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Aligning the Interests of Multiple Principals:

Ownership Concentration and Profitability in China's Publicly-Traded Firms*

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ABSTRACT

Across the social sciences, agency theory has become one of the basic frameworks through which to analyze the organizational problem of aligning interests between owners (principals) and those who carry out the work of the corporation (agents). Less often analyzed within this framework is the problem of multiple principals with different incentives and agendas. In today's global economy, this is a problem that institutional investors from around the world encounter on a regular basis. We argue that ownership concentration holds the key to dealing with the collective action problems that emerge in these circumstances. To provide empirical insight into these issues, we analyze the impact of ownership concentration in multiple-principal firms that have been listed on the Shanghai and Shenzhen stock exchanges over the last decade. Through these data, we show that the strongest factor shaping performance among this population of firms is ownership concentration: the higher a firm's ownership concentration, the better it performs, both in terms of profitability and in terms of efficiency. Further, as markets in this context have become more competitive over the last decade, overall profitability has declined, but the effect of ownership concentration has increased, suggesting that ownership concentration becomes even more important for achieving corporate goals as markets become more competitive.

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Organizational theorists across the social sciences have long been interested in the relationships among ownership and organizational governance. One of the key problems guiding this field of research centers on the issue of how owners align their interests with the agents who carry out the goals of the organization. This is a problem that has deep theoretical roots dating back to the work of both Adam Smith and Max Weber and far-reaching implications across a variety of different settings and disciplines (Petersen 1993; Kiser 1999; Shapiro 2005). Many scholars have dealt with the principal-agent problem in political settings as diverse as the international operations of non-governmental organizations (Neilson and Tierney 2003), regulatory agencies in the United States (Weingast 1984; Wood 1988), and the bureaucratic tensions surrounding tax collection in early modern Prussia (Kiser and Schneider 1995). The issue has also held interest for those studying corporate governance in the fields of law, economics, and, more recently, sociology on the ways in which the agency problem fundamentally shapes corporate function, profitability, and efficiency. As one sociologist puts it, "The ability of a top management team to assure control over its organization is a fundamental concern for both corporate managers and for the field of organization studies" (Davis 1991, p. 583).

Where much of agency theory has focused on the problem of alignment of the interests of principals and their agents, the issue of multiple principals with diverse goals has posed problems for scholarship in this area (Kiser 1999; Shapiro 2005). The field has recognized the issue of multiple principals (e.g., Bernheim and Whinston 1985, 1986; Braverman and Stiglitz 1986; Wood 1988), but few studies have considered the issue with regard to corporations and few have proposed mechanisms for how the problem of multiple principals is overcome. Adams' (1996) examination of the problems that the Dutch and English governments faced in monitoring their colonial agents abroad, the Dutch and English East India Companies respectively, is an exception here. She both recognizes the problem of multiple principals in the corporate setting—the "Hydra Factor," as she calls it—and proposes the mechanism for how principals overcame the problem: networks. In this paper, we are concerned with the multiple-principal problem in a setting that is much more contemporary and common but where, as in Adams' case, the political runs up against the economic—what happens to the principal-agent dilemma when state agencies are owners alongside private institutional investors, particularly when these owners have very different types of goals and agendas? Where Bernheim and Whinston (1985) argue that the

problem of multiple principals does not apply to the corporate setting, we argue that it does and that it is a phenomenon that is occurring with increasing frequency in the publicly-traded markets across transforming economies. But the problem of principals with diverse agendas is not confined to transforming economies; it is also a problem that advanced capitalist economies are facing with increasing frequency. For example, when institutional investors as diverse as those focused on shareholder value and those focused on "socially responsible" agendas sit alongside each other as principals of a given publicly-traded firm, the question of how to navigate the diversity of principals' interests becomes as important as aligning the interests of principals and agents.

How do principals deal with this problem? The mechanism for dealing with the problem, we argue, lies in ownership concentration: owners may have diverse goals, and there may be many paths to profitability, but the key to seizing one of these paths and to ensuring that agents will achieve these goals is to gain a larger share of control and monitor the agents closely in carrying out the interests of the key principal(s). Ownership concentration is perhaps a simpler mechanism than the social structural solutions Adams uncovered in the Dutch and English East India Companies' struggles with multiple principals, but it is equally powerful in its consequences. In this paper, we show that the most important factor in profitability and efficiency for publicly-traded firms in China's domestic economy is ownership concentration: the higher a firm's ownership concentration, the better it performs, both in terms of overall profitability and in terms of efficiency. We show this to be true even controlling for dominant ownership type, suggesting that although there might be different goals and agendas among different types of owners, principals can overcome the collective action dilemma of aligning interests among principals by concentrating ownership and directing firms toward the markets and methods that serve their interests best. We also show these effects to be stronger as markets become more competitive.

In the following pages, we begin by discussing the theoretical issues associated with the governance of publicly-traded firms, focusing on the principal-agent framework and the problem of multiple principals. The economic reforms in China provide the context in which we examine these theoretical questions. This context has several particularities associated with it, but the issues have much broader application, particularly in today's global economy. Along with our introduction of the China case and a discussion of the ways in which this case is a fitting

framework within which to examine this theoretical problem, we introduce formal hypotheses, which we then test through an analysis of data from the Shanghai and Shenzhen stock exchanges. We conclude with a discussion of the results in light of these theoretical issues.

