Preliminary draft, comments welcome.

Institutional Environment, Public-Private Hybrid Strategy, and Entrepreneurial Investment:

Evidence from China's Transition Economy

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ABSTRACT

Public-private hybrid strategy is one of the key strategies that many private entrepreneurs during gradual market transition have adopted. Under this strategy, a private entrepreneur either rents a public firm and operates it as though it is his own (a way of informal privatization of public firms) or registers his private firm as a public firm to cover up de facto private ownership (wearing a "red cap"). This study examines the effect of this strategy on entrepreneurial reinvestment – the primary source of entrepreneurial financing in transition economies –as institutional environment changes based on the case of the rapidly emerging private sector in China. Conventional wisdom in economics expects that such a strategy would discourage entrepreneurial investment because it results in ambiguous property rights structure. Based on the new institutional perspective, this study argues that this strategy could facilitate entrepreneurial investment because the legitimacy benefits of this strategy outweigh its costs during gradual reform when the government still favors the public sector over the private one and thus the playing field between the two sectors is not level. Yet, as the market economy expands, the positive effect of this strategy may decrease and even turn negative. The hypotheses are supported by large scale national survey data on private entrepreneurs from China.

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Transition from central planning to a market economy has created high uncertainty for both existing and newly emerged firms because the planned economic system is dismantled but it takes time for market institutions to develop. Given that such institutional uncertainty may facilitate strategic responses from economic actors (Oliver 1991), there has been a growing interest in understanding how firms and entrepreneurs make strategic decisions to manage uncertainty in transition economies (e.g., Hitt et al. 2004; Hoskisson et al. 2000; Keister 2004; McMillan and Woodruff 2002; Nee 1992; Park and Luo 2001; M. Peng 1997; Tan 1996; Tsang 1996; Tsui et al. 2004; Xin and Pearce 1996). One important strategy is blurring the boundaries of public and private sectors (hereafter boundary blurring), which was primarily adopted by firms and entrepreneurs in transition economies where gradual reform strategy was adopted and/or privatization of public firms including both state-owned enterprises (SOEs) and collective enterprises had not occurred on a large scale, such as China by the late 1990s (Naughton 2007; Nee 1992; M. Peng 2001) and Hungary by the early 1990s (Stark 1996).

According to Nee (1992) and M. Peng (2001), boundary blurring in a transition economy that adopts gradual reform strategy refers to both informal privatization of public firms and wearing a "red cap" for covering up de facto private ownership. Under informal privatization of public firms, a local government leased a public firm – either a SOE or a collective firm – under their control to a private operator, who would pay the government a fix rent and operate the rented firm as though it was his own (Nee 1992). Typically, the share of public assets in a rented public firm would decrease gradually because the private operators were allowed to purchase public shares and thus to have more control of the firm assets (Gregory et al. 2000). Thus, "these firms become a mixed property form, with local government and private operators claiming property rights over them" (Nee 1992:2). On the other hand, wearing a "red cap" means that many private startups were registered as public firms (usually collective firms) to enjoy the benefits attached with the latter; and in exchange, they paid a percentage of their profit to local government as a "management fee" (Nee 1992). Under both scenarios, the distinction between public and private enterprises is blurred because the firm is jointly controlled by both the government and the private entrepreneur and uses resources and/or governance structures from both. In this sense, firms adopting

boundary blurring strategy are a specific type of hybrids, namely, public-private hybrid firms (*hereafter* hybrid firms) (Borys and Jemison 1989; Williamson 1991; see also, Nee 1992; M. Peng 2001).

Prior research on boundary blurring strategy has been focused on the rationales for adopting this strategy, i.e., why entrepreneurs chose to lease a public firm or wear a red cap for their private firm instead of establishing a pure private firm wholly owned and controlled by them. It is generally argued that entrepreneurs chose this strategy because it could help economize the high transaction costs for private entrepreneurship under severe institutional uncertainty. During gradual transition from a planned economy to a market one, the government still played a significant role in resource allocation and it took time to establish the market system, as well as the legal infrastructure to support this system (Naughton 2007; Nee 1992). Thus, there was unlevel playing field between the public and private firms: Private firms were discriminated in obtaining economic resources/opportunities or government services because the government favored public firms over private ones. It is, therefore, to the interest of entrepreneurs to adopt boundary blurring strategy because it could help a private firm get good treatment and even protection from the government (Li 1996; Nee 1992; for empirical evidences, see, e.g., Chen 2007; Gregory et al. 2000; M. Peng 1997). Yet, as Li (1996) pointed out, this strategy was not without costs. One primary cost was the potential for excessive government intervention because the government had partial control rights of the hybrid firm.

While much has been learned about the rationales for adopting this strategy, we still know very little about the effect of this strategy on the firms. There exists little research directly examining this issue. However, previous studies seem to suggest that this strategy has little effect on firm efficiency. Empirical evidences have shown that rural collective firms, many of which were hybrid firms (Nee 1992), were not more productive than pure private firms in China (Svejnar 1990; Weitzman and Xu 1994), probably because of excessive government interventions into firm operations (Li 1996). If so, why was this strategy so popular in China for almost two decades and was abandoned only at the late 1990s (Dai 2005; Naughton 2007)? Did this strategy have any positive effects on hybrid firms in some other aspects instead

of firm efficiency? And if so, why and how did the effect of this strategy change? In particular, did the effect decrease as market institutions developed, thus triggering the abandoning of this strategy?

This study aims to answer these questions using the new institutional perspective (DiMaggio and Powell 1983; North 1990; Suchman 1995). Analytically, this study is focused on the effect of boundary blurring strategy on the reinvestment rate of private firms during China's gradual reform period. Investment decision making provides a key test for whether boundary blurring has a positive effect on the firms because of several reasons. Firstly, reinvestment decision is concerned with the mobilization and allocation of substantial economic resources (Child and Yuan 1996) and thus determines firm growth in transition economies where it is usually hard for private entrepreneurial firms to obtain formal external finance (Johnson et al. 2002a; Zhou 2009). Secondly, conventional wisdom in economics holds that ambiguous property rights discourage firm investment because de facto private owners of the firm expect to be unable to keep all the fruits of their investment (Johnson and et al. 2002a; Li 1996). If boundary blurring, which would result in ambiguous property rights because of partial control rights enjoyed by the government (Li 1996), is found to facilitate firm investment, this will provide a stronger test of the effect of boundary blurring.

I argue that boundary blurring can bring legitimacy and thus facilitating protection of property and contractual rights and acquisition of resources and opportunities, which, in turn, facilitate firm reinvestment. In addition, I explore how this effect changes when formal market institutions develop. Although a number of previous studies have examined, usually indirectly, how institutional environment affects the benefits of firm strategy in transition economies using qualitative or small sample quantitative data (e.g., Park and Luo 2001; Peng and Luo 2000; Tan et al. 2008; see also review in Hoskisson et al. 2000), there are rare studies that use direct measures for institutional environment and large sample survey data. In this study, I test the effect of institutional environment using both direct measures for market institutions and large sample quantitative data.

