A Holistic View on Deprivatization

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Abstract

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Keywords: Deprivatization, Partial privatization, Motivation, Outcome, Mixed-ownership Reform
JEL Classification: G11 and G12.

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1. Introduction

Privatization refers to the ownership transfer from state-owned enterprises (SOEs), fully or partially, to private entities. Deprivatization means the opposite: letting in or expanding of state ownership in private-controlled firms.[1] Deprivatization is different from nationalization. While the latter refers to the takeover of private firms by the government for political and social purposes and is often a forced agenda on private firms, the former is more likely to be voluntary for both the private and state entities involved based on business considerations and does not necessarily lead to the state control.

Radić et al. (2021) argue that privatization, per se, may not deliver the desired improvement of firm performance. Privatization has limitations, especially, in the transitional economies and emerging markets where the institutional infrastructure is weak (Estrin et al., 2009; Nellis, 1999). Faccio (2006) point out that corporate political connections are widespread among the publicly listed private firms in transitional economies, and partial state ownership may be a type of political connection which can help address the market failure or weak institutional infrastructure. Boubakri et al. (2018) even find that SOEs have higher valuation than private firms in Southeast Asian countries.

The existing studies on deprivatization borrow the argument for partial privatization and mainly examine whether deprivatization can help deal with the "limitations" associated with the private ownership resulting from the weak institution.[2] However, motivations to let in private owners may also lead to deprivatization. In other words, deprivatization and letting in other private owners can be substitutes to some extent. Using a relatively clean sample, we extend the existing literature by taking a more holistic view to examine the incentive and consequence of letting in state

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[1] In his study on renationalization in Russia, Chernykh (2011) defines deprivatization as the expansion of state shareholdings in the previously privatized companies. Our definition is broader, which includes all private firms letting in state ownership.

[2] See, for example, Feng et al. (2018), Goldman et al. (2009), Kong and Wang (2016), Song et al. (2015), Faccio (2006), Calomiris et al. (2010). Zhan (2023)

ownership and see whether they are substantially different from letting in other private owners.

Two often mentioned incentives for deprivatization or partial state ownership are seeking protection for property rights and obtaining favorable treatments from the government to combat the weak institution (see footnote 2). Another possible reason for deprivation is more specific to distressed firms as they are more likely to reach out to government for rescuing (Liu et al., 2023). However, private firm owners may sell their shares to a state entity for many other purposes. For example, they may sell for personal portfolio diversification, risk sharing, cashing out to enjoy a quiet life, getting business synergies, and raising capital to finance the firm's investments. These purposes can also be achieved by selling equities to other private entities. In fact, deprivatization may be "accidental" rather than "intentional" from the original firm owners' point of view. On the other hand, many SOEs involved in deprivatization may not have the incentive or capability to provide favors to or the protection for deprivatized firms. As time goes on, many listed SOEs become more profit-oriented and they buy into private firms just for business synergies according to the market norm. Hence, having a more holistic view on deprivatization is necessary.

When examining the motivation and impact of deprivatization or renationalization, the existing literature compares deprivatized firms with other private firms without going through deprivatization. With a holistic view, we separately compare the deprivatized firms with the private firms that have not gone through much ownership change, and with the private firms that have gone through ownership changes without government entities involved. Our study can better distinguish the unique features associated with deprivatization. Since deprivatization with and without letting the state entity be the control shareholder are likely to have different incentives and produce different outcomes, we also do separate analyses for the two types of deprivatization, namely, deprivatization without control transfer to the state entity (Depri1) and deprivatization with control transfer to the state entity (Depri2).

The sample used in our study consists of deprivatized firms and their relevant peers listed in Shanghai and Shenzhen stock exchanges (SSE and SZSE) during the period 2006-2021. China provides a good setting for the study. First, the Chinese government directly controls many SOEs and economic resources, and the institutional infrastructure in China is still not that good (Huang et al., 2021; Gan et al., 2018). Hence,

private firms are likely to have incentives to seek government help by letting in some state ownership. Second, with more than 4000 listed firms, we can obtain a sample with reasonable data quality for the study. The ownership change of listed firms must meet certain fairness and transparency regulations, and thus, are more likely to be voluntary.[3] Third, the mixed ownership reform in China is on-going, which not only calls for further privatization but also calls on private firms to voluntarily let in some state ownership. The claimed rationale of this mixed ownership reform is to combine the advantages but avoid the disadvantages associated with state and private ownerships, respectively. Our study can shed some light on this reform.

The main findings of our study are as follows. First, we find no support to the protection and favor seeking arguments for deprivatization if comparing to firms without going through ownership changes. This is true no matter the deprivatization results in control transfer or not. In fact, the motivation for deprivatization seems largely firm specific as not many ex ante determinants can systematically explain the deprivatization. Second, we find some limited support to the protection seeking argument for deprivatization without control transfer if comparing to firms selling ownership to other private entities, but not for deprivatization firms with control transfer. Third, no matter the comparison is between deprivatized firms and private firms without ownership change or between deprivatized firms and private firms letting in other private entities, there is no profitability improvement after deprivatization despite deprivatized firms with control transfer do get some favorable treatments. Fourth, less profitable firms are more likely to sell their control ownership to others, be they state or private entities. Fifth, we find some weak evidences that alleviating or mitigating financial constraints and getting out of financial distress may motivate deprivatization. However, these motivations may also motivate letting other private entities. Finally, we from the statistics that deprivatization cases are much fewer than ownership transaction cases between private entities. The deprivatization cases as a percent of total significant ownership transaction cases does not increase in the period after the launch of Mixed Ownership Reform relative to the period before, indicating that deprivatization is not increasingly popular among listed firms over the years. Also, about 50% (96 out 198) of the deprivatization cases followed by a reversal in the following 2 years, indicating

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[3] See CSRC's Management Measures for Major Asset Restructuring of Listed Companies (2022) and Listed Company M&A Management Measures (2008).

that deprivatization is often temporary, which is inconsistent with the argument that letting in state ownership to institutionalize the political connection with the government.

Theoretically, our results indicate that removing the limitation associated with the private ownership is not the main reason for deprivatization. Also deprivatization and ownership transfer between private entities can be substitutes to some extent. Practically, deprivatization does not improve firm performance in terms of profitability, which casts doubts over the effectiveness of using deprivatization to mitigate the limitations associated with private firms. This is also inconsistent with the expectation from the mixed ownership reform. On the other hand, deprivatization does not lead to systematic underperformance for deprivatized firms comparing to their relevant peers, indicating it can be largely treated as a normal M&A activity in the market.

The rest of the paper is organized as follow. The next section reviews the relevant literature and discusses the possible motives of deprivatization and its associated outcomes. While section 3 describes the data, empirical analyses on the motivations and outcomes of deprivatized firms relative to their peers are presented in sections 4 and 5, respectively. Section 6 concludes.

2. Related Literature and Empirical Predictions

2.1 Literature review

Our study is related to but distinguished from several lines of the existing literature. Nationalization has occurred in many countries. Politically, the government may nationalize firms with strategic importance (Chernykh, 2011), to maintain social stability (Huang et al., 2021), or to cater to national sentiment (Guriev et al., 2011). Economically, the government may nationalize firms to cherry-pick best performing companies with a grabbing hand (Frye and Shleifer, 1997; La Porta et al., 1999). Alternatively, the government may use nationalization as a helping hand (Pigou, 1938) to address market failure or rescue firms in financial distress, especially, during economic crises. In short, the government is the main driver for the nationalization.

Deprivatization is more likely to be voluntary. Two often-mentioned motivations for deprivatization are: (1) property rights protection (La Porta et al., 1998; and Hellman

et al., 2003) and (2) resource dependence (Pfeffer and Salancik, 1978) or seeking favors. The property rights protection argument says that the legal and market infrastructures are not well developed in transitional as well as emerging economies. Hence, the property rights protection is poor in these countries. In order to reduce the exposure to the weak institution and cherry picking from the government, firms in these countries have the incentive to build political connections (Fan et al., 2007) with the government, or even let in state ownership as an institutional-level political connection (Song et al., 2015) or as an insurance against the government expropriation (Kong and Wang, 2016).

The resource dependence based argument says that in countries where the government controls a great portion of economic resources and such situation is not expected to change significantly in the foreseeable future (Deng et al., 2008), companies may rationally retain or let in state ownership as the government is likely to provide preferential treatments to SOEs in its resource allocation and, to a less extent, to firms with significant but non-control state ownership. For example, deprivatization may help firms to secure government contracts (Goldman et al., 2009), get favorable regulatory conditions (Agrawal and Knoeber, 2001), have access to bank loans at a lower cost (Fraser et al., 2006; Claessens et al., 2008; Xu et al., 2013; Borisova and Megginson, 2011; Borisova et al., 2015), obtain a government bailout (Faccio et al., 2006), pay lower taxes (Faccio, 2010), and pay a lower cost of equity capital (Boubakri et al., 2012). The state ownership can also lower the stock return volatility (Xie et al., 2019).

The literature on deprivatization mostly focuses on China as it probably has the largest number of deprivatization cases. Using a sample of 115 listed firms that let in the state as the largest or second largest shareholder during the period 2000-2013, Feng et al. (2018) find that the state ownership is positively associated with firm performance in the form of stronger market power, more government subsidies, and easier access to bank financing. However, they do not document any improvement in profitability. They also identify significant costs in the form of higher tax burdens, higher employment costs, and higher levels of corporate donations following the entry of state ownership. They further show that weak local institutions exacerbate the influence that state ownership has on the firm performance. Our study differs from theirs in two aspects. First, we directly test the motivations for privatization, while they examine the outcome

of deprivatization and infer whether the outcome is consistent with the protection and favor seeking motivations. Second, while we consider other possible motivations for deprivatization and the possible substitutions between deprivatization and ownership transaction among private entities, they do not.

Kong and Wang (2016) identify 3349 deprivatized cases out of more than 77000 capital raising events during the period 1999-2007 from the ASCIF database and specifically examine why these firms let in minority state owners and the associated consequences. They conclude that seeking government protection and preferential treatment are the determinants for letting in state entities to be minority owners. They also find an increase in sales, employment and wages for deprivatized firms but no improvement in profitability. While their sample is large, it is noisy. First, the ASCIF data are not audited and only available up to 2014. Second, most of these firms are small and the ownership structure kept changing (including reversal) while the Chinese government has a policy of "grasp the large, and let go the small" in its SOE reform. Third, many venture capitalists (VCs) including government-backed VCs are involved in these capital raising cases with the sole purpose to sell the equity later. We use a clean sample of listed firms without ownership change reversal and covers a more recent period in our study, which should yield more relevant results.

Zhan (2023) uses a sample of 80 nationalization and renationalization cases in China from 2001 to 2014 to examine the determinants of the government takeover and the consequences of these takeover. He finds that the poor profitability is the main cause for these nationalization cases, while the nationalization improves the profitability of relevant firms. He concludes that the government takeover of private firms in China is mainly a helping hand to address the market failure. We argue and test more possibilities for deprivatization and use more refined samples.

Song et al. (2015, 2017) use a sample about 300 listed private firms with and without partial state ownership during 2006-2011 to examine if the partial state ownership can bring benefits to the private firms. They find that partial state ownership can help firms to get access to the bank loans and have higher profitability. The partial

state ownership can also be a substitute for other types of political connections between the firm and the government. Overall, they show partial privatization can help mitigate the limitation associated with private ownership to some extent. However, the focus of their study is on partial privatization, so the government ownership is likely carried over from the past, while we examine whether deprivatization can achieve the same purpose.

There are quite a few studies on the mixed ownership reform, mainly published in Chinese journals. The Chinese Government formally started the mixed ownership reform in late 2013.[4] It has two legs, one is to further privatize SOEs and the other is to encourage private firms letting in state entities, mainly SOEs, as the significant or even control shareholder. The purpose of the reform is to combine the advantages but avoid the disadvantages associated with state and private ownerships, respectively (Ding, 2015; Qi et al., 2017), and ultimately improve the financial performance for all firms involved. The studies on the first leg generally document some positive impacts associated with the further privatization. The studies on the second leg are mainly based on property rights protection and/or favor-seeking arguments to examine whether deprivatization can improve firm performance. Many of them find deprivatization can bring benefits to deprivatized firms to some extent. For example, Yu et al. (2017) find that non-controlling state-owned equity in private firms improves firm performance and help companies to enter high-barrier industries. Zeng et al. (2021) find that deprivatization makes it easier for companies to obtain bank loans and access credit resources. Zhu et al. (2021) and Dong et al. (2021) show that deprivatization alleviates financing constraints faced by companies. However, there are different findings. Bai et al. (2018) and Zhang and Duan (2020) find that the introduction of state-owned equity does not help private enterprises obtain more credit resources. Instead, it exacerbates the principal-agent problem between shareholders and management and inhibits innovation within the company.

We take a more holistic view and argue that deprivatization does not necessarily

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[4] Deprivatization cases have been observed long before the reform.

aim to mitigate the limitations associated with the private ownership. There can be many alternative incentives. For example, a private firm may let in a SOE (or a government entity) for: (1) obtaining business synergies in various forms; (2) raising new equity capital to finance the company growth; (3) portfolio diversification or cashing out by its large/control shareholders; (4) pursuing a quiet life by its large or control shareholder; (5) improving the reputation or corporate governance; and (6) getting rescued in financial distress. It is worth noting that these motivations may also lead to selling stakes to other private entities. In other words, the deprivatization can be accidental rather than intentional. Previous studies on deprivatization do not consider these alternative incentives and the substitutability between deprivatization and selling stakes to other private entities. Hence, they do not test the motives and outcomes of deprivatization against the private firms selling ownership to other private entities. Instead, they use just private firms (which may or may not let in state ownership) as the control sample. The deprivatization effect they document may thus be over- or under-stated. To more accurately access the incentive and outcome of deprivatization, we identify and use two control samples in the test: (1) private firms that let in new significant private owners and (2) private firms without ownership change.

