5.0	4.0	4.0
Investment	4.3	5.0	4.5	5.0	3.6	5.0	4.6**	5.0***	2.6	4.0	4.7**	5.0***	5.0	5.0	4.7***	5.0
Fund Raising	4.3	5.0	4.4	5.0	3.2	4.0	4.5**	5.0***	2.7	3.0	4.6**	5.0***	4.3	4.5	4.7	5.0
Fund Using	4.3	5.0	4.4	5.0	3.5	5.0	4.3*	4.0	3.3	4.0	4.3	4.0	5.0	5.0	4.6***	5.0
Distribution of Profits	4.4	5.0	4.5	5.0	3.2	4.0	4.4**	5.0***	2.0	3.0	4.3***	4.0***	4.8	5.0	4.7	5.0
Production and Marketing	3.9	4.5	3.6	4.0	2.8	4.0	4.0**	4.0**	1.9	1.5	4.0***	4.0***	3.3	5.0	4.2	4.0
Average	4.2	4.9	4.2	4.6	3.3	4.3	4.3	4.6	2.6	3.4	4.3	4.5	4.4	4.9	4.5	4.8
Number of Firms	103		756		21		545		10		285		3		42	
Panel E. Control Rights of Shareholder Meetings																
Appointment of Top Management	3.4	4.0	3.7	4.0			3.5	4.0			3.5	4.0			3.0	3.0
Employment/Layoff	2.6	4.0	3.1	4.0			3.4	4.0			3.4	4.0			3.1	3.5
Wages/Compensations	2.7	3.0	2.9	3.0			3.3	4.0			3.3	4.0			2.8	3.0
Investment	3.8	4.0	4.0	4.0			4.2	5.0			4.3	5.0			3.3	3.5
Fund Raising	3.4	4.0	3.9	4.0			4.3	5.0			4.4	5.0			3.7	4.0
Fund Using	3.5	4.0	3.9	4.0			3.7	4.0			3.7	4.0			3.1	3.0
Distribution of Profits	3.4	4.0	3.8	4.0			3.6	4.0			3.6	4.0			3.4	3.5
Production and Marketing	2.7	3.0	2.8	3.0			3.2	4.0			3.2	3.0			3.2	3.0
Average	3.2	3.8	3.5	3.8			3.7	4.3			3.7	4.1			3.2	3.3
Number of Firms	49		380		0		358		0		252		0		10	

Table 5. State Control in Privatized Firms

This table reports the percentage of firms that are under strong state influence post-privatization by privatization method. State-Influence Score is defined as the max of the importance of local government and that of party committee in corporate decision making based on a 5-point scale (0=negligibly unimportant, 5=indispensably important). Panel B uses Principal Component Analysis (PCA) to form additional variables of state control. The source of state influence is from government or party communist. PCA State Control is defined as 1 if either the first component of government influence or the first component of party influence is above the mean. Significance levels are based on two-tailed tests of differences between a particular privatization method and other methods. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Panel A. Ownership and State-Influence Score

	State Ownership Above Mean	State-Influence Score Above 2
Direct Sales to Insiders (MBO)	1%***	16%***
Direct Sales to Outsiders	15%	25%*
Other Methods	50%	59%
All Privatizated SOEs	19%	31%

Panel B. Principal Component Analysis of State Control

	First Component of Government Influence	% First Component of Government Influence Above Mean	First Component of Party Influence	% First Component of Party Influence Above Mean	PCA State Control
Direct Sales to Insiders (MBO)	2.71***	21%***	5.82***	44%***	42%***
Direct Sales to Outsiders	3.54*	28%*	6.18*	47%*	49%
Other Methods	3.61	32%	6.03	50%	59%
All Privatizated SOEs	3.40	26%	5.96	47%	49%

Table 6. The Impact of State Influence on Performance

This table presents the effect of state control on post-privatization performance as in Equation (1). It is based on the sample of all privatized firms during 1998 to 2007. Variables related to state control are defined in Table 5. Performance measures are calculated as operating profits (earnings before interest, tax and depreciation) over assets and number of employees, respectively. Robust standard errors are in parentheses. Significance at the 1%, 5%, and 10% levels is indicated by ***, ** and *, respectively.

	Performance Measures		Performance Measures		Performance Measures	
	Profits/Assets	Profits/#Employee	Profits/Assets	Profits/#Employee	Profits/Assets	Profits/#Employee
	(1)	(2)	(3)	(4)	(5)	(6)
Lag of Performance						
Log (sales)	0.084***	18.290***	0.083***	18.256***	0.084***	18.100***
	(0.011)	(1.523)	(0.011)	(1.522)	-0.012	-1.525
Leverage	0.003	6.432*	0.007	6.877*	0.004	6.672*
	(0.018)	(3.881)	(0.018)	(3.891)	-0.018	-3.901
Post Dummy	0.032***	1.781	0.018*	-0.258	0.031**	0.447
	(0.012)	(1.833)	(0.011)	(1.660)	-0.013	-1.935
State Share above Mean * Post	-0.074***	-9.655***				
	(0.014)	(2.669)				
State Influence Score above 2 * Post			-0.060***	-6.252*		
			(0.020)	(3.539)		
PCA State Control * Post					-0.063***	-5.397**
					-0.014	-2.589
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,245	5,167	5,245	5,167	5,214	5,136
R-squared	0.518	0.549	0.520	0.550	0.519	0.547

Table 7. Comparison of Political Connections, Government Subsidies, Soft Budget Constraint, and Protected Entry between MBO and Other Privatized Firms

This table presents the comparison of post-privatization political connections, government subsidies, soft budget constraint, and protected entry between MBO and other privatization methods. Panel E is based on answers to our survey question: "how many competitors does your firm have?" The possible answers are: no, few, some and many competitors. We categorize the firm as a monopoly if it reports no competitor. It is defined to have market power if it has no or few competitors. It is considered to be in a competitive market if it has some or many competitors. Significance levels are based on two-tailed tests of differences between MBO and other methods. Significance at the 1%, 5% and 10% levels is indicated by ***, ** and *, respectively.