Boundary Blurring, Legitimacy and Entrepreneurial Reinvestment

Institutional Constraints Faced by Entrepreneurs under Gradual Reform

Throughout East Europe and Asia, all socialist planned economies had shared similar economic structures (Kornai 1992; McMillan and Woodruff 2002; Naughton 1997). These economies were all dominated by large SOEs in the heavy industry and there were very few small and medium-sized enterprises (SMEs), which were also either SOEs or collective firms but not private firms. In addition, the light industry and the trade and service sectors consisted of only a small part of the economy and thus there were consistent shortages of consumer goods and services. Therefore, as these economies started economic reforms (either radical as in most East European countries or gradual as in China and Vietnam), private entrepreneurship emerged and developed spontaneously in response to the enormous profit opportunities created by the economic imbalances left by the planned economic system.

However, most governments in transition economies did not have a favorable institutional framework for healthy growth of private entrepreneurship at least initially. One of the institutional constraints for entrepreneurial development was insecure property rights created mainly by government corruption. Bureaucrats in these states remained largely independent of courts, and thus were empowered to impose business a variety of predatory regulations (Frye and Shleifer 1997). As a result, entrepreneurs usually needed to pay extralegal payments to obtain government services and business license (Johnson et al. 2000, 2002a).

In addition to insecure property rights, the formal institutions that underpin entrepreneurial activity were only poorly developed in most of these economies. First, these countries usually had relatively weak court systems – much worse than in most developed countries (Johnson et al. 2002b). As a result, entrepreneurs often had to rely on inter-firm relations or private mechanisms – such as mafia – to solve contractual disputes because courts were not effective in enforcing contracts with trading partners (Frye and Shleifer 1997). Second, well-functioning credit and equity markets, together with sophisticated market infrastructures, were usually absent in these countries (Johnson et al. 2000; McMillan and Woodruff 2002). Banks were inclined to extend loans to large, established firms only in order to mitigate financial risks and thus entrepreneurs often found it difficult to get access to bank financing (Tsang 1994;

Zhou 2009). And with the less developed market infrastructures (e.g., transportation system and market intermediaries), entrepreneurs also had difficulty in getting access to suppliers and customers (Johnson et al. 2000).

Compared to those in most East European economies that had adopted full privatization policy, Chinese entrepreneurs not only faced all problems discussed above, but were also politically illegitimate in the early reform period. Private entrepreneurship was illegitimate or at most semi-legitimate in the first two decades of the reform (1978 – 1998) because China adopted a gradual reform strategy under which private ownership was not fully acknowledged (Tsang 1996; Zhou 2009). Here, legitimacy is defined as a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions (Suchman 1995).

The lack of full legitimacy for private entrepreneurship under gradual reform in China could be seen in not only public media and opinions but also government laws and regulations. Many researchers have found that, the state-controlled media, as well as public opinion in many regions, was often prejudiced against private entrepreneurs throughout the 1980s and early 1990s (Tsang 1996; Y.Peng 2004; Zhou 2009). In addition to unfriendly public media and opinions, government laws and regulations openly discriminated private firms as well. Before the 1999 Constitutional Amendment which elevated the status of private businesses from a minor, supplemental component to an important one in the economy, the private sector was treated as inferior to the public sector officially and was kept a subordinate, near pariah status throughout the 1980s and 1990s (Gregory et al. 2000; Zhou 2009). Before 1988, there were a number of regulatory restrictions, which included the following (among many others): A private firm could employ only up to seven employees; it could enter only a small number of industries that produced consumer goods and services; it could not obtain factor resources (e.g., bank loans) directly from state-owned institutions. After 1988, especially following Deng Xiaoping's Southern Tour in 1992, though some of these regulatory restrictions, such as the limit on firm size, have been lifted, many others survived and continued – though loosened somewhat – even into the new century. One continued regulatory restriction, for example, is access to bank financing. Until 1998, the central bank had annual

lending quotas, which took into account only the demand for finance from SOEs, while the demand from private firms was completely outside of the considerations of the central bank (Tam 2004).

The lack of legitimacy could exacerbate the institutional environment faced by entrepreneurs under China's gradual reform. Firstly, it made private property rights even more insecure because government agents under gradual reform acted even more like a predatory grabbing hand when dealing with the illegitimate private firms than in other transition economies (Frye and Shleifer 1997). Government officials, who usually favored public ownership under gradual reform, often were engaged in harassing private entrepreneurs through expropriation and extortion or permitted such harassment by others (Zhang and Ming 1999). As such, infringements of the property rights of private entrepreneurs by government agents, non-governmental organizations, or other citizens were often reported throughout the 1980s and 1990s in China (e.g., Chang and MacMillan, 1991; Nee, 2000; Tsang, 1994). Nee (2000) reported a case of how a group of villagers raided an entrepreneur's orange grove with the tolerance of and even support from village cadres in Fujian Province. This case, he argued, "highlights the precarious status of private entrepreneurs in an institutional context in which private property rights based on legal contracts are poorly understood" (Nee 2000:79). Similarly, Yusheng Peng (2004) also suggested that cadre predation and political discrimination were the biggest obstacle to the development of private entrepreneurship in China.

Secondly, given the lack of legitimacy, private entrepreneurs had even weaker contractual rights under gradual reform. They were often discriminated openly by the courts, which were not independent but under the tight control of the bureaucrats, for lawsuits on contractual disputes, especially when they had such disputes with public firms or public agencies. Unfortunately, public firms or public agencies were often the primary suppliers and/or customers for most private firms because the former not only still had a large share in the economy but also controlled majority of the resources under gradual reform. A large sample survey conducted in 1999 by the International Finance Corporation suggested that 45 percent of the private firms obtained inputs mainly from public firms and 72 percent of the firms sold their products primarily to public firms or public agencies in China (Gregory et al. 2000). Under the

discriminatory treatment by the court, many entrepreneurs went bankrupt because they accepted orders that were never paid for and the court did not stand up for their rights (Gregory et al. 2000). Therefore, private entrepreneurs often found it necessary to protect their contractual rights through various strategies, such as bribing local government officials and judges (Tsang 1996).

Thirdly, because of the lack of legitimacy, private firms had difficulty in obtaining a variety of critical resources because most of these resources were still controlled by the state, which distributed these resources more on the basis of political considerations than economic ones (Peng and Luo 2000). That is, politically legitimate firms (e.g., public firms) had enjoyed preferential treatment while private firms had been discriminated against in getting access to government-controlled resources. Above it is mentioned that SOEs had dominated access to bank finance through the state-owned banking system by 1998 (Tam 2004). The same is true for other resources as well. Even in Zhejiang – the province with a reputation for the most supportive government policies in relation to the private sector, local officials still set limits on private businesses' ability to obtain land, water, electricity, and raw materials until the late 1990s (Zhou 2009).