2.2 Empirical predictions

With the above review, we list out the possible motivations and ex ante determinants for deprivatization and their predicted outcomes. These motivations are not necessarily mutually exclusive, so are their predicted outcomes. Many of these motivations may also lead to selling equities to other private entities.

First, seeking protection from the government. In provinces with the poor property rights protection, profitable firms are more likely to be cherry-picked by the government. Hence, these firms are more likely to let in government ownership in exchange for protection, particularly, let in only minority government ownership if possible. If these deprivatized firms do get the protection, then we are likely to observe a decrease in donation, taxation, and entertaining costs after the deprivatization. The deprivatized firms may also get some favorable treatments from the government.

Second, getting rescued. Firms in financial distress are more likely to sell the ownership to other entities in exchange for getting rescued. However, the rescue cost is usually high which is likely to prevent many private firms from taking over these distressed firms. The government, on the other hand, is better-suited to bail out these firms as it has more resources and social responsibilities to do so (Liu et al., 2023). In fact, maintaining social stability has long been a priority of the Chinese Government (Huang et al., 2021) as the bankruptcy of a listed firm is likely to generate some negative social impact in China. The rescue can ease the firm's financial difficulties and may also improve its performance but the state often becomes the control shareholder. Liu et al. (2023) document the minority state ownership resulting from the government rescue operation in the 2015 stock market crash is actually associated with poor firm performance.

Third, raising capital to finance investments. According to Aslan and Kumar (2011), the main purpose for an IPO is to finance investments. Similarly, a private firm may sell additional shares to a state entity to raise capital for further growth. Prior to deprivatization, the firm is likely to have high growth potential but face severe financing constraints. The deprivatized firms may or may not retain the private control in such cases, but it should lead to more investments, the relaxation of financing constraints, and an increase in profitability in the following years. However, selling shares to other private entities may achieve the same purpose.

Fourth, getting resources or favorable treatments from the government in terms of easy and cheap access to the bank credit, tax concessions and more subsidies. Firms paying significantly higher than the industry average tax and borrowing expense, or getting significantly lower than the industry average subsidies from the government are more likely to let in government ownership. We classify firms with borrowing cost and tax burden (subsidy) ranked in the top (bottom) quarter of its industry as the firms that have the motivation to let in state ownership. We are likely to observe deprivatized firms to have lower tax burdens and/or borrowing costs, higher subsidies, and a larger market share in the industry, at least, some of them. However, the private firm may not

be willing to transfer the control in exchange for getting these favors as the benefit associated with these favors will mean less to the original owners if they lose the control. On the other hand, the government may not want to provide favors to firms that is not under its control.

Fifth, image improvement. Certain private firms with poor reputation may want to let in government entities or SOEs to improve its image and corporate governance. Although SOEs are not very efficient in general, they are likely to have better ESG as it is more likely in their objective function (Boubakri et al., 2019; Hsu et al., 2021; Jiang et al., 2023). Some private firms with poor reputation and corporate governance, especially, those recently got punished or warned by the CSRC for regulation violation or wrong doing, are likely to invite some reputable government entity or SOE to be a significant minority or even control shareholder (Wang et al., 2023; Zhang et al., 2023) In that case, the corporate governance or ESG index should improve after deprivatization.

Sixth, risk sharing and portfolio diversification. An advantage for firms to go public is risk sharing (Pagano et al., 1998; Aslan and Kumar, 2011). The owners of private listed firms can also let in state or other private entities for risk sharing or personal portfolio diversification. We expect that firms with highly concentrated ownership and more volatile earnings, and facing fiercer competition are more likely to pursue risk sharing and portfolio diversification. Other things held constant, risk sharing and portfolio diversification should lead to more investment and R&D expenditure.

Seventh, pursuing a quiet life. Some control shareholders, especially founder-CEOs, may want to enjoy a quiet life after many years of hard working in a firm (Bertrand and Mullainathan,2003). They may liquidate most or all of their shares and transfer the control of the firm to a new owner, be it a state or private entity. We expect old founder/CEOs facing tough competition in the industry are more likely to pursue a quiet life. It is also reasonable to argue that selling the control by the founder/CEO may signal performance deterioration in the future. This is likely to lead to a lower MBR after the control change.

Eighth, for firm specific reasons other than ones mentioned above.

Table 1 summarizes the aforementioned motivations, the possible ex ante determinants for deprivatization, and their likely outcomes. Motivations of seeking protection, getting rescued, seeking commonly mentioned favors, and reputation building are more likely to increase the probability of deprivatization than that of selling shares to other private entities, while motivations of financing investments, risk sharing, and pursuing quiet life increase the likelihood for both deprivatization and letting in other private owners. There may be other firm specific motivations. We further indicate in the table that some motivations are more likely to increase the probability of deprivatization with control transfer than without or vice versa.

(Insert Table 1 here)

3. Data

3.1 Sample Selection

We start from all non-financial companies listed on the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) during the period 2006-2021.[5] We obtain their ownership information from the CSMAR Database, which not only provides ownership data for the top 10 shareholders of each listed firm, but also identifies the ultimate control shareholder of the company and whether it is a state entity or not. We cross check the accuracy of ownership data using Tianyancha, a specialized database for ownership information of all registered companies in China. We select our samples in the following way:

(1) Exclude firms with more than 10% state ownership since 2006 or listing (if listed after 2006) as these firms are either SOEs or firms already have strong ties with the government.

(2) Identify firms with state ownership increased from below 10% to above 10% but not to the control level during the sample period 2006-2021. We further count how many of these firms have no significant reversal in the following 2 years in the sense that the state ownership has not fallen below 10% and the state is still among the top 5 shareholders in the firm. Since the reversal cases may introduce noise in

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the empirical analysis, we only retain the non-reversal cases as Deprivatization Sample 1 (Depri1).

(3) Identify firms with state ownership increased from below 10% to the control level (as indicated in the CSMAR) during the sample period. We also count how many of them have no significant reversal in the following 2 years in the sense that the state is still the control shareholder. We retain these cases as Deprivatization Sample 2 (Depri2).

(4) Identify private firms with significant but not control ownership transfer to another private entity during the sample period. Namely, a private entity increases its shareholding of the firm from below 10% to above 10%, yet the control shareholder of the firm is not changed.[6] Among these cases, we only retain the ones without significant reversal in the following 2 years as the private ownership change sample 1 (Pri1).

(5) Identify private firms with control ownership transfer to another private entity. Namely, a private entity increases its shareholding from below 10% to the control level during the sample period. We retain the cases without reversal in the sense that the new control shareholder is still the control shareholder in the following 2 years as the private ownership change sample 2 (Pri2).

(6) Take private firms without significant changes in ownership as the base control sample (Base), i.e., no entities have increased their ownership from below 10% to above 10% since 2006 or listing.

(7) Employ a propensity score matching (PSM) approach based on four covariates, total sales, leverage, industry and the year of Depri1 or Depri2 (Pri1 or Pri2) to estimate the treatment causes and effects of deprivatization (selling ownership to other private entities) relative to the no ownership change. Specifically, we implemented a 1:2 (1 Depri or Pri firm versus two base firms) nearest neighborhood matching algorithm with replacement, allowing base control group observations to be matched multiple times if necessary. We constrain the difference in propensity scores between matched pairs within a caliper width of 0.05. This strategy is intended to ensure that the matched samples are as similar as possible in their covariate distributions to the treatment group, thereby reducing estimation bias and

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[6] If an existing private entity has 15% further increases its shares to 17%, it won't be counted, however, if it transfers shares to another private entity and makes it own more than 10% of the firm, it is counted.

enhancing the credibility of causal inference.

(8) Further employ the PSM to a 1:2 match between Depri1 (Depri2) and Pri1 (Pri2) to directly examine the possible differences between Depri1 (Depri2) and Pri1 (Depri2).

(Insert Table 2 here)

Panel A of Table 2 shows the distribution of all listed firms, SOEs, Base, Pri1, Pri2, Depri1, and Depri2 firms (all with reversal cases included) over the years from 2006 to 2021. We see that the total number of listed firms increases about 200% from 1521 in 2007 to 4544 in 2021. Altogether, there are 92 Depri1 and 106 Derpi2 firms, which are fewer than one-fourth of 439 Pri1 and one-half of 234 Pri2 firms, respectively. There are 1786 Base firms at the end of 2021. Given that deprivatization cases are much fewer than ownership transaction cases between private entities and the SOE share of listed firms has been shrinking over our sample period, we can infer that deprivatization is not very popular. Although the number of deprivatization cases are many more in the period 2014-2021 (147) than in the period 2007-2013 (51), the deprivatization share of all ownership change cases does not increase in the period 2014-2021 (the average of the 8 years is 20.92%) relative to the period 2007-2013 (the average of the 7 years is 22.87%). This suggests that the mixed ownership reform starting at the end of 2013 does not make the deprivatization more popular either. The numbers in parentheses of columns 5~8 indicate the number of firms without ownership reversal in the following 2 years. About two-thirds (one-third) of the Depri1 (Depri2) firms had ownership reversal in the 2 years following the deprivatization, suggesting many deprivatization cases are transitory, which is inconsistent with the saying that the deprivatization is used to institutionalize the business and political connections with the government.

Panel B of Table 2 presents the distribution of 1:2 matched samples (between Depri1 (Pri1) firms and Base1 firms, and between Depri2 (Pri2) firms and Base2 firms) over the years. It also presents the yearly distribution of 1:2 matched samples (between Derpi1 (Derpi2) firms and Pri1 (Pri2) firms). 2006 is omitted in the table as it is the base year and the ownership change is on an annual basis. Panels C and D further presents the distributions of the raw and matched sample firms across industries, respectively. The CSRC classifies listed firms into 19 major industries,[7] but we only

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[7] Since about 70% of deprivatization cases are concentrated in the manufacturing industry. So we also tried sub-industry classifications for manufacturing firms. Altogether 29 manufacturing sub-industries have Depri and/or Pri cases during the sample period. The results based on this more refined classification are

include 18 as the financial industry is not included in our sample. The Manufacturing industry has the most Pri and Depri cases, while a few industries have no Depri cases at all. Our final whole sample consists of 254 Pri1, 124 Pri2, 28 Depri1, 60 Depri2 firms without significant ownership reversal, and their corresponding matched 528 Base1 and 347 Base2 firms. The matched samples between Depri and Pri consists of 27 Depri1, 45 Pri1, 49 Depri2 and 63 Pri2 firms.

3.2 Variables

With the discussion in Section 2.2 and Table 1, we obtain from CSMAR the relevant variables to test the motivations (determinants) and outcomes of deprivatization decision versus decisions to sell ownership to other private entities or to stay put without significant ownership change. For firms in Base1, Base2, Depri1, Depri2, Pri1, and Pri2, we obtain the yearly data for each relevant variable from 3 years before the ownership change to 3 years after. For the provincial Marketization index, industry HHI (Hirfindahl-Hirschman Index), and national GDP growth rate, we obtain the yearly observations from 2007 to 2021. Appendix I lists out the name, definition, and data source of each variable used in the determinant analysis in Panel A and the similar information for variables used in the outcome analysis in Panel B, respectively.

To test the determinants of deprivatization as well as ownership transfer between private entities, we use up to 3 years pre-ownership change data for each firm and the corresponding yearly observation of their matched Base firms. To test the outcome or impact of these ownership changes (Depri as well as Pri), we use the performance data of individual firms in the relevant matched samples from 3 years before to 3 years after Depri and Pri with the year of Depri or Pri itself omitted.

4. Motivations of Deprivatization

We examine the motivations for deprivatization from two perspectives. First, using a multinominal logit model, we examine various motivations for deprivatization and whether these motivations can also lead to selling significant equity holdings to other private entities. In such a setting, a private firm has the choices to stay without ownership structure change, to deprivatize, or to sell ownership to other private entities. To stay without ownership change is the benchmark. Second, using a simple logit model, we directly examine whether the motivation for deprivatization is significantly different

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qualitatively the same.

from that for selling ownership to other private entities. In other words, the comparison is between deprivatized firms and firms sold ownership to other private entities.

4.1 Multinominal Logit Analysis

Although we cannot rule out the possibility that some deprivatization cases may be forced by the government, we still assume that the deprivatization decision is made based on the cost and benefit analysis by the private firm owners. This is because the significant ownership change of a listed firm, be it partial or full, must meet the transparent and fairness requirements set by the CSRC. Also, the mixed ownership reform in China calls for private firms to voluntarily let in state ownership.

Aslan and Kumar (2011) use a multinominal logit model to examine a firm's decision to go public on the Main Board or Alternative Investment Market (AIM) in the London Stock Exchange or to stay private. We use the similar methodology to examine a private firm's choice to restructure the ownership. The choices are deprivatization (Depri), letting in other private owners (Pri), and staying put without ownership change (Base). We run separate cross-sectional regressions for the Pri1 and Depri1 versus Base1 sample and the Pri2 and Depri2 versus Base2 sample. The baseline model is in the following form:

$$\text{Multinominal Logit}(d_{it}) = \alpha + \beta_j' X_{j(pret)} + Controls_{(pret)} + \varepsilon_{it}, \qquad (1)$$

where d_{it} is the decision indicator variable, which is set to 0 for Base1 (Base2) firms, 1 for Pri1 (Pri2) firms, and 2 for Depri1 (Depri2) firms at year t (the year of ownership change), hence, Multinominal Logit(d_{it}=1 or 2) is the probability of the decision to sell ownership to another private entity or deprivatize; X_j is a vector of j testing variables and β_j is the corresponding coefficient vector; Controls refer to control variables such as Total Assets (Size) of a firm, GDP growth rate (GDP), firm MBR minus the relevant industry MBR ($MBR_i - MBR_{ind}$), selling shares via private placement or not (PP Dummy), and the industry competition level (HHI); and ε_{it} is the residual. The testing variables included in Equation (1) are ROA, MKTex, SA, STPT, SalesG, Top25tax, Top25Int, Bot25Sub, CeoAge, EarnVol, founder/control shareholder's shareholding (OwnerConc), PoorRepu, and interactive terms: ROA*LowMKTex, LowSA*SalesG, and HighEarnVol* OwnerConc (See Appendix I for the definition of all the variables). While ROA, MKTex, SA, SalesG, Top25Tax, Top25Int, Bot25Sub, EarnVol, OwnerConc, interactive terms, and the control variables are all the 3-year average

before the ownership change decision, the dummy variable STPT is set to 1 if the firm has the ST or PT status in the year before the ownership change, and zero otherwise, the CeoAge is based on the CEO's age in the year before the ownership change, (MBR_i – MBR_{ind}) is the relative MBR the year before the ownership change, and the dummy PoorRepu is set to 1 if the firm has been warned or punished for management irregularities within the two years before the ownership change.