AGENCY THEORY AND THE PROBLEM OF MULTIPLE PRINCIPALS

For social scientists, the issue of organizational governance and control has been a subject of discussion for centuries, and the issue of the (potentially) divergent interests and incentives of owners (principals) and those who carry out the work of the organization (agents) has been a central part of that discussion. Recent overviews of the theoretical developments of agency theory across the fields of economics, political science, and sociology leaves little doubt about the richness and complexity this theoretical body of work has taken on over the course of the last century (see, esp. Kiser 1999; Shapiro 2005).[1] Because this theoretical field is significant and there have been many summaries of the literature, it is not the purpose of this paper to undertake an extensive review of the agency literature. We limit our discussion here to the multiple principal problem.

In the field of economics, many famous scholars have examined the firm through the lens of the principal-agent problem, including such luminaries as Stephen Ross (1973), Michael Jensen and William Meckling (1976), and Joseph Stiglitz (1987), to name only a few. These scholars and those that followed them have been interested in one of the central issues of the firm—how principals can choose and monitor agents to most effectively carry out the goals of the principal. Issues of information asymmetries between principals and agents and the unevenness of the agents' abilities have been key issues that have made their way into economic models of the principal-agent problem in the theory of the firm. A thorny problem that is often ignored in the economics literature, however, is that of multiple principals (Kiser 1999). In reviewing this literature, Shapiro (2005, p. 278) addresses this gap, writing, "The real problem is

[1] With the exception of Shapiro (2005), the legal field is often left out of social scientific discussions of agency theory. This is unfortunate, because this field has perhaps the longest running literature on the principal-agent problem, dating back at least as far as the 1920s. Indeed, the basic tenets of corporate law are built around the responsibilities and protections of principals vis-à-vis the actions of agents. This literature is often not referenced in the overviews of the social scientific work on agency theory perhaps, in part, because the literature tends to be very specific about the legal questions that arise in the fiduciary responsibilities and liabilities of principals of corporations. There have been important examples of theoretically-driven work in the legal literature—particularly in the field of law and economics—that have engaged with economics on these issues (e.g., Kornhauser 1982; Tirole 1986; Hart 1989, 1993).

that the agent is most likely serving many masters, many of them with conflicting interests. Even if the agent is able to silence his or her own interests, there is the matter of how to maneuver through the tangled loyalties he or she owes to many different principals and how to negotiate through their competing interests and sometimes irreconcilable differences."

While economic studies of agency have rarely taken on the issue of multiple principals, there are a few notable exceptions. For example, Bernheim and Whinston (1986) formally modeled the general problem of multiple principals (what they refer to as the "common agency" problem), examining the conditions under which multiple principals will produce optimal outcomes. Mazzetti (1997) has also approached the issue from a general formal modeling framework, examining the information asymmetry that obtains for the common agent in multiple-principal frameworks. Other scholars have dealt with this issue through formal modeling in specific empirical settings such as sharecropping (Braverman and Stiglitz 1982, 1986) and the phenomenon of common marketing agents (Bernheim and Whinston 1985).

A number of studies of political institutions have examined the issue of multiple principals. In one early study in this vein, Wood (1988, 1989) examined the actions of the Environmental Protection Agency under the Reagan Administration, finding that the actions of the EPA could only be understood if one took into account the multiple principals at work in the US political system. Other scholars have looked beyond the EPA to show that an adequate understanding of political processes in general must include the multiple principals (Calvert et al. 1989; Spiller 1990; Bender and Moe 1986). More recently, Neilson and Tierney (2003) have examined the issue of multiple principals in the context of international organizations, looking specifically at the work of the World Bank. They conclude that a multiple principals or common agency theoretical perspective is essential for gaining a clear sense of the pressures the World Bank and other international organizations face.

While this line of research has been important for advancing principal-agent theory in the realm of politics, the problem of multiple principals with respect to the corporation has been largely left out of the theoretical discussion. Few studies in this vein have considered the corporation as part of the multiple principal problem, because, according to some, the institutional structure of ownership in the corporation renders the problem irrelevant. As Bernheim and Whinston (1986, p. 924) explain, "When principals act collectively, application of the bilateral agency framework (treating the set of principals as a single entity) is appropriate.

Thus, the relationship between the stockholders and managers of a publicly held corporation may be treated as a traditional principal-agent problem even when stockholders disagree about the firm's objectives, since institutional procedures guarantee a collective decision concerning management compensation." This view, however, begins with too narrow of a definition of corporate principals and their influence (Stiglitz 1985; Adams 1996).

When shareholders are dispersed—as in the case of free-floating stock—Bernheim and Whinston's assumptions are reasonable. It is rare that individual shareholders can act in a collective fashion as Bernheim and Whinston assert. However, there are two features of the global economy today that change this equation: the role of institutional investors and the globalization of investment. As to the first, institutional investors have significantly altered the extent to which individual shareholders can have a significant voice in issues of corporate governance. There have been well-publicized cases of this dynamic including the shareholder activism of the London-based Pension Investment Research Corporation (PIRC) (Sharp-Paine 1999) and the aggressive social activism of California Public Employees Retirement System (CalPERS) (Light and Lorsch 1999). In the finance and management literatures a number of scholars have taken a more systematic approach to this issue, studying the ways in which institutional investors allow individuals to overcome the collective action challenges that individual shareholders face. For example, Nesbitt (1994) and Smith (1996) have both examined the impact of CalPERS's activism on corporate performance. Carleton et al. (1998) have conducted a similar analysis of the impact of TIAA-CREF on corporate governance outcomes. Wahal (1996) has looked beyond the impact of a single fund, looking at the impact of the nine largest pension funds on corporate performance. Other scholars have examined the ways in which institutional investors influence corporate governance following takeovers (Jones et al. 1997), corporate spending on R&D (David et al. 2001), and general corporate social performance (Graves and Waddock 1994; Johnson and Greening 1999). Though few of these studies are explicitly engaged with the agency literature, their empirical conclusions have clear implications for the ability of shareholders of publicly-traded corporations to overcome the problem of ownership dispersion in their capacity as principals and to have an impact on the agents that represent their interests. Yet, these studies do not challenge Bernheim and Whinston's theoretical point that corporations are exempt from the discussion of the multiple principal problem. As