The Effect of Boundary Blurring Strategy on Entrepreneurial Reinvestment: A New Institutional Perspective

Entrepreneurship scholars have shown consistently that financing – either formal external financing through financial and equity markets or internal financing through entrepreneurial reinvestment – is central to the process of entrepreneurship because it determines entrepreneurial survival and growth (Casson 1982; Evans and Leighton 1989; Shane and Cable 2002). Yet, the unfavorable institutional environment during gradual reform discussed above has a negative effect on not only formal external financing but also internal financing for private entrepreneurs. On the one hand, under the discriminative government policies, entrepreneurs were often excluded from access to formal financial and equity markets, which were controlled by the government. As a result, they had to rely primarily on internal

finance for firm operation and expansion. Indeed, the 1993 national survey of private enterprises reveals that about 70 percent of the private firms in China reported that retained profits were their primary source of financing (Zhou 2009).

On the other hand, entrepreneurs would also have low incentives to reinvest under the unfavorable institutional environment for the following reasons. Firstly, the insecure property rights of private firms would deter entrepreneurs from reinvesting their profits. New institutional economists have long recognized that economic actors will not invest, produce, or engage in market transactions if they expect to be unable to keep the fruits of their efforts (North 1990; North and Weingast 1989). And this notion has been found true in many transition economies, such as China, which had extremely high entrepreneurial profits thus should have high reinvestment rate (Cull and Xu 2005; Johnson et al. 2002a). Secondly, the weak contractual rights would also discourage reinvestment because it increased the risk of nonpayment and thus the risk of bankruptcy. Thirdly, as noticed by previous studies, reinvestment decision is not simply reinvesting profits into the firm, but is also concerned with the mobilization of substantial economic resources (Child and Yuan 1996). Since private entrepreneurs had difficulty in access to many of the key economic resources under gradual reform, they would often found it difficult to make reinvestment for firm expansion even if they had entrepreneurial opportunities.

It is argued here that boundary blurring may help resolve institutional uncertainty, thus facilitating entrepreneurial financing, both external and internal. However, this study is focused on the effect of boundary blurring on internal financing (i.e., entrepreneurial reinvestment) only. To be sure, this strategy could also help entrepreneurs get access to formal external financing through government-owned financial and equity markets (Gregory et al. 2000; Nee 1992). I focused on internal financing in this paper because it was the primary source of financing for private firms and hybrid firms in China's transition economy (Gregory et al. 2000; Zhou 2009) and because conventional wisdom in economics expects that boundary blurring would have a negative effect on reinvestment.

From a new institutional perspective, boundary blurring can resolve environmental uncertainty and facilitate entrepreneurial reinvestment because it brings legitimacy to the firm. According to this

perspective, entrepreneurs and organizations need to achieve and maintain environmental legitimacy for survival and growth. And to obtain legitimacy, it is crucial for entrepreneurs and organizations to conform to the rules and belief systems in the environment (DiMaggio and Powell 1983; Meyer and Rowan 1977; see also Suchman 1995). In line of this view, boundary blurring allows a private entrepreneur to achieve and maintain legitimacy because, by adopting this strategy, his/her business would not be considered a private firm any more but a "public firm" – the legitimate organizational form under gradual reform – by the government. Indeed, in the case of informal privatization of public firms, the firm that the entrepreneur rented and operated was no doubt a public firm; and even for a "red cap" firm, its registration status was also a public firm in spite of its de facto private nature. And as a "public firm", the hybrid firm could enjoy virtually all benefits extended to those real public firms.

Compared to pure private firms, one benefit of the legitimate status enjoyed by the hybrid firm is to evade ideological harassment and even expropriation and extortion by government officials (Naughton 2007). A well known example for this benefit is from the Wenzhou model in Zhejiang province, which has attracted much attention for its rapidly developing private economy. At least in the early reform period, most private entrepreneurs in Wenzhou registered their firms as collective firms, often with the permission of local governments, in order to escape from ideological and political campaigns against them launched by powerful local, provincial, and even central conservatives (Dai 2005; Nee 1992).

The second benefit of the legitimate status is that the hybrid firm would have better protection of its contractual rights, especially when it was dealing with or involved in a contract dispute with a SOE or a foreign firm. Given their more powerful market positions and also government protection, state-owned or foreign enterprises might show little compunction for strong-arm tactics and guile in direct dealing with entrepreneurial firms, which often relied on the former for business (Nee 1992). As a "public firm", however, the hybrid firm could legitimately involve local authorities – the joint owner – in the case to enhance its negotiating or legal position (Li 1996).

The third and probably also the most important benefit of the legitimate status is facilitating access to crucial economic resources and opportunities. Given that the government still controlled many

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resources/opportunities and favored public firms over private ones when allocating them, hybrid firms would thus enjoy advantages in obtaining resources and opportunities. Indeed, a report based on large sample survey data suggests that being legitimate was indeed "helpful in securing access to land, assets, finance, and markets" for hybrid firms, and local governments often subsidized locally-owned public firms including hybrid firms through tax breaks, favorable contracts, or loans on preferential terms (Gregory et al. 2000:20).

In short, entrepreneurs could benefit from the boundary blurring strategy because "local governments may provide the backing and resources needed by entrepreneurs to compete effectively in an economy characterized by partial reform, in which the still-dominant redistributive institutions interact with market forces in a manner that subordinates market institutions" (Nee 1992:4). As a result, compared to pure private firms, hybrid firms may be more confident in making reinvestment decisions because of both better protections of property and contractual rights and easier access to critical resources/opportunities.

However, the adoption of boundary blurring strategy is not costless. Because this strategy blurred the public-private boundaries and the government had a legitimate control over the firm property, the property rights structure of the firm was ambiguous (Li 1996). As such, there exist potential costs for private entrepreneurs. One cost may be the potential for excessive government interventions into the firm. To be sure, not all government interventions into the hybrid firms were detrimental. In fact, many types of government interventions were actively sought for by the entrepreneurs, e.g., protection of the firm from ideological harassment and expropriations and extortions, involvement in joint negotiations with powerful suppliers and consumers, and providing tax breaks and needy help in acquiring resources and opportunities. However, government interventions sometimes would interfere with truly commercial management and thus lead the hybrid firm to operate more like an inefficient SOE (Gregory et al. 2000). The government, for example, often assigned workers and even senior management staff, who often had connections with government officials, to public firms including hybrid firms regardless of the needs of the latter (Zhang and Ming 1999).

Another cost is that the entrepreneur would also have to share profit with the government. Besides submitting rents (under the scheme of informal privatization of public firms) or management fees (for "red cap" firms), hybrid firms, like real public firms, usually also needed to put aside about 15 percent of its after-tax-profit in a collective accumulation fund, which would be controlled by the government (Li 1996).

