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## A contractual analysis of state versus private ownership $\bigstar$

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#### 1. Introduction

#### ABSTRACT

We uniquely analyze the advantages and disadvantages of private ownership versus state ownership under various circumstances by focusing on three aspects: external risk, internal governance, and relative importance of owners versus managers. Our theoretical analysis indicates that private ownership is better than state ownership if the business environment is risky, corruption is limited, or the manager plays a more important role than the owner. Our empirical analysis supports our theoretical findings and reveals that better internal governance, more external risk and greater importance of the manager will magnify the benefits of privatization. © 2017 Elsevier Inc. All rights reserved.

The transformation of state-owned enterprises (SOEs) to private firms has been among the most important economic events in recent times. SOEs are generally considered as inefficient and in the past 20 years, privatization has been the approach to their reform in more than 100 countries, including many Western countries such as the U.K., France and Canada, as well as Eastern Bloc countries and China. Privatization transforms a state-owned company to a privately owned one. A key outcome of this process is that the nature of the contractual relationships between owners and managers changes following the change in ownership. The main problem with SOEs is incentive and the contractual approach has been recognized as the main mechanism addressing this problem.

This paper focuses on contractual relationships. We analyze the advantages and disadvantages of private ownership versus state ownership under various circumstances within the same model setting. We shed light on privatization from a unique angle by focusing on three aspects: external risks, internal governance, and the relative importance of owners versus managers. We also present empirical evidence in support of our theoretical findings.

The contractual relationships we focus on are based on the ownership structure of a company. One key characteristic of private ownership is profit maximization, as opposed to social welfare maximization. One key characteristic of state ownership is the political doctrine of equal pay for all. However, over the years, the system of equal pay has suffered from severe incentive problems.

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Consequently, this system was adjusted to allow for bonuses, which implies a conditional fixed contract. A *conditional fixed contract* offers a fixed pay with a bonus, where the bonus is conditional on a performance target. We impose two key assumptions in our model. Under private ownership, (a) the firm is privately owned and the owner maximizes profits and (b) any contract is admissible. In contrast, under state ownership, (a) the firm is state-owned and the owner maximizes social welfare and (b) only conditional fixed contracts are admissible. The firm faces the same conditions in either ownership arrangement, including the same incentive problems, external risks and internal corruption. It turns out that neither ownership arrangement completely dominates the other in terms of economic efficiency. The question is which arrangement is better under what conditions.

We make the following theoretical findings. First, if the business environment is fairly risky, the market solution is always better than the planning solution. Second, if the role of the manager is important, the market solution is better. Third, if corruption can be effectively controlled, the market solution is better. Finally, if a safer environment is coupled with more effective control of corruption, the market solution is better. These results are new to the literature.

One key advantage of the planning solution is that the planner's objective is aligned with the efficiency criterion (social welfare maximization); but one key disadvantage is that the planning solution offers weak incentives to economic agents. On the other hand, one key advantage of the market solution is that it offers strong incentives to economic agents; but one key disadvantage of the market solution is that private firms' objective (profit maximization) is not aligned with the efficiency criterion. Economic agents are much more willing to work hard in good times. Hence, if a good time is very likely, the advantage in objective alignment overweighs the disadvantage in weak incentives so that the planning solution is better than the market solution. However, under normal circumstances as described in our findings, the market solution is better.

Using a database containing 1046 listed firms in the Chinese stock markets, including Chinese SOEs, privately owned firms and foreign firms, we empirically investigate the change in firm value before and after the announcement of privatization. We compare the same companies before and after the announcement of privatization across time; we also compare different companies under different forms of ownership at a given time. In our regression model, we include the three key factors in our theoretical model (internal governance, external risks, and the relative importance of the owner) as independent variables. We make the following empirical findings. First, we find that the three factors are significantly associated with firm value and these associations are consistent with our theoretical predictions. Specifically, firm value increases with the strength of internal governance and the relative importance of the manager, and decreases with the degree of external risks. Second, the magnitude of the increase in firm value after the announcement of privatization is determined by the three factors as well. Specifically, better internal governance, greater external risk or higher importance of the manager will magnify the benefits of privatization. To our knowledge, these findings are new to the literature.

Privatization has become a hot topic in the literature. Researchers have looked at various aspects of privatization (see the surveys by Megginson and Netter (2001), Bonin and Wachtel (2003) and Turhan (2005)). Most studies claim that SOEs are inefficient and try to find reasons for the inefficiency. Ehrlich, Gallais-Hamonno, Liu, and Lutter (1994) show that private ownership leads to higher productivity growth in the long run, but that the ownership effect is ambiguous in the short-run. Bai, Li, Tao, and Wang (2000) stress the role of SOEs in providing social safety, which reduces profitability. Sun and Tong (2003) find that privatization is effective in improving SOEs' earnings ability, real sales, and workers' productivity, but fails to boost profit returns and leverage. Gupta (2005) finds that partial privatization has a positive impact on profitability, productivity, and investment in Indian SOEs. Bai and Xu (2005) consider multiple tasks of SOEs and try to disentangle the complementarity from the substitutability of incentives. D'Souza, Megginson, and Nash (2005) show that ownership (both private and foreign), the degree of economic freedom, and the level of capital market development significantly affect post-privatization performance. Boubakri, Cosset, and Guedhami (2005a) find that the relinquishment of control by the government is a key determinant of profitability, efficiency gains and output increases. Recently, Jiang and Wang (2012) analyze a market-oriented, multistage privatization process and show that the lockup effect, demand elasticity, growth potential and business fluctuations can all affect staged privatization.

On the contrary, some studies have suggested that state ownership is not necessarily less efficient than private ownership. Caves and Christensen (1980) study two major Canadian railroads under different ownership structures; they do not find state ownership to be less efficient than private ownership. Vernon-Wortzel and Wortzel (1989) suggest that SOEs perform better than private enterprises. Martin and Parker (1995) examine 11 U.K. firms that were privatized in the 1980s; they do not find evidence that private ownership is unequivocally more efficient than nationalization. Chang and Singh (1997) argue that SOEs and large private firms both face the same unwieldy bureaucracies. Since private firms have no inherent advantages in corporate governance, there is no guarantee that they are more efficient than SOEs. Kole and Mulherin (1997) study a sample of US companies; they find that the SOEs did not deliver a significantly different performance than private firms in the same industry. In a cost-benefit analysis, Schmitz (2000) identifies conditions under which private ownership, state ownership or partial ownership is optimal. Finally, Aussenegg and Jelic (2006) examine the operating performance of companies privatized in three central European transition economies between 1990 and 1998. They find that, in the first six years after privatization, the firms experienced a drop in profitability, capital investments, employment, and output as well as a significant increase in leverage. Their results indicate the importance of an appropriate legal and institutional environment for the performance of newly privatized firms in transition economies.

The existing theoretical studies on privatization typically attribute the inefficiency of SOEs to a government that does not maximize social welfare or the failure of the political system.<sup>1</sup> For example, Perotti (1995) assumes that the government maximizes its

<sup>&</sup>lt;sup>1</sup> E.g., Jones (1985), Sappington and Stiglitz (1987), Vickers and Yarrow (1988), Shleifer and Vishny (1994), Perotti (1995), and Shleifer (1998).

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