	All Privatizatized SOEs	MBO
	(1)	(2)
Panel A. Political Connections		
% with Chairman or Top Manager Appointed by Government	23%	3%***
% with Government Officials on the Board	4%	0.3%***
% with Top Manager Being a Former Government Official	2%	1%**
Panel B. Government Subsidies		
% with Government Land Subsidy	67%	59%***
% with Direct Allocation of Land by Government	31%	19%***
% with Purchases at Below-Market Prices	36%	40%**
% with Government Funded R&D Projects	3%	1%***
Panel C. Bank Loans		
% with Bank Loans	82%	84%
% with Loan Rejection	22%	26%**
% Rejected due to Constraints on Bank Credit Supply	3%	4%**
% Rejected due to a Lack of Relations with Government	3%	4%*
% with Government Guarantee of Loans	7%	7%
Panel D. Soft Budget Constraints		
% Expected Tax Reduction in case of Financial Distress	0.3%	0%
% Expected Government Subsidies in case of Financial Distress	0.3%	0%
% Expected Capital Injection in case of Financial Distress	0.4%	0%
% Expected Subsidized Loans in case of Financial Distress	0.1%	0.3%
% with Any of the above Expectations	0.6%	0.3%

Table 7. Comparison of Political Connections, Government Subsidies, Soft Budget Constraint, and Protected Entry between MBO and Other Privatized Frims (Cont'd)

Panel E. Protected Entry

Panel E1. Reported Competition by MBOs and Other Privatized Firms

	All Privatized SOEs	MBO
% Monopoly	9%	2%***
% Has Market Power	22%	16%***
% Competitive Market	78%	84%***

Panel E2. Reported Competition in Industries Perceived as Protected Industries

	All Privatized SOEs				MBOs			
	# Obs	% Firms	% Monopoly	% Competitive Market	# Obs	% Firms	% Monopoly	% Competitive Market
Energy	35	4%	23%	69%	10	2%	10%	80%
Coal	34	4%	21%	71%	10	2%	10%	80%
Oil and Natural Gas	1	0.1%	100%	0%	0	0%	n.a.	n.a.
Utilities	83	9%	67%	13%	10	2%	60%	20%
Power Supply	47	5%	68%	13%	7	2%	43%	29%
Fuel Gas	9	1%	44%	33%	0	0%	n.a.	n.a.
Water	27	3%	74%	7%	3	1%	100%	0%
Car	54	6%	11%	74%	18	4%	6%	78%
Pharmacy	37	4%	0%	86%	21	5%	0%	86%

Table 8. Post-Privatization Restructuring and Professionalization

Panel A presents, by privatization method, the percentage of firms that have undertaken restructuring. Significance levels are based on two-tailed tests of differences between a particular privatization method and other methods. Panel B presents the logit model (columns (1), (3)-(5)) or the Tobit model (column (2)) of restructuring measures after privatization. The financial variables are the three-year average after privatization. Robust standard errors are in parentheses. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Panel A. Post-Privatization Restructuring Measures

	Change of Core Management Team	Performance-based Compensation		International Accounting & Independent Auditing	Establishing Board of Directors
		Ratio of Bonus in Cash Compensation	Shares		
Direct Sales to Insiders (MBO)	64%	54%***	8%	11%**	84%***
Direct Sales to Outsiders	61%	51%	15%***	7%	67%***
Other Methods	60%	35%***	2%	5%	71%
All Privatized SOEs	62%	47%	7%	8%	76%

Panel B. Logit and Tobit Regression of Post-Privatization Restructuring Measures

	Change of Core Management Team	Performance-based Compensation		International Accounting & Independent Auditing	Establishing Board of Directors
		Ratio of Bonus in Cash Compensation	Shares		
	(1)	(2)	(3)	(4)	(5)
Lag of Performance	-0.073**	0.274*	-0.264***	0.192	0.244***
	(0.036)	(0.140)	(0.080)	(0.065)	(0.046)
Log (sales)	-0.223	-0.020*	0.45	-3.570***	-0.069
	(0.343)	(0.011)	(0.773)	(0.992)	(0.408)
Leverage	-0.631**	0.057	0.422**	-0.522	-0.501***
	(0.302)	(0.099)	(0.187)	(0.575)	(0.182)
Direct Sales to Outsiders	-0.166	0.140***	1.793***	-0.094	-0.055
	(0.171)	(0.053)	(0.423)	(0.369)	(0.203)
MBO	0.388**	0.202***	-1.253***	0.991***	0.782***
	(0.151)	(0.044)	(0.272)	(0.318)	(0.189)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	606	553	606	606	606

Table 9. Government Incentives and Choices of MBO Method

This table presents the effect of government incentives on MBO choices. Panel A reports the summary statistics of variables. Significance levels are based on two-tailed tests of differences between the MBO firms and other methods. Panel B presents the logit regression of MBO choices as in Equation (2). *Fiscal Resources* is defined as fiscal revenue over GDP; High share of SOE employment is a dummy variable indicating *Share of SOE Employment* above the median. Robust standard errors are in parentheses. In both panels, significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Panel A. Summary Statistics of Government Incentives and City-Level Variables

		All Privatizatized SOEs	MBO
Government Incentives			
Fiscal Resources	Mean	0.67	0.70***
	Median	0.71	0.71
Share of SOE Employment	Mean	0.25	0.24
	Median	0.17	0.16*
% with Government Land Subsidy	Mean	69%	62%***
% with Government Guarantee of Loans	Mean	7%	7%
City-Level Controls			
Log (GDP per Capita)	Mean	9.72	9.77*
	Median	9.71	9.78*
Population Growth	Mean	0.03	0.04*
	Median	0.01	0.01