In addition to the above two costs, boundary blurring could also lead the hybrid firm to be vulnerable to legal complications because of its ambiguous property rights structure. In most cases, the entrepreneur owned majority of the shares of the hybrid firm. This was true not only for the "red cap" firms which were de facto privately owned, but also for the "rented public firms" because the private operators usually had an interest in purchasing the public shares (and were also allowed to do so) in order to own it finally (Gregory et al. 2000). However, because the firm was nominally a "public firm" and thus the government not only had direct control rights over it but often also contributed to the firm property (e.g., through providing land and finance), there were often legal disputes between the entrepreneur and the government over who the real owner was or how to divide ownership shares (Nee 1992). And a large number of legal cases in the late 1990s in China suggest that entrepreneurs were usually the losers in such disputes: Many hybrid firms were even confiscated by local governments and their private owners were sentenced for embezzlement of "public assets", which were de facto or primarily owned by the private owners (Dai 2005).

The conventional wisdom in economics might suggest that, because of the above costs, especially, the vulnerability to potential legal complications, this strategy may discourage firm reinvestment because the entrepreneur would be worried about whether he/she could keep all the fruits of the investment (Johnson et al. 2002a; Li 1996). However, given that boundary blurring strategy can also bring benefits that facilitate reinvestment according to the new institutional perspective, it can be argued here that entrepreneurs will enjoy net returns from this strategy and thus be confident in reinvestment decision making only if the benefits of this strategy outweigh its costs. And given the very unfavorable institutional environment for private entrepreneurship under gradual reform as discussed above, it is

argued here that, on average, the benefits of this strategy would be substantially larger than its costs. Thus, we have the following hypothesis:

Hypothesis 1. Hybrid firms (i.e., private firms adopting boundary blurring strategy) would have higher reinvestment rate than pure private firms under graduate reform.

In particular, the previous literature suggests that, compared to larger private firms that might be treated relatively better by the government because of their higher contribution to job creation and tax revenues, smaller firms fared even worse in terms of protection of property and contractual rights and access to economic resources, and thus would have even lower incentives and capability to reinvest (Gregory et al. 2000; Zhou 2009).[1] As smaller firms faced an even more constrained institutional environment, it might be argued that they may benefit more from the boundary blurring strategy. Thus, we have:

Hypothesis 2. Boundary blurring strategy would have a stronger positive effect on reinvestment rate for smaller private firms.

According to the new institutional perspective, the net effects of this strategy may be a function of institutional environment (North 1990). While this strategy could bring legitimacy and thus positive benefits when private firms lacked full legitimacy, its net benefits may decline as institutional environment evolves toward to a free market economy during gradual reform. This is primarily because, as free market institutions develop, private entrepreneurship will become more legitimate and thus pure private firms may obtain better legal protection of property and contractual rights and will have less difficulty in access to resources/opportunities (Nee 1992).

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[1] Since smaller firms had more difficulty in obtaining formal external financing, they relied more on internal financing and thus should have had higher reinvestment rate.

Specifically, among free market institutions, the development of legal protection of property and contractual rights and market system may affect boundary blurring strategy most (Li 1996; Nee 1992). Legal institutions for protecting property and contractual rights are the foundation of a free market economy. In general, a number of formal or informal institutional arrangements (the latter includes boundary blurring) can achieve similar effects in protecting property and contractual rights and can thus substitute each other (Dixit 2004). However, among all arrangements, legal protection of property and contractual rights is the most effective one because the government can legitimately invoke the coercive power of the state in support of contracts (North 1990). And unlike informal arrangements, of which boundary blurring strategy is one, legal protection is not discriminative, favoring only a certain type of economic actors (e.g., public or hybrid firms), but treats all firms equally (Clark 2003). As legal protection of property and contractual rights improves, therefore, pure private firms may obtain better protection of their rights. Thus, the comparative advantages of boundary blurring may decrease.

Hypothesis 3. The effect of boundary blurring strategy on entrepreneurial reinvestment rate would decrease as legal protection of property and contractual rights improves.

Unlike the socialist planned economy where bureaucrats control and allocate resources, a free market economy relies primarily on the market mechanism for resource allocation. During gradual market transition, as the economy evolves toward increased reliance on the market mechanism, bureaucratic control and allocation of resources will diminish (Naughton 2007). As a result, private entrepreneurs will rely less on the government but more on the market system for acquiring economic resources and opportunities (e.g., Guthrie 1998; Nee 1989; Nee and Opper 2007). And unlike bureaucratic allocation, which usually favors politically connected firms (e.g., public firms) over unconnected ones, market mechanism in general treats all firms indiscriminatively and allocates resources to the highest bidder, regardless of whether this bidder is politically connected or not. Thus, as market system develops, pure

private firms may get access to resources and opportunities more easily and the utility of boundary blurring for resource acquisition may diminish. Therefore, we have:

Hypothesis 4. The effect of boundary blurring strategy on entrepreneurial reinvestment rate would decrease as market system develops.

Data and Methods

The dataset used for hypothesis testing was created from the 1997 National Survey of Chinese Private Enterprises, which was designed and administered by a joint research team from the All China Federation of Industry and Commerce (ACFIC) and the Chinese Academy of Social Sciences (Zhang and Ming 2000). Following the definition of private enterprise specified in the *Tentative Stipulations on Private Enterprises* promulgated by the central government in 1988, the survey included only domestic private firms that had at least eight employees and were owned by private entrepreneurs in October 1997.

Using the stratified sampling method, the survey selected an almost nationally representative sample of 1946 private enterprises from 21 out of all 31 provinces (including autonomous regions and province-level municipal cities). The sampling involved two stages. In the first stage, a pre-specified number of counties were selected in each province based on their economic development level so that both rich and poor counties were represented. In the second stage, a pre-specified number of private firms were selected in each county based on geographic location (i.e., urban or rural) and primary industrial sector of the firms. Both urban and rural firms were chosen; and within the urban or rural areas, firms from all industrial sectors were sampled. The number of sampled firms in each province, each county, each geographic location, and each sector was proportionate to the population size of the private enterprises in each of these categories. After the sample was selected, questions were asked face-to-face with both the largest owner (i.e., the entrepreneur) and the accountant to collect information about the entrepreneur and his/her firm in 1996 and 1997 by professional interviewers trained by the joint research team.

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The dataset is appropriate for testing the above hypotheses because it includes, among others, key information on reinvestment behaviors and boundary blurring at the end of 1996. Most variables on the basic characteristics of the firms and entrepreneurs in this dataset are also available in the 1995 and 2000 National Surveys of Chinese Private Enterprises, which include more firms and more provinces but do not contain some of the key variables for testing the hypotheses. The distributions of the common variables are very similar across the three surveys.