A higher ROA indicates that a company can generate more funds internally, and thus, is more likely to decrease its probability to raise equity funds including selling shares to state entities (Zhan, 2023). In other words, ROA should be negatively related to both Pri and Depri. The marketization index was originally prepared by Fan and Wang in 2001 and updated in subsequent years. Quite a few studies have used this index to measure the development of institutions in different provincial areas in China, including Wang et al. (2008), Firth et al. (2009), Wu et al. (2012), and Xu et al. (2013). A higher marketization index number indicates better business environment which should increase business activities in general including M&As, but it should decrease private firms' need to seek protection or favor from the government, hence, the index is likely to positively affect Pri but negatively affect Depri. However, as discussed in section 2.2, highly profitable firms in provinces with poor business environment are more likely to let in state ownership to protect their property rights. Hence, we create an interactive term ROA* LowMKTex, where LowMKTex is dummy which is set to 1 for provinces ranked in the lower half of the marketization index, and zero otherwise. We expect this interactive term to be positively related to Depri but has no impact on Pri.

ST (special treatment) status indicates a firm is or is likely to be in financial distress in China. If a firm has negative earnings for two consecutive years, it will be given the special treatment by the CSRC in the sense its daily trading price movement is limited to 5% above or below the previous day closing price. The ST status serves as a delisting warning to investors. If the firm continues to have negative earnings in the following year, a PT (particular transfer) status will be given in the sense the stock can only be traded once a week (listing suspension). The firm will be delisted if it continues to lose money.[8] Firms with ST and PT status often reach out for rescuing by selling (control)

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[8] The delisting system has gone through changes in recent years in China to make the warning more credible and delisting easier.

ownership to other entities (Xia et al., 2023; Hu and Jin, 2018; Li and He, 2006). Government entities are more likely to come to rescue. Some private firms may also come to rescue, particularly, if they are seeking for a backdoor listing (or reverse merger) as getting listed in China is quite difficult during most of our sample period (Lee et al., 2019; Xia et al., 2023). Hence, we expect that STPT is positively related to Depri, especially Depri2 and, to a less extent, Pri2.

Firms with high sales growth rate is likely to have better growth potential, and thus more likely to raise equity capital, especially when they face tight financing constraints (Wu and Yeung, 2012). SA index is created by Hadlock and Pierce (2010) to measure financing constraints. It is mostly negative, the more negative the index number, the more severe is the constraint. LowSA is a dummy created to select the firms facing more severe financing constraints (Bottom 50%). We expect that SalesG and LowSA*SalesG are positively related to Pri1 and Depri1, and to a lesser extent, to Pri2 and Depri2, as these firms are less likely to exchange the control for growth.

Firms in the top 25% of tax (interest) payer or bottom 25% subsidy receiver categories in an industry are more likely to seek favors from the government. Top25Tax, Top25Int, and Bot25Sub are the dummy variables created to represent the firms in the afore-mentioned categories, respectively. We expect that Top25Tax, Top25Int, and Bot25Sub are positively related to Depri1 and, to a less extent, Depri2 as these firm owners may not want to trade control for the tax concession, low borrowing cost, and/or high subsidies.

Firms facing high uncertainty is more likely to diversify the risk by selling some of its equity to others, be they state entities or not, especially if the share ownership is highly concentrated in the hands of the largest (or control) shareholder. Hence, we expect that EarnVol and control shareholder's ownership (OwnerConc) are positively related to Pri1 and Depri1. We further use the interactive term HighEarnVol* OwnerConc to see if firms with concentrated ownership and high volatility are more likely to have Depri1 and Pri1. However, the firm control is less likely to be transferred under such circumstances. In contrast, if the purpose of the firm owner is to cash out and pursue a quiet life, then Pri2 and Depri2 are also likely. It is reasonable to expect that a firm with an aged founder/CEO is more likely to cash out.

Bad reputation often leads a firm to let in some state ownership. Both Zhang et al. (2023) and Wang et al. (2023) show the government ownership is associated with less

fraudulence among firms. PoorRepu is a dummy variable indicating whether a firm is punished or warned for violating rules or regulations within the 2 years before the ownership change. According to the Opinions of the State Council on the Development of Mixed Ownership Economy in State-owned Enterprises (2015),[9] one benefit for private firms to let in the state ownership is to raise their corporate governance standard. As discussed in Section 2.2, we expect PoorRepu to be positively related to both Depri1 and Depri2.

There can be other firm specific reasons for deprivatization. It is difficult to find proxies for them. We assume that they are largely idiosyncratic.

Although we match samples with total sales, we further control for total assets (Size) of a firm in the regression. GDP growth rate is included to control for the general economic situation over the years, while HHI is used to control for the competition level in the industry. We also control $(MBR_i - MBR_{ind})$ for the relative valuation of each firm.[10] We do not use the ownership transaction price because we cannot obtain all the relevant data. In addition, many of these ownership transactions involve some valuation-adjustment mechanism (VAM) known as the bet-on agreement, which makes the transaction price an inaccurate measure. Private placement dummy (PP) is used to control for the method of transaction. In fact, most capital raising Depri or Pri are done via private placement. All control variables may have some impact on deprivatization as well as selling equity to other private entities.

Table 3 provides summary statistics for all variables used in the multinominal and simple logit analyses. Panel A of Table 3 shows the number of observations, mean, and standard deviation of each variable across matched samples of Base1, Pri1, Depri1, and Base2, Pri2, Depri2. All except dummy variables are winsorized at 1% on both sides. Panel B shows the summary statistics for each variable across matched samples of Depri1 versus Pri1 and Depri2 versus Pri2. One thing worth noting is the high mean growth rate, mostly above 20%, across all samples. This is due to the positive skewness of the distribution as the median (unreported) is mostly lower than two-thirds of the mean across these samples.

We further compute the Pearson correlation matrices for all these variables used in

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the multinominal logit analysis as shown in Appendix II. The correlation coefficients are all smaller than 0.35. Hence, the multicollinearity should not be a serious problem. We do not include interactive terms in the matrix to save space.

(Insert Table 3 here)

Table 4 reports the Multinominal Logit regression results. Since the motivation for deprivatization with and without control transfer are likely to be different, we run separate regressions for them. While the left 2 columns in the table report the estimates without the control transfer (Pri1 and Depri1 versus Base1), the right 2 columns report the estimates with the control transfer (Depri2 and Pri2 versus Base2). t-statistics are computed using heteroscedasticity-robust standard errors clustered at the industry level. *, **, and *** indicate the significance of t-values at the 10, 5, and 1 percent levels, respectively. Due to nonlinearity, the estimated coefficients in the logit regression are translated into odds ratios to facilitate the interpretation. The odds ratio associated with each estimate is reported in parentheses. An odds ratio of greater than 1, say, 1.04, for LowSA*SalesG in the Derpi2 regression, implies that increasing this interactive term by 1 standard deviation raises the odds of deprivatization with control transfer (versus staying private without ownership change) by 4%. However, for integer-valued or dummy variables, the change in odds is associated with one unit change in integer variable or with the change from 0 to 1 for dummy variable. On the other hand, an odds ratio of less than 1, say, 0.82 for ROA in the Depri2 regression, implies that decreasing ROA by 1 standard deviation increases the chance of selling control to the state entity (versus staying private without ownership change) by 18%.

(Insert Table 4 here)

The first column in the table shows the estimated coefficient of various independent variables (possible determinants) for the likelihood of Pri1, while the second shows that for the likelihood of Depri1. Surprisingly, most estimates are statistically insignificant. We do not see any supporting evidence for the property rights protection and favor seeking arguments. Neither MKTex nor ROA*LowMKTex is significant in column 2, indicating Depri1 is not related to the poor business environment and profitable firms in the poor business environment does not let in minority state owners in exchange for property rights protection. These results are robust when we use the legal index, which is a sub-index of MKTex aiming to capture the legal development to of the region, in place of MKTex.

Pri1 is negatively related to SalesG (with an odds ratio of 0.98) but positively related to LowSA*SalesG (with an odds ratio of 1.02), and both estimated coefficients are statistically significant. These results suggest that firms with high growth do not want to share their growth with other private entities, however, they are likely to let in other private non-control owners if they face financial constraints. On the other hand, state entities are more likely to buy into high growth private firms with less financing constraints as Depri1 is positively and significantly related to SalesG but not LowSA*SalesG. These findings lend some support for growth financing motivation.

Seeking favors from the government in terms of lower borrowing cost, less tax payment, and high subsidies do not motivate Depri1 either. Supposedly, all or some of the estimates for Top25tax, Top25Int, and Bot25Sub should be positive and significant. Yet, we find that the estimates for Top25tax and Bot25Sub are insignificant, while the estimate for Top25Int is significantly negative in both columns 1 and 2, indicating firms with high borrowing cost are less likely to get in significant equity owners, be they private or state entities. This is opposite to the favor seeking prediction. In fact, the odds ratios associated with Top25Int in Derpi1 and Pri1 indicate a private firm with high borrowing cost in the industry is 66% less likely to deprivatize (without control transfer), while it is only 54% less likely to sell partial ownership to another private entity. This suggests that letting in non-control state owners is not for the purpose to get the often-mentioned favors from the government.

Other relevant motivations for deprivatization such as reducing financing constraints, risk sharing, portfolio diversification, using quiet life and reputation enhancing are also not supported as the relevant estimates on SA, LowSA*SalesG, EarnVol, OwnerConc, HighEarnVol*OwnerConc, CeoAge are all insignificant. PoorRepu has a positive and significant impact on Pri1. The associated odds ratio is 3.40, indicating that a private firm with poor reputation in the past two years is 240% more likely to sell partial ownership to another private entity. However, it does not have any positive impact on Depri1 as predicted.

The control variable Size has no impact on Derpi1 and Pri1. PP has positive impact on both Pri1 and Depri1, indicating firms are more likely to let in significant minority shareholders via private placement, be they state or private entities. In addition, GDP growth has a significantly negative impact on Depri1 but not Pri1, indicating firms are less likely to let in state entities in good times. HHI has a negative impact on Depri1

but not on Pri1, indicating firms in a more competitive industry is more likely to get minority state entities. Finally, Relative MBR has a negative impact on Depri1 indicating the high valuation of a firm may deter the state entity to be a significant non-control shareholder.

The results in the right 2 columns of Table 4 show a somewhat different picture. Now more estimates are significant. ROA has a negative impact on both Depri2 and Pri2. The odds ratios associated with the ROA estimates on Pri2 and Depri2 are 0.85 and 0.84, respectively, indicating that increasing ROA by 1 standard deviation decreases the chance of pure private firm to sell the control to another private entity or a state entity by 17% and 18%, respectively. This means that less profitable firms are more likely to sell the control, which is intuitive. In addition, the chance to sell to a state or a private entity is roughly the same, indicating Depri2 and Pri2 can be substitutes in such cases.

Both STPT and SalesG have a negative impact on Pri2 but not Depri2. The former indicates that the base private firms in financial distress are 92% less likely to get rescued from a private entity (with an Odds ratio of 0.08), while the latter suggests that firms with high growth are 3% less likely to sell the control to another private entity (with an odds ratio of 0.97). Both findings are reasonable although they are not consistent with any of the rescue seeking and growth financing motivations for deprivatization.

LowSA*SalesG increases the probability for Depri2 (with an odds ratio of 1.04) but not for Pri2, indicating that increasing sales growth by 1 standard deviation for firms facing severe financial constraints raises its chance to sell the control ownership to the state by 4%. This is consistent with the prediction that firms with high growth rate but facing severe financing constraint are more likely to let in large outside shareholders. In conjunction with the insignificant estimates of LowSA*SalesG for Derpi1, we may infer that the state entity is likely to invest in growth firms with financing difficulties if it can obtain the control of the firm.

Like the results in the first two columns, the estimates on Top25Tax, Top25Int, and Bot25sub lend no support to the favor-seeking argument. Specifically, Top25Tax and Bot25sub have no impact on Pri2 and Depri2. Top25Int has a negative impact on both Pri2 and Depri2, indicating that firms with high interest payment are less attractive to potential company buyers, be they state or private entities.

Earnings volatility (EarnVol) has a positive impact on Pri2 (with an odds ratio of 1.23) but not on Derpi2, suggesting that firms with high earnings volatility are more likely to sell the control ownership to a private rather than a state entity. This is partially consistent with risk-sharing prediction as selling to private entities can also diversify the risk. The pursuing of quiet life motivation is also partially supported by the finding that CeoAge has a positive impact on Depri2 but not on Pri2. The estimate for OwnerConc is negative and significant (with an odds ratio of 0.96) for Pri2, indicating firms with high ownership concentration are less likely to sell the control to another private entity. In addition, the estimate of HighEarnVol*OwnerConc is negative and significant for both Pri2 and Depri2, indicating firms with ownership concentration-cum-high earnings volatility are less likely to sell the control to others, be they state or private entities. The odds ratios associated with HighEarnVol*OwnerConc for Pri2 and Depri2 are 0.95 and 0.97, respectively. These findings are inconsistent with the risk sharing and diversification stories. Rather, they suggest that firms with concentrated ownership are entrenched and less likely to be taken over.

The reputation building is not supported by the testing results as the estimated coefficient for PoorRepu is insignificant for both Pri2 and Depri2. Similar to the findings in columns 1 & 2, PP, is significantly positive for Depri2 and Pri2, while different from the findings in columns 1 & 2, GDP has a negative impact on Pri2 but not on Depri2, indicating firms are less likely to let in private entities as the control shareholder in good times.

