Firm Resources, Governmental Power, and Privatization

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We examine how firms’ resources and the power of their governmental owners influence the likelihood of privatization of state-owned enterprises. Using data on 206 Chinese pharmaceutical firms over the period of 2000 to 2007, we found that firm financial performance (a proxy for firm resources) increased the likelihood of privatization. In addition to firm resources, we investigated how a heterogeneous body of decision makers within the governmental hierarchy influences the likelihood of firms’ privatization. We found that provincial governmental owners’ willingness to privatize firms increased when they had higher fiscal power. The results of this study also indicated a negative moderating influence of provincial fiscal power: Higher fiscal power of provincial governmental owners weakened the relationship between firm financial performance and the likelihood of privatization.

Keywords: privatization; China; state capitalism; governmental power; firm resources

Privatization, the sale of state-owned firms to private parties by governments, is one of the most extensive forms of organizational transformations (Zahra, Ireland, Guitierrez, & Hitt, 2000). Whereas privatizations in the past often involved rapid exits by states from entire industries, private and state-owned firms now increasingly coexist in a wide range of industries across multiple countries, a phenomenon that researchers call the evolution of state

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capitalism (Bremmer, 2010; Inoue, Lazzarini, & Musacchio, 2013; Musacchio & Lazzarini, 2014). Governmental owners in countries relying on state capitalism tend to privatize state-owned firms selectively, depending on whether or not they want to change the firms’ strategic positions and financial performance, alter industry competitive pressures, increase state revenues, or address social and economic problems (Bremmer, 2010; Megginson & Netter, 2001).

When governmental owners privatize state-owned firms, the firms often undergo significant organizational changes, including large-scale employee layoffs, appointment of new management, and major overhauls in their product and service offerings (Dharwadkar, George, & Brandes, 2000; Makhija, 2003; Ramamurti, 2000). Some of the firms’ constituents, such as their owners, customers, and business partners, may benefit from these changes, but others may suffer financial losses. Most privatization decisions, therefore, result from a bargaining process between supporting and opposing constituents, based on their different interests, power, and resources (Desender, Aguilera, Crespi, & Garcia-Cestona, 2013; Henisz & Zelner, 2005; Hillman, Withers, & Collins, 2009).

A critical part of the bargaining process regarding a state-owned firm’s privatization occurs between different governmental owners within the government hierarchy (Kozhikode & Li, 2012; Walder, 1995). Different governmental owners at the national and provincial levels each are likely to establish and enforce different rules and regulations (i.e., polycentric institutions; Batjargal, Hitt, Tsui, Arregle, Webb, & Miller, 2013; Chan, Makino, & Isobe, 2010; Ostrom, 2005) and thus often disagree on which firm should be privatized and which should remain state owned.¹ Some provincial (local) government agencies, for instance, may prefer to keep firms under state control over the long term to maintain employment levels and to continue service offerings they believe to be of value to citizens. Other governmental agencies, especially those at the national level, often are more interested in the revenue generated from the sale of state-owned firms and are less concerned about local outcomes of the privatization. The privatization decisions of state-owned firms, therefore, are frequently based on multiple considerations, including the interests of different governmental owners and the value these owners place on the firms.

Among transition economies, perhaps a unique transition path is found in China, where economic reforms occurred while governmental authorities retained sufficient power over the economy (e.g., Morck, Yeung, & Zhao, 2008; Qian & Roland, 1998). The central government in China designed economic reforms along provincial lines, allowing provincial governments to play significant roles in the allocation of local resources (e.g., Qian & Roland, 1998). Because of the decentralization (Burrwoy, 1996), provincial governmental owners operate under an environment characterized by institutional polycentricism (Batjargal et al., 2013) such that provincial governmental owners play a key role in the privatization decisions along with the national government. When interests in privatization differ at separate levels of government, it is important to understand what factors motivate governmental owners to sell state-owned firms in the polycentric institutional context. Such knowledge can be of strategic value for the firm’s management, considering its need for resources from governmental and other sources (Hillman et al., 2009; Pfeffer & Salancik, 1978). Privatization allows provincial governmental owners to reduce dependence on the national government and gives them more autonomy and freedom relative to provinces with more resource dependence vis-à-vis the national government. Privatization also demonstrates that an important
dimension of the environmental uncertainty experienced by state-owned firms originates in the power relationships with their governmental owners. Viewing the governmental hierarchy as a heterogeneous body of decision makers with differences in power can also shed light on why countries implement different privatization policies and why some of them are more successful than others in doing so (Burawoy, 1996; Hamm, King, & Stuckler, 2012). In this study, we seek to answer the following research question: What are the roles of the power difference between different governmental owners and of firm resources in privatization decisions?

To answer this question, we examine the privatization of state-owned pharmaceutical firms in China over the period of 2000 to 2007. This study makes several contributions to our knowledge in the field. First, it provides a richer understanding of privatization of state-owned firms, the reasons why they are (or are not) privatized, and the role power relationships between critical stakeholders play in such decisions. This research also extends the boundaries of resource dependence theory to stakeholders’ influence on key strategic decisions (privatization of specific firms) made by governmental entities. Finally, the results of this study demonstrate the influence of polycentric institutions through the actions of multiple levels of government in privatization decisions, albeit the results could be idiosyncratic to China, the setting for the study.

This work is structured as follows. In the next section, we provide a theoretical overview of privatization and outline the different stakes of national and provincial governmental owners and firms involved in privatizations in China. We then develop hypotheses about the influence of firm resources and the power of governmental agencies in the Chinese context, followed by a presentation of the methods and results. We conclude by discussing the implications of our results for research on privatization and strategic management.

**Privatization and Governmental Power in China**

State-owned enterprises (SOEs) are significant actors in many economies around the world. In the member countries of the Organisation for Economic Co-operation and Development (OECD) alone, these enterprises employ over 6 million people and are valued close to $2 trillion (Christiansen, 2011). State-owned firms tend to operate in an even wider range of industries and control larger portions of local markets in emerging economies. For example, their number was estimated to be approximately 114,000 in China alone in 2010 (“The State Advances,” 2012). Their economic output has been valued to be close to 30% of China’s gross domestic product (OECD Working Group on Privatisation, 2009), and they hold an estimated 65% share of the country’s fixed assets (Lee, 2010).

Selling SOEs to private parties has been a major form of organizational transformation, with several effects at the firm and country levels. The magnitude of privatization worldwide has been significant; more than half of the state assets have been privatized in recent years, with cumulative proceeds approaching $1.5 trillion (Megginson, 2007). The potential direct and indirect benefits of privatization can be derived from multiple sources (Estrin, Hanousek, Kocenda, & Svejnar, 2009; Hayek, 1944; Zahra et al., 2000). On the one hand, private firms operate under “hard budget constraints,” and their inefficiency tends to result in bankruptcy without increasing the burden on state spending (Kornai, 1992). On the other hand, SOEs tend to operate under “soft budget constraints,” or can receive unlimited funds from their
governments when they suffer losses or become insolvent. The losses of SOEs appear in the
state budget, leading to cuts from other areas or borrowing by the state over time
(Kornai, 1992).

Privatization has been used to ensure that firms satisfy the demands of various constitu-
ents in addition to governmental priorities and policies. When customers and suppliers find
the product and service offerings of state-owned firms unacceptable, they can pressure their
governments to sell these firms to private investors (Megginson & Netter, 2001; Villalonga,
2000; Zahra et al., 2000). In addition to the expected changes in product and service offer-
ings, governments are often motivated to sell their holdings in firms to reduce their debts or
to generate additional revenue for infrastructure projects, social causes, and defense
spending.