Dependent Variable

Only firms with positive profits enter the reinvestment regressions (in fact, all firms with no missing values on profits reported positive profits). Following Johnson, McMillan, and Woodruff (2002a) and Cull and Xu (2005), the dependent variable – *reinvestment rate* – is measured as the percentage of the net profits (i.e., profits after taxes, levies, and fees) in 1996 that were reinvested in the firm at the end of 1996. It is well know that many entrepreneurs in transition economies were reluctant to answer questions about the specific amounts of profits and reinvestments for the reason of weak formal protection of property rights (Johnson et al. 2002a). However, this variable has a relatively high response rate – 73 percent. This is because the trained interviewers had access to the accounting books of most firms (through the accountants), which might increase both the response rate and the reliability of the variable. This variable has a mean of 0.62, which is not so different from the mean of the same variable from the 1995 and 2000 National Surveys of Chinese Private Enterprises (0.68 for the 1995 survey and 0.58 for the 2000 survey).[2]

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[2] About 5 percent of the firms in the data had reinvestment rate greater than 1 because they reported more reinvested profits than net profits in 1996. Based on my interviews with a number of Chinese entrepreneurs in the past decade, this might be because these firms had their previous years' unrealized profits (e.g., from defaulted payment by customers) realized in 1996 and reinvested at least part of these profits into the firm that year. As a result, it is possible that the amount of reinvested profits in 1996 would be greater than net profits in the same year. I had tried three ways to deal with this problem. The first way is to delete these firms from the data. The second way is to keep these firms without any changes. The third way is to keep these firms but recode their reinvestment rate as 1(by definition, the maximum value of reinvestment rate is 1). The results from all three ways support the hypotheses. In the results reported in this paper, I used the third way, which will not lose a significant amount of observations and is also defendable. It is defendable because, in terms of common practice of book accounting in China, it can be said that the firms with reinvestment rate greater than 1 had reinvested 100 percent of their current year net profits (and thus their reinvestment rate was 1), together with some of the profits that were from previous years but realized in current year.

Because the distribution of the dependent variable is skewed, its logarithmic form is used (a small number is used to replace zero for logarithmic transformation).

The data also allow us to understand who had the final say on strategic decisions including decisions on reinvestment in 1996. Table 1 reports the breakdowns of the strategic decision makers in both the whole sample and hybrid firms. It is seen that, among the hybrid firms, 81.8 percent of the firms reported that the entrepreneur and his management team were the decision makers; 17 percent of the firms said that the entrepreneur shared such decision making power with other members of the board of directors; and 1 percent of the firms reported that the entrepreneur shared the power with other organizations (such as a government organization). Thus, it is clear that the government virtually did not intervene into reinvestment decisions and the entrepreneur was the primary decision maker on strategic issues in almost all hybrid firms in the sample.

[Insert Table 1 about here]

Independent Variable

Officially, China was still adopting a gradual reform strategy in 1997. However, the central government allowed local governments to experiment formal privatization quietly since the mid 1990s (Naughton 2007). Initially, however, formal privatization was restricted only among collective firms and small and medium SOEs, all of which were controlled by local governments. And hybrid firms were among these public firms that were privatized firstly. The data allow us to identify privatized firms: The questionnaire asked one question about the registration type of the firm (i.e., whether the firm was registered as a public firm or not) by the end of 1996. A public firm includes three choices in the survey: (1) a SOE, (2) an urban collective firm, and (3) a rural collective firm. There are 5.0 percent firms answered that they were registered as public firms by the end of 1996 (see Table 2).

As previous studies have found out, the firms that were registered as public ones were primarily privately owned in the data (e.g., Chen 2007; Zhang and Ming 2000).[3] In fact, further analysis of the data shows that, at the end of 1996, entrepreneurs' own capital investment consisted of 73 percent of the total capital of the firms registered as public ones, and investment from the government and other public sources ranging from 0 to 6 percent only for such firms. Thus, it is clear that these firms were not real public firms. Instead, they were hybrid firms, which were primarily privately owned by the end of 1996. Thus, the independent variable – *hybrid firm in 1996* – is a binary variable and is coded 1 if the firm was registered as a public firm (i.e., a state-owned or an urban/rural collective firm) at the end of 1996; 0 otherwise. Unfortunately, however, the data do not allow us to identify whether the hybrid firm was a "red cap" firm or a rented public firm.[4]

It should be noted here that the effect of hybrid firm may be underestimated with our data. This is because the institutional environment for private entrepreneurship had been improved quite substantially and the private sector had become more legitimate than previous years by the end of 1996, as seen from the fact that the Chinese government had already started to experiment formal privatization. However, if the effect of hybrid firm is found to be positive even when the private sector had become more legitimate, this will provide an even stronger support to our hypotheses.

Moderating Variables

Firm size – the moderating variable in Hypothesis 2 – is measured by total sales income at the end of 1996. It is taken logarithm to adjust for its skewed distribution. I also tried employment size and the results virtually do not change. The moderating variables in hypotheses 3 and 4 are at the provincial level. Since 1979, the Chinese government started to decentralize government authority from central to regional and local levels in order to enjoin regional/local officials to support profitable economic development. After the decentralization reform, regional/local governments could promulgate regional/local laws and

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[3] However, Chen used only a subsample (1171 firms) of the data from the same survey that I used here.
[4] Most of the firms that were registered as state-owned enterprises were probably rented public firms because "leasing" to private operators was more popular among SOEs than among collective firms (Naughton 2007).

regulations, issue business licenses, coordinate local business development, resolve business disputes, and engage in tax policies. They were also responsible for local public goods provision, such as schools, health care, utilities, price subsidies, and urban development (Montinola et al. 1995; Naughton 2007). As a result, although in general market institutions were not well developed in China by 1996, there were considerable variations among Chinese provinces in terms of legal and market development; and market institutions in some provinces, such as Guangdong and Zhejiang, had already been very sophisticated.

I had two measures for *legal protection of property and contractual rights*, which is the moderating variable in Hypothesis 3. The two measures, which were originally created by Fan and Wang (2001), have been widely used in empirical research on Chinese economy (Gwartney et al. 2005). The first measure is the number of lawyers per capita in each province, which is a standard proxy for legal development and rule of law in a society (Cross 1999). The second measure, which is a composite index, is based on two components. The first component is legal protection to producers' contractual rights and the second legal protection to intellectual property rights. Both measures are based on three-year (1995 – 1997) averages of the components. Both have already been standardized by Fan and Wang (2001), ranging from 0 to 10 with a higher value indicating more legal protection of property and contractual rights in a province. The correlation between the two measures is 0.92. Hypothesis 3 is supported using either of the two measures. So, I used number of lawyers per capita to indicate *legal protection of property and contractual rights* when reporting the results.

Development of market system – the moderating variable in Hypothesis 4 – is also a composite index. Originally created by Chen et al. (2000) and also an often used index, this variable is based on four components: number of free marketplaces per 1000 people, number of wholesale and retail sales trade enterprises per 1000 people, number of employees in wholesale and retail sales trade enterprises per 1000 people, and number of independent financial institutions per 1000 people. This variable measures the level of the development of the market mechanism in each province in the mid 1990s. It ranges from 0 to 1, with a higher value indicating more developed market system in a province.