4.2 Simple Logit Analysis

We further use a simple cross-sectional logit model to do a direct comparison between Depri and Pri firms. This is to see if the motivation for Depri is significantly different from that for Pri among firms having had ownership changes. The model looks the same as equation (1), however, d_{it} is set to 1 for Depri firms, and 0 otherwise. In other words, Pri firms are served as the benchmark in the regression. All variables are the same as in the multinominal logit regression.

(Insert Table 5 here)

The first column in the Table 5 shows the regression results for Depri1 versus Pri1. Only four estimates are statistically significant. First, MKTex has a negative impact on Depri1. One integer increase in the index decreases the probability to sell minority ownership to a state entity than to a private entity by 68%, indicating private firms

prefer to sell minority ownership to private rather than state entities if the business environment is friendly. Second, ROA*LowMKTex has a positive impact on Depri1. One standard deviation increase in this interactive term increases the probability for Depri1 by 44%, indicating firms with high profitability but located in the poor environment provinces are much more likely to sell a significant portion of ownership to a state entity than to a private entity. These findings are consistent with the property rights protection motivation. However, the comparison is only between depri1 and pri1 firms. Third, PoorRepu has a negative impact on Depri1 with an odds ratio of 0.05, indicating firms with poor reputation are 95% less likely to sell minority ownership to the state than to a private entity. In other words, letting in minority state ownership in such situation is not helpful to improve reputation. Finally, Relative MBR has a negative impact on Depri1, indicating it is more difficult to sell minority ownership to the state than to private entities at a high price.

The second column in Table 5 shows the estimated results for Depri2 versus Pri2. Only 3 estimates are statistically significant. First, STPT is significantly positive indicating that firms in financial distress are more likely to get rescued by the government than private entities. Second, Top25Int has a negative impact on Depri2, indicating firms paying high borrowing costs are less likely to get in state entities to be the control shareholder. This is inconsistent with the favor-seeking motivation. Instead, it suggests that state entities are sensitive to the borrowing cost of the firm they buy into. Third, CeoAge has a positive impact on Depri2, indicating that firms with old CEOs are more likely to sell the control to the state than other private entities. This is consistent with the finding in Table 5, but only partially consistent with the pursuing quiet life motivation shown in Table 1 as selling the control to another private entity should give old CEOs the quiet life too.

In summary, Table 4 suggests whether a private firm letting in control or non-control state ownership is not motivated by property rights protection and favor-seeking. Firms with poor profitability are more likely to sell their control ownership to others, be they private or state entities. The growth financing, risk diversification, and pursuing quiet life predictions are only partially supported. These results suggest that the motivation for deprivatization, especially Depri1, is largely firm specific rather than common. In addition, Depri and Pri can be substitutes to some extent.

The results in Table 5 suggests that, among firms having had significant ownership

changes, some motivations for Depri are indeed different than those for Pri. Depri1 firms are more likely to seek protection from the government than Pri1 firms, while Depri2 firms are more likely to look for help from the government than Pri2 firms, which lends limited support to protection seeking and getting rescue motivations for deprivatization.

Due to the limited sample size, we do not further test whether the motivations for deprivatization are different before and after the implementation of the Mixed Ownership Reform in December 2013.

5. Empirical Analyses for the Outcome of Deprivatization

We do two sets of tests on the predicted outcomes associated with various deprivatization motivations in this section. First, we compare the various performance changes of Depri and Pri firms with their matched Base firms without going through ownership change. Second, we compare the various performance changes between matched Depri and Pri firms.

5.1 Performance comparison between firms with and without ownership changes

We examine the performance change of Depri and Pri firms relative to that of their matched Base firms using the following panel regression model:

$$y_{it} = \beta_{it} Post * Depri_{it} + \gamma_{it} Post * Pri_{it} + Controls + FE_i + FE_t + \varepsilon_{it} \quad (2)$$
$$(t = \text{-3, -2, -1, 1, 2, and 3})$$

where y_{it} is one of the performance measures for firm i in year t. Altogether we examine 19 performance measures in six categories: ROS, ROA and ROE for profitability, SA, KZ, and Leverage for financial constraints, SalesG and MBR for growth potential, Capex1, Capex2 and R&D for investments, TaxBurden, DebtCost, Subsidies, Donation, SG&A (entertaining spending) and MKTpower (market power) for specific favors and costs of deprivatization, and IC (Dibo index measuring the internal control) and ESG (Huazeng ESG index) for reputation. The definitions of all these variables are shown in Panel B of Appendix I. t is from year -3 to year 3 with year 0, the year of ownership change, dropped.

Post*Depri$_{it}$ and Post*Pri$_{it}$ are the main testing variables. Depri and Pri are dummies defined as before, while Post is set to 1 for t=1, 2, and 3, and zero otherwise. Since we control for the firm- and year-specific effects in the regression, these two interactive terms capture the post ownership change effects on performances of Depri and Pri firms, respectively. We include MKTex, HHI, and GDP to control for the general business environment, industry competition level, and the macroeconomic situation. We further control the size effect by including total assets of a firm in the regression. Appendix III shows the number of observations, mean and standard deviation, of all performance variables for Base firms (Panel A), Pri firms (Panel B), and Depri firms (Panel C) over the periods before and after ownership change. It also shows the mean difference (after – before) of each variable and the associated t-test significance levels in all panels.

(Insert Table 6 here)

The regression results of Equation (2) are reported in Table 6. Panel A presents the estimated results for the matched sample of Pri1, Depri1 and Base1. Neither Pri1*Post nor Depri1*Post has much impact on performance after the ownership change relative to their no ownership change peers. Out of 19 performance indicators, Pri1*Post only has negatively significant impact on R&D and government subsidies. The estimated coefficient for R&D is -0.25, indicating letting in minority private owners, on average, decreases the R&D by 0.25%. The estimated coefficient on Subsidies is -5.19, indicating letting in minority private owners, on average, decreases subsidies a firm can receive from the government by 5.19%. Given that the mean R&D and subsidies are generally below 2% and 20%, respectively, across various firm categories (see Appendix III) in the period before the ownership change, these impacts are economically significant. However, these results do not support any predicted outcomes associated with Pri1 listed in Table 1.

On the other hand, Depri1 has significantly positive impact on SA and R&D but significantly negative impact on Leverage and SalesG. The estimated coefficients in the relevant regressions are 0.022, 0.399 -5.151, and -14.65, respectively, and all are

economically significant.[11] The positive impact on SA and R&D but negative impact on Leverage may be consistent with the predictions that deprivatization can reduce the financing constraint and promote investment (R&D is a type of investment) for deprivatized firms. The positive impact on R&D is also consistent with the prediction that deprivatization can help risk sharing. However, the strongly negative impact on SalesG found here is inconsistent with the financing growth motivation. Hence, no strong inference can be made from these results.

Panel B shows the regression results for the Base2, Pri2 and Depri2 sample. Pri2*Post has statistically positive impact on Leverage, SalesG, SG&A, and MKTpower (the estimated coefficients are 6.384, 13.821, 0.239, and 0.796, respectively) but statistically negative impact on MBR, Donation and ESG (the estimated coefficients are -0.267, -0.017 and -0.317, respectively).[12] It suggests that Pri2 firms can raise funds via borrowing to support growth and gain market share. However, Pri2 firms spends more on entertaining and is less environmental-friendly, and also lowers MBR. These findings are reasonable and may be consistent with the pursuing quiet life motivation of selling control. On the other hand, Depri2*Post has a statistically positive impact on Leverage and ESG (the estimated coefficients are 7.019 and 0.339, respectively) but statistically negative impact on MBR, Capex1, TaxBurden, DebtCost, and Donation (the estimated coefficients are -0.685, -1.235, -9.386, -0.936, and -0.021, respectively), indicating that the new state control owner tends to be conservative by cutting down investments (or excess investments) which lowers the growth expectation (MBR) but helps reducing the tax burden, the cost of debt, and donations, and raising ESG rating. These findings are partly consistent with the getting favors and reputation building predictions associated with Depri2. The increase in leverage may or may not be consistent with the prediction that Depri2 can help easing financing constraints. It is possible that the leverage is increased due to enhanced credibility associated with

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[11] This can be seen by comparing these numbers with the relevant means of SA, R&D, Lev, and SalesG in the pre-ownership change period in Appendix II.

[12] All statistically significant estimates in the regression analyses are also economically significant. To verify, one can refer to the variable means in each firm category shown in Appendix II. To be concise, we do not specifically mention economic significance in the rest of the paper.

Depri2. It is also possible that Depri2 fails to ease the financing constraints. As a robustness check, we also run regressions with 4 year observations after the ownership change. The results are qualitatively the same.

On the whole, the Table 6 results suggest neither deprivatization nor selling ownership to other private entities improves the overall performance of Depri and Pri firms relative to the Base firms. Particularly, there is no profitability improvement or deterioration associated with these ownership changes. However, this echoes the studies by Feng et al. (2018) and Kong and Wang (2016) as they find no improvement in profitability for deprivatized firms either. This may be explained by following reasons. First, the decision to deprivatize, or let in other private owners, or stay without ownership change are all optimal decisions made by the relevant firms based on their cost and benefit analysis in general. Hence, the performance after the ownership change should not be systematically better or worse than that of firms without going through ownership changes. Second, each deprivatization motivation may explain the deprivatization decision for some firms but not for others. By lumping all deprivatized firms together, no one motivation can dominate others and their impacts may offset one another. Third, the synergies that deprivatized firms look for are likely to be firm specific and may similar to those looked for by private firms in normal M&As. However, more than half of M&As fail to improve the firm performance (Moeller et al., 2005; Thanos and Papadiakis, 2012) and this may also be the case for deprivatization firms.

5.2 Performance comparisons between deprivatized firms and firms with ownership transactions between private entities

We further do a direct comparison for performance changes between Depri and Pri firms using the following panel regression model:

$$y_i = \beta_i Post * Depri_i + Controls_i + FE_i + FE_t + \varepsilon_{it} \qquad (3)$$

$$(t = -3, -2, -1, 1, 2, \text{ and } 3)$$

The model is a modification of the Equation (2). The only change is the omission of the interactive term, Post*Pri$_i$, as the sample contains only matched Depri and Pri firms with the latter as the benchmark. The regression results of all performance indicators for the Depri1 versus Pri1 sample and the Depri2 versus Pri2 sample are reported in Panels A and B of Table 7, respectively. For brevity, we only present the estimates for Post*Depri, which measures the performance change resulting from the deprivatization relative to that resulting from letting in other private owners.

(Insert Table 7 here)

The performance differences between deprivatization and selling ownership to other private entities are mostly insignificant. Out of 19 performance indicators in Panel A, Depri1 only has significant impact on 3. It increases the MBR and R&D ratio by 0.71% and 0.79%, respectively, but decreases MKTpower by 1.68%. As shown in Panel B, Depri2 has significant impact on 4 out of 19 performance measures. While the impact on TaxBurden is negative, the impact on Subsidies, SG&A and ESG is positive. Specifically, Depri2 decreases tax payment by about 10%, increases subsidies received from the government and entertaining expenses by 22.5% and 0.55%, respectively. Depri2 also improves the ESG index by 0.45 points. Overall, there is no difference in profitability between Depri and Pri firms after the ownership change no matter the control is transferred or not. However, selling control to a state entity can bring more tax benefit and subsidies to the firm than selling control to a private entity. It also enhances ESG. While selling non-control ownership to a state entity increases R&D and MBR of the firm relative to selling non-control ownership to a private entity, it lowers the market share of the firm.

In short, deprivatization does not change the profitability for deprivatized firms. Deprivatization can bring some favors to firms only if the state entity becomes the control shareholder.

5. Concluding Remarks

We examine the motivation and outcome of deprivatization versus staying without ownership change, and versus selling ownership to other private entities. Using more

refined matching samples, we find that deprivatization cannot be explained by the popular arguments such as property rights protection, favor-seeking, getting rescued, and reputation building ex ante if the control group is the firms without significant ownership change. Ex post, however, selling the control ownership to the state entity can decrease the tax payment and borrowing cost, increase subsidies and reputation to some extent. There is no evidence to support protection seeking and getting rescued ex post either. Risk sharing and pursuing quiet life can only partially explain the deprivatization ex ante but not ex post. The results on growth and MBR are mixed both ex ante and ex post. Low profitability is the common determinant for selling control ownership to the state and other private entities.

Among firms have had significant ownership changes, selling partial ownership to the state is more likely for the purpose to get some property rights protection from the government. while STPT firms are more likely to sell the control to a state entity ex ante. No matter comparing to the private firms without going through significant ownership change or private firms getting in other private owners, deprivatized firms do not show any improvement in profitability, which is a bit surprising but consistent with the existing literature (Feng et al., 2018, and Kong and Wang, 2016).

Overall, our study suggests that neither protection and favor seeking nor getting rescued are the major motivations for deprivatization. The reason for deprivatization is more likely firm specific. In addition, deprivatization does not improve profitability no matter comparing to selling ownership to other private entities or comparing to staying without significant ownership change. This casts some doubts on the effectiveness of mixed ownership reform which calls on private firms to let in state ownership to improve performance. Furthermore, deprivatization and selling ownership to other entities can be substitutes to some extent, yet private firms seem to prefer letting in other private owners than the state owner in general.

Our study can help better understand the deprivatization in China and it may also have implications for other economies where deprivatization occurs.

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Table 1 Motivations and Outcomes for Deprivatization

This table summarizes the motivations and the possible outcomes of deprivatization (Depri). It also lists out the possible predicting factors associated with these motivations. It further shows how likely these motivations may lead to selling the ownership to other private entities (Pri). Depri1 (Depri2) refers to deprivatization without (with) transferring the control, while Pri1 (Pri2) refers to selling non-control (control) ownership to another private entity.