Privatization was a prominent choice by governments of former socialist countries of
central and eastern Europe during the 1990s, completing their transition from central plan-
ning to a more open-market system. Governments in this region included privatization as an
essential element of their countries’ overall program for institutional development, with the
intent of generating long-needed economic growth, improving corporate governance, estab-
lishing managerial incentives, and strengthening property rights (Estrin, 2002; Estrin et al.,
2009; Filatotchev, Wright, Uhlenbruck, Tihanyi, & Hoskisson, 2003; Uhlenbruck & De
Castro, 2000). The research on the benefits of privatization, however, has provided mixed
results (Estrin et al., 2009; Megginson & Netter, 2001).

Some studies, for instance, have found that mass privatizations have not produced the
expected economic benefits in many central and eastern European countries but instead have
exacerbated these countries’ transformational recession (Hamm et al., 2012). Others suggest
that mass privatizations have been replaced with a slower approach to privatization by gov-
ernments and a prolonged coexistence of state-owned and private firms in many countries
(Bremmer, 2010; Inoue et al., 2013). While this evolution of state capitalism in recent decades
has represented a move away from the exclusive ownership of firms by states in former
socialist countries, it has been viewed as an alternative to a free-market system in which
private ownership is dominant by many governments around the world (Inoue et al., 2013).

One of the most prominent countries employing the state-capitalist model is China
(Bremmer, 2010). In contrast to mass privatization, China has used a more selective and
gradual privatization of its state assets, arguably producing better results (Hamm et al., 2012).
The success of China’s privatization can be attributed to many national and international fac-
tors. Herein, we focus on a key factor that Burawoy (1996) calls the decentralization of
property relations and resources by the Chinese national government to provincial govern-
ments. Unlike in other countries with monolithic governmental systems, there are at least
five layers of state participation in China, of which national and provincial levels are among
the most prominent for business firms. Provincial governments in China “strategize how to
generate more resources from below” (Burawoy, 1996: 1108). The strategy to generate
resources from local firms in provinces is in contrast to the extraction of resources from
national governments, a practice observed in Russia and other economies with state capital-
ism. The decentralization of property rights from national to provincial governments in China
has created incentives for provincial governments to serve as market-oriented actors (Walder,
1995). As a result, there are significant differences among the provincial market environ-
ments in China (as illustrated by the statistics in Table 1), and these differences are expected
to grow in the future, owing to the increased variation in the local business climate, the potential migration of labor to more developed provinces, and the inflow of foreign direct investment (FDI).

Although there is limited research on how national and provincial governmental owners influence privatization, some prior studies provide evidence on the interaction of different private actors and governmental agencies based on their power differentials (Casciaro & Piskorski, 2005; Henisz & Delios, 2001; Henisz & Zelner, 2005; Holburn & Zelner, 2010; Kozhikode & Li, 2012). For example, Casciaro and Piskorski (2005) demonstrated how power imbalance and mutual dependence between different actors shaped acquisition

<table>
<thead>
<tr>
<th>Province</th>
<th>Population (in tens of thousands)</th>
<th>GDP per Capita (in RMB)</th>
<th>GDP per Capita (in USD)</th>
<th>Size of FDI (in millions USD/project)</th>
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decisions. These and other resource dependence theorists argue that minimizing dependence is the central goal of firms in structuring their relationships with external constituents, including the governmental owners (Cowen & Marcel, 2011; Desender et al., 2013; Hillman, 2005; Xia, 2011). Extending this line of inquiry can enrich our understanding of how power relationships and firm resources influence privatization decisions.

Building on a bargaining power perspective, Henisz and Zelner (2005) examine the ongoing process of policy making in the context of evolving institutions, such as the institutional conditions that characterize emerging economies. Studying electricity privatization, the authors show that bargaining between different private and governmental actors results in changes in emergent institutions. The coercive influence of powerful international actors on the policy choices of governments, including privatization decisions, has been shown in other studies (Henisz, Zelner, & Guillen, 2005; Tihanyi & Hegarty, 2007). In a recent study on the role of political pluralism in the Indian banking sector, Kozhikode and Li (2012) examined the organizational implications of fragmented governmental power. The authors extended positive political theory by examining the division of power between national and provincial governments. Their conceptualization of fragmented governmental power is also applicable to the study of governmental influence on privatization in more hierarchical governmental settings, such as the one in China. A related line of research specifically examines how national and provincial governments can act as distinct power centers and influence firm strategies by institutionalizing different rules and regulations (Batjargal et al., 2013; Chan et al., 2010; Ostrom, 2005, 2010).

Previous studies have reported some of the complex governmental motivations for privatization (Megginson & Netter, 2001; Shleifer & Vishny, 1994; Uhlenbruck & De Castro, 2000) but have not examined privatization decisions in institutional conditions with decentralized governmental power relations (Burawoy, 1996). Some of this complexity in China originates in the diversity of interests across different levels of governments (Walder, 1995). Governmental agencies commonly possess different resources and develop distinct relationships with firms in which they hold equity. Provincial governmental agencies frequently have a more direct relationship with state-owned firms in their provinces because of their regular interactions with the firms’ managers. National governmental agencies, in contrast, often are motivated more by macroeconomic concerns than in securing long-term employment by individual firms. In a large country, such as China, national governmental agencies design fiscal policy, but provincial governmental agencies play dominant roles in planning and resource allocation within their provinces (Qian & Roland, 1998; Qian, Roland, & Xu, 2006).

Through the framework of the resource dependence theory (Pfeffer & Salancik, 1978), strategic actions of firms are explained by powerful social forces. Taken from the firm-centric unilateral perspective, Pfeffer and Salancik (1978) predicted that firms formulate strategies in order to reduce uncertainty in acquiring resources. This prediction is puzzling if one considers exclusively the motivation of the powerful constraining party (e.g., the government owner of provincial SOEs) to agree to relinquish one’s power and the political and personal favorable exchange conditions that accompany the control changes (e.g., selling assets to private investors). Hence, investigating privatization decisions made by provincial governments in a decentralized fiscal policy environment while the central government remains a powerful state capitalist not only adds to our understanding about privatization but also contributes to our knowledge of the policy environment. Next, we develop hypotheses
regarding the effects of these organizational characteristics and governmental power relationships on privatizations in the Chinese context.

**Theory and Hypotheses**

Because privatization is a highly complex organizational transformation and has the potential to cause social unrest, building mutual understanding between the focal provincial government and the central government can be helpful. For instance, state banks can provide more financial resources than a smaller-sized local bank. In fact, all provincial governors are appointed by the central government in Beijing, instead of being elected locally. To effectively make and implement privatization decisions, however, provincial government officers have to understand the provincial economic and social context. They have dual roles. On the one hand, they need to protect and represent the interests of local citizens. On the other hand, they need to contribute to the national government’s political and economic objectives. These considerations often complicate the policy environment for privatization decisions in different provinces across a large economy.