Table 9. Government Incentives and Choices of MBO Method

Panel B. Logit Regression of MBO Choices

	Dependent Variable: MBO	
	(1)	(2)
Government Incentives		
Fiscal Resources	-0.979	-1.173
	(0.230)	(0.159)
Share of SOE Employment	-0.748**	-0.754**
	(0.024)	(0.026)
Fiscal Resources * High Share of SOE Employment	2.660***	2.372***
	(0.002)	(0.008)
Government Land Subsidy	-0.142***	-0.142***
	(0.000)	(0.001)
Government Guarantee of Loans	0.053	0.078
	(0.464)	(0.314)
City-Level Controls		
Log (GDP per Capita)	-0.021	-0.022
	(0.568)	(0.554)
Population Growth	0.216	0.233
	(0.242)	(0.241)
Firm-Level Controls		
Log (sales)		-0.021*
		(0.054)
Performance		-0.023
		(0.874)
Leverage		-0.103
		(0.330)
Observations	708	678
R-squared	0.199	0.207

Table 10. A First Look at Performance of Chinese Firms

This table presents the OLS estimates of the effect of privatization on firm performance as in Equation (3). It is based on the sample containing privatized SOEs, non-privatized SOEs, and de novo private firms during 1998 to 2007. Performance measures are calculated as operating profits (earnings before interest, tax and depreciation) over assets and number of employees, respectively. Robust standard errors are in parentheses. Significance at the 1%, 5%, and 10% levels is indicated by ***, ** and *, respectively.

	Performance Measures		Performance Measures	
	Profits/ Assets	Profits/ #Employee	Profits/ Assets	Profits/ #Employee
	(1)	(2)	(3)	(4)
Log (sales)	0.026***	16.629***	0.026***	16.621***
	(0.001)	(1.415)	(0.001)	(1.400)
Leverage	-0.071***	-3.511	-0.070***	-3.473
	(0.011)	(4.901)	(0.011)	(4.851)
Privatized Firms	-0.088***	-31.925***	-0.094***	-32.494***
	(0.007)	(2.672)	(0.006)	(3.815)
SOE	-0.097***	-23.972***	-0.098***	-24.032***
	(0.006)	(2.482)	(0.006)	(2.561)
Post Dummy			0.012	1.026
			(0.009)	(3.220)
Year Dummies	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	17,339	17,153	17,339	17,153
R-squared	0.072	0.057	0.072	0.057

Table 11. The Influence of Privatization Methods on Post-Privatization Performance

This table presents the influence of privatization methods on firm performance as in Equation (3). It is based on the sample of all privatized firms during 1998 to 2007. Performance measures are calculated as operating profits (earnings before interest, tax and depreciation) over assets and number of employees, respectively. Robust standard errors are in parentheses. Significance at the 1%, 5%, and 10% levels is indicated by ***, ** and *, respectively.

	Performance Measures		Performance Measures		Performance Measures	
	Profits/ Assets	Profits/ #Employee	Profits/ Assets	Profits/ #Employee	Profits/ Assets	Profits/ #Employee
	(1)	(2)	(3)	(4)	(5)	(6)
Log (sales)	0.021***	9.256***	0.084***	18.263***	0.084***	18.262***
	(0.002)	(0.401)	(0.011)	(1.521)	(0.011)	(1.521)
Leverage	-0.079***	0.207	0.006	6.756*	0.007	6.739*
	(0.020)	(3.545)	(0.018)	(3.881)	(0.018)	(3.857)
Post Dummy	0.005	-1.178	-0.013	-4.169*	-0.009	-4.275
	(0.012)	(2.074)	(0.013)	(2.218)	(0.015)	(2.903)
MBO * Post	0.057***	7.467***	0.044***	5.950***	0.040***	6.047*
	(0.011)	(1.938)	(0.015)	(2.615)	(0.017)	(3.194)
Direct Sales to Outsiders * Post					-0.010	0.268
					(0.018)	(3.792)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	No	No	No	No
Firm Fixed Effects	No	No	Yes	Yes	Yes	Yes
Observations	5,222	5,144	5,245	5,167	5,245	5,167
R-squared	0.083	0.206	0.518	0.549	0.518	0.549

Table 12. Further Analysis of MBO Performance Improvement

This table provides further analysis of the influence of privatization methods on firm performance. Panel A and B estimate Equation (3) based on the sample of all privatized firms during 1998 to 2007. Panel C compares MBOs and de novo private firms. Panel C1 estimates Equation (3) based on the sample of MBO and de novo private firms during 1998 to 2007. Panel C2 reports the results by the method of matched sample. Matching is by industry and size, where the size is based on assets or sales within 20% range, or firms that are closest in size to the MBO firm. Performance measures are calculated as operating profits (earnings before interest, tax and depreciation) over assets and number of employees, respectively. Performance improvement is defined as the difference of average performance measures before and after privatization. Robust standard errors are in parentheses. Significance at the 1%, 5%, and 10% levels is indicated by ***, ** and *, respectively. Significance at the 1%, 5%, and 10% levels by one-sided tests is indicated by [a].