Motivation	Predicting factors	Likelihood to Depri	Likelihood to Pri	Possible Outcomes
Seeking protection	High profitability & weak institution	High for Depri, especially for Depri1	Low	Lower SA&G, tax & donation
Getting rescued	STPT status	High for Depri, especially for Depri2	Low	Higher profitability, Constraints less severe
Financing investments	High Growth Tight Fin. Constraints	High for Depri, especially for Depri1	High for Pri1	More Capex, Assets, & R&Ds, High growth & SA
Seeking commonly-mentioned favors	Pay high tax & borrowing cost, get low subsidies	High for Depri, especially Depri1	Low	lower tax & interest payment, more subsidies and profit
Building reputation	Punished or warned in the previous 2 years; Poor CG	High for Depri1 or Depri2	Low	Better CG or ESG ranking, higher MBR
Risk sharing & diversification	High volatility, ownership concentration & competition	High for Depri1	High for Pri1	more inv. and R&Ds
Pursuing a quiet life	Old founder/CEO, tough competition	High for Depri2	High for Pri2	Lower MBR
Other firm specific reasons	No catch-all proxies	?	?	?

Table 2 Sample Distribution

This table shows the sample distribution over the years (Panels A and B) and across industries (Panels C and D). The upper part of Panel A presents the distribution of various firm categories in the whole sample. Base refers to the category of firms without significant ownership change throughout the sample period 2006-2021. 2006 is now shown in the table as it is the base year. Pri1 (Pri2) refers to the category of firms selling non-control (control) ownership to another private entity. Depri1 (Depri2) refers to the deprivatized firms without (with) control transfer. The numbers in the parentheses indicate the number of Pri or Depri firms without the significant reversal of ownership change in the following two years after the Pri or Depri, respectively. It also shows the total number of listed firms, total number of listed SOEs, the ratio of SOEs over the total number of listed firms, and the ratio of the total number of deprivatized firms over deprivatized firms plus firms selling ownership to other private entities, i.e., {(Depri1+Depri2)/(Depri1+Depri2+Pri1+Pri2)}. All financial firms are excluded in the sample. Panel B shows the distribution of all matched samples over the years. The match is based on total sales, leverage, industry, and depri or pri year. Only Pri and Depri firms without significant reversal in the following two years are included in the matched sample. The match between Pri (Depri) and Base firms is 1 for 2 and the match between Pri and Depri firms is also 1 for2. Panel C and D reports the distribution of various groups in the whole and matched samples across industries in the upper and lower parts, respectively. The industry is classified based on the CSRC industry code.

Panel A: Sample distribution over the years (full sample)

Year	Total listing	SOE	Base	Pri1 (Non-reversal)	Pri2 (Non-reversal)	Depri1 (Non-reversal)	Depri2 (Non-reversal)	SOE/Total listing	(Depri1+Depri2)/(Pri1+Pri2+Depri1+Depri1)
2007	1521	931	145	19 (19, 17)	13 (11, 10)	5 (2, 2)	7 (6, 6)	61.21%	27.27%
2008	1575	946	163	17 (13, 12,)	8 (7, 7)	1 (0, 0)	6 (4, 3)	60.06%	21.88%
2009	1721	958	213	8 (6, 5)	11 (11, 10)	4 (2, 2)	4 (4, 4)	55.67%	29.63%
2010	2070	996	348	10 (8, 8)	6 (6, 5)	4 (2, 2)	6 (6, 6)	48.12%	38.46%
2011	2301	990	458	14 (12, 12)	6 (5, 4)	4 (3, 0)	1 (1, 1)	43.02%	20.00%
2012	2430	994	500	17 (13, 11)	5 (4, 4)	2 (2, 0)	0	40.91%	8.33%
2013	2472	986	525	32 (25, 23)	9 (9, 8)	5 (3, 0)	2 (2, 2)	39.89%	14.58%
2014	2586	985	592	35 (33, 32)	20 (17, 16)	2 (2, 2)	0	38.09%	3.51%
2015	2773	985	692	69 (61, 59)	32 (29, 26)	3 (1, 0)	3 (3, 3)	35.52%	5.61%
2016	3050	1010	882	50 (49, 45)	25 (24, 23)	8 (6, 5)	5 (5, 4)	33.11%	14.77%
2017	3415	1025	1157	32 (32, 28)	13 (11, 10)	2 (2, 2)	1 (1, 1)	30.01%	6.25%
2018	3494	1039	1221	32 (28, 27)	20 (18, 14)	10 (6, 5)	6 (6, 6)	29.74%	23.53%
2019	3686	1094	1380	35 (29, 24)	17 (14, 11)	20 (15, 12)	28 (28, 28)	29.68%	48.00%
2020	4127	1168	1751	32 (23)	24 (24)	13 (10)	25 (24)	28.30%	40.43%
2021	4544	1256	1749	37	25	9	12	27.64%	25.30%
Total				439 (351, 303)	234 (190, 148)	92 (56, 32)	106 (90, 64)		

Panel B: Sample distribution over the years (matched sample)

Year	Depri1 & Pri1vs Base1 (1:2 match)			Depri2 & Pri2 vs Base2 (1:2 match)			Depri1 vs Pri1 (1:2 match)		Depri2 vs Pri2 (1:2 match)	
	Depri1	Pri1	Base1	Depri2	Pri2	Base2	Depri1	Pri1	Depri2	Pri2
2007	2	14	19	6	8	10	2	2	5	5
2008	0	12	25	2	5	11	0	1	2	4
2009	2	5	11	2	7	14	2	0	3	6
2010	2	5	12	6	3	21	2	0	6	0
2011	0	8	22	1	3	17	0	0	1	1
2012	0	8	28	0	4	15	0	4	0	2
2013	0	21	47	2	8	30	0	3	2	3
2014	2	27	54	0	14	19	2	2	0	7
2015	0	48	53	3	22	29	0	6	2	8
2016	3	35	55	4	21	30	3	7	2	10
2017	2	25	62	1	7	44	1	6	1	4
2018	4	23	67	6	12	46	4	7	5	7
2019	11	23	73	27	10	61	11	7	20	6
Total	28	254	528	60	124	347	27	45	49	63

Panel C: Sample distribution across the industries (full sample)

Industry code	Industry name	Base	Pri1	Pri2	Depri1	Depri2
A	Farming, Forestry, Animal Husbandry, and Fishery	17	7 (6, 4,)	2 (2, 2,)	0	0
B	Mining	8	7 (6, 6)	2 (2, 1)	0	2 (2, 2)
C	Manufacturing	1380	323 (256, 224)	160 (129, 102)	67 (42, 23)	69 (58, 38)
D	Production and supply of electric power, thermal power, gas and water	9	1 (1, 1)	3 (2, 1)	0	1 (1, 1)
E	Construction	35	11 (8, 7)	4 (4, 3)	1 (1, 1)	9 (8, 5)
F	Wholesale and Retail	39	21 (18, 18)	11 (10, 9)	3 (1, 1)	2 (2, 1)
G	Transport, Storage and Postal	17	5 (3, 2)	3 (3, 3)	1 (1, 1)	2 (1, 1)
H	Hotels and Catering	1	2 (1, 1)	0	0	0
I	Information Transmission, Software and Information Technology Service	170	25 (23, 17)	25 (17, 13)	9 (6, 3)	6 (6, 5)
K	Real Estate	12	13 (12, 11)	4 (4, 4)	1 (0, 0)	3 (2, 2)

L	Leasing and Business Service	16	5 (3, 2)	3 (2, 0)	1 (1, 0)	4 (4, 4)
M	Scientific Research and Technology Service	34	6 (5, 4)	4 (3, 1)	0	2 (0, 0)
N	Water, Environment and Public Facilities Management	22	4 (3, 1)	1 (1, 1)	5 (2, 1)	2 (2, 2)
O	Residential Service, Repair and Other Service	4	0	0	0	1 (1, 1)
P	Education	1	1 (0, 0)	2 (2, 1)	1 (1, 1)	0
Q	Health and Social Work	2	2 (2, 1)	1 (1, 1)	1 (0, 0)	0
R	Culture, Sport & Entertainment Industry	14	3 (3, 3)	4 (3, 3)	1 (1, 1)	1 (1, 0)
S	Conglomerates	5	3 (1, 1)	5 (5, 3)	1 (0, 0)	2 (2, 2)
Total		1786	439 (351, 303)	234 (190, 148)	92 (56, 32)	106 (90, 64)

Panel D: Sample distribution across the industries (matched sample)

Industry code	Industry name	Depri1& Pri1 vs Base1			Depri2 & Pri2 vs Base2			Depri1vs Pri1		Depri2 vs Pri2	
		Depri1	Pri1	Base1	Depri2	Pri2	Base2	Depri1	Pri1	Depri2	Pri2
A	Farming, Forestry, Animal Husbandry, and Fishery	0	4	7	0	1	4	0	2	0	0
B	Mining	0	5	6	2	1	1	0	1	1	0
C	Manufacturing	20	186	407	36	89	228	20	29	34	40
D	Production and supply of electric power, thermal power, gas and water	0	0	4	1	1	0	0	0	1	0
E	Construction	1	6	13	5	2	13	1	1	2	1
F	Wholesale and Retail	1	18	16	1	9	4	1	3	1	5
G	Transport, Storage and Postal	1	0	2	1	1	1	1	0	1	1
H	Hotels and Catering	0	1	0	0	0	0	0	0	0	0
I	Information Transmission, Software and Information Technology Service	2	13	42	5	11	47	2	3	5	7
K	Real Estate	0	11	7	2	2	9	0	2	1	3
L	Leasing and Business Service	0	2	1	3	0	2	0	1	1	0
M	Scientific Research and Technology Service	0	3	5	0	1	2	0	1	0	1
N	Water, Environment and Public Facilities Management	1	0	4	2	1	6	0	0	0	1
O	Residential Service, Repair and Other Service	0	0	4	1	0	5	0	0	1	0
P	Education	1	0	0	0	1	0	1	0	0	1

Q	Health and Social Work	0	1	5	0	0	1	0	0	0	0
R	Culture, Sport & Entertainment Industry	1	3	1	0	2	4	1	1	0	1
S	Conglomerates	0	1	4	1	2	20	0	1	1	2
Total		28	254	528	60	124	347	27	45	49	63

Table 3 Summary Statistics for Variables Used in the Motivation Analysis

This table shows the summary statistics for the variables used in the motivation analysis. Panel A presents the statistics for the variables used in the multinominal logit regressions, while Panel B presents the statistics for the variables used in the simple logit regressions. For brevity, we only report the mean, standard deviation, and the number of observations for each variable.

Panel A: Multinominal logit regressions

Variable	Base1			Pri1			Depri1		
	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
ROA (%)	1354	6.031	5.919	672	5.114	5.912	78	3.649	7.315
MKTex	1354	9.113	1.583	672	9.346	1.525	78	8.639	1.566
ROA*LowMKTex (%)	1354	3.117	5.679	672	2.446	4.475	78	2.251	7.000
STPT	1354	0.023	0.150	672	0.037	0.189	78	0.038	0.194
SalesG (%)	1353	21.388	32.090	672	20.021	44.269	78	25.182	37.891
SA	1354	-3.616	0.233	672	-3.636	0.232	78	-3.652	0.173
LowSA*SalesG (%)	1353	9.756	23.508	672	10.796	33.370	78	10.561	29.649
Top25Tax	1354	0.197	0.398	672	0.219	0.414	78	0.308	0.465
Top25Int	1354	0.196	0.397	672	0.204	0.403	78	0.218	0.416
Bot25Sub	1354	0.243	0.429	672	0.272	0.445	78	0.244	0.432
EarnVol	1264	0.518	2.185	648	0.669	2.244	75	0.727	1.783
OwnerConc (%)	1354	35.721	13.580	672	36.161	14.278	78	35.149	14.680
HighEarnVol* OwnerConc (%)	1264	17.278	20.070	648	19.439	20.901	75	23.841	21.424
CeoAge	1354	48.381	7.074	672	47.382	6.927	78	48.744	6.514
PoorRepu	1354	0.095	0.294	672	0.122	0.328	78	0.115	0.322
Size	1354	21.455	0.968	672	21.407	1.006	78	21.637	0.770
PrivatePlacement (PP)	1354	0.138	0.345	672	0.485	0.500	78	0.500	0.503
GDP (%)	1354	11.651	4.363	672	11.322	4.175	78	11.155	4.090
HHI	1354	0.119	0.126	672	0.114	0.098	78	0.106	0.097
$MBR_i - MBR_{ind}$	1303	0.666	1.288	650	0.706	1.281	76	0.526	0.999
	Base2			Pri2			Depri2		
Variable	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
ROA (%)	899	5.690	6.474	346	2.324	7.433	166	3.111	5.157

variable	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
MKTex	899	9.204	1.716	346	9.135	1.532	166	9.289	1.351
ROA*LowMKTex (%)	899	2.736	5.328	346	1.174	5.298	166	1.722	4.578
STPT	899	0.026	0.158	346	0.075	0.264	166	0.078	0.269
SalesG (%)	899	22.620	41.377	346	11.210	38.398	166	21.670	38.575
SA	899	-3.621	0.225	346	-3.617	0.225	166	-3.707	0.249
LowSA*SalesG (%)	899	8.927	30.202	346	5.913	31.396	166	14.390	32.271
Top25Tax	899	0.224	0.417	346	0.231	0.422	166	0.265	0.443
Top25Interest	899	0.245	0.430	346	0.240	0.428	166	0.217	0.413
Bot25Sub	899	0.280	0.449	346	0.387	0.488	166	0.319	0.468
EarnVol	838	0.496	2.785	342	0.347	3.503	166	0.559	3.387
OwnerConc (%)	899	33.919	13.522	346	28.132	12.839	166	30.803	10.280
HighEarnVol* OwnerConc (%)	838	18.755	19.499	342	13.669	16.036	166	17.156	16.983
CeoAge	899	48.299	6.909	346	48.181	7.001	166	50.735	6.698
PoorRepu	899	0.115	0.319	346	0.159	0.366	166	0.199	0.400
Size	899	21.372	1.007	346	21.096	0.807	166	21.768	1.127
PrivatePlacement (PP)	899	0.137	0.344	346	0.223	0.417	166	0.211	0.409
GDP (%)	899	11.737	4.490	346	11.736	4.441	166	11.662	4.267
HHI	899	0.119	0.120	346	0.114	0.117	166	0.138	0.107
$MBR_i - MBR_{ind}$	875	0.732	1.365	335	0.855	1.324	162	0.892	1.544