Privatization is a national-level policy designed by the central government in China. The State Assets Supervision and Administration Commission in the central government communicates with all the provincial governments across China and guides the implementation of this policy. We argue that provincial governments are motivated to privatize state-owned firms with higher levels of financial performance because of the benefits the privatization of these firms can bring to the provinces. One of these important benefits is political stability in the province. Firms with higher financial performance are more likely to continue providing products and services and maintaining employment levels desired by the provincial government. Privatizing these firms not only frees provincial resources for other uses but also provides tangible economic benefits. In contrast, production and service problems of and layoffs by poorly performing firms can lead to political unrest, even resulting in public demonstrations undesired by local government officials. While private owners tend to be less concerned by provincial service levels and unemployment, these issues are critical for provincial governments. As a result, provincial governments often are willing to spend additional resources on poorly performing firms, ranging from hiring managerial expertise to providing direct subsidies. A part of this spending can be derived from the sale of state-owned firms, which are often resource rich due to their financial performance.\(^2\)

Maintaining political stability in its provinces is a priority for the national government of China as well. Therefore, when a provincial government negotiates with the national government over the privatization of an individual firm, it is likely to be more successful when the firm has higher financial performance. The firm’s high financial performance potentially alleviates the national government’s concern about the macroeconomic and societal risks of privatizing this firm. Furthermore, when provincial governmental owners are able to demonstrate the high financial performance of state-owned firms, they are more likely to convince the national government about their ability to obtain a fair price for state assets (Dewenter & Malatesta, 2001; D’Souza, Megginson, & Nash, 2005; Okhatovskiy, 2010). Provincial governments, in turn, can use the revenues received from the sale of state-owned firms to reduce their debt, pay for social benefits, and finance new infrastructure projects. We summarize our arguments in the following hypothesis:
Hypothesis 1: The level of financial performance of a state-owned firm in a province is positively associated with the likelihood of its privatization.

Although high financial performance and innovation both can indicate growth potential for the firm, a careful examination of the motivations for privatization suggests that governments are influenced by these two firm characteristics in different ways. Whereas a high level of financial performance potentially increases the likelihood of a state-owned firm’s privatization, a high level of firm innovation can reduce it, especially when the government is adopting an explicit industry policy to foster local knowledge accumulation. Innovation is frequently associated with high risks owing to the high failure rate of trials, excessive costs, production problems, and uncertainty associated with the reception of new products by the market (potential customers). Because innovation tends to have long-term (as opposed to short-term) potential payoffs and increases production costs, many privately owned firms in China are able to enhance their profits by avoiding investments to develop innovative products. Instead, they may serve the market with products and services that have been established in other markets or are cost-effective to produce in a large market. SOEs, in contrast, may be able to take a longer-term perspective to invest in developing innovation if their government owners allocate sufficient resources to do so. In the case of the Chinese pharmaceutical industry, provincial governments may promote local innovation to reduce the dependence on expensive drug imports and increase the firms’ future competitiveness. Several have argued the value of innovation in order to be successful in the global competitive landscape (Feinberg & Gupta, 2004; Hitt, Keats, & DeMarie, 1998; Kogut & Chang, 1991).

Innovative SOEs may also serve other governmental goals in their provinces. They provide a workplace for domestic engineering talent who, in turn, can help to generate innovations for other domestic firms (Li & Atuahene-Gima, 2001; White, 2000). Furthermore, keeping innovative firms under state control can enhance the state’s reputation as a facilitator of innovation and thus help the country to attract foreign technology investments. Provincial governments may be able to reduce uncertainty of future production and innovation by keeping innovative firms under their control. For example, when innovative firms are privatized, their new owners may transfer their technologies to firms outside the province or relocate their production to other provinces. Also, provincial governments may want to maintain control over local firms that produce more innovations because these firms have the potential to generate economic growth in their provinces over the long term by increasing customer demand and thereby hiring new employees. These arguments lead to the following hypothesis:

Hypothesis 2: The level of innovativeness of a state-owned firm in a province is negatively associated with the likelihood of that firm’s privatization.

Competitive pressure may also be an important driver of privatization. Based on a panel dataset (1981 to 1995) including both SOEs and private manufacturing firms in Indonesia, Bartel and Harrison (2005) demonstrated that privatizing these firms can lead to gains in efficiency for a given level of competition. Furthermore, their results also suggest that an alternative way to achieve efficiency gains is to reduce or eliminate government financing for SOEs or to increase competitive pressures on these firms. Their results add to our understanding that SOEs can be more efficient in a competitive environment.
Provincial governmental owners in China often supervise multiple firms across local industries. They are interested in the firms’ effectiveness, but they also consider the overall competitive pressure in an industry to be important. When an industry is dominated by a small number of large rivals or when it is highly concentrated, the overall competitive pressure in the industry is likely to be lower (Ho, Wu, & Xu, 2011). While limited industry competitive pressure may not be a serious concern for governments of countries in which state-owned firms function as natural monopolies, state-owned firms are more common and thus their operation has important implications for the level of competitive pressure in industries of countries using the state capitalist model (Bremmer, 2010; Musacchio & Lazzarini, 2014). Because lower competitive pressure can be a signal of future price increases and lower employment in an industry, such as the pharmaceutical industry in China, this industry condition may be an important consideration for provincial governments in their privatization decisions of individual firms within that industry.

When the local pharmaceutical industry in a province is characterized by high competitive pressures, it is capable of providing essential products and services to customers and employment opportunities to the citizens in the province. Privatizing firms in a competitive pharmaceutical industry could not only alter local demand but also increase the requirements for production and employment in other provincial industries. The loss of production and/or employment along with the additional resources these other industries require may also threaten the political stability in the province (Kornai, 1992). Whereas provincial governmental owners may want to privatize state-owned firms in their local pharmaceutical industry that has lower levels of competitive pressure or is more concentrated, a highly competitive pharmaceutical sector in another province does not motivate government officers to privatize firms to the same extent. Therefore, we propose the following hypothesis:

**Hypothesis 3:** The level of competitive pressure of an industry within a province is negatively associated with the likelihood of the privatization of a state-owned firm within that industry.

FDI projects in the province can provide a positive incentive to governmental owners to privatize local pharmaceutical firms (Henisz et al., 2005). Foreign investors in general can operate their businesses successfully when indigenous state-owned firms are unable to satisfy the demands of their customers, including the demand for drugs and medications (Chen, Chen, & Ku, 2004; Yiu, Lau, & Bruton, 2007). However, their success may also motivate provincial governments to create more favorable institutional conditions under which foreign firms are willing to stay in the province and continue to achieve high financial performance (Batjargal et al., 2013; Chan et al., 2010). Allowing the privatization of local state-owned pharmaceutical firms is a potential indicator of more liberal government policies that are instituted to accommodate foreign firms.

The presence of FDI in the province may also prompt the privatization of local state-owned firms to accelerate improvements in their efficiency for at least two reasons. First, privatization may result in a faster transformation of state-owned firms in the pharmaceutical industry into potential competitors of foreign firms in provinces where foreign firms serve as examples of how to organize their operations and sell their products successfully (Doh, 2000; G. Johnson, Smith, & Codling, 2000). Second, privatization may result in not only an increase of new local competitors but also an increase in new suppliers and buyers in the value chains of foreign direct investors. Therefore, the provincial government’s willingness to privatize
the state-owned firms in a local sector, such as the pharmaceutical industry, can lead to improvements in the business environment for foreign firms.

Another reason provincial governmental owners may be interested in privatizing local firms when the size of FDI in the province is greater is to offset the governmental costs associated with the presence of foreign firms. FDI projects may contribute to the economic transition and generate governmental revenue over time, but often they require governments to reduce potential tax revenues for a period of time and make substantial investments up front to attract the foreign investment. For example, provincial governments may need to grant tax breaks to foreign firms, improve infrastructure (e.g., more and better roads), and/or invest more in education to satisfy their employment needs in order to attract the FDIs to their province. And, privatization of firms in the province provides a source of revenue to substitute for the lost tax revenues and to support the additional government spending on infrastructure. Thus, we propose the following hypothesis.