Panel A. Impact of City-Level Economic Prospects

| | Performance Measures | | Performance Measures | |
| | Profits/ Assets | Profits/ #Employee | Profits/ Assets | Profits/ #Employee |
	(1)	(2)	(3)	(4)
Log (sales)	0.084***	16.863***	0.084***	16.848***
	(0.015)	(1.570)	(0.015)	(1.573)
Leverage	-0.002	0.092	-0.001	-0.109
	(0.024)	(5.208)	(0.025)	(5.219)
Post Dummy	-0.026	-6.543*	-0.024	-8.423*
	(0.017)	(3.390)	(0.020)	(4.297)
MBO * Post	0.067***	8.187**	0.065**	9.971**
	(0.025)	(3.783)	(0.026)	(4.420)
Direct Sales to Outsiders * Post			-0.004	4.732
			(0.025)	(5.501)
City*Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effeccts	Yes	Yes	Yes	Yes
Observations	5,241	5,163	5,241	5,163
R-squared	0.647	0.724	0.647	0.724

Table 12. Further Analysis of MBO Performance Improvement (Cont'd)

Panel B. Protected Entry

	Performance Measures		Performance Measures		Performance Measures		Performance Measures	
	Profits/ Assets	Profits/ #Employee	Profits/ Assets	Profits/ #Employee	Profits/ Assets	Profits/ #Employee	Profits/ Assets	Profits/ #Employee
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (sales)	0.084***	18.192***	0.084***	18.192***	0.084***	18.197***	0.083***	18.203***
	(0.011)	(1.524)	(0.011)	(1.525)	(0.011)	(1.527)	(0.011)	(1.533)
Leverage	0.007	6.803*	0.007	6.803*	0.007	6.816*	0.008	6.805*
	(0.018)	(3.872)	(0.018)	(3.880)	(0.018)	(3.877)	(0.018)	(3.872)
Post Dummy	-0.003	-3.995*	-0.002	-3.996*	-0.007	-4.019*	-0.002	-4.160*
	(0.012)	(2.210)	(0.012)	(2.253)	(0.015)	(2.102)	(0.013)	(2.215)
MBO * Post	0.036**	5.766**	0.035**	5.769**	0.041**	5.866**	0.031*	6.121**
	(0.015)	(2.589)	(0.016)	(2.703)	(0.016)	(2.492)	(0.016)	(2.825)
Monopoly * Post	-0.058**	-1.652	-0.061**	-1.642				
	(0.025)	(4.907)	(0.031)	(5.878)				
Monopoly * MBO *Post			0.016	-0.053				
			(0.037)	(8.656)				
Market Power * Post					-0.020	-0.884	-0.038*	-0.403
					(0.022)	(3.266)	(0.023)	(4.808)
Market Power * MBO * Post							0.049	-1.246
							(0.052)	(5.948)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,241	5,163	5,241	5,163	5,241	5,163	5,241	5,163
R-squared	0.519	0.549	0.519	0.549	0.518	0.549	0.519	0.549

Table 12. Further Analysis of MBO Performance Improvement (Cont'd)

Pane C. Comparison Between MBO and De Novo Private Firms

Panel C1. The Regression Method

	Performance Measures	
	Profits / Assets	Profits / #Employee
	(1)	(2)
Log (sales)	0.110***	23.402***
	(0.013)	(1.962)
Leverage	-0.005	8.037
	(0.023)	(11.316)
MBO * Post	0.023	4.425
	(0.014)	(2.703)
Year Dummies	Yes	Yes
Firm Fixed Effects	Yes	Yes
Observations	7,468	7,385
R-squared	0.632	0.515

Panel C2. The Matched Sample Method

	MBO Privatization	Matched De Novo Firms Based on Industry and			
		Assets within 20% Range	Closest in Assets	Sales within 20% Range	Closest in Sales
% Matched	n.a.	67%	98%	71%	98%
Performance Measurement: Profits/Assets					
Performance Improvement	0.09***	0.06***	0.06***	0.09***	0.07***
Diff-in-diffs	n.a.	0.07	0.04	-0.04	-0.02
p-values	n.a.	(0.236)	(0.301)	(0.241)	(0.518)
Performance Measurement: Profits/#Employee					
Performance Improvement	16.70***	35.18**	30.08***	35.12***	37.38***
Diff-in-diffs	n.a.	-11.16	-8.51	-17.86	-15.27*
p-values	n.a.	(0.405)	(0.385)	(0.104)	(0.099)

Table 13. Instrumental Variable Estimates of the Effect of MBO on Performance

This table presents the instrumental variable (IV) estimates of the effect of MBO on performance as in Equation (3). It is based on the sample of all privatized firms during 1998 to 2007. The model is estimated using limited information maximum likelihood (LIML) estimation. Government Incentives, defined in Table 5, are used as instruments. Performance measures are calculated as operating profits (earnings before interest, tax, and depreciation) over assets, sales, and number of employees, respectively. The number of observations is less than that in Table 11 due to missing numbers in instruments including SOE shares and fiscal capacity. Robust standard errors are in parentheses. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

	Performance Measures	
	Profits/ Assets	Profits/ #Employee
	(1)	(2)
Log (sales)	0.081***	17.442***
	(0.011)	(1.307)
Leverage	-0.001	5.594
	(0.019)	(4.091)
Post Dummy	-0.085**	-17.426**
	(0.039)	(6.941)
MBO * Post	0.186**	30.588**
	(0.080)	(13.070)
Year Dummies	Yes	Yes
Firm Fixed Effects	Yes	Yes
Observations	4,869	4,805
R-squared	0.520	0.566

Appendix 1. Survey Questions Relevant to the Analysis in the Paper

Part I Basic information

1. Has your firm experienced *Gaizhi (Privatization)*?   A. Yes;   B. No.
   (If Yes, proceed with this questionnaire; Otherwise, proceed with Questionnaire B)

2. Method of Privatization:

Method	**Year**	
	First time	Last time
A. Going Public	_____	_____
B. Maintaining the ownership of existing assets	_____	_____
B.1 Maintaining the previous owernship but establishing Articles of Association and Board of Directors	_____	_____
B.2 Spinoffs: Separate the firm into smaller ones	_____	_____
B.3 Issuing new shares to parties with different types of owernship	_____	_____
B.4 Swapping debts into shares	_____	_____
B.5 Others (please be specific)	_____	_____
C. Bankruptcy and Reorganization	_____	_____
D. Transforming into shareholding companies	_____	_____
E. Direct sales:	_____	_____
E.1 Sales to managers	_____	_____
E.2 Sales to other individual insiders	_____	_____
E.3 Sales to another stated-owned firm	_____	_____
E.4 Sales to outsiders	_____	_____
E.5 Others (Please be specific)	_____	_____
F. Leasing, contracting or trusteeship	_____	_____
G. Forming a joint venture with a foreign firm	_____	_____

3. In which way do the majority of senior managers purchase most of their shares? (One choice only)

     A. Paying in cash in full

     B. Paying by installments within several years

     C. Others (Please be specific)

If "Paying by installments within several years", the percentage of the initial payment is _____% in all; the payment lasts _____years.