noted above, in today's economy, it is increasingly likely that institutional investors may sit as principals alongside other types of principals that have different agendas.

Second, as institutional investors from around the world expand their global reach to invest in developing and transforming economies around the world, there is also significant potential for institutional investors to approach corporate profitability from very different ideologies, agendas, and perspectives. Giddy et al. (1996) examined the impact of institutional investors in the emergence of the single European capital market. Boutchkova and Meggison (2000) studied the impact of private shareholders and institutional investors on the stability of privatization processes around the world since the 1980s. Some scholars have emphasized just how important the impact of the variety of institutional contexts can be. Jacoby (2002), for example, is skeptical about the impact or the will to actually engage in issues of corporate governance, but he argues that we cannot underestimate the diversity of institutional contexts in which different institutional investors and other types of principals sit. Institutional investors from diverse contexts would have very different approaches to the corporations of which they are the principals. Let us look, for example, at the concrete case of the Chinese oil conglomerate PetroChina. Formed in 1999 as a subsidiary of the state-owned Chinese National Petroleum Corporation (CNPC), PetroChina's initial public offering was backed by Goldman Sachs and UBS. The IPO was initially met with high profile resistance in the market, as powerful institutional investors such as TIAA-CREF and CalPERS vowed to steer clear of the stock based on human rights, environmental, and transparency concerns. However, other institutional investors saw opportunity: as a holder of nearly ten percent of the available shares, Berkshire Hathaway is now one of the company's key principals. Its holdings are dwarfed by CNPC's stake—about 40 percent of available shares—but both investors are principals with significant resources at stake. However, as a principal from afar with a focus on the metrics of Wall Street, Berkshire Hathaway almost certainly has very different ideas about development, profitability, and performance than CNPC, as the firm's other key principal, does.

Ownership Concentration as the Mechanism for Overcoming Diverse Agendas

These two changes in the global economy form the core of our theoretical argument about the multiple principal problem as it applies to corporations: (i) institutional investors give shareholders a collective voice and with multiple institutional investors acting as principals there

can certainly be multiple principals seeking to influence the agents as they carry out their work for the corporation. And (ii) in the global economy, institutional investors can invest in capital markets around the world, in many cases alongside local institutional investors. As these two circumstances begin to coincide, the problem of multiple principals with diverse agendas and goals becomes an increasingly likely scenario. So how do principals overcome the problem? The answer we propose is relatively simple and one that can be found in economies around the world: ownership concentration.

Many scholars have examined the relationship between ownership concentration and firm performance across a variety of contexts, and the literature is replete with data on the positive relationship between these two factors. For example, Amihud and Lev (1999) have looked at the link between ownership concentration and diversification, arguing that firms with concentrated owners are more focused on specific niches and are, therefore, better performers overall. Boeker and Goodstein (1993) examined the relationships among ownership concentration, firm performance, and CEO succession. Thompsen and Pedersen (2000) also find a positive relationship between ownership concentration and firm performance (shareholder value and profitability) in the largest European companies, though they find that the "identity" of the shareholder actually matters in significant ways as well.

A number of agency theorists have argued that the collective action problem is a fundamental feature of low-ownership concentration; higher ownership concentration partially solves this problem (Jensen and Meckling 1976; Schleifer and Vishnay 1986). In a system of dispersed ownership, the collective action problem dictates that no one owner (or group of owners) will take the lead in forcing firms to behave in a fashion that is accountable to shareholders. Conversely, as ownership becomes more concentrated, owners have greater incentives to monitor and influence firms to behave in ways that will maximize shareholder value. In addition, as ownership concentration rises, owners also have greater influence over the actions that firms take to maximize shareholder value. As Boeker and Goodstein (1993, p. 176) put it, in cases of dispersed ownership, "no individual's ownership position is large enough for that individual to have an incentive to invest in the monitoring and costs necessary to keep management acting in his or her interests… If ownership is concentrated in the hands of a few individuals, the free-rider problem is reduced." Thus, ownership concentration allows for a greater capacity for owners to monitor and influence firm behavior, and it also better aligns the

interests of owners with firm outcomes. Further, while ownership concentration of large outside shareholders may reduce managerial incentives, it also creates stability for the organizations and thereby enhances firm performance (Burkart et al. 1997, 2000).