**Hypothesis 4:** The size of FDI projects within a province is positively associated with the likelihood of the privatization of state-owned firms.

Another factor potentially important in privatization decisions is the fiscal power of the provincial government or its amount of total financial revenue. Provinces with stronger fiscal power can contribute more to the budget of the national government of China. When they do so, these provinces have greater bargaining power with the national government (Henisz & Zelner, 2005). For instance, provinces with stronger fiscal power are often granted more discretion to make independent decisions and implement policies autonomously by the national government (Qian & Roland, 1998). Thus, greater fiscal power held by provincial governments generally allows them greater freedom to make privatization decisions.

Strong fiscal conditions can also serve as a buffer for significant decisions with uncertain outcomes, such as the privatization of state-owned assets. Although poorer provinces may desire to generate resources via the sale of their assets, China’s national government is likely to be hesitant to allow them to experiment with the privatization of their local firms. Although the privatization of state-owned firms may serve as a short-term solution to revenue shortfalls for provinces, when privatizations fail, they often experience even greater economic and social problems (Hamm et al., 2012; Megginson & Netter, 2001). If a firm’s privatization is unsuccessful, there might be shortages in product offerings, increasing unemployment, and potential political unrest in the province. These problems can spill over to other provinces and thus present a potential danger to the political stability of the country.

Higher fiscal power also can be an indicator of the provincial government’s business expertise. Viewed from the perspective of the national government, provincial governments may demonstrate their business expertise by generating higher revenues. Such expertise is necessary for the successful privatization of local firms. For example, in order to secure a fair price for the state-owned firm and continue to provide employment for its workers, the provincial government needs to have a realistic assessment of the newly privatized firm’s business prospects in the province. Based on the reasons discussed, we suggest that the national government is generally more willing to support privatization decisions in provinces that have stronger fiscal resources.

**Hypothesis 5:** Higher fiscal power of the provincial government is positively associated with the likelihood of the privatization of state-owned firms in the province.
Given that a firm’s own resources and the power of its provincial government matter in the likelihood of its privatization, it is possible that they jointly influence the privatization process (e.g., have an interaction effect). For example, in addition to its direct effect, the fiscal power of the provincial government may influence the privatization of a state-owned firm differently when the firm’s financial performance is low than when it is high. As noted above, we expect a state-owned firm’s high financial performance to be advantageous for its potential privatization because it indicates the firm’s future potential in satisfying local demand and in reducing the likelihood of political unrest in the province by maintaining high employment levels. We also suggest that the privatization of poorly performing firms carries the risks of demand problems (e.g., product shortages) and unemployment for provincial governments if private owners attempt to increase firm financial performance by cutting back production and laying off employees.

The fiscal power of a province may provide a complementary mechanism for the effect of firm financial performance on privatization. As we suggest above, the national government of China may grant more discretion to provincial governments in privatizing state assets when the province’s fiscal power is strong. For example, strong fiscal power of the province may be used as a buffer in the cases of costly privatization deals and can indicate expertise in generating revenues. Accordingly, we expect provincial governments with strong fiscal power to be more successful in convincing the national government to sell poorly performing state-owned firms in their provinces. Privatizing firms with low financial performance is advantageous for provincial governments because of the reduced financial burden these firms will present on the provincial budget. Although lessening the financial burden on state funds has been a major motivation for privatizations in many countries, the sales of state-owned firms often failed because of their short-term high social costs, such as upsurges in unemployment and product shortages (Hamm et al., 2012). Such costs can be minimized when provincial governments have strong fiscal power because they have the discretion to sell poorly performing firms in their provinces and the financial slack to absorb potential short-term negative outcomes. At the same time, these provinces may not be motivated to privatize high-performing firms for their short-term provincial benefits (because they less need those short-term returns). Therefore, we suggest that fiscal power moderates the relationship between firm financial performance and privatization in such a way that when the fiscal power of a province is stronger, the likelihood of the privatization of its poorly performing firms will be greater (and the likelihood of the privatization of its high-performing firms will be lower).

Hypothesis 6: Fiscal power of the provincial government negatively moderates the relationship between the level of financial performance of a state-owned firm in a province and the likelihood of its privatization.

Method

The research setting for our study was the Chinese pharmaceutical industry during the period of 2000 to 2007. This industry provided a suitable setting to study privatization decisions and the roles of firm resources and governmental power for several reasons (Dess, Ireland, & Hitt, 1990). First, the pharmaceutical industry has a history of governmental ownership in China. Although some firms in other industries in China began as new ventures in
the early 1990s, all firms in this industry were owned by the state prior to 2000. Second, the relative size of this industry and its level of interrelationships with other industries are substantial in China. These characteristics make findings from this industry setting more generalizable to other industries and relevant for policy makers. Third, unlike utilities, defense, and raw materials, the pharmaceutical industry is not a concern for national security; governments prefer to maintain close control of firms important for national security. Details about the industry are provided in Appendix A.

Consistent with the approach used in privatization research, our sample selection focused on more than 300 of the largest pharmaceutical firms in China. The firms were identified from the *China Pharmaceutical Statistical Yearbook* published by the National Development and Reform Commission (NDRC), a leading governmental agency that provides assistance to the development of macroeconomic policies. After excluding subsidiaries of multinational firms, joint ventures, and firms with missing data, we identified 206 firms for our study. We retrieved provincial and national pharmaceutical industry data from the *Chinese Market Statistical Yearbooks* and the *Industry Economy Statistical Yearbooks* for 2000 to 2007. These yearbooks contain various indicators of competitive pressure of pharmaceutical firms by province. We obtained provincial economic development data from the *China Statistical Yearbooks*. Firm-level data were collected from the State Food and Drug Administration (SFDA) of China. Last, we used pharmaceutical market data from the Southern Medical Economic Institute of the SFDA. This data set contains annual information on each firm’s new product approvals by the national government of China. Data for the sample firms over the time period of our study resulted in 1,229 observations.

**Measures**

The event of privatization is a dichotomous dependent variable in this study. It takes on the value of 1 if the state-owned firm was privatized between 2000 and 2007 and 0 otherwise. Of the original 206 state-owned firms in our sample, 117 firms were privatized and 89 firms remained state owned by 2007. The firms in our sample were considered privatized if the provincial government transferred 51% or more of the firms’ ownership to private parties and were considered state owned when the provincial government remained in control of 50% or more of the firms’ total shares (Megginson & Netter, 2001). Provincial governments in China completed these privatization transactions by three major means, each of which was included in our study: First, the provincial government transferred the state-owned firm’s assets into a new firm and listed the new firm on the stock exchange to sell it to private investors (D’Souza et al., 2005; Megginson, Nash, Netter, & Poulsen, 2004); second, the entire state-owned firm went through an initial public offering arranged by the provincial government and issued tradable shares to private investors (Fan, Wong, & Zhang, 2007; Sun & Tong, 2003); and third, for nonlisted state-owned firms, the provincial government sold shares of the firms to private investors or to the firms’ executives.

We found different definitions and disagreement over measures of privatization in our review of the literature. The three possibilities of privatization we considered captured the available means for privatization in China. Treating them as distinct dependent variables was not available to us, given our sample size (e.g., relatively small number of privatizations per variable within each of the three categories). To see if the three components of the dependent variable measure similar trends, we plotted the survival estimates of the three possibilities or
means of privatization in Appendix B. Although there are some minor differences, they all trend in the same direction.