4. How do most senior managers fund their share purchases? (Please choose the respective percentage)

	<20%	20%-40%	41%-70%	>70%
Personal savings				
Borrowings from friends and relatives				
Bank loans				
Future income (salaries or dividends)				
Others (Please be specific)				

5. How many competitors do you have for your products in the market?
   A. No competitors; B. Few competitors; C. Some competitors; D. Many competitors

6. Does the firm have bank loans?   A. YES; B. NO
   6.1 Percentage of failed application for loans (%)
      Before Reform_____; After Reform_____
   6.2 If there are failures in application for loans, what is the reported reason?
      Before Reform_____; After Reform_____
      A. Lack of collateral or guarantees;
      B. Lack of credit records;
      C. Loan size too small;
      D. Constraint on bank loan supply;
      E. High-risk projects;
      F. Others (Please to be specific)
   6.3 The real reasons in your opinions:
      Before Reform_____; After Reform_____
      A. Agree with reasons presented in 6.2;
      B. Lack of relationships with banks;
      C. Lack of relationships with the government;
      D. Failure to provide banks with required information;
      E. Others (Please be specific)

Part II Corporate Governance
1. Ownership structure
after privatization (in %) (Please classify affiliation for state-owned shares)

	Percent
1. Central government	
2. Local government	
3. Executives	

4. Employees	
5. Other State- owned firm(s) or institution(s)	
6. Other collective firm(s)	
7. Domestic private firm(s)/ individual(s)	
8. Joint venture(s)	
9. Solely foreign owned firm(s)	
10. Other	
Total	
11. The percent of Major shareholder	
12. Total percent of the second and the third shareholder	

2. Was there any change in the core management team of the firm after privatization?
   A. Yes; B. No

3. Is there a board of directors in your firm?   A. Yes; B. No
   3.1 The board chairman is:
       A. A former manager/former CCP Secretary
       B. Appointed by government
       C. The largest shareholder
       D. New CEO
       E. Other (please specify: _____)
   3.2 The Board Chairman was:
       A. Chosen by the largest shareholder
       B. Appointed by government
       C. Elected by the Board of Directors
       D. Elected by Shareholders' general committee
       E. Chosen by the former general manager
   3.3 The Board composition (fill in numbers):
       __Representatives from the central government;
       __Representatives from the local government;
       __Executives;
       __Employees;
       __Representatives from other SOEs or governmental institutions
       __Representatives from other collective firms;
       __Representatives from foreign-funded company;
       __Representatives from joint ventures;
       __Other owners of domestic private firms or individual shareholders;
       __Independent directors;
       __Others;

4. CEO

4.1 Is CEO of your firm also the legal person?
   Before privatization: A. Yes;   B. No.
   After privatization: A. Yes;   B. No.
4.2 Is CEO of your firm also the Board Chairman?
   Before privatization: A. Yes;   B. No.
   After privatization: A. Yes;   B. No.
4.3 How many years has he/she served as CEO?
   Before privatization: years;
   After privatization: years.
4.4 Was CEO an employee of your firm before this appointment?
   Before privatization: A. Yes;   B. No.
   After privatization: A. Yes;   B. No.
4.5 CEO:
   Before privatization:
    A. Was elected by the general shareholders' meeting
    B. Was appointed by the Board
    C. Was held by the largest shareholder
    D. Was appointed by the government
    E. Others
   After privatization:
    A. Was elected by the general shareholders' meeting
    B. Was appointed by the Board
    C. Was held by the largest shareholder
    D. Was appointed by the government
    E. Others

5. CEO compensation
  5.1 Percentage of shares owned by CEO:
   Before privatization: %
   After privatization: %
  5.2 Is the stake owned by CEO related to operating performance?
   Before privatization: A. Yes;   B. No.
   After privatization: A. Yes;   B. No.
  5.3 Is CEO's cash income related to operating performance?
   Before privatization: A. Yes;   B. No.
   After privatization: A. Yes;   B. No.
   If YES, the percentage of his income related to operating performance in his/her total salary:
   Before privatization: %
   After privatization: %

6. The importance of the government and the major parties of the firm in the following decisions of the firm, before and after privatization (Rate the importance, with a 0-5 scale, in which 0 means Irrelevant and 5 means Indispensably Important):

Decision	Government	Board of	CEO	Party	Shareholde

			directors		committee	r meetings
Recruitment/ laying off	Before					
	After					
Investment	Before					
	After					
Compensation	Before					
	After					
Executive appointment	Before					
	After					
Profit allocation	Before					
	After					
Production and marketing	Before					
	After					
Finance	Before					
	After					
Use of Funds	Before					
	After					

Part III Government and Business

1. Government support of land or share contribution in the form of land: (Please fill in the respective percentage)

    Before the reform (%) :   _____;
    After the reform (%) :   _____.