Control Variables

The control variables include both firm level and provincial level variables. *Firm age* is a commonly used variable in entrepreneurial studies. Younger firms may have lower reinvestment rate because of liability of newness and thus fewer entrepreneurial opportunities (e.g., Acs and Audretsch 1988; Hannan and Freeman 1989). This variable is taken logarithm to adjust for its skewed distribution. *City firm* is a binary variable used to control for the location of the main establishment of the firm because firms in the cities (especially big cities) enjoyed better infrastructure. It is coded 1 if it was located in big cities; 0 otherwise. The data indicated 15 industrial sectors for the main business line of the firms. So, fifteen dummy variables for *industrial sectors* are also included. *Return on capital* is the ratio of net profits to total capital at the end of 1996. It is taken logarithm for its skewed distribution. This variable is controlled because higher return on capital may indicate more entrepreneurial opportunities, which can facilitate reinvestment (Johnson et al. 2002a).

For variables about the entrepreneur, gender and human capital variables including education and age are often considered to have effects on entrepreneurial behavior (e.g., Carroll and Mosakowski 1987; Amit, Glosten, and Muller 1990; Hamilton 2000). *Female* is a binary variable coded 1 if an entrepreneur was a female; 0 otherwise. *Education* refers to the number of years in schooling.[5] *Age* is 1997 minus the year when the entrepreneur was born. Moreover, previous literature suggests that former cadre status might play a role in entrepreneurship in transition economies partly because of their political capital (e.g., Róna-Tas 1994; Walder 2002; Wu 2006; Zhou 2009). Therefore, *former cadre* is a binary variable coded 1 if the entrepreneur was a cadre before starting the firm; 0 otherwise. Here a cadre refers to any official at any level of the government or the Chinese Communist Party.

When testing hypotheses 3 and 4, I also included one provincial level control variable – *GDP growth rate*. This variable is an indicator of regional economic health, which may be positively related

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[5] The questionnaire asked the level of education. Because this variable has many levels, I transformed the levels into number of years in schooling using the similar coding scheme adopted by Xie and Hannum (1996). That is, 0 years for illiterate; 5 years for elementary school; 8 years for junior high school; 11 years for senior high school and vocational school; 13 years for associate degree; 15 years for bachelor's degree; and 18 years for master's degree.

with entrepreneurial opportunities and thus entrepreneurial investment (Bowen and Clercq 2008). I have also tried including other provincial level control variables, such as GDP per capita and geographic locations (eastern areas versus inland areas). They were dropped from the equations because they were highly correlated with one or both of the above provincial level institutional variables.

Model Specification

The data for hypothesis testing were a multi-stage stratified sample of firms nested within 21 provinces, which enjoyed substantial autonomous regulatory power and were thus different in institutional and economic development. As a result, there are reasons to believe that firms within the same province may be not independent and identically-distributed but more closely related than those across provinces. To test hypotheses using such clustered data, Generalized Estimating Equations (GEE) approach is often recommended (Neuthaus et al. 1991). Sometimes called population-averaged models, GEE models can produce more efficient and unbiased regression parameters than ordinary least squares (OLS) regression in part because it permits specification of a working correlation matrix that accounts for the form of within-cluster correlation of responses on dependent variables of many different distributions (Liang and Zeger 1986; Ballinger 2004). In addition, compared to hierarchical linear modeling (HLM), which is an alternative approach for analyzing clustered data (Raudenbush and Bryk 2002), GEE models do not have to assume the normal distribution of the random effects and are generally robust to misspecification of the correlation structure when the number of clusters is large – more than 20, which is the case in this study (Ballinger 2004). To see whether the GEE estimates reported in this study are robust or not, I tried both OLS models with within-province clustered standard errors and HLM, and the results from these different specifications virtually do not change.

A general representation of the GEE models that I estimated is shown in the following equation:

$$g\{E(Y_{ij})\} = X_{ij}\beta, \ Y \sim F \text{ with parameters } \theta_{ij} \qquad (1)$$

for $i = 1, \ldots, n_j$ firms in province j; $j = 1, \ldots, 21$ provinces. In the above equation, Y_{ij} is the dependent variable, X_{ij} is a vector of covariates that vary over the i firm in each j province; β is a vector of population-averaged effects on the dependent variable; $g()$ is the link function; and F is the distributional family. Since the dependent variable – reinvestment rate (logged) – is approximately normally distributed, I chose the identity function for $g()$ and normal distribution for F.

Results

The means and standard deviations of the variables and the correlations among them are presented in Table 2. Model 1 in Table 3 reports the GEE estimates for testing Hypothesis 1. This equation regresses *reinvestment rate* (logged) on *hybrid firm* and all control variables at the firm level, thus serving as the baseline model. Here, I included a quadratic term for entrepreneur's age because I suspect that age might have a nonlinear effect on reinvestment rate. The results from this equation provide strong support to Hypothesis 1. The coefficient of political connections is 0.198 ($p < .05$). Substantively, on average, the effect amounts to 21.9 percent ($e^{0.198}-1$) more in reinvestment rate for hybrid firm than for pure private enterprises in the sample.

[Insert Table 2 about here]

The effects of several other control variables in model 1 are as follows. *Firm size* has a significantly positive effect. This suggests that smaller private firms indeed reinvested less under even more unfavorable government treatment, as discussed above. *Female* has a large positive effect. This may be partly because female entrepreneurs often spent much less in luxurious consumption and thus could invest more. Entrepreneur's *age* indeed has a nonlinear effect. As the entrepreneur becomes older, his/her reinvestment rate decreases; however, the reinvestment rate would increase slightly after the entrepreneur's age reaches some point. The reason for this quadratic effect may be that an entrepreneur will become more prudent as he/she gets older; but he/she will be more confident in making investment

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decisions once he/she has accumulated sufficient working experiences. Lastly, *former cadre* has a large

positive effect on reinvestment rate, suggesting that political capital may indeed facilitate

entrepreneurship in a transition economy (Róna-Tas 1994; Zhou 2009).

[Insert Table 3 about here]

The baseline model has suggested that smaller firms reinvested less possibly because they faced

more institutional constraints. Could they benefit more from boundary blurring strategy, as stated in

Hypothesis 2? To test this hypothesis, I added into the baseline model the interaction between *hybrid firm*

and *firm size*. The results are presented in Model 2 of Table 3. It is seen that the coefficient of the

interaction variable is -0.073 ($p < .1$), suggesting that boundary blurring strategy may have a stronger

effect on reinvestment rate for smaller firms. Substantively, this coefficient means that, on average, the

effect of *hybrid firm* decreases by 7.6 percentage point ($e^{0.073}$-1) as firm size increases by a factor of *e*.

Thus, Hypothesis 2 is also supported.