There were five independent variables in this study. Financial performance was measured by the firm’s annual return on assets in the year prior to privatization (Chang & Xu, 2008). Using return on assets as a proxy for firm financial performance is preferred in emerging economy institutional environments, such as the one in China. For example, underdeveloped stock markets and government subsidies often limit the validity of other financial performance measures, such as return on equity and return on investment, in these institutional settings. Innovativeness was measured by the count of official certificates for new pharmaceutical products and procedures issued by SFDA in China. Similar to the Federal Drug Administration in the United States, China’s SFDA requires pharmaceutical firms to complete laboratory testing and clinical trials in hospital settings before submitting their products for SFDA approval. While using regulatory approvals is not without problems, it provides useful information on innovativeness, simultaneously accounting for the characteristics of the Chinese institutional environment. Provincial industry competitive pressure was measured by the total revenue of the top four pharmaceutical firms in the province divided by the total revenue of the pharmaceutical industry in the province. The higher this ratio of concentration in an industry, the lower is its competitive pressure (Ho et al., 2011). The size of FDI projects in a province was measured by the total amount of foreign capital divided by the total number of foreign projects in every year. The fiscal power of the provincial government was measured by the total governmental revenue in the province (Jin, Qian, & Weingast, 2005). All of the independent variables were lagged for 1 year.

We included 10 control variables in our models. We included the age of the firm to account for the provincial government’s reluctance to privatize more established firms. This variable was measured as the number of years since the firm’s founding. The second control variable was total liabilities, measured as the total debt of the firm. A firm’s total liabilities serve as an indicator of cash-flow pressures for privatization decisions (Megginson et al., 2004). Revenue growth captured the ability of the firm to satisfy increasing customer demand in the marketplace. Shareholder equity growth was included in the models to capture the extent to which provincial governmental owners allow state-owned firms in their individual provinces to retain and increase their fiscal resources (Roland, 2000).

The level of provincial government deficit was also included as a control variable to account for provincial governments’ financial motivations to sell their stake in state-owned firms (Megginson & Netter, 2001). Provincial gross domestic product (GDP) per capita was used to measure environmental munificence in the province (e.g., Park, Li, & Tse, 2006). We also included the leverage ratio of private versus state-owned firms as a control variable. This variable provides additional information about the business environment in the province. For instance, banks may provide loans or preferential treatment to state-owned vis-à-vis private firms based on political considerations (Brandt & Li, 2003; S. Johnson & Mitton, 2003; Leuz & Oberholzer-Gee, 2006). We constructed this variable as the ratio of total debts to total assets of private pharmaceutical firms in a province divided by the ratio of total debts to total assets of state-owned pharmaceutical firms in the same province (Q. Wang, Wong, & Xia, 2008).

We controlled for provincial differences in the strengths of the local pharmaceutical industries by dummy coding the top three provinces with the strongest pharmaceutical industries (top three = 1; others = 0). We also controlled for the four industrial zones that were
liberalized earlier than others, using dummy variables (four liberalized industrial zones = 1; others = 0). Shocks and other changes in the environment might affect the profitability of state-owned firms but can be unrelated to the decision to privatize them by their provincial governments. The year 2003 represented such an environmental change during the time frame of our study. In 2003, the national government of China established the SFDA, which indicated the centralization of regulation of the industry by stricter guidelines for laboratory testing and patent approval. We controlled for this environmental change by using a dummy variable (year 2003 = 1; other years = 0; e.g., Wiersema & Zhang, 2011; Zhang, 2008).

Analysis

Privatization decisions can be appropriately captured as discrete time events. Analyzing them in an event history model allowed us to effectively deal with the problem of right censoring, or privatization events that happened after the time frame of our study. In estimating the hazard of the privatization event for our sample across 8 years, we used the Cox proportional hazards model (Allison, 1995, 2005; Cox, 1972). The Cox model has several properties that are useful for investigating the probability and timing of privatization decisions. Specifically, using this model allows researchers to examine longitudinal records of events as duration functions or the duration of time until privatization occurs. Another advantage of the Cox model is that it can assume time dependence without having to specify its form. This is important given the lack of theory on the particular form for the hazard of state-owned firms’ privatization in China. Furthermore, the Cox model allows for the use of time-dependent explanatory variables and performs stratified analyses to adjust for subset differences in our sample.

We examined the assumptions of using hazard proportional functions of Cox stratified models. The results of our tests (e.g., rho values for the individual independent variables and global chi-square test results) indicated that the assumptions of proportional functions were satisfied. We have also run Cox regression-based tests for equality of survival curves. The likelihood ratio chi-square value of 10.09 ($p < .01$) also provided support for using the Cox model.

We tested our hypotheses by using Cox partial likelihood fixed-effects models. An important advantage of these fixed-effects models is their ability to control for unobserved heterogeneity (Allison, 2005). For instance, unobserved heterogeneity can be absorbed into the unspecified function of time in Cox fixed-effects models by stratification, which reduces to need to specify the distribution of unobserved heterogeneity (Allison, 1995). Our sample was stratified by means of privatization.

Results

We present the means, standard deviations, and correlations for all variables in Table 2. The correlation coefficients and variance inflation factor (VIF) values indicated no evidence of multicollinearity. The largest VIF was 1.75 for provincial fiscal power.

Table 3 summarizes the effects of firm-level and governmental-owner factors on the event of privatization. The control variables were entered first in Model 1. We added the independent variables in Model 2. The full model with the moderating effect is presented as Model 3.
Table 2

Means, Standard Deviations, and Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Privatization</td>
<td>0.08</td>
<td>0.27</td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>2. Firm age</td>
<td>23.05</td>
<td>21.60</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>3. Total liabilities</td>
<td>47223.98</td>
<td>107108.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. Revenue growth</td>
<td>0.67</td>
<td>4.70</td>
<td>-0.06</td>
<td>-0.07*</td>
<td>-0.03</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Shareholder equity growth</td>
<td>1.47</td>
<td>30.67</td>
<td>0.11**</td>
<td>-0.04</td>
<td>-0.02</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>6. Provincial governamental deficit</td>
<td>2.57</td>
<td>1.33</td>
<td>-0.05</td>
<td>-0.04</td>
<td>-0.00</td>
<td>-0.02</td>
<td>-0.02</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Provincial GDP per capita</td>
<td>18020.50</td>
<td>12267.00</td>
<td>-0.02</td>
<td>0.04</td>
<td>0.07*</td>
<td>0.01</td>
<td>0.02</td>
<td>0.14***</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Leverage ratio of private vs. SOE</td>
<td>0.97</td>
<td>38.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.01</td>
<td>0.13***</td>
<td>0.18***</td>
<td>0.34***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Strong local pharmaceutical industry</td>
<td>0.21</td>
<td>41.00</td>
<td>-0.01</td>
<td>-0.07*</td>
<td>0.02</td>
<td>0.07</td>
<td>-0.18***</td>
<td>-0.12***</td>
<td>0.25***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Firm financial performance (ROA)</td>
<td>0.07</td>
<td>0.99</td>
<td>-0.04</td>
<td>-0.01</td>
<td>-0.08*</td>
<td>-0.12***</td>
<td>-0.02</td>
<td>-0.05</td>
<td>0.01</td>
<td>0.07</td>
<td>0.12***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Innovativeness</td>
<td>12.18</td>
<td>23.77</td>
<td>0.04</td>
<td>0.14***</td>
<td>0.31***</td>
<td>-0.02</td>
<td>0.05</td>
<td>-0.11***</td>
<td>0.15***</td>
<td>0.03</td>
<td>-0.04</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Provincial industry competitive pressure</td>
<td>1.78</td>
<td>1.17</td>
<td>-0.05</td>
<td>-0.04</td>
<td>0.26***</td>
<td>0.03</td>
<td>0.08*</td>
<td>-0.01</td>
<td>0.14***</td>
<td>0.35***</td>
<td>0.33***</td>
<td>0.05</td>
<td>-0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Size of provincial FDI</td>
<td>0.37</td>
<td>0.18</td>
<td>0.01</td>
<td>0.04</td>
<td>0.03</td>
<td>0.00</td>
<td>0.05</td>
<td>-0.19***</td>
<td>0.06</td>
<td>0.28***</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.10***</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>14. Provincial fiscal power</td>
<td>5.17</td>
<td>3.73</td>
<td>-0.01</td>
<td>0.08*</td>
<td>0.00</td>
<td>0.01</td>
<td>0.07*</td>
<td>-0.17***</td>
<td>0.65***</td>
<td>0.22***</td>
<td>0.23***</td>
<td>0.11***</td>
<td>0.14***</td>
<td>0.23***</td>
<td>-13***</td>
</tr>
</tbody>
</table>