We argue here that ownership concentration also serves as the mechanism that allows multiple principals to overcome the problems that might arise from having diverse agendas. This is true for several reasons. First, while ownership concentration allows powerful principals to overcome the collective action problem, it also allows them to gain control and have greater influence than competing principals. In 1996, when the London-based Pension Investment Research Corporation proposed Resolution 10 at Royal/Dutch Shell's annual board meeting to make the company more accountable to social issues (in response to the company's role in Ken Saro-wiwa's execution by the Nigerian government), the company's response was to marshal support from its other largest institutional investors—principals that could coordinate their actions and overcome the move by PIRC (Sharp-Paine 1999). In the example described above, CNPC has a specific set of economic goals for PetroChina that fit with the developmental goals of the Chinese government and likely diverge somewhat from the economic models typical for a principal like Berkshire Hathaway. Having the power to influence PetroChina's decision-making processes and economic strategies depends, in part, on the concentration of ownership. Ownership concentration allows principals to gain control of the firms they own, allowing them to monitor firm behavior and to stabilize firm behavior in emerging markets.

Taken to its logical conclusion, this view might suggest that a single principal—such as the state in state-owned firms—is superior to multiple principals. Thus, our theoretical argument here requires a corollary: a few major principals is always better than a single dominant principal. Having multiple principals with a significant stake in the company and an interest in seeing the company do well can also serve the company's success. Multiple principals with concentrated ownership can expand the information pool and provide advice that is grounded in a vested interest in the company's economic well-being. Having Berkshire Hathaway (and, by extension, Warren Buffett) as an interested principal would almost certainly have positive implications for the company's access to seasoned advice about efficient organizational operation. Similarly, having CNPC as an interested principal gives PetroChina advantages in strategic developments around the world: with the Chinese government as the key principal, PetroChina benefits directly from national strategies the government might have involving the

procurement of oil. Such alliances among principals across the globe can also create dynamics in which institutional investors can represent the company to the outside world. In early 2007, when CNPC's ties to the Sudanese government and the crisis in Darfur again surfaced in the news, it was Warren Buffett who became the face of PetroChina to Wall Street investors, asking for caution in rushing to judgment of the company and seeking to draw the distinction between the activities of PetroChina and CNPC.

Our main argument here is that ownership concentration has a robust enough association with positive firm performance across market economies that the issue must be about more than principals overcoming collective action problems and their ability to monitor firms. Ownership concentration also gives a significant voice in the firm to the dominant principal, which might adhere to different economic ideologies than other major principals. It may also allow multiple principals to share best practices for firm governance. In the pages that follow, we test these issues in an analysis of the economic performance of China's domestic publicly-traded firms.

MULTIPLE PRINCIPAL FIRMS IN CHINA'S TRANSITION ECONOMY

China's domestic public economy provides a testing ground for the interplay of multiple principals with diverse agendas and ownership concentration. Our objective here is not to detail the processes of reform that have transformed China over the last two-and-a-half decades; rather it is to highlight a few of the key institutions that are necessary for our analysis of ownership concentration in China's capital markets. The Chinese case is an extreme case of the phenomenon of multiple principals, because institutional investors from advanced capitalist economies are principals right alongside the Chinese state. However, it is by no means an isolated case of this phenomenon, as it is the case in nearly every transition economy that former state agencies are shareholders—albeit through different institutional mechanisms—in the publicly traded economy (Guthrie et al. 2007). As our discussion above should illuminate, we view the case of China as a test of the abstract case of multiple owners coming together and the roles these owners have in light of the issue of ownership concentration. Further, the features of our dataset (which we describe in greater detail below) also allow us to test the interplay among these issues in a unique way. The most important approach we take here is to view ownership along a continuum rather than existing in stark categories. Viewing ownership as existing along a continuum has several benefits. First, it incorporates a view of property rights that is more

nuanced than the typical state-versus-private perspective allows. Indeed, in many cases—and certainly in the case of China—it is far too simplistic to think of firms as being either state- or privately-owned. It is often the case that the state, state asset management agencies (which are part of the state but also operate like private agencies), and private owners all own some percentage of shares of these gradually transforming companies. Thus, it makes little sense to think of these organizations as categorical ownership types. Second, this view of property rights allows us to assess the relative strength of multiple owners. Third, this view of property rights incorporates an analytical perspective that has long been held in the legal field (dating back to Hohfeld's [1913] re-conceptualization of property rights nearly a century ago) and has recently also been incorporated into conceptual analyses of China's economic reforms, where scholars have emphasized the ways in which gradual reforms have led to different mixes of ownership types (Oi and Walder 1999; Walder 1995; Guthrie 2006; Guthrie and Wang 2007).

China's gradualist economic reforms have been well-documented from many different perspectives across the social sciences. While countries like Russia followed Western advice—constructing market institutions at a rapid pace, immediately removing the state from control over the economy, and rapidly privatizing property—China took its time in implementing institutional change in a gradual and incremental fashion. As the state has gradually receded from control over the economy, it also took the time to experiment with new institutions and to implement them incrementally within the context of existing institutional arrangements (Naughton 1995; Rawski 1994, 1995, 1999; Chen et al. 1988; Walder 1995a, 1995b; Guthrie 1999, 2006). In the 1980s, this amounted to localizing the managerial control over enterprises to provincial, municipal, township, and village level governments (Walder 1995a; Oi 1989, 1992, 1995; Qian and Roland 1998; Che and Qian 1998). Nevertheless, despite the process of decentralizing ownership and control, the state maintained a strong ownership stake in the economy as we will describe in greater detail below.