2. Sources of R&D projects

	Self-choice	Projects from government	Projects from research institutions
Before the reform			
After the reform			

Appendix 2. Details about Regional Distribution of Privatization over Time

Region	Province	Year of Privatization						
		1999	2000	2001	2002	2003	2004	2005
North								
	Beijing	2	3	1	4	3	3	2
	Tianjin	1	2	7	1	3	2	1
	Hebei	2	14	8	5	12	9	9
North-East								
	Heilongjiang	0	2	2	1	1	1	4
	Jilin	1	0	2	4	1	2	6
	Liaoning	5	11	3	5	3	8	7
North-West								
	Xinjiang	1	0	0	1	2	2	1
	Qinghai	0	0	1	0	0	0	1
	Ningxia	4	1	0	1	0	0	1
	Gansu	1	1	0	1	2	2	7
	Shanxi	0	1	4	9	4	4	2
	Innermongolia	1	0	2	0	1	2	1
North-Central								
	Shanxi	2	2	2	11	4	3	6
	Henan	1	7	2	6	12	3	4
	Shandong	7	14	18	11	21	14	12
South-West								
	Xizang							
	Yunnan	2	3	4	8	11	2	6
	Guizhou	1	1	1	5	0	1	1
	Sichuan	2	3	1	2	0	1	5
	Chongqing	0	0	1	3	2	1	0
East								
	Shanghai	4	1	2	5	4	4	4
	Jiangsu	9	7	9	10	18	11	4
	Zhejiang	2	5	9	4	7	1	2
South								
	Guangxi	1	2	0	1	2	1	2
	Guangdong	3	7	9	2	5	4	3
	Fujian	0	4	4	1	3	2	3
	Hainan	0	0	0	0	0	0	1
South-Central								
	Hubei	3	3	5	2	3	4	2
	Hunan	2	0	1	2	0	2	3
	Jiangxi	3	8	5	5	5	3	6
	Anhui	1	3	1	1	1	6	4

Appendix 3. NSB Data

The National Statistical Bureau (NSB) is arguably the most important data source for studying industrial firms in the Chinese economy. However, some questions have arisen about the quality of this data set, as is the case with any Chinese data. In this study, we have examined the data in detail to understand how their weakness may affect our analysis. This appendix summarizes our findings.

1.   Missing data

Critics have raised the issue of missing observations in the NSB data set. The most relevant concern for our analysis is that data might be missing for performance-related reasons, which biases our results. Table A1 reports the extent of missing data. To start, we focus on firm-year observations with valid sales *and* assets information. Column (1) of Panel A reports the NSB data sample size by year. It increases considerably over years, reflecting more firms meeting the 5-million-sales criterion, driven by the economic growth in China, and better coverage of the NSB census.

Columns (2) and (3) report the number and percentage of firms entering into and disappearing from the database. Column (4) is the number of firms reappearing. Each year, about 10%-26% (with an average of 18%) of the firms disappear from the database, whereas only a small proportion of these firms reappear in the database in later years. This finding suggests that once a firm enters the database, it reports data quite reliably every year until it disappears.

Panel B further confirms this pattern. It reports the number of missing years for firms with different data span, which is defined as the total number of years a firm appears in the

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database. The vast majority of the firms—an average of 89% of firms across data spans between two and nine years—do not have any missing data. In the next few columns, we show, for those firms with missing observations, the number of years for which data are missing. In most of the cases, the data are missing for only one year. Combined with those in Panel A, the results suggest that although the database shows a substantial attrition of firms, during the firms' data span, missing data are not a big concern. In other words, firms permanently dropping out of the database are the primary drivers of the data attrition.

In what follows, we examine whether any pattern exists in the firms' (permanent) disappearance. Here, we focus on firms reporting data continuously until they disappear, because disappearance is the main source of missing data. Panel C of Table A2 is an entry and exit matrix. It reports the year in which firms entering the database in each year disappear—if they disappear. For example, the first row shows how many of the firms entering the database in 1998 disappear in each of the subsequent years from 1999-2006 (the last year of our data). The last two columns show the proportion of firms that never disappear.

Clearly, most firms that disappear do so during the first two years after they enter the database, accounting for around 60% of firm attrition on average, excluding firms entering in 2004, which has only two years of data. Several possible reasons can explain this pattern. First, after the Party's 15th Congress in 1997, large-scale privatization and restructuring of SOEs occurred, which disrupt company operations and thus responses to NSB survey. Private sector firms might also be involved in some kind of restructuring, to the extent that they are involved in mergers and acquisitions. Although the NSB database does not record such activities directly, it has a variable called "registration type." Under registration type, companies are classified into seven ownership categories, including SOEs, COEs (collectively owned enterprises), Hong

Kong, Macao, Taiwan-owned enterprises, foreign-owned enterprises, shareholding companies, private companies, and other domestic companies. A change in registration type reflects privatization or a significant M&A event. However, not all corporate restructurings would result in a change in registration type if such a restructuring does not involve a change in the ownership category as defined above. Nevertheless, this measure is the best one we have to gauge the extent of restructuring. Panel D1 of Table A2 supports the restructuring hypothesis and shows 65% of the firms that disappear in the first two years have changed their registration type, a much higher probability compared with firms disappearing in later years (7%) and those that never disappear (7%).[1]

Another possibility is that the firms are smaller, and yearly variations in sales make them fall below the 5-million-sales criterion necessary for inclusion in the NSB census. Panel D2 of Table A2 reports financial variables of firms in the first year they enter the database. Columns (1) and (2) indicate that compared with those that never disappear, firms that disappear in the first two years are indeed significantly smaller and are much more likely to have sales below 5 million (20% vs. 4%). Thus, the exogenous criterion of sales the NSB imposes appears to be an important reason firms disappear. One may argue that lower sales may be related to bad performance. This connection is not obvious, because in an SOE-dominated economy, refocusing and selling off redundant assets, which would reduce sales in the short run, is actually good news for efficiency and performance. When we compare firms disappearing in the first two years and those disappearing later, the former group is smaller, but the difference in the proportion of firms with sales below 5 million is not economically significant (21% vs.