Note: Two-tailed tests (N = 1,229). GDP = gross domestic product; SOE = state-owned enterprise; ROA = return on assets; FDI = foreign direct investment.

*p < .05.

**p < .01.

***p < .001.
We predicted in Hypothesis 1 that the likelihood of a state-owned firm’s privatization would increase when its financial performance is high. The results presented in the full model (Model 3) in Table 3 provide support for this hypothesis as the coefficient is positive and statistically significant ($z = 3.16, p < .01$). The model indicates that for every 1% increase in return on assets, the probability of privatization increases by 3.30%. Our second hypothesis proposed that the likelihood of a firm’s privatization would decrease when the firm was more innovative (thus possessing valuable technological resources). The results of the analysis in Model 3 show that the coefficient for innovativeness is not statistically significant. Thus, the results do not provide support for Hypothesis 2.

Hypothesis 3 predicted that the likelihood of the privatization of a state-owned firm would decrease when the level of competitive pressure is high in a province. The results show that the coefficient for industry competitive pressure is statistically insignificant in Model 3. Therefore, they provide no support for this hypothesis. Hypothesis 4 predicted that the

### Table 3

**Results of Cox Regressions Predicting Privatization**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1: Control Variables</th>
<th>Model 2: Main Effects</th>
<th>Model 3: Full Model With Moderating Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Robust SE</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Firm age</td>
<td>0.00</td>
<td>(0.01)</td>
<td>0.00</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>−0.00</td>
<td>(0.00)</td>
<td>−0.00</td>
</tr>
<tr>
<td>Revenue growth</td>
<td>0.04**</td>
<td>(0.01)</td>
<td>0.05**</td>
</tr>
<tr>
<td>Shareholder equity growth</td>
<td>0.00**</td>
<td>(0.00)</td>
<td>0.00**</td>
</tr>
<tr>
<td>Provincial government deficit</td>
<td>0.26†</td>
<td>(0.13)</td>
<td>0.23</td>
</tr>
<tr>
<td>Provincial GDP per capita</td>
<td>−0.00**</td>
<td>(0.00)</td>
<td>−0.00*</td>
</tr>
<tr>
<td>Leverage ratio of private vs. SOE</td>
<td>0.08</td>
<td>(0.32)</td>
<td>−0.01</td>
</tr>
<tr>
<td>Strong local pharmaceutical industry</td>
<td>0.67*</td>
<td>(0.33)</td>
<td>0.02</td>
</tr>
<tr>
<td>Economic zone dummies</td>
<td>Included</td>
<td></td>
<td>Included</td>
</tr>
<tr>
<td>Year 2003 dummy</td>
<td>Included</td>
<td></td>
<td>Included</td>
</tr>
<tr>
<td>Firm financial performance (ROA)</td>
<td></td>
<td></td>
<td>3.21*</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>−0.01</td>
<td>(0.01)</td>
<td>−0.01</td>
</tr>
<tr>
<td>Provincial industry competitive pressure</td>
<td>0.04</td>
<td>(0.18)</td>
<td>0.06</td>
</tr>
<tr>
<td>Size of provincial FDI</td>
<td>0.46</td>
<td>(1.01)</td>
<td>0.50</td>
</tr>
<tr>
<td>Provincial fiscal power (PFP)</td>
<td>0.16†</td>
<td>(0.10)</td>
<td>0.19*</td>
</tr>
<tr>
<td>Moderating effect (ROA*PFP)</td>
<td></td>
<td></td>
<td>−0.63**</td>
</tr>
<tr>
<td>Log pseudolikelihood</td>
<td>−169.12</td>
<td></td>
<td>−161.21</td>
</tr>
<tr>
<td>Wald $\chi^2$</td>
<td>80.62***</td>
<td></td>
<td>125.42***</td>
</tr>
</tbody>
</table>

Note: Efron method for ties; stratified by means of privatization. Robust variance-covariance matrix was used; Cox regression-based test for equality of survival curves are significant. The moderator was mean-centered. GDP = gross domestic product; SOE = state-owned enterprise; ROA = return on assets; FDI = foreign direct investment.  

$^p < .10.$  
$^{**} p < .01.$  
$^{***} p < .001.$
likelihood of the privatization of a state-owned firm would increase with the size of the FDI projects in a province. The results in Model 3 show that the coefficient for the size of FDI projects is not statistically significant. Thus, these results do not provide support for this hypothesis.

Hypothesis 5 predicted that the likelihood of the privatization of a state-owned firm would increase with relatively higher fiscal power by provincial governments. We found support for Hypothesis 5 in Model 3 as the coefficient is positive and statistically significant ($z = 2.04, p < .05$). Thus, for every one-unit increase in the level of provincial fiscal power, the probability of privatization increases by 0.19%. Our last hypothesis (Hypothesis 6) predicted that provincial fiscal power would negatively moderate the relationship between the firm financial performance and the likelihood of its privatization. We found support for Hypothesis 6 in Model 3 as the coefficient is negative and statistically significant ($z = -2.74, p < .01$). To illustrate the effects and our interpretation of support for this hypothesis, we plotted the moderating effect in Figure 1, based on the coefficient estimates in Model 3. As shown in the figure, with high provincial government fiscal power, there is a higher likelihood of privatizing firms with low financial performance and a lower likelihood of privatizing firms with high financial performance.

Robustness Test

Our analyses have provided evidence that the privatization decisions are associated with firm resources and power attributes of their provincial governmental owners. However, it is possible that some foreign pharmaceutical firms make FDI investments in certain provinces with privatized firms. If this is true, we need to take into consideration the possibility that different privatization timing and sequences are not randomly selected by firms but are
instead based on unobservable firm and provincial characteristics and chosen by firms in
response to these characteristics. Consequently, it is important to address this potential endo-
genity issue with privatization decisions. In our robustness test, we estimated a pharmaceu-
tical FDI model (the first stage) that allowed us to compute a selection term that corrects for
endogeneity in the subsequent privatization model (the second stage; Greene, 2007; Hamilton
& Nickerson, 2003; Heckman, 1979; Hoang & Rothaermel, 2010). In the first stage, we
applied a probit model to estimate the probability that a leading foreign pharmaceutical firm
chooses a province in which to invest (i.e., pharmaceutical FDI). The first-stage model con-
tained two instrumental variables (Greve, Mitsuhashi, & Baum, 2013; Shaver, 1998;
Wooldridge, 2008). The first instrumental variable captures the provincial marketization
index (Li & Qian, 2013; H. Wang & Qian, 2011). This index was computed by the National
Economic Research Institute (NERI) in China using data from statistical yearbooks, reports
by industry and commerce agencies, and surveys. This index captures the progress of institu-
tional development in all the Chinese provinces. The second instrumental variable is the
average return on equity (ROE) of all state-owned firms in the pharmaceutical industry in
each province. We adopted this variable from the Chinese Market Statistical Yearbook and
the Industry Economy Statistical Yearbook for 2000 to 2007, because we believe the average
ROE of all the incumbent state-owned firms, as direct competitors of foreign firms, serves as
an important strategic benchmark for FDI decision making. The first-stage model returned
the inverse Mills ratio, which we then inserted in the second-stage model to explicitly correct
for self-selection in Table 4. The coefficient of inverse Mills ratio was not statistically signifi-
cant. These results suggest that endogeneity does not influence the results.