Panel B: Logit regressions

		Depri1 vs. Pr1						Depri2 vs. Pri2				
		Depri1			Pri1			Depri2			Pri2	
variable	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
ROA (%)	75	3.690	7.459	122	3.965	6.581	135	2.802	6.379	170	3.178	7.552
MKTex	75	8.635	1.597	122	9.807	1.135	135	9.161	1.368	170	9.252	1.466
ROA*LowMKTex (%)	75	0.773	0.421	122	0.336	0.474	135	0.526	0.501	170	0.459	0.500
STPT	75	0.040	0.197	122	0.025	0.156	135	0.119	0.324	170	0.059	0.236
SalesG (%)	75	24.825	38.305	122	17.734	44.689	135	23.208	48.322	170	14.560	46.011
SA	75	-3.644	0.170	122	-3.638	0.253	135	-3.673	0.317	170	-3.621	0.258
LowSA*SalesG (%)	75	0.440	0.500	122	0.492	0.502	135	0.593	0.493	170	0.518	0.501

Top25Tax	75	0.280	0.452	122	0.262	0.442	135	0.289	0.455	170	0.218	0.414
Top25Int	75	0.200	0.403	122	0.246	0.432	135	0.178	0.384	170	0.224	0.418
Bot25Sub	75	0.253	0.438	122	0.287	0.454	135	0.370	0.485	170	0.353	0.479
EarnVol	73	0.729	1.808	119	0.456	3.168	135	0.769	3.553	166	0.423	3.561
OwnerConc (%)	75	34.898	14.911	122	37.844	13.997	135	29.928	10.505	170	28.634	11.610
HighEarnVol* OwnerConc (%)	73	0.616	0.490	119	0.504	0.502	135	0.600	0.492	166	0.506	0.501
CeoAge	75	48.813	6.635	122	47.631	6.229	135	50.570	7.166	170	48.526	7.110
PoorRepu	75	0.107	0.311	122	0.148	0.356	135	0.178	0.384	170	0.176	0.382
Size	75	21.619	0.778	122	21.345	1.183	135	21.475	1.078	170	21.190	0.918
PrivatePlacement (PP)	75	0.520	0.503	122	0.557	0.499	135	0.230	0.422	170	0.206	0.406
GDP (%)	75	11.283	4.119	122	10.623	3.650	135	12.279	4.673	170	12.078	4.685
HHI	75	0.101	0.096	122	0.122	0.109	135	0.114	0.095	170	0.099	0.087
$MBR_i - MBR_{ind}$	73	0.586	0.971	117	0.942	1.571	132	1.165	1.878	165	0.908	1.573

Table 4 Multinomial Logit Analysis Results

This table presents the results of multinomial logit Analysis results for the likelihood of deprivatizing or selling ownership to other private entities versus staying without ownership change during 2006–2021. Pri1 (Pri2) refers to the category of firms selling non-control (control) ownership to other private entities. Depri1 (Depri2) refers to the deprivatized firms without (with) control transfer. Base1 are matched firms for Pri1 and Depri1 firms on a 2 for 1 basis, while Base2 are matched firms for Pri2 and Depri2 firms on a 2 for 1 basis. We report the estimated coefficients (the associated odds ratios are in parentheses) that represent the effects of the covariates on the likelihood of deprivatizing or selling ownership to some private entity in the next year. The indicator of the dependent variable is set to 0 for Base firms (the reference category), 1 for firms selling ownership to private entities, and 2 for firms deprivatizing. All independent variables are defined in Panel A of Appendix I. Except CeoAge, PoorRepu, STPT, PP and $(MBR_i - MBR_{Ind})$, all independent variables are the three-year average before the relevant Depri or Pri year. CeoAge, STPT, and $(MBR_i - MBR_{Ind})$ are based on the value one year before, while PoorRepu is based on the value two years before. PP is contemporaneous. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Without control transfer		With control transfer	
	Pri1	Depri1	Pri2	Depri2
ROA	0.002	-0.115	-0.181***	-0.195***
	(1.00)	(0.89)	(0.83)	(0.82)
MKTex	0.097	-0.060	-0.024	-0.094
	(1.10)	(0.94)	(0.98)	(0.91)
ROA*LowMKTex	0.005	0.076	-0.001	0.091
	(1.00)	(1.08)	(1.00)	(1.10)
STPT	-0.675	-4.060	-2.481***	-0.206
	(0.51)	(0.02)	(0.08)	(0.81)
SalesG	-0.019*	0.029***	-0.029**	-0.017
	(0.98)	(1.03)	(0.97)	(0.98)
SA	0.214	-1.722	1.506	0.438
	(1.24)	(0.18)	(4.51)	(1.55)
LowSA*SalesG	0.024**	-0.027	0.026	0.039***
	(1.02)	(0.97)	(1.03)	(1.04)
Top25Tax	-0.201	0.135	-0.953	0.153
	(0.82)	(1.14)	(0.39)	(1.17)
Top25Int	-0.769*	-1.075**	-1.012**	-1.826**

	(0.46)	(0.34)	(0.36)	(0.16)
Bot25Sub	0.437	0.299	0.222	-0.164
	(1.55)	(1.35)	(1.25)	(0.85)
EarnVol	0.117	0.303	0.209*	0.160
	(1.12)	(1.35)	(1.23)	(1.17)
OwnerConc	-0.010	0.013	-0.041**	-0.019
	(0.99)	(1.01)	(0.96)	(0.98)
HighEarnVol*OwnerConc	-0.004	-0.002	-0.050***	-0.031**
	(1.00)	(1.00)	(0.95)	(0.97)
CeoAge	0.004	-0.001	0.013	0.091***
	(1.00)	(1.00)	(1.01)	(1.10)
PoorRepu	1.224**	0.586	-0.011	1.229
	(3.40)	(1.80)	(0.99)	(3.42)
Size	0.229	-0.120	0.022	0.346
	(1.26)	(0.89)	(1.02)	(1.41)
PrivatePlacement (PP)	2.109***	1.736***	1.262***	1.523***
	(8.24)	(5.67)	(3.53)	(4.58)
GDP	-0.016	-0.160***	-0.201**	0.005
	(0.98)	(0.85)	(0.82)	(1.01)
HHI	-0.238	-5.000*	-2.327	-1.020
	(0.79)	(0.01)	(0.10)	(0.36)
$MBR_i - MBR_{ind}$	0.174	-0.350**	0.084	-0.037
	(1.19)	(0.70)	(1.09)	(0.96)
Constant	-2.208	1.350	13.961**	-4.326
Observations	810	810	531	531
Pseudo R-squared	0.173	0.173	0.184	0.184

Table 5 Logit Analysis Results

This table presents the results of logit models for the likelihood of deprivatizing versus selling ownership to other private entities during 2006–2021. The left Panel presents the results for matched Pri1 and Depri1 sample, while the right Panel for matched Pri2 and Depri2 sample. The match is 1 for 2 based on the total sales, leverage, industry, and the deprivatization year. Pri1 (Pri2) refers to the group of firms selling non-control (control) ownership to another private entity. Depri1 (Depri2) refers to the deprivatized firms without (with) control transfer. We report the estimated coefficients (the associated odds ratios are in parentheses) that represent the effects of the covariates on the likelihood of deprivatization relative to selling ownership to other private entities in the next year. The indicator of the dependent variable is set to 0 for firms selling ownership to private entities (the reference category), and 1 for firms deprivatizing. All independent variables are defined in Panel A of Appendix I. Except CeoAge, PoorRepu, PP and STPT, all independent variables are the three-year average before the relevant Depri or Pri year. CeoAge and STPT are based on the value one year before, while PoorRepu is based on the value tow years before. PP is contemporaneous. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Depri1Pri1 (= 1 if Depri1 = 1; = 0 if Pri1 = 1)	Depri2Pri2 (= 1 if Depri2 = 1; = 0 if Pri2 = 1)
ROA	-0.050	0.043
	(0.95)	(1.04)
MKTex	-1.153**	-0.213
	(0.32)	(0.81)
ROA*LowMKTex	0.366**	-0.147
	(1.44)	(0.86)
STPT	3.974	1.837***
	(53.17)	(6.28)
SalesG	0.006	0.003
	(1.01)	(1.00)
SA	-2.497	-0.199
	(0.08)	(0.82)
LowSA*SalesG	-0.029	0.029
	(0.97)	(1.03)
Top25Tax	-1.084	1.308
	(0.34)	(3.70)
Top25Int	-1.382	-1.995**
	(0.25)	(0.14)

Bot25Sub	-1.279	0.296
	(0.28)	(1.34)
EarnVol	-0.355	-0.041
	(0.70)	(0.96)
OwnerConc	-0.014	0.011
	(0.99)	(1.01)
HighEarnVol*OwnerConc	0.051	0.014
	(1.05)	(1.01)
CeoAge	0.010	0.095*
	(1.01)	(1.10)
PoorRepu	-3.045*	-1.057
	(0.05)	(0.35)
Size	-0.161	0.224
	(0.85)	(1.25)
PrivatePlacement (PP)	-0.348	0.002
	(0.71)	(1.00)
GDP	0.124	0.100
	(1.13)	(1.11)
HHI	-2.140	-2.195
	(0.12)	(0.11)
$MBR_i - MBR_{ind}$	-1.335***	0.083
	(0.26)	(1.09)
Constant	6.846	-9.357
Observations	72	112
Pseudo R-squared	0.444	0.203

Table 6 Performance Comparisons with and without Ownership Change

This table presents Panel Data Analyses results for performance changes resulting from Depri and Pri. We classify the performance proxies into 6 categories: (1) Profitability which includes ROS, ROA and ROE; (2) Financial Constraints which includes SA, KZ, and Leverage; (3) Growth which includes SalesG and MBR; (4) Investment which includes Capex1, Capex2, and R&D; (5) Favors and Costs which includes TaxBurden, DebtCost, Subsidies, Donation, SG&A, and MKTpower; and (6) Reputation which includes IC and ESG indices. Panel A reports the result for the matched sample of Pri1, Depri1 and Base1 (reference category), while Panel B reports the result for the matched sample of Pri2, Depri2 and Base2 (reference category). Pri1 (Pri2) refers to the category of firms selling non-control (control) ownership to other private entities. Depri1 (Depri2) refers to the deprivatizing without (with) control transfer. Base1 are matched firms for Pri1 and Depri1 on a 2 for 1 basis, while Base2 are matched firms for Pri2 and Depri2 on a 2 for 1 basis. The matching criteria are the total sales, leverage, industry, and the depri or pri year. The control variables are the national GDP growth rate, industry HHI, and provincial Marketization Index. All above-mentioned variables are defined in Panel B of Table 3. The data includes yearly observations of each variable from 3 years before Depri or Pri to 3 years after with the Depri or Pri year omitted. With year and firm specific fixed-effects controlled for, the interactive dummies Post*Depri and Post Pri capture the performance change of Depri firms and Pri firms relative to that of Base firms, respectively. t -statistics based on Newey and West (1987) standard errors are presented in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Base1 Pri1 Depri1

	Profitability			Financial constraints			Growth		Investments		
	ROS	ROA	ROE	SA	KZ	Leverage	SalesG	MBR	Capex1	Capex2	R&D
Pri*Post	-1.014	-0.318	-0.456	-0.002	-0.084	0.180	2.220	0.069	-0.310	-0.837	-0.254**
	(-0.62)	(-0.50)	(-0.36)	(-0.21)	(-0.48)	(0.15)	(0.74)	(0.48)	(-0.90)	(-0.81)	(-2.45)
Depri*Post	1.952	1.400	2.042	0.022***	-0.128	-5.151*	-14.656**	0.094	0.226	0.956	0.399**
	(0.55)	(1.42)	(1.47)	(2.75)	(-0.37)	(-1.93)	(-2.16)	(0.44)	(0.38)	(0.60)	(2.32)
MKTex	-2.100	-0.753	-0.610	-0.003	0.592***	5.011***	11.580**	0.329***	0.156	-0.264	-0.053
	(-1.40)	(-1.43)	(-0.78)	(-0.69)	(3.08)	(3.16)	(2.31)	(3.30)	(0.51)	(-0.30)	(-0.71)
HHI	-16.130	-5.906	-11.641	0.014	-0.294	-0.576	-34.869	-0.731	-4.375	0.367	-0.055
	(-0.92)	(-0.89)	(-0.90)	(0.47)	(-0.25)	(-0.07)	(-1.40)	(-0.70)	(-1.63)	(0.04)	(-0.08)
GDP	-0.079	-0.005	-0.034	-0.000	0.064***	0.046	2.287***	-0.037**	0.082**	0.217**	0.011
	(-0.37)	(-0.05)	(-0.21)	(-0.34)	(4.44)	(0.49)	(5.52)	(-2.55)	(2.54)	(1.98)	(1.29)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5159	5159	5129	5159	4949	5159	5159	4949	5154	5154	5159
adj.R-sq	0.223	0.363	0.282	0.959	0.582	0.763	0.068	0.478	0.433	0.513	0.755

	Favors and costs						Reputation	
	TaxBurden	DebtCost	Subsidies	Donation	SG&A	MKTpower	IC	ESG
Pri*Post	2.715	-0.254	-5.192**	0.002	-0.007	0.040	-0.007	0.069
	(1.53)	(-0.88)	(-2.20)	(0.24)	(-0.11)	(0.14)	(-0.69)	(0.79)
Depri*Post	1.563	-0.595	1.089	0.001	-0.111	-2.221	-0.002	-0.098
	(0.74)	(-1.17)	(0.19)	(0.06)	(-0.94)	(-1.54)	(-0.14)	(-0.55)
MKTex	-0.636	0.451*	-0.649	0.003	0.000	1.398*	-0.004	-0.014
	(-0.46)	(1.84)	(-0.22)	(0.66)	(0.01)	(1.88)	(-0.47)	(-0.17)
HHI	1.874	-0.117	17.956	0.025	0.729*	11.040	-0.112	-0.724
	(0.24)	(-0.07)	(0.89)	(0.69)	(1.73)	(0.78)	(-1.41)	(-0.96)
GDP	0.032	0.000	-0.484*	0.001	0.001	0.100*	0.002	0.007
	(0.15)	(0.00)	(-1.95)	(1.21)	(0.19)	(1.83)	(1.39)	(0.76)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5159	5159	5159	5159	5156	5086	4557	4573
adj.R-sq	0.101	0.674	0.190	0.339	0.854	0.642	0.294	0.461