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[1] We also look at the proportion of firms that change registration type during all the years in the database for both firms that disappear in later years and those that never disappear. They are 23% and 47% respectively. Thus change in registration type does not necessarily cause firms to disappear. It just so happens that registration type changes in the first two years are associated with firms disappearing.

20%). Thus, although firm size is an important factor related to firms disappearing, it is not a direct reason for firms' disappearance in the first two years as opposed to later years.

Finally, we check whether data attrition results from firms that are not performing well and thus are reluctant to respond to the NSB census. Note that this explanation and the restructuring explanation may not be mutually exclusive. The proportion of negative-profit firms that have undergone a change in registration type is not significantly different from those that have not. In fact, among firms that disappear in the first two years, the proportion of negative profits is actually slightly smaller for those with a change in registration type than those without (25% vs. 27%). Thus, restructuring is not necessarily associated with poor performance.

In column (3) of Panel D2, we compare the two groups of firms disappearing (in the first two years and later) with those that never disappear. We find the former has a greater proportion of firms with negative profits in the first year in which they enter the database, which seems to suggest firms' poor performance may be associated with firms disappearing. To further understand the association between poor profits and data attrition, in Panel D3 of Table 1, we compare firms disappearing later with those that never disappear. We find the proportion of firms with at least one year of negative profits differs little between the two groups in terms of economic significance (37% vs. 32%). This finding is reassuring because it means firms with poor profits do not necessarily disappear, or the association between poor profits and firms' disappearance is fairly weak in the whole sample. Taken together, the evidence suggests restructuring and the sales criterion exogenously imposed by the NSB, rather than performance, are the main reasons firms disappear.

2. Privatization and NSB-reported Change of Registration Type

        Given the NSB database records the registration type, a natural question may be "Can one identify privatization based on the changes of registration types?" This alternative approach may not be reliable, because, after partial privatization, the firm remains an SOE and thus would not report a change in registration type. In fact, our survey data provides a unique opportunity to check whether it is appropriate to use changes in registration type to identify privatization. Denoting privatization year as t, we classify privatization based on the change in registration type from t-1 or t+1. If registration type ever changes from SOE to non-SOE during this three-year window, we classify it as privatization.

        Panel A of Table A3 suggests type II error is the main problem with using registration type to identify privatization (the null is no privatization). Among the 789 privatized firms, less than a quarter (23.2%) would have been classified as privatized. That is, the chance of type II error is 76.8%. If we extend the window to [t-2, t+2], things do not improve much and the chance of type II error is still as high as 67.3%. In comparison, type I error is a minor problem and is present in only 6.1% of the cases. Panel B of Table A3 further documents the reasons registration type fails to identify privatization. When we use a window of [t-1,t+1], 51% of the failure in identifying privatization is a results of firms not reporting any change in registration type after privatization. The second reason is that some SOE firms are never classified as SOEs (38% of the cases). Or sometimes the registration type is missing (7%). Finally, firms' reported registration types are, at times, inconsistent: they may be an SOE in one year, a non-SOE in another year, and then become an SOE again. Or they may turn from a non-SOE to an SOE. These inconsistent cases account for 3% of all failed identification. Taken together, the evidence suggests change of registration type is not a reliable indication of privatization, for two reasons.

One is that the firm still considers itself an SOE as long as the remaining state ownership is significant. The other is that registration type does not seem to be a reliable or accurate variable.

3.   Privatization and NSB-Reported State Ownership

The NSB database contains information on state ownership. We check the reported state ownership of our sample of privatized firms. Again, we denote privatization year as t. Figure A1 plots NSB state ownership from t-7 to t+8. The finding that state ownership declines for the privatized firms in our survey is reassuring. Consistent with our earlier discussion that restructuring may happen in the years prior to the big push of direct sales, a mild decline in state ownership occurs before the reported privatization. Moreover, most of the decline in state ownership occurs between t-1 and t+1. All these findings suggest that although NSB state-ownership data are broadly consistent with privatization, they cannot identify the exact timing of privatization and thus should not be used for studies involving performance comparison.

Table A1. The Extent of Missing Data in the NSB Database

Panel A. Number of observations in NSB by year

Numbers in brackets in columns (2) and (3) are, respectively, new firms and disappearing firms as a percent of the number of observations in the previous year. (1) = (1)_last year + (2) − (3) + (4).

Year	# of firms (1)	# of new firms (2)	# of disappearing firms (3)	# of reappearing firms (4)
1998	146,259	n.a.	n.a.	n.a.
1999	155,151	30,640 (21%)	21,748 (15%)	n.a.
2000	156,357	28,038 (18%)	28,429 (18%)	1,597
2001	163,968	46,162 (30%)	41,392 (26%)	2,841
2002	176,834	33,866 (21%)	25,422 (16%)	4,422
2003	193,122	43,376 (25%)	30,924 (17%)	3,836
2004	273,329	124,462 (64%)	50,783 (26%)	6,528
2005	269,751	36,209 (13%)	44,830 (16%)	5,043
2006	299,334	50,246 (19%)	26,963 (10%)	6,300
Total # of firms	1,834,105	392,999	270,491	30,567
Average of %	n.a.	26%	18%	n.a.

Panel B. Years of missing data by data span

Data span is defined as the number of years from the first year a firm enters database to the last year that the firm is in the database.