Privatization and the Shanghai and Shenzhen Stock Exchanges

In the 1990s, the focus was on building the institutions that would continue to push along the reforms of the state sector while, at the same time, attracting foreign capital through capital markets (Guthrie 2006; Guthrie and Wang 2007). Accordingly, coinciding with the legislative changes of the 1990s was the founding of the Shanghai and Shenzhen Stock Exchanges. The first

of these, the Shanghai exchange, opened for business on December 19, 1990, with the Shenzhen Exchange opening shortly thereafter. By the end of 2004, the number of domestically listed companies in China had risen to 1371 with a total market capitalization of 525.6 billion US dollars (SSEa 2004; SSEb 2004; Hertz 1998; Gao 2002). Following the gradualist model, the Chinese government's construction of the institutions that govern public ownership has been spread across the period. After a series of regulations such as "the Opinions on Standardizing the Joint Stock Limited Companies" and "the Provisional Regulations on the Administration of Issuing and Trading of Stocks", the *Securities Law of the People's Republic of China* (PRC 1999) was adopted in 1998 at the Ninth National People's Congress and took effect in July of 1999, thus institutionalizing the legal basis for the standardized operation of listed companies.[2] The law itself contains 12 chapters, covering a range of issues from stock issuance and stock transactions to the rules governing ownership and shareholding of publicly-listed companies. Finally, in 2001, the Central Government passed *The Tentative Measures for Decreasing State Shareholding* (PRC 2001). Yet, as China has been systematically constructing the institutions of a publicly traded economy, even in the area of public ownership of listed companies, we must acknowledge the complexities of enterprise-state relations in the Chinese model, as the government's receding from control over publicly-listed state enterprises has, like every other institutional change in the Chinese economic reforms, been a gradual process. The companies listed on China's domestic stock exchanges are becoming "privatized" in some ways. A typical ownership transformation for a state-owned enterprise would allow the state to retain between 30 and 40% of the company's shares; between 30 and 40% of the shares are designated for institutional shares; the remaining 30% of shares are designated for public consumption as free floating shares.

While public ownership has fundamentally transformed ownership structures of many formerly state-owned enterprises, enterprise-state relations in the Chinese system have remained considerably complex, as the state maintains a significant share in publicly-traded firms. Figure 1

[2] The Company Law (PRC 1994) laid the foundation for this standardization. This law governed the process of converting enterprises into shareholding companies and stipulated that companies funded by investing bodies of different ownerships were all equal under the law. More importantly, this law encouraged enterprises to build new corporate structures and standardize organizational bodies (mainly with regard to shareholder meetings, corporate boards and managers) in order to further block political interventions in the decision-making of enterprise, marking a fundamental shift in the organization of China's industrial economy, as Chinese organizations can now apply for the status of the Limited-liability Company [*youxian zeren gongsi*] or a Limited-shares Company [*gufen youxian gongsi*] and thus assume the mantle of independent legal entities.

shows the shifting organizational relationships of a typical publicly-listed firm as well as the ownership categories that emerge over the course of the initial public offering process. The left-hand side of the figure shows the organizational changes that occur as part of an organization is spun off for an IPO. Most often it is the case that a listed company is the strongest performing factory or group of factories in a larger group company [*jituan gongsi*].[3] The state office overseeing the group usually has a heavy hand in deciding which part of the group will be spun off for the IPO. The state maintains the basic state-firm relationship with the remaining part of the group company—it remains on as the advisory administrative office, playing a significant role in the strategic decisions the firm or group makes as well as maintaining a hand as the partial residual claimant on firm profits.[4] The IPO firm becomes a separate legal entity, subject to the Company Law and the Securities Law independent of the group. In some cases in which firms are not part of a group, the entire factory may go public; however, IPO processes more often involve a spin-off situation. In the initial stages of the IPO, the state administrative office and the group company will maintain control over between 20 and 60 percent of the shares, though in the early years of the stock exchanges these numbers were closer to 70%. The remainder of the shares is divided between various types of institutional and free-floating shares.[5]

(Figure 1 about here)

The state has also maintained a role in these firms through the emergence of state-owned asset management companies [*guoyou zichan jingying gongsi*], which generally report directly to the recently-formed State-Owned Asset Supervision and Administration Commission (SASAC), which has come to control 6.9 Trillion yuan (about $8.65 Billion) in assets since its founding in 2003. (We might think of SASAC and its local subsidiaries as "institutional investors" as they are organizations set up to manage a portfolio of assets.) Although China has been careful to always follow its own path with respect to the transformation of the economy—especially in

[3] Under the planned economy, large state-owned factories generally reported directly to the ministries [*bu*] (central government), provincial bureaus [*ting*], or municipal bureaus [*ju*] that govern a given sector (Guthrie 1999). Over the course of the economic reforms, as the central, provincial, and municipal governments began to recede from the direct control over factories in their jurisdictions, factories in some sectors were placed into group companies, and coordinated economic decision making as a coalition of organizations (Keister 1998, 2000).

[4] "Independent budgets" [*duli hesuan*] have meant that firms themselves are partial residual claimants on profits, however, among large state-owned firms, the administrative office still has access to this income.

[5] The categories of shares depicted in Figure 1 are: State Shares [*guojia gu*], State Institutional Shares [*guoyou faren gu*], Non-State Institutional Shares [*feiguoyou faren gu*], Domestic Institutional Shares [*jingnei faren gu*], Foreign institutional Shares [*jingwai faren gu*], Founder Shares [*faqiren faren gu*], Private Group Shares [*dingxia faren gu*], Public Group Shares [*shehui faren gu*], Free Floating Shares [*liudong gu*].

avoiding rapid privatization—the formation of the Shanghai and Shenzhen stock exchanges changed this equation. In order to attract institutional investors from abroad, the state needed to demonstrate a commitment to a declining presence in these publicly listed firms. It did so through the creation of state-owned asset management companies and ultimately the formation of SASAC.[6]

By separating out these different types of ownership, we focus our analysis of the impact of ownership concentration in Chinese publicly-traded firms, net of the effects of different types ownership—state, state-institutional, and private. We analyze these data as panel data to examine the effects of the degrees of state ownership and ownership concentration. Following Holz (2002), we focus on the profitability of this group of firms with the view that profitability tells us more about the economic success of these firms than other measures of productivity.