Panel B: Base2 Pri2 Depri2

	Profitability			Financial constraints			Growth		Investments		
	ROS	ROA	ROE	SA	KZ	Leverage	SalesG	MBR	Capex1	Capex2	R&D
Pri*Post	-0.411	0.661	0.061	-0.002	-0.408	6.384**	13.821**	-0.267*	-0.311	0.070	-0.091
	(-0.12)	(0.65)	(0.02)	(-0.25)	(-1.55)	(2.33)	(2.37)	(-1.65)	(-0.66)	(0.04)	(-0.52)
Depri*Post	-5.498	-0.249	-0.483	-0.008	0.108	7.019***	3.907	-0.685***	-1.235*	-3.958	0.241
	(-0.84)	(-0.22)	(-0.21)	(-0.75)	(0.49)	(2.94)	(0.59)	(-4.36)	(-1.68)	(-1.63)	(0.97)
MKTex	-2.622	-1.119*	-3.064**	0.010	0.089	-0.662	-8.598**	0.225**	-0.101	-1.346	0.099
	(-1.19)	(-1.93)	(-2.13)	(1.57)	(0.68)	(-0.41)	(-2.26)	(2.27)	(-0.37)	(-1.52)	(0.73)
HHI	27.226	4.083	5.059	0.020	-0.388	5.722	-10.943	0.828	3.268	-3.714	-1.218
	(0.98)	(1.00)	(0.68)	(0.71)	(-0.47)	(0.89)	(-0.27)	(1.33)	(0.99)	(-0.68)	(-1.42)
GDP	-0.152	-0.113	-0.233	0.001	0.060***	-0.005	0.652	-0.030**	0.171***	0.269**	-0.019**

	(-0.56)	(-1.53)	(-1.35)	(1.55)	(3.30)	(-0.05)	(0.79)	(-2.56)	(3.76)	(2.42)	(-2.09)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3122	3122	3087	3122	2966	3122	3121	2966	3120	3120	3122
adj.R-sq	0.145	0.208	0.127	0.973	0.510	0.658	-0.024	0.564	0.477	0.417	0.669

	Favors and costs						Reputation	
	TaxBurden	DebtCost	Subsidies	Donation	SG&A	MKTpower	IC	ESG
Pri*Post	-0.710	0.068	-6.571	-0.017*	0.239**	0.796**	-0.002	-0.317*
	(-0.20)	(0.15)	(-1.20)	(-1.92)	(1.97)	(2.48)	(-0.09)	(-1.93)
Depri*Post	-9.386*	-0.936**	4.931	-0.021*	-0.043	0.202	0.013	0.339*
	(-1.83)	(-2.18)	(1.07)	(-1.86)	(-0.16)	(0.56)	(0.60)	(1.95)
MKTex	-0.750	0.378	-6.442	-0.013**	-0.049	-0.194	-0.034***	-0.163**
	(-0.30)	(1.54)	(-1.38)	(-2.13)	(-0.30)	(-1.16)	(-2.70)	(-2.17)
HHI	-4.085	5.074***	11.622	-0.102**	-1.102	11.600***	0.037	-0.002
	(-0.34)	(3.19)	(0.73)	(-2.52)	(-0.96)	(3.15)	(0.39)	(-0.00)
GDP	-0.110	0.032	-0.642	0.000	0.004	0.007	-0.001	0.014
	(-0.28)	(0.59)	(-1.54)	(0.30)	(0.45)	(0.46)	(-0.41)	(1.14)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3122	3122	3122	3122	3122	3082	2763	2713
adj.R-sq	0.081	0.535	0.109	0.251	0.623	0.769	0.257	0.475

Table 7 Performance Comparison between Deprivatized Firms and Firms Selling Ownership to Other Private Entities

This table presents panel data analysis results for the performance comparison between Depri and Pri firms. We classify the performance proxies into 6 categories: (1) Profitability which includes ROS, ROA and ROE; (2) Financial Constraints which includes SA, KZ, and Leverage; (3) Growth which includes SalesG and MBR; (4) Investment which includes Capex1, Capex2, and R&D; (5) Favors and Costs which includes TaxBurden, DebtCost, Subsidies, Donation, SG&A, and MKTpower; and (6) Reputation which includes IC and ESG indices. The left panel reports the results for the matched sample of Depri1 and Pri1 (reference category), while Panel B reports the results for the matched sample of Depri2 and Pri2 (reference category). Pri1 (Pri2) refers to the category of firms selling non-control (control) ownership to another private entity. Depri1 (Depri2) refers to the deprivatizing without (with) control transfer. The match between Pri1 and Depri1 (Pri2 and Depri2) is 1 for 2 based on the total sales, leverage, industry, and depri year. The control variables are the national GDP growth rate, industry HHI, and provincial Marketization Index. All above-mentioned variables are defined in Panel B of Table 3. The data includes yearly observations of each variable from 3 years before Depri or Pri to 3 years after with the Depri year omitted. With year and firm specific fixed-effects controlled for, the interactive dummy Post*Depri captures the performance change of Depri firms relative to that of Pri firms. t -statistics based on Newey and West (1987) standard errors are presented in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Depri1 Pri1

	Profitability			Financial constraints			Growth		Investments		
	ROS	ROA	ROE	SA	KZ	Leverage	SalesG	MBR	Capex1	Capex2	R&D
Depri1*Post	2.608	1.065	0.773	0.027	0.190	-2.626	0.643	0.710*	-0.288	-3.196	0.785***
	(0.42)	(0.62)	(0.28)	(1.20)	(0.53)	(-0.73)	(0.06)	(1.79)	(-0.36)	(-1.25)	(3.20)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	444	444	436	444	418	444	444	418	442	442	444
adj.R-sq	0.115	0.185	0.279	0.889	0.671	0.797	-0.030	0.489	0.481	0.566	0.783
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)			

	Favors and costs						Reputation	
	TaxBurden	DebtCost	Subsidies	Donation	SG&A	MKTpower	IC	ESG
Depri1*Post	0.568	-0.421	-8.771	-0.009	-0.532	-1.679**	-0.007	0.010
	(0.14)	(-0.60)	(-1.41)	(-0.51)	(-1.17)	(-2.06)	(-0.24)	(0.04)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	444	444	444	444	443	440	403	404

adj.R-sq	0.121	0.841	0.130	0.310	0.544	0.591	0.480	0.426

Panel B: Depri2 Pri2

	Profitability			Financial constraints			Growth		Investments		
	ROS	ROA	ROE	SA	KZ	Leverage	SalesG	MBR	Capex1	Capex2	R&D
Depri2*Post	3.914	0.378	6.104	0.028	0.281	2.602	7.376	-0.401	-0.712	-3.903	0.090
	(0.48)	(0.23)	(1.48)	(1.17)	(0.50)	(0.56)	(0.64)	(-1.37)	(-0.77)	(-1.12)	(0.35)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	718	720	698	720	685	720	718	685	717	715	720
adj.R-sq	0.154	0.118	0.081	0.770	0.593	0.707	0.063	0.642	0.408	0.335	0.740

	Favors and costs						Reputation	
	TaxBurden	DebtCost	Subsidies	Donation	SG&A	MKTpower	IC	ESG
Depri2*Post	-9.949*	-0.337	22.541***	-0.020	0.547*	0.214	0.042	0.446*
	(-1.81)	(-0.70)	(3.17)	(-1.35)	(1.81)	(0.22)	(1.47)	(1.89)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	720	720	720	718	718	718	653	611
adj.R-sq	0.116	0.547	0.125	0.252	0.588	0.784	0.314	0.526

Appendix I Definition of Variables

This appendix provides the definition and data source for all variables used in the deprivatization motivation (or determinant) analysis (Panel A) and the possible outcome of deprivatization analysis (Panel B). Some variables are used in both motivation and outcome analyses.

Panel A: Variables used in the deprivatization motivation (or determinant) analysis

Variable Name	Definition	Data Source
Base	The private firms without significant ownership changes throughout the sample period. The private firm is defined as a firm with less than 10% government ownership.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Pri1	The private firms with significant ownership change in the sense that some private entity increases his/her/its ownership from below 10% to above 10% of the firm but the control shareholder is unchanged.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Pri2	The private firms with control transferred to another private entity.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Depri1	The deprivatized firms with state ownership increasing to above 10%.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Depri2	The deprivatized firms with control transferred to the state.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
ROA	Return on average total assets. Net Profit / Average Balance of Total Assets. Average BalanceTotal Assets = (Beginning Balance of Total Assets + Ending Balance of Total Assets) / 2.	CSMAR
MKTex	Marketization index compiled by Fan et al.	CHINA MARKET INDEX DATABASE
LowMKTex	A dummy variable equals one if the MKTex is in the bottom fifty percent of the sample.	CSMAR
STPT	A dummy variable equals one if a firm has ST, *ST, or PT status in the previous year.	CSMAR
SalesG	Growth Rate of Operating Revenue. (Operating Revenue in Current Period - Operating Revenue in the Same Period of Previous Year) / (Operating Revenue in the Same Period of Previous Year).	CSMAR
SA	SA Index. Reflecting the degree of financing constraint of a company. A smaller SA index (larger in absolute value) indicates a higher degree of financing constraint.	CSMAR
LowSA	A dummy variable equals one if a firm's SA is in the bottom fifty percent of the sample.	CSMAR
KZ	KZ Index. Reflecting the degree of financing constraint of a company. A larger KZ index indicates a higher degree of financing constraint.	CSMAR
TaxBurden	(Income tax expense - deferred income taxes) / the income before tax.	CSMAR

DebtCost	Financial Expense divided by the total debt.	CSMAR
Subsidies	Government subsidies divided by net income.	CSMAR
Top25Tax	A dummy variable equals one if the firm's tax burden in the top quarter of its industry in the year.	CSMAR
Top25Int	A dummy variable equals one if the firm's borrowing cost in the top quarter of its industry in the year.	CSMAR
Bot25Sub	A dummy variable equals one if the firm's government subsidies in the bottom quarter of its industry in the year.	CSMAR
EarnVol	Standard deviation of quarterly earnings for the past two years (including current year) divided by the average of quarterly earnings for the past two years.	CSMAR
HighEarnVol	A dummy variable equals one if a firm's EarnVol is in the top fifty percent of the sample.	CSMAR
OwnerConc	Shareholding percentage of the largest shareholder.	CSMAR
CeoAge	CEO's age in the event year.	CSMAR
PoorRepu	Firms that were warned or punished in the past two years.	CSMAR
Size	Natural logarithm of total assets.	CSMAR
PrivatePlacement (PP)	A dummy variable equals one if Private Placement occurred in the event year.	CSMAR
GDP	Annual growth rate of Gross Domestic Product (GDP).	CSMAR
HHI	The industry Herfindahl-Hirschman Index.	CSMAR
MBR	Market-to-book ratio.	CSMAR
MBR_{ind}	Industry market-to-book ratio.	CSMAR
$MBR_i - MBR_{ind}$	MBR minus IndMBR.	CSMAR
Panel B: Variables used in the possible outcome of deprivatization analysis		
Variable Name	Definition	Data Source
Base	The private firms without significant ownership changes throughout the sample period. The private firm is defined as a firm with less than 10% government ownership.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Pri1	The private firms with significant ownership change in the sense that some private entity increases his/her/its ownership from below 10% to more than 10% of the firm but the control shareholder is unchanged.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Pri2	The private firms with control transferred to another private entity.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation

Depri1	The deprivatized firms with state ownership increasing to above 10%.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Depri2	The deprivatized firms with control transferred to the state.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
Post	A dummy variable which is set to one for years after the ownership change event.	CSMAR, TianYanCha.com, Qcc.com, Manual calculation
ROA	Return on average total assets. Net Profit / Average Balance of Total Assets. Average Balance of Total Assets = (Beginning Balance of Total Assets + Ending Balance of Total Assets) / 2.	CSMAR
ROS	Return on sales. Net Profit / Operating Revenue.	CSMAR
ROE	Return on average shareholders' equity. Net Profit / Average Balance of Shareholders' Equity. Average Balance of Shareholders' Equity = (Beginning Balance of Shareholders' Equity + Ending Balance of Shareholders' Equity) / 2.	CSMAR
SA	SA Index. Reflecting the degree of financing constraint of a company. The SA index is negative, and a smaller SA index (larger in absolute value) indicates a higher degree of financing constraint.	CSMAR
KZ	KZ Index. Reflecting the degree of financing constraint of a company. A larger KZ index indicates a higher degree of financing constraint.	CSMAR
Leverage	Total debt divided by total assets.	CSMAR
SalesG	Growth Rate of Operating Revenue. (Operating Revenue in Current Period - Operating Revenue in the Same Period of Previous Year) / (Operating Revenue in the Same Period of Previous Year).	CSMAR
MBR	Market-to-book ratio.	CSMAR
Capex1	Capital expenditures divided by total assets.	CSMAR
Capex2	Capital expenditures divided by total sales.	CSMAR
R&D	Research and development expenditures divided by total assets.	CSMAR
TaxBurden	(Income tax expense - deferred income taxes) / the income before tax.	CSMAR
DebtCost	Financial Expense divided by the total debt.	CSMAR
Subsidies	Government subsidies divided by net income.	CSMAR
Donation	Donations divided by total sales.	CSMAR
SG&A	Entertainment expenditures divided by operating cost.	CSMAR
MKTpower	Enterprise market share. Operating revenue of a single enterprise / total operating revenue of all enterprises in the same industry	CSMAR