Discussion

The results of this study have several important theoretical implications. First, studying
the roles of firm characteristics and the interests of governmental owners in privatization
decisions extends our understanding of resource dependence theory especially regarding the
relevance of ownership structure (Hillman et al., 2009). In terms of firm characteristics, we
found that high financial performance increased the likelihood of privatization. However, we
did not find the expected negative effect of firm innovation on the likelihood of privatization.
The lack of results on innovation might be due to the high costs associated with the develop-
ment of innovative capabilities in SOEs. For instance, it is possible that governmental own-
ers are more concerned about the costs than with the transfer of innovative capabilities to
private owners, including foreign multinational firms.

Our study suggests that an important dimension of the environmental uncertainty experi-
enced by state-owned firms originates in the power differentials among their governmental
owners. The differences in their characteristics and preferences have potentially important
consequences for the firms. Before the decentralized fiscal policy was implemented, the
central government in China planned and directed all of the provincial governmental invest-
ments and expenditures (e.g., Qian et al., 2006). The implementation of the fiscal decentral-
ization not only led to power dependence (Pfeffer & Salancik, 1978) by SOEs on their
provincial governments (in terms of provincial government revenue) but also ensured that
provincial governments have the authority to determine the structure of their expenditures
and their fiscal arrangements with the SOEs they own (Jin et al., 2005). Hence, fiscal decen-
tralization created a power center in each province of China (Emerson, 1962), and the
provincial governmental power comes from its fiscal strength and its provincial economic development. Therefore, governments have multiple levels and units with different stakes in firm strategies and financial performance, especially those in which they hold an ownership stake (Kozhikode & Li, 2012). Although the hierarchy in the government provides some clues about the power relationships among different government agencies, their tangible influence may depend on additional factors, such as their resources and specific motivation for the privatization of state-owned firms. This study, in particular, provided insights into the role of provincial governments in the privatization of firms in China. Because of the decentralized property rights, provincial governments have become major players in China’s state capitalism (Bremmer, 2010; Walder, 1995). We found that they are more motivated to privatize state-owned firms when they have stronger fiscal power, and their fiscal power also influences the effect of the firm’s financial performance on privatization. We did not find similar evidence for the importance of local competitive pressure and FDI projects in the provinces. Taken together, these results indicate that provincial governments’ own fiscal

Table 4
Heckman Two-Stage Estimation Predicting Privatization

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Robust SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm age</td>
<td>0.00</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>−0.00</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Revenue growth</td>
<td>0.05**</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Shareholder equity growth</td>
<td>0.00**</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Provincial government deficit</td>
<td>0.23</td>
<td>(0.15)</td>
</tr>
<tr>
<td>Provincial GDP per capita</td>
<td>−0.00*</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Leverage ratio of private vs. SOE</td>
<td>0.03</td>
<td>(0.33)</td>
</tr>
<tr>
<td>Strong local pharmaceutical industry</td>
<td>0.07</td>
<td>(0.42)</td>
</tr>
<tr>
<td>Economic zone dummies</td>
<td>Included</td>
<td></td>
</tr>
<tr>
<td>Year 2003 dummy</td>
<td>Included</td>
<td></td>
</tr>
<tr>
<td>Firm financial performance (ROA)</td>
<td>3.27*</td>
<td>(1.05)</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>−0.01</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Provincial industry competitive pressure</td>
<td>0.07</td>
<td>(0.18)</td>
</tr>
<tr>
<td>Size of provincial FDI</td>
<td>0.52</td>
<td>(1.03)</td>
</tr>
<tr>
<td>Provincial fiscal power (PFP)</td>
<td>0.20*</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Moderating effect (ROA*PFP)</td>
<td>−0.62**</td>
<td>(0.24)</td>
</tr>
<tr>
<td>Inverse Mills ratio</td>
<td>0.18</td>
<td>(0.79)</td>
</tr>
<tr>
<td>Log pseudolikelihood</td>
<td>−159.67</td>
<td></td>
</tr>
<tr>
<td>Wald χ²</td>
<td>154.72***</td>
<td></td>
</tr>
</tbody>
</table>

Note: Efron method for ties; stratified by means of privatization. Robust variance-covariance matrix was used; Cox regression-based test for equality of survival curves are significant. The moderator was mean-centered. Because the Heckman two-stage estimation was not originally designed to correct for endogeneity in Cox models, it may only provide an inexact test of potential endogeneity issues for our results (Xia & Li, 2013). GDP = gross domestic product; SOE = state-owned enterprise; ROA = return on assets; FDI = foreign direct investment.

*p < .05.

**p < .01.

***p < .001.
power is a more important factor in privatization decisions than potentially favorable local industry conditions and business opportunities represented by FDI.

This study also extends our knowledge of subnational institutions (Chan et al., 2010). Ostrom (2005, 2010) suggested that institutions are polycentric—that is, institutional rules and norms emanate from and are enforced by multiple centers of power. She particularly focused on the multiple levels of institutions, such as those at the national and state/provincial levels. Therefore, institutions exist at the national and provincial levels and are developed and implemented by government entities at each of these levels (Meyer & Nguyen, 2005; Zhou, Delios, & Yang, 2002). As such, the economic and political institutions at the national and provincial levels shape governmental owners’ privatization actions, thus supporting the polycentric nature of formal institutions.

The views of governmental owners about the firms’ conduct may shift over time depending on their level of satisfaction (or dissatisfaction) with the firms’ actions and especially the outcomes achieved. For example, when state-owned firms use resources in ways that are considered wasteful, their governmental owners are likely to pressure them to make changes. Yet, the perceptions and evaluations of the different governmental owners can also vary, especially when they consider the firms’ financial performance.

The results of this study regarding the motivations of governmental owners to privatize state-owned firms also extend our knowledge of privatization from a management perspective. Previous privatization research has largely focused on the macroeconomic and social motivations of national governmental owners. A growing body of research in management has contributed to this discussion by highlighting the additional complexities of privatization transactions (e.g., Filatotchev et al., 2003; Makhija, 2003; Zahra et al., 2000). The notion of multilevel institutions (different sources of rules and norms at different levels) provides a base for understanding how firms’ actions and outcomes and the motivations of different levels of governmental owners influence privatization decisions. Therefore, this knowledge adds value to our understanding of privatization decisions and especially the different motivations to privatize specific firms.

Studying how provincial governmental owners influence privatization decisions in China can also contribute to the larger debate on the process and effectiveness of privatization in state capitalist systems (Bremmer, 2010; Musacchio & Lazzarini, 2014). National governments’ privatization policies have resulted in unintended macroeconomic and social consequences in many countries, including inefficiencies, growing corruption, high inflation, and greater unemployment (Hamm et al., 2012). Delegating a larger role to provincial governments in privatization has addressed some of these problems in China (Burawoy, 1996; Walder, 1995). This research is among the first to shed light on how provincial governments make privatization decisions and, specifically, how they consider certain firm characteristics and environmental conditions when they weigh the potential privatization of firms. It shows that subnational institutions (i.e., at the provincial level) can be influential in privatization decisions.