Hypotheses

Ownership—We begin our discussion of the hypotheses with a focus on the variables that relate to the different types of owners of Chinese firms. Scholars have taken a range of views on the continuing role of the state as a principal in transition economies. Economists such as Janos Kornai (1980, 1990) and Jeffrey Sachs (1992, 1993, 1995a, 1995b) have argued that state ownership is anathema to a well-functioning market economy. State ownership, the argument goes, leads inevitably to rent-seeking, graft and other forms of corruption, while the discipline of the market is the most effective (and parsimonious) path to efficient market behavior. The arguments of these scholars fit well with the widely held view that private ownership will ultimately lead to more efficient outcomes than state ownership. But we do not even need to go so far as predicting corruption and rent-seeking; indeed, the basic issue is simply that state-backed principals have different incentives than those from the private sector, and there is an extensive literature taking this position dating back to the classic works of economists like

[6] At this early stage, in practical terms, little changed for these offices—they still employed the same people and they still maintained the same relationships with the firms under their jurisdictions in terms of managerial and ownership control. Today, there are literally hundreds of organizations in the Chinese economy that used to be government administrative offices and now call themselves asset management companies or that are owned by state offices. The largest and most famous of these are the AMC's connected to each of the four main Central Government banks (set up to help these banks move bad loans off of their books); however, there are many more spread throughout the economy today. As with the AMCs owned by the banks, these smaller AMCs are usually owned by a local government administrative office. We examine the extent to which the emergence of these new institutions has influenced the governance of SOEs in recent years.

Harold Demsetz (1967, 1968) and George Stigler (1975; Stigler and Friedland 1962) and Sam Peltzman (1971). As Hanke and Walters (1987, p. 105) put it, "Private enterprises should be expected to be more efficient than public enterprises precisely because a private owner stands to gain enhanced wealth from improvements in efficiency, reductions in cost, and the like… Private owners face significant incentives to monitor the behavior of managers and employees so that they will supply what consumers demand and do so in a cost-effective way."

However, virtually all of the arguments about the inefficiency of state ownership are based on a single-owner framework. What happens when the state is only one of several principals of a firm? We might expect similar kinds of inefficiencies to continue to be associated with state ownership, but its effect would depend upon whether the state is the dominant owner. Thus, we would expect to see negative effects on firm performance if principals from the state sector are dominant and positive effects on firm performance if principals from the private sector are dominant. We expect to see these associations both in terms of overall profitability.

> ***Hypothesis 1a****: Having a dominant principal from the private sector will have a net positive effect on firm profitability (net and cash operating profits), compared to cases in which the Chinese state is the dominant principal.*

As we described above, it is often more appropriate to think of ownership as existing along a continuum. Thus, it might also be tied to the relative weight of the state and private sector's influences. In our framework of multiple principles, different types of owners all come together to influence the behavior of the firm. There may be cases in which the state is the dominant owner, but the other private principles have a significant stake in the firm as well. The private sector principal's ability to exert influence should increase proportionally with the size of its holdings. Thus, we expect to find similar associations existing along a continuum of ownership among different types of principals.

> ***Hypothesis 1b:*** *As the percentage of shares controlled by private sector principals increases, profitability will increase.*

In China, however, there is some evidence that, under certain circumstances, the state has played a positive role in guiding firms to profitability. Some scholars have explored this issue by examining the nature of state involvement and the conditions under which state ownership has given rise to firm profitability. Walder (1995a) argued that the success of the Township and Village Enterprise economy in the 1980s lay in the fact that local officials, operating under

tightening fiscal constraints, along with significant pressure from the fact that the work units in their townships were the main source of social welfare, had the correct incentives to help the enterprises under their jurisdictions succeed. Oi (1989, 1992, 1995) made a similar argument based upon the parts of the rural economy she examined, calling the phenomenon local state corporatism. Guthrie (2005) showed the conditions under which state involvement in the urban industrial economy helped guide firms to successful outcomes in the reform era. The basic argument among these scholars is that gradual reform meant that the bureaucratic sector slowly pushed economic responsibilities on the shoulders of local officials and individual managers. As economic responsibilities were shifted onto the shoulders of enterprise managers and the local officials that governed them, local-level actors were able to experiment with new ways of participating in the global economy. They also experienced a sense of stability in the process, as state owners helped to gradually wean them off their dependence on budgetary allocations from the state while learning the rules of effective market behavior. The combination of tightening fiscal constraints and the close monitoring and attention these lower-level governmental offices could give to the few factories under their jurisdictions allowed these factories to receive the most hands-on attention and guidance through the turbulent waters of the economic reforms. Close monitoring by local officials meant a level of security and continuity even as budget constraints were being hardened and the competitive pressures of China's emerging markets were proceeding apace.