Results for testing hypotheses 3 and 4 are reported in Table 4. These two hypotheses argue for the

decreasing effect of boundary blurring as legal protection of property and contractual rights and market

system develop. Before testing these two hypotheses, however, I first tested whether *legal protection of*

property and contractual rights and *development of market system* have positive effects on reinvestment

rate. Because these two institutional variables are highly correlated ($r = 0.64$, see Table 2), I tested the

effect of each variable in separate equations to avoid multicollinearity. Thus, Model 1 in Table 4 tests the

effect of *legal protection of property and contractual rights* by adding both this variable and *GDP growth*

rate into the baseline model. With the same specification, Model 3 in Table 4 tests the effect of

development of market system. The results from the two models suggest that both variables have positive

and statistically significant effects on reinvestment rate. The coefficient of *legal protection of property*

and contractual rights is 0.046 ($p < .05$) in Model 1; and that of *development of market system* is 0.775 (p

< .05) in Model 3. Thus, institutional development is indeed found to have positive effects on entrepreneurial investment (North and Weingast 1989).

Model 2 in Table 4 tests Hypothesis 3 by adding into Model 1 the interaction between *hybrid firm* and *legal protection of property and contractual rights*. It is seen that the coefficient of the interaction variable is negative and statistically significant (β = -0.06, p < .05). Similar results are found in Model 4, which tests Hypothesis 4 by adding into Model 3 the interaction between *hybrid firm* and *development of market system*. The coefficient of the interaction variable in Model 4 is negative and statistically significant (β = -0.914, p < .05). These results suggest that the effect of boundary blurring indeed decreases as legal protection of property and contractual rights improves and as market system develops, lending support to both Hypothesis 3 and Hypothesis 4.

[Insert Table 4 about here]

Above we have argued that hybrid firms may grow faster than pure private firms because boundary blurring strategy has a positive effect on reinvestment rate, which, in turn, facilitates firm growth.[6] To see whether this is true, average annual geometric growth rates of hybrid firms and pure private firms were calculated and reported in Table 5. Here annual growth rate is obtained using the following formula:

$$r_i = (Y_{it}/Y_{i0})^{(1/t)} - 1 \qquad\qquad (2)$$

where r_i is the geometric growth rate for firm i, Y_{it} is employment size (or total capital) at the end of 1996, Y_{i0} is employment size (or total capital) when the firm started, t is the number of years passed between 1996 and the starting year of the firm. Table 5 shows that, in terms of both employment size and total

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[6] Higher reinvestment rate is part of the reason for higher growth rate of hybrid firms. Getting access to bank financing more easily also contributes to their higher growth rate (Zhou 2009).

capital, hybrid firms grew faster than pure private firms. Especially, the average annual growth rate of total capital is 38 percent for hybrid firms, much faster than that for pure private firms, which is 23 percent.[7]

[Insert Table 5 about here]

Discussion and Conclusion

Using the new institutional perspective, this study has examined the effect of boundary blurring strategy on entrepreneurial reinvestment during gradual market transition based on the case of the emerging private sector in China. While conventional wisdom in economics might suggest that boundary blurring discourages entrepreneurial investment because it results in an ambiguous property rights structure, I argue that it may facilitate entrepreneurial investment during gradual market transition when market institutions are not developed yet and private entrepreneurship is severely discriminated. This is because the legitimacy benefits of this strategy (i.e., facilitating protection of property and contractual rights and access to critical economic resources/opportunities) outweigh its costs (i.e., the potential for excessive government interventions into the firm, profit sharing with the government, and vulnerability to legal complications). However, as market institutions become more developed and thus private firms become more legitimate, the net benefits of this strategy may decline and may even turn to be negative because the benefits of this strategy will decrease relative to its costs. The empirical analyses provide support to these arguments. It is found that boundary blurring has a positive effect on reinvestment rate, especially, for smaller firms during gradual reform in China. In addition, the effect of boundary blurring is found to

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[7] However, it should be noted that some hybrid firms at the end of 1996 changed from pure private firms, and some pure private firms were once hybrid firms but had already privatized before the end of 1996. Cross-tabulation of the data shows the following. Among hybrid firms at the end of 1996, 69 percent were registered as hybrid firms when the firm started and 31 percent changed from pure private firms. And among pure private firms at the end of 1996, 87 percent were registered as pure private firms when the firm started and 13 percent were privatized from hybrid firms. As such, it is possible that the average growth rate of hybrid firms in Table 5 is underestimated and that of pure private firms is overestimated. In other words, the gap between the average growth rate of hybrid firms and that of pure private firms may be underestimated.

decrease as formal market institutions (i.e., legal institutions of property and contractual rights and market system) develop.

Previous studies have suggested that hybrid firms may be not more efficient than pure private firms (e.g., Li 1996; Svejnar 1990; Weitzman and Xu 1994). Indeed, additional regression results from this study suggest that the coefficients of *hybrid firm* are all small and insignificant when we regress measures for profitability (return on capital and return on sales) or firm productivity (capital productivity and labor productivity) on hybrid firm.[8] If so, why was this strategy so popular among private entrepreneurs in China for almost two decades from the late 1970s to the mid 1990s? This study provides some clue to this puzzle. We have demonstrated that hybrid firms had higher reinvestment rate, and thus higher growth rate, because of substantial legitimacy benefits that they enjoyed.

This study may also help explain why private entrepreneurs intended to abandon boundary blurring strategy, thus triggering a large scale privatization of hybrid firms since the late 1990s in China, especially since 1998 when Zhu Rongji became the Prime Minister (Naughton 2007). As market institutions became relatively developed by the late 1990s, the legitimacy benefits of boundary blurring as discussed above decreased rapidly. Thus, even if its costs did not increase, the rapidly decreasing legitimacy benefits would lead its net benefits to decline quickly. As a result, to the private owners of the hybrid firms, "privatizing" the firm to reveal its true ownership would be a rational response to the declining net benefits of this strategy.[9]

More broadly, this study may contribute to the growing entrepreneurship literature that emphasizes the role of institutions in entrepreneurial development. Following seminar works by North (1990) and Baumol (1990), a number of studies have shown how formal institutional environment may facilitate entrepreneurship (see recent reviews in Minniti 2008; Minniti and Lévesque 2008). However, in

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[8] Return on capital and return on sales are measured as after-tax profit over total capital or total sales income at the end of 1996, respectively. Capital productivity and labor productivity are measured as total sales income divided by total capital or total employment size at the end of 1996, respectively. I controlled for a bunch of other variables at the firm level. The detailed results are available upon request.
[9] The privatization process, however, was not smooth, as evidenced by the rising number of legal disputes between private owners and local governments over the ownership in the late 1990s (Dai 2005).

many less developed economies such as a transition economy, entrepreneurship has been developing rapidly even before formal institutional environment that underpins entrepreneurial activities exists. This study suggests that informal institutional arrangements, such as public-private boundary blurring discussed in this paper, are one of the key reasons why entrepreneurship can develop under unfavorable institutional environment. In addition, this study also suggests that formal market institutions and informal institutional arrangements such as boundary blurring may be substitutable in facilitating entrepreneurial development. This is clearly seen in the evidence that the development of formal market institutions (i.e., legal protection of property and contractual rights and market system) has a strong positive effect on entrepreneurial reinvestment and that the effect of boundary blurring decreases as formal market institutions develop. Thus, the findings of this study may provide support to recent development in new institutional thinking on the role of informal institutions in entrepreneurial development in less developed economies where formal market institutions are yet to develop (North 1990; also see Dixit 2004).