IC	The natural logarithm of DIB Internal Control Index which is published by Shenzhen Dibo Enterprise Risk Management Technology Co., Ltd. It includes the fulfillment of the five objectives of corporate strategy implementation: operating returns, true and complete disclosure of information, legal compliance, and security of assets, and correcting the significant deficiencies in internal control (Research Group on Internal Control Index of Chinese Listed Companies, 2011). Higher values of the index indicate better quality of internal controls.	DIB Database
ESG	HuaZheng ESG rating data. HuaZheng ESG rating data is divided into nine grades, namely, AAA, AA, A, BBB, BB, B, CCC, CC and C and are assigned a score from 9 to 1 (from the best to the worst) accordingly.	WIND
MKTex	Marketization index compiled by Fan et al.	CHINA MARKET INDEX DATABASE
HHI	The industry Herfindahl-Hirschman Index.	CSMAR
GDP	Annual growth rate of Gross Domestic Product (GDP).	CSMAR

Appendix II Correlation Matrix for Matched Sample of Depri, Pri, Base Firms

This appendix shows the Pearson correlation matrix for all except dummy variables (see Table 3 for variable definitions) in the matched sample of Depri, Pri, and Base firms during 2006-2021. Base refers to the category of firms without significant ownership change throughout the sample period 2006-2021. Pri1 (Pri2) refers to the category of firms selling non-control (control) ownership to other private entities. Depri1 (Depri2) refers to the deprivatized firms without (with) control transfer. Base1 are matched firms for Pri1 and Depri1 on a 2 for 1 basis, while Base2 are matched firms for Pri2 and Depri2 on a 2 for 1 basis. The firms are matched based on total sales, leverage, industry, and depri year. Depri includes Depri1 and Depri2, Pri includes Pri1 and Pri2, and Base includes Base1 and Base2. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	ROA	MKTex	STPT	SalesG	SA	Top25Tax	Top25Int	Bot25Sub
MKTex	0.045***							
STPT	-0.228***	-0.122***						
SalesG	0.205***	-0.011	0.021					
SA	0.088***	-0.154***	0.031*	0.026				
Top25Tax	-0.078***	-0.020	-0.004	-0.006	-0.036**			
Top25Int	-0.187***	0.018	0.098***	-0.073***	-0.075***	0.052***		
Bot25Sub	-0.179***	-0.107***	0.193***	-0.014	0.077***	-0.015	0.036**	
EarnVol	0.168***	-0.014	-0.057***	0.035**	-0.022	0.050***	-0.027	-0.171***
OwnerConc	0.150***	0.063***	-0.085***	0.006	0.077***	0.007	-0.060***	-0.020
CeoAge	0.025	0.029*	-0.073***	-0.034**	-0.137***	-0.037**	0.013	-0.045***
PoorRepu	-0.154***	-0.004	0.087***	0.025	-0.132***	0.039**	0.044**	0.027
Size	-0.034**	0.051***	-0.124***	0.049***	-0.415***	0.018	0.046***	-0.138***
PrivatePlacement (PP)	-0.058***	0.026	-0.022	0.004	-0.018	0.011	0.078***	-0.022
GDP	0.037**	-0.265***	0.109***	0.113***	0.328***	0.029*	-0.039**	0.172***
HHI	-0.044**	-0.056***	-0.030*	0.003	0.024	0.022	-0.005	0.018
$MBR_i - MBR_{ind}$	-0.069***	0.055***	0.147***	-0.038**	-0.021	-0.016	-0.044**	0.092***

	EarnVol	OwnerConc	CeoAge	PoorRepu	Size	PrivatePlacement (PP)	GDP	HHI
MKTex								
STPT								
SalesG								
SA								
Top25Tax								
Top25Int								
Bot25Sub								
EarnVol								
OwnerConc	-0.012							
CeoAge	0.020	0.007						
PoorRepu	-0.004	-0.050***	0.026					
Size	0.029*	0.063***	0.059***	0.073***				
PrivatePlacement (PP)	0.020	0.010	-0.046***	-0.004	-0.025			
GDP	0.011	-0.005	-0.163***	-0.113***	-0.175***	-0.098***		
HHI	-0.002	0.068***	-0.026	0.046***	0.038**	-0.036**	0.077***	
$MBR_i - MBR_{ind}$	-0.002	-0.069***	0.001	0.101***	-0.221***	0.023	-0.179***	-0.043**

Appendix III Univariate Analysis for Performance Variables of Various Firm Categories Before and After the Ownership Change

This table shows the before and after changes for various performance variables. Panel A presents the statistics for base1 and base2 firms, namely, the number of observations, the mean and standard deviation of each variable 3-year before and after the corresponding matched pri or depri year, the mean difference of each variable before and after pri or depri and their associated the t-test significance. Panels B and C present the similar statistics for Pri1 and Pri2, and Depri1 and Depri2, respectively. *, **, and *** indicate the t-test significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Base1 and Base2 firms

Categories	Variable	Base1						Base2					
		3 years before event			3 years after event			t-test	3 years before event			3 years after event			t-test
		Obs	Mean	SD	Obs	Mean	SD	MeanDiff	Obs	Mean	SD	Obs	Mean	SD	MeanDiff
Profitability	ROS	1543	9.990	17.236	1803	5.535	22.829	-4.455***	905	9.335	18.567	1094	4.580	25.826	-4.755***
	ROA	1543	6.412	5.888	1803	4.351	7.442	-2.060***	905	6.333	6.053	1094	4.053	7.499	-2.280***
	ROE	1534	10.119	9.384	1795	6.663	13.699	-3.456***	895	10.522	10.243	1084	6.756	14.113	-3.766***
Financial constraints	SA	1543	-3.613	0.235	1803	-3.771	0.229	-0.158***	905	-3.609	0.252	1094	-3.757	0.246	-0.147***
	KZ	1451	0.457	2.935	1767	1.184	2.094	0.727***	838	0.853	3.056	1066	1.456	2.185	0.603***
	Leverage	1543	35.844	19.244	1803	39.997	18.435	4.153***	905	40.448	21.135	1094	43.370	20.025	2.921***
Growth	SalesG	1543	22.140	36.488	1803	18.836	37.498	-3.304**	904	23.446	41.335	1094	17.725	40.376	-5.721***
	MBR	1451	2.234	1.400	1767	2.337	1.441	0.102**	838	2.170	1.390	1066	2.439	1.608	0.269***
Investments	Capex1	1543	6.352	5.354	1802	5.108	4.745	-1.244***	905	5.520	4.893	1093	4.775	4.439	-0.744***
	Capex2	1543	13.426	14.556	1802	10.764	12.425	-2.662***	905	12.209	14.609	1093	10.327	12.126	-1.882***
	R&D	1543	2.056	1.991	1803	2.374	1.991	0.317***	905	1.959	2.048	1094	2.268	2.195	0.309***
Favors and costs	TaxBurden	1543	12.762	17.190	1803	10.345	25.681	-2.417***	905	13.454	21.308	1094	10.853	26.464	-2.601**
	DebtCost	1543	-0.362	5.181	1803	0.842	3.260	1.204***	905	0.029	4.925	1094	0.859	3.424	0.830***
	Subsidies	1543	16.107	32.750	1803	18.351	38.387	2.243*	905	15.110	31.210	1094	18.028	35.254	2.918*
	Donation	1543	0.043	0.097	1803	0.048	0.102	0.004	905	0.038	0.092	1094	0.053	0.111	0.015***
	SG&A	1543	0.941	1.774	1802	0.910	1.511	-0.031	905	0.822	1.523	1094	0.869	1.454	0.047
	MKTpower	1486	1.743	4.347	1803	1.407	3.248	-0.337**	866	1.886	4.540	1094	1.630	4.092	-0.257
Reputation	IC	1190	6.501	0.119	1738	6.481	0.122	-0.020***	692	6.490	0.130	1051	6.474	0.122	-0.016***
	ESG	1236	4.179	0.924	1741	4.080	1.130	-0.098**	729	4.130	0.994	1060	3.982	1.129	-0.148***

Panel B: Pri1 and Pri2 firms

		Pri1	Pri2

Categories	Variable	3 years before event			3 years after event			t-test	3 years before event			3 years after event			t-test
		Obs	Mean	SD	Obs	Mean	SD	MeanDiff	Obs	Mean	SD	Obs	Mean	SD	MeanDiff
Profitability	ROS	775	8.311	17.884	869	3.364	30.241	-4.947***	397	-0.028	30.020	400	0.592	33.460	0.620
	ROA	775	5.128	6.126	869	3.100	8.659	-2.029***	397	2.048	7.787	400	1.995	9.819	-0.053
	ROE	767	7.812	10.132	869	4.517	17.364	-3.295***	393	2.478	15.021	395	2.103	22.414	-0.375
Financial constraints	SA	775	-3.635	0.237	869	-3.807	0.227	-0.173***	397	-3.617	0.226	400	-3.793	0.223	-0.176***
	KZ	715	0.789	2.756	855	1.416	2.011	0.627***	368	1.796	2.530	381	2.044	2.466	0.248
	Leverage	775	36.044	20.969	869	39.931	19.120	3.887***	397	38.334	21.935	400	45.821	22.620	7.487***
Growth	SalesG	775	19.568	43.720	869	20.865	49.087	1.297	397	10.705	41.551	400	22.016	65.580	11.311***
	MBR	715	2.132	1.439	855	2.223	1.496	0.091	368	2.355	1.561	381	2.484	1.719	0.129
Investments	Capex1	775	6.080	5.179	866	4.421	4.180	-1.659***	397	4.777	4.452	399	4.014	4.973	-0.763**
	Capex2	775	13.732	15.845	866	10.509	13.993	-3.223***	397	11.042	14.604	399	9.813	16.842	-1.229
	R&D	775	1.609	1.506	869	1.744	1.559	0.134*	397	1.537	1.587	400	1.762	2.144	0.225*
Favors and costs	TaxBurden	775	12.194	23.944	869	11.608	24.389	-0.586	397	11.178	31.277	400	9.028	36.823	-2.150
	DebtCost	775	-0.152	5.280	869	0.959	3.857	1.111***	397	0.653	4.460	400	1.488	2.855	0.835***
	Subsidies	775	17.676	35.270	869	14.238	28.733	-3.438**	397	23.866	55.217	400	20.055	51.973	-3.811
	Donation	775	0.046	0.097	869	0.049	0.105	0.003	397	0.030	0.073	400	0.035	0.093	0.005
	SG&A	774	0.741	1.304	869	0.771	1.414	0.030	397	0.613	1.288	400	0.809	1.686	0.196*
	MKTpower	760	1.718	4.348	869	1.637	3.846	-0.081	396	0.901	2.197	400	1.776	4.651	0.875***
Reputation	IC	656	6.488	0.109	824	6.462	0.147	-0.026***	360	6.429	0.162	347	6.424	0.168	-0.005
	ESG	637	4.184	0.951	811	4.044	1.147	-0.139**	300	3.720	1.058	343	3.431	1.187	-0.289***

Panel C: Depri1 and Depri2 firms

Categories	Variable	Depri1							Depri2						
		3 years before event			3 years after event			t-test	3 years before event			3 years after event			t-test
		Obs	Mean	SD	Obs	Mean	SD	MeanDiff	Obs	Mean	SD	Obs	Mean	SD	MeanDiff
Profitability	ROS	90	1.568	37.445	80	2.885	38.172	1.317	171	4.280	22.240	155	-3.870	38.361	-8.150**
	ROA	90	3.388	7.380	80	3.280	9.582	-0.109	171	2.819	5.769	155	0.217	9.215	-2.602***
	ROE	89	6.213	12.061	76	4.835	14.766	-1.378	171	3.833	17.177	150	-0.460	22.144	-4.293*
Financial constraints	SA	90	-3.656	0.163	80	-3.770	0.246	-0.114***	171	-3.708	0.245	155	-3.841	0.257	-0.133***
	KZ	85	0.993	2.518	77	1.874	1.714	0.881**	166	1.967	1.992	149	2.877	2.251	0.911***

Category	Variable	N	Mean	SD	N	Mean	SD	Diff	N	Mean	SD	N	Mean	SD	Diff
	Leverage	90	41.954	19.808	80	45.746	24.351	3.791	171	46.660	22.689	155	53.994	23.686	7.334***
Growth	SalesG	90	23.691	36.590	80	18.510	48.574	-5.181	171	22.166	39.127	155	24.325	63.675	2.159
	MBR	85	2.086	0.995	77	2.252	1.468	0.166	166	2.272	1.593	149	1.992	1.406	-0.280
Investments	Capex1	90	5.603	4.854	79	4.332	3.673	-1.272*	171	4.551	4.562	155	3.272	3.909	-1.279***
	Capex2	90	15.516	16.618	79	13.313	16.472	-2.203	171	12.402	15.269	155	9.162	13.212	-3.240**
	R&D	90	1.772	1.585	80	2.284	1.927	0.512*	171	1.395	1.473	155	1.571	1.854	0.176
Favors and costs	TaxBurden	90	14.046	22.775	80	12.292	16.016	-1.753	171	15.736	19.577	155	5.327	35.923	-10.409***
	DebtCost	90	0.617	4.270	80	1.212	3.455	0.595	171	1.370	3.433	155	1.398	3.657	0.028
	Subsidies	90	22.757	50.850	80	20.588	39.834	-2.169	171	12.450	24.306	155	24.027	53.695	11.577**
	Donation	90	0.026	0.052	80	0.035	0.056	0.009	171	0.027	0.059	155	0.034	0.089	0.007
	SG&A	90	1.039	1.762	79	0.989	1.855	-0.050	171	0.747	1.569	155	0.766	1.554	0.019
	MKTpower	89	2.663	5.762	80	1.573	4.386	-1.090	171	2.014	5.384	155	2.669	6.137	0.655
Reputation	IC	80	6.467	0.163	72	6.457	0.134	-0.010	168	6.454	0.139	146	6.433	0.176	-0.021
	ESG	75	3.893	0.953	75	3.667	1.189	-0.227	137	3.657	1.067	145	3.697	1.186	0.040