Our study considers the interests in privatization by different governmental owners under conditions of evolving institutions. When the rules of the game have not been fully established and are dynamic, such as those in emerging economies, bargaining between different governmental and private actors can shape the outcome of important policy decisions, including those related to privatization. Viewing policy decisions as outcomes of bargaining by multiple parties contributes to our understanding of what motivates the parties involved and how their resources are used (Henisz et al., 2005; Henisz & Zelner, 2005; Holburn & Zelner,
This, in turn, helps to understand the complex process of institutional development, which is particularly relevant for emerging economies.

Beyond their theoretical importance, the results of this study have practical implications for privatization decisions and policies. The managers of firms that are candidates for privatization need to consider the multiple interests of their governmental owners. Their firms’ interests may be better represented by those agencies in the governmental hierarchy that value the firms’ long-term economic and societal contributions more than those agencies that have immediate budgetary needs. As such, these managers need to be adept in developing and implementing effective political strategies targeting the appropriate governmental agencies that have these long-term interests (Hillman & Hitt, 1999). Gaining the support of these agencies can help managers to secure more favorable conditions for the sale of their firms.

Policy makers need to consider the impact of privatization on the long-term effectiveness of firms as well as the potential effects on local communities and governments. Privatization decisions in many countries have focused on national interests, such as the reduction of national debt, with limited attention to the interests of provincial governments and the privatized firms’ management and employees. The results of this study suggest that policy makers in the national government may be able to enrich the social benefits of privatization by considering the interests of governments and firms’ management in the provinces.

Limitations and Future Research

Our study has some limitations. State-owned firms operate in many industries in China but studying their privatization or other transformations is challenging without controlling for some of their differences that are specific to their industries. The pharmaceutical industry is characterized by innovation more than other industries, several of which have more mature products or commodities. While we found a positive effect of firm financial performance on privatization, we found no effect for innovation. Future research using samples from multiple industries should further examine the relationship between innovation and privatization for additional insights. It is possible that innovation in pharmaceutical industries in countries with a larger amount of new products and higher market shares plays a more important role in privatization decisions than in the Chinese pharmaceutical industry.

The country setting is another limitation. On the one hand, China provides an appropriate setting to study privatization because it is an economy based on state capitalism with the intent to become more market oriented. On the other hand, it lacks some of the institutional characteristics of developed market economies. Even though privatization occurs in developed economies, generalization of our results may require additional considerations in those countries because of their more mature institutional environments (Holmes, Miller, Hitt, & Salmador, 2013). Similarly, provincial governments tend to be more important players in larger countries or countries with histories of regional divisions, including India and Russia. Interestingly, individual states within the United States have considerable power, suggesting that the differences are not necessarily due to developed and emerging market status. Future research should examine privatization using more comprehensive firm-level data from multiple industries in different nations (with differing levels of institutional development) to help determine the generalizability of the results of this study.

Another limitation of this study is related to the availability of data. For instance, our data did not allow us to directly examine the motivations of buyers involved in privatization.
decisions. Future research could examine who buys (invests in) the former SOEs. For example, is it private investors (local or foreign), managers, employers, or others? What is their motivation for buying local firms (e.g., gain access to new markets, earn high returns on their investment), and what are the factors that explain who the buyers are likely to be?

Furthermore, we had limited information about the informal relationships between officers of government agencies and managers of state-owned firms prior to those firms’ privatization. Future research could extend our inquiry in several ways. Researchers could study the motivations of and interactions among a broader range of stakeholder groups, including customers, suppliers, major community organizations, and other government entities (e.g., municipal governments, which represent another source of institutions). Additionally, future research could explore the psychological factors that can influence the interdependencies between the external constituents of firms and their managers.

Privatization is a highly complex organizational transformation that often results in multiple changes in firm capabilities and strategies. Studying significant organizational changes associated with privatization decisions, in addition to the antecedents of privatization, could provide additional valuable insights. For example, future research could examine governmental motivations to maintain employment levels by means of privatization or examine the employment by firms several years after their privatization. Along this line, researchers could also investigate changes in strategies used, such as diversification, mergers and acquisitions, and internationalization, following ownership changes.

In conclusion, this study contributes to a growing body of literature on how different factors at the firm and governmental levels influence the likelihood of privatization of SOEs. Such inquiry continues to be important for local and foreign firms as well as different governmental agencies in a wide range of emerging economies around the world.

Appendix A

The Chinese Pharmaceutical Industry

In the 1980s, China’s pharmaceutical industry was under tight governmental control. The government provided all the resources to the firms, including human resources and financial capital. In the mid-1980s, the government relaxed state control, allowing competition to emerge in the industry. However, even in the late 1990s, the firms remained tightly controlled by the state and its various agencies. Firms in this industry mainly produced relatively capital-intensive “upstream” intermediate pharmaceutical products, especially generic antibiotics.

Foreign investment in the Chinese pharmaceutical industry was first permitted in the 1980s. By the mid-1990s, following the open-door policy of the domestic industries, foreign direct investment projects had increased to a significant level. By 2007, there were about 1,500 pharmaceutical joint ventures in China. All 15 of the world’s top pharmaceutical companies had set up joint ventures in China and brought technology and new standards of management. From 2000 to 2007, the pharmaceutical industry maintained about 20% annual growth rate.

Of China’s provinces, Shandong, Jiangsu, and Zhejiang have the strongest local pharmaceutical sectors. In 2007, the pharmaceutical industry in Shandong province contributed 87,284 million RMB (1 USD = 6.1 RMB) to the provincial gross industrial output value; this contribution in Jiangsu province was 64,260 million RMB, and in Zhejiang, it was 57,613 million RMB. Other provinces have weaker pharmaceutical sectors. For instance, the
pharmaceutical industry contributed 1,285 million RMB to Qinghai province’s gross industrial output value (*China Statistical Yearbook*, 2007).

About 65% of the pharmaceutical firms in our sample are generic drug producers or produce drugs after the expiration of the original producers’ patents. Even after China’s entry into the World Trade Organization in 2001, imitating products of leading multinational drug companies remained the main strategy for Chinese pharmaceutical firms. However, producing and selling other firms’ patent-protected products have become illegal without a license from the patent holder.

**Appendix B**

**Plots of Survival Estimates of Three Means of Privatization**
Notes

1. Lower levels of the government in different countries include regional, county, and provincial governments. These regional and provincial units of the government are also largely equivalent of the states in countries with federal systems, albeit with less discretion. We use the term provincial government throughout the paper to characterize the structure of the government in a large country, such as China.

2. There are only 117 state-owned enterprises owned directly by the national government in China. The full list is available at the official website of State-Owned Assets Supervision and Administration Commission of China (http://www.sasac.gov.cn/n2963340/n2971121/n4956567/4956583.html).

3. We thank an anonymous reviewer for raising the possibility of interplay between firm financial performance and provincial fiscal power and encouraging us to extend the empirical analysis to include their interaction effect.

4. Our measure is comparable to patent data as a proxy for innovation in developed market settings, such as the United States. Equivalent patent data were unavailable to us given the characteristics of the local institutional environment (e.g., limited property rights protection) and competitive environment (e.g., marketed drug characteristics) in China.

5. We thank an anonymous reviewer for encouraging us to complete the robustness test of endogeneity.

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