This study is focused on the effect of boundary blurring in China's transition economy. However, as mentioned earlier, this strategy was also adopted by private firms in some other transition economies where privatization of public firms had not occurred on a large scale, such as Hungary by the early 1990s (Stark 1996). And as Li (1996) suggests, this strategy might be also found in any economy where transactions in the marketplace are costly. Thus, future research might study other developing or transition economies to see whether the results in this study hold in different empirical settings, i.e., whether variants of this strategy can facilitate entrepreneurial development and how their effects change as formal institutional environment changes.

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Table 1 Breakdown of the Strategic Decision Makers

	The whole sample (%)	Hybrid firms (%)
1. The entrepreneur	56.40	45.45
2. The entrepreneur and his management team	29.71	36.36
3. Board of directors (which included the entrepreneur)	13.34	17.05
4. The entrepreneur and other organizations	0.38	1.14
5. Others	0.16	0
Number of observations	1821	88

Table 5 Average Annual Growth Rates of Hybrid Firms and Pure Private Firms (%)

	Growth of Employment Size	Growth of Total Capital
Hybrid Firms	13.8	38.0
Pure Private Firms	11.9	23.1

Table 3 GEE Estimates of the Effect of Boundary Blurring (Hybrid Firm) on Reinvestment Rate in Chinese Private Enterprises

VARIABLES	Log(reinvestment rate)	
	Model 1	Model 2
Hybrid firm	0.198**	0.622**
	(0.102)	(0.272)
Firm size (logged)	0.119***	0.123***
	(0.030)	(0.035)
Hybrid firm $\times$ log firm size		-0.073*
		(0.043)
Firm age (logged)	-0.014	-0.019
	(0.032)	(0.032)
City firm	-0.065	-0.054
	(0.130)	(0.122)
Return on capital (logged)	0.020	0.017
	(0.056)	(0.059)
Female	0.286***	0.306***
	(0.102)	(0.115)
Age	-0.076*	-0.059
	(0.040)	(0.040)
Age squared	0.001**	0.001*
	(0.000)	(0.000)
Years of education	-0.008	-0.004
	(0.017)	(0.016)
Former cadre	0.330***	0.240**
	(0.127)	(0.108)
Industrial dummies	added	added
Constant	0.093	-0.277
	(0.943)	(0.942)
Wald χ^2	4391.93	2783.62
Observations	1283	1283
Number of province	21	21

Notes: Province-clustered robust standard errors in parentheses.
* p<0.1; ** p<0.05; *** p<0.01

Table 4 GEE Estimates of the Moderating Effects of Institutional Development on the Effect of Boundary Blurring in Chinese Private Enterprises

VARIABLES	Log(reinvestment rate)			
	Model 1	Model 2	Model 3	Model 4
Hybrid firm	0.195*	0.294**	0.209*	0.418**
	(0.115)	(0.122)	(0.119)	(0.182)
Legal protection of property and contractual rights	0.046**	0.053**		
	(0.022)	(0.022)		
Hybrid firm × legal protection of property and contractual rights		-0.060**		
		(0.030)		
Development of market system			0.775**	0.809**
			(0.363)	(0.371)
Hybrid firm × Development of market system				-0.914**
				(0.454)
Firm size (logged)	0.118***	0.117***	0.119***	0.118***
	(0.033)	(0.030)	(0.034)	(0.034)
Firm age (logged)	-0.015	-0.010	-0.016	-0.017
	(0.032)	(0.032)	(0.032)	(0.031)
City firm	-0.085	-0.115	-0.062	-0.061
	(0.120)	(0.124)	(0.121)	(0.121)
Return on capital	0.017	0.024	0.016	0.016
	(0.060)	(0.056)	(0.059)	(0.059)
Female	0.288**	0.268**	0.279**	0.283**
	(0.119)	(0.112)	(0.122)	(0.120)
Age	-0.058	-0.073*	-0.059	-0.059
	(0.041)	(0.040)	(0.040)	(0.040)
Age squared	0.001	0.001**	0.001*	0.001*
	(0.000)	(0.000)	(0.000)	(0.000)
Years of education	-0.005	-0.008	-0.003	-0.004
	(0.016)	(0.017)	(0.016)	(0.016)
Former cadre	0.237**	0.316**	0.239**	0.238**
	(0.111)	(0.135)	(0.112)	(0.112)
GDP growth rate	-3.068	-1.099	-4.209	-4.210
	(4.959)	(4.692)	(5.391)	(5.386)
Industrial dummies	added	added	added	added
Constant	-0.020	0.083	-0.061	-0.082
	(1.072)	(1.101)	(1.072)	(1.075)
Wald χ^2	36924.49	2909.82	3325.51	9549.62
Observations	1283	1283	1283	1283
Number of province	21	21	21	21

Notes: Province-clustered robust standard errors in parentheses.
* p<0.1; ** p<0.05; *** p<0.01

Table 2 Descriptive Statistics and Pair-wise Correlations

Variable	N	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12
1.reinvestment rate	1427	.62	.29												
2.hybird firm	1783	.05	.22	.03											
3. firm size (million Yuan)	1555	662.63	2598.23	.12	.13										
4.firm age	1793	8.71	5.84	-.02	.02	.11									
5. city firm	1821	.29	.45	.01	.06	.22	-.07								
6. return on capital	1482	.38	.74	-.05	-.04	-.45	-.01	-.08							
7.female	1830	.08	.27	.04	.006	.02	-.08	.04	-.05						
8. age	1809	39.55	8.65	.03	-.02	.08	.28	.007	-.01	-.05					
9. years of education	1825	11.37	2.78	.01	.05	.18	-.18	.30	-.06	.04	-.17				
10. former cadre	1672	.16	.36	.08	-.03	.07	-.07	.03	-.05	-.01	.08	.11			
11. legal protection of property and contractual rights[a]	21	1.66	2.07	.07	-.01	.11	-.06	.27	-.09	.06	.01	.11	.08		
12. Development of market system[a]	21	.31	.15	.08	-.09	.02	-.02	-.03	-.05	.06	.02	-.09	.08	.64	
13. GDP growth rate[a]	21	.11	.02	.002	-.01	.04	.06	-.06	-.01	-.09	.04	-.07	.06	.01	.22

Correlations with an absolute value exceeding .05 are significant at $p = .05$, and correlations exceeding .07 are significant at $p = .01$.
[a] Provincial level variables.