The logic of the arguments about the positive impact of state involvement hinges on the nature of that involvement. State involvement can come in a variety of forms, and under the right institutional conditions it can produce a constellation of incentives and capacity for a given state office to effectively guide the firm(s) under its jurisdiction through the reforms. Accordingly, for this population of firms, we expect that the impact of state involvement in firm governance is going to depend on the nature of the state involvement. The vast majority of state controlled shares [*guojia gu*] (Figure 1, category 1) lay in the hands of the very high-level administrative offices that have performed the poorest in the economic reforms. However, as we discussed above, the emergence of state-owned asset management companies and the governmental commission SASAC may constitute a critical institutional change in the Chinese industrial economy over the course of the last decade (*guyou faren gu* or Figure 1, category 2Aa). While we have argued that these organizations are still ultimately owned by the state, we also argue that

these organizations represent a gradual progression away from the direct state ownership of the early parts of the reform area. We expect that SASAC will have a more positive effect on firm performance than classic state ownership, because SASAC brings benefits of state involvement, yet it is at the same time solely committed to firm performance in ways that the administrative offices, which retain pure state shares, are not. Following the hypotheses we have articulated above, we expect the following:

> ***Hypothesis 2a****: Having SASAC as a dominant principal will have a positive effect on firm profitability, compared to state-ownership, but not as large of a positive effect as private ownership.*
>
> ***Hypothesis 2b****: As the percentage of shares owned by SASAC increase, firm profitability will increase but at a slower rate than the effect of private shares.*

Ownership Concentration—The Chinese State, SASAC and the private sector represent principals with very different sets of incentives and interests. The state-backed principals of large-scale state enterprises, for example, may be more interested in keeping large numbers of workers employed or in strategic issues vis-à-vis international energy development than they are in firm efficiency. How owners overcome these differences in agendas, we argue, is closely tied to a basic mechanism that principals use in many market economies around the world—ownership concentration. As described above, many studies of publicly-traded firms around the world have established the positive relationship between ownership concentration and firm performance. We have argued that there are many benefits to ownership concentration, which include the solving of the multiple principal problems.

(Figure 2 about here)

As Figure 2 shows, over the course of the last decade, ownership has become more and more concentration among the largest owners of China's domestic publicly-traded firms. In the case of China, ownership concentration has positive implications for firm performance for a variety of reasons. First, with the volatility of the relatively immature Shanghai and Shenzhen stock exchanges, higher ownership concentration means protection from the speculative practices that dominate the free-floating share markets. This is not a huge issue in the Chinese stock exchanges, as the percentage of free-floating shares of any given company is relatively low. However, given the volatility of these exchanges—fueled by rampant speculative activity over the course of their first decade—ownership concentration does help mitigate this effect.

Second, ownership concentration means a greater amount of focused attention on the economic performance of firms—as a management issue, firm performance is tied to the incentives of a few owners who are able to focus attention on how to make the firm most profitable. As one of our interviewees, the founder of one of Shanghai's first institutional investing company, put it, "What we look for is good management. We don't care if they are state-owned or privately-owned. All we care about is whether they getting good advice. There are bad owners on both the state and private side. We are just focused on governance and performance."[7] Third, as we argued about state ownership above, in the turbulent markets of a transition economy, having ownership shares concentrated in the hands of a few powerful owners allows for greater stability as managers learn the practices of the emerging market economy. One of the key factors in these relationships is that capacity of owners to monitor the firms under their control. Indeed, as argued by both Walder (1995a) and Guthrie (1997, 2005), one of the factors allowing firms to succeed under state control lies in the capacity of administrative offices to monitor the firms under their jurisdictions. This capacity of and incentive for owners to monitor firms depends heavily on how concentrated their ownership stake in a given firm is. Fourth, it is likely that ownership concentration helps mitigate the corruption of local officials and firm managers. While a number of scholars have argued that corruption is an inevitable outcome of continued state ownership (Kornai 1980, 1990; Sachs 1992, 1995), this assumption depends upon the ability of firm managers to act without being monitored by bodies that have the ability to influence their actions—an assumption that does not necessarily fit with reality in China's transition. Under certain conditions, owners will have incentives to monitor firms and thereby shift the behaviors of corrupt officials. This was the case with concentration ownership in the rural economy in the 1980s (Walder 1995a), and it is the case with large-scale industrial enterprises that have been recently listed on the domestic stock exchanges. As such, we expect to find a positive relationship between ownership concentration and firm profitability as well as firm efficiency (measured in operating margins). Finally, the key issue, we argue, is that owners need to exercise some level of control so that allows firm strategy to be in alignment with their key owners. The primary way to set up this alignment is to place the ownership in the hands of a few owners.

[7] Interview with first author (Shanghai, 2005).

Hypothesis 3*: As ownership concentration increases, firm profitability (net and cash operating) will increase.*

Ownership Concentration in Increasingly Competitive Markets—While there is a good deal of scholarship on the impact of ownership concentration on firm performance, few studies have empirically tested the ideas as they might apply to the logical extensions of the theory. For example, if it is true that ownership concentration has a positive relationship with firm performance, it would also follow that ownership concentration would become more important as markets become more competitive. It is rarely possible to test such assumptions, because such analyses would depend on an analysis of the evolution of markets over time. However, in the relatively immature markets of China's emerging market economy, it is reasonable to assume that these markets have become more competitive over the last two-and-a-half decades of operation. Thus, we can also assume that ownership concentration has become more important for firms operating in these markets over time.