Data Span	Total	# firms w/o missing data	missing for			
			1 year	2 years	3 years	≥4 years
9 years	42,062 (100%)	35,148 (84%)	3,470 (8%)	1,373 (3%)	921 (2%)	1,150 (3%)
8 years	12,616 (100%)	9,889 (78%)	1,391 (11%)	557 (4%)	396 (3%)	383 (3%)
7 years	16,327 (100%)	13,033 (80%)	1,547 (9%)	808 (5%)	527 (3%)	412 (3%)
6 years	38,942 (100%)	34,106 (88%)	2,982 (8%)	1,230 (3%)	428 (1%)	196 (1%)
5 years	35,439 (100%)	31,701 (89%)	2,578 (7%)	846 (2%)	314 (1%)	n.a.
4 years	48,247 (100%)	45,126 (94%)	2,334 (5%)	787 (2%)	n.a.	n.a.
3 years	127,740 (100%)	122,776 (96%)	4,964 (4%)	n.a.	n.a.	n.a.
2 years	83,260 (100%)	83,260 (100%)	n.a.	n.a.	n.a.	n.a.
1 years	134,625 (100%)	n.a.	n.a.	n.a.	n.a.	n.a.
Total of # firms	539,258	375,039	19,266	5,601	2,586	2,141
Average of %	100%	89%	7%	3%	2%	2%

Panel C. Entry & exit matrix

Year the firm enters	Firms reporting data continuously until they disappear										Never disappear & % of the total
	Year the firm disappears								Subtotal	Disappear in the first two years	
	1999	2000	2001	2002	2003	2004	2005	2006			
1998	18,306 (19%)	18,083 (19%)	21,743 (22%)	9,860 (10%)	9,390 (10%)	13,055 (13%)	3,826 (4%)	3,422 (4%)	97,685 (100%)	36,389 (37%)	35,148 (24%)
1999	n.a.	6,418 (31%)	5,625 (27%)	2,393 (11%)	2,325 (11%)	2,759 (13%)	754 (4%)	679 (3%)	20,953 (100%)	12,043 (57%)	6,467 (21%)
2000	n.a.	n.a.	7,504 (44%)	2,362 (14%)	2,322 (14%)	3,203 (19%)	855 (5%)	774 (5%)	17,020 (100%)	9,866 (58%)	8,528 (30%)
2001	n.a.	n.a.	n.a.	6,040 (26%)	6,109 (26%)	7,407 (32%)	1,866 (8%)	1,716 (7%)	23,138 (100%)	12,149 (53%)	19,523 (42%)
2002	n.a.	n.a.	n.a.	n.a.	5,809 (39%)	6,024 (40%)	1,660 (11%)	1,541 (10%)	15,034 (100%)	11,833 (79%)	16,981 (50%)
2003	n.a.	n.a.	n.a.	n.a.	n.a.	10,314 (67%)	2,643 (17%)	2,550 (16%)	15,507 (100%)	12,957 (84%)	26,331 （61%）
2004	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	26,125 (72%)	10,068 (28%)	36,193 (100%)	36,193 (100%)	84,701 (68%)
2005	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3,863 (100%)	3,863 (100%)	3,863 (100%)	32,346 (89%)
2006	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	50,246 (100%)
Total	18,306 (8%)	24,501 (11%)	34,872 (15%)	20,655 (9%)	25,955 (11%)	42,762 (19%)	37,729 (16%)	24,613 (11%)	229,393 (100%)	135,293 (59%)	280,271 (52%)

Panel D. Why do firms tend to disappear in the first two years?

Significance levels of 1%, 5%, and 10% are indicated as ***, **, and *, respectively.

Panel D1. Change of registration type

We test the statistical difference between (a) and (b), and between (a) and (c).

	Change in the first two years	Change during the lifetime
(a) Disappear in the first two years	65%	65%
(b) Disappear later	7%***	23%***
(c) Never disappear	7%***	47%***

Panel D2. Financial variables in the first year the firm enters
We test the statistical difference between (a) and (b), and between (a) and (c).

		# firms	Sales ('000) (1)	Sales < 5 mil (2)	Negative profit (3)
(a) Disappear in the first two years	mean	135,293	26,884	20%	26%
	med		7,518		
(b) Disappear later	mean	94,100	31,178**	21%***	27%***
	med		10,002***		
(c) Never disappear	mean	280,271	44,954***	4%***	19%***
	med		11,893***		

Panel D3. Financial variables of firms disappearing at some point and those that never disappear

		# firms	Avg Sales ('000) (1)	Sales < 5 mil (2)	Neg profit (3)
Disappear at some point	mean	229,393	35,040	30%	37%
	Med		9,807		
Never disappear	mean	280,271	91,905***	6%***	32%***
	med		19,813***		

Table A2. Change of Registration Types in NSB Data

Panel A. Type I & type II errors in using registration types to identify privatization

This table reports the success rate of using the change of registration type in the NSB database to identify privatization in our sample. For privatized firms in our survey, the privatization year is t. Then we check the registration type during [t-1, t+1] and [t-2, t+2]. If the registration type changes from state-owned and collectively owned firms to other types, we define it as privatization. For non-privatized firms, we use the same algorithm to check the registration change in NSB data over the whole sample period (1998-2006).

Panel A. Identification based on windows [t-1, t+1] and [t-2, t+2]

Identified by the survey

	Privatized window [t-1,t+1]	Privatized window [t-2,t+2]	Not privatized
Privatized	183 (23.2%)	258 (32.7%)	29 (6.1%)
Not privatized	606 (76.8%)	531 (67.3%)	446 (93.9%)
Total	789 (100%)	789 (100%)	475 (100%)

Identified by NSB (row label, left side)

Panel B. Reasons why NSB fail to identify privatization

This table presents the reasons NSB data fail to identify privatization. "Others" means registration type goes from non-SOE to SOE at some point during the window.

	Window [t-1,t+1]	Window [t-2,t+2]
No registration-type change	310 (51%)	318 (60%)
Not SOE	233 (38%)	108 (20%)
Registration type missing	44 (7%)	72 (14%)
"Others"	19 (3%)	33 (6%)
Total	606 (100%)	531 (100%)

Table A3. Change in the Mean of State Ownership in NSB for Privatized Firms