Hypothesis 4*: The impact of ownership concentration will increase over time.*

Multiple Owners—We have argued that, despite the fact that ownership concentration allows owners with diverse incentives to overcome the problem of diverse agendas among multiple principals, it is nevertheless a positive factor in firm performance to have multiple owners with a significant interest in the firm. Even with different agendas, minority owners can contribute in a variety of ways, such as, contributing an outside director for the board, sharing knowledge and strategies, or being an advocate for the firm abroad. Thus, we expect that there will be a positive relationship between having multiple owners with a significant stake in the firm and firm profitability.

Hypothesis 5*: Having multiple owners with a significant stake in a firm will have a positive relationship with firm profitability (net and cash operating).*

DATA AND METHODS

We analyze the performance of Chinese publicly listed firms from 1994-2003. We analyze these data as a panel with annual year controls. Our starting point for data on Chinese listed companies is the WindDB database, which reports all of the financial data for publicly-listed firms in China's domestic economy. In 1994, there were a total of 338 stocks listed in China. By 2003, the number was 1371. From the database, we obtained the information of shareholders who hold

5% or more in each of these listed companies. With the goal of uncovering who actually owned shares in each company in a given year—as opposed to the listed shareholder—we also traced the owners of each listed shareholding entity through supplementary information including company's annual reports, announcements, website information, stock market research by stock analysts, and so forth. In some cases, we uncovered up to six identifiable layers of ownership "shells". We coded each real shareholder (the ultimate owner as opposed to the shell) and further investigation revealed that, among the top ten owners of each company, the real owners of most listed companies fall into three categories: (1) State shares [*guojia gu*], which includes central government, provincial governments, municipal governments of five cities (that report directly to the central government in the planning system: Dalian, Ningbo, Qingdao, Shenzhen and Xiamen) and state-owned enterprises. (2) Institutional investors [*faren gu*], which include state institutional investors ("state-owned asset management companies"), non-state, domestic, foreign, founders, and private investors. (3) Free-floating shares. Due to missing data and differential reports among some shares/companies, the final available data for our study are from 328 companies in 1994 and 1305 companies in 2003. These numbers differ from the numbers listed above (particularly in the case of 1371 versus 1305) because in a number of cases, A and B shares are listed as different companies, when in fact they are listings of the same company. Once correcting for this factor, our actual number of cases that are omitted due to missing data are 15 cases or less than 1% of the population in 2003.[8]

[8] There are important potential biases to consider with respect to these data. It is crucial to note here that in no cases on the domestic exchanges from 1994-2003 does a firm, once it is listed, drop out of the sample. Thus, we do not have a problem here of censorship due to nonrandom dropping out of the sample. A larger concern, however, has to do with selection bias in the listing of a company. As we described above, companies are selected by their governing administrative office (*zhuguan bumen*) to be listed on the stock exchanges. They are usually part of a larger group or cluster of factories. As such, there is an obvious selection bias in the ways in which companies are chosen for their listing on the Shanghai and Shenzhen exchanges—state offices choose the best performing firms under their jurisdictions to be listed on the exchanges. And since we are examining firm performance, the very selection process itself is correlated with the dependent variables. However, we view this bias as less problematic than it might initially seem. The main reason for this is that we are dealing with a specific population of firms, and our comparisons are within this population. In other words, all firms suffer from the same selection bias, so there is a systematic bias that makes these firms comparable to each other. Thus, we are less concerned with the question of whether our firms are a representative sample of State-Owned Organizations in China—they are not. In this sense, we are more concerned with size, direction, and robustness of the effects we are analyzing than we are with statistical significance. But they are a population that is overwhelmingly selected through the same process and is there comparable within the sample. And because we are basically dealing with the entire population of firms, we are not concerned with the issue of sampling from within this population.

Two approaches to the interrogation of this question have become common. One of these examines the effectiveness of privatization by comparing the performance of privatized firms with those that are still governed by state ownership (e.g., Boardman and Vining 1989; Pohl et al. 1997; Frydman et al. 1999); a second compares the performance of firms over time, as they make the transition from state-owned to private (Megginson et al. 1994). We take an alternative approach to this problem. We look at the *degree* of state ownership in publicly-traded firms. Conceiving of state ownership as a continuous variable of the percentage of shares owned by a given state office, we look at the impact that percentage ownership has on various performance outcomes. Because this variable is a continuous variable, it is not framed as a binary comparison of state-owned or not; rather the notion of the degree of state ownership allows us to examine of question of whether an increase in state ownership has positive, negative, or neutral effects on a firm's performance. However, despite the fact that this is not a binary comparison, there is an implicit comparison in the analysis, because, as state ownership declines the stake controlled by other shareholders increases. Second, we also look at the degree of state institutional ownership (shares controlled by SASAC) to test the same sets of questions regarding the proportion of shares controlled by the asset management companies. Third, we look at the shares owned by private institutional owners (Figure 1, categories 2B and 2C). Fourth, we also look at the extent to which ownership is concentrated in the hands of the state and institutional investors (as opposed to free-floating shares). Understanding the impact of ownership concentration is crucial for understanding the performance of these firms, as it leads to a separate set of issues about governance and shareholder influence above and beyond the issue of state ownership and control.

Dependent variables: Following Holz (2002) we focus on the profitability and operating margins of these organizations: dependent variables include net profits, cash operating (EBIT) profits, and the operating margins of the firm. Net profits are calculated as gross profits minus indirect costs (i.e., costs not directly attributable to production that were already removed from sales revenues to arrive at the gross profit figure). EBIT profits are earnings before deducting interest, taxes, depreciation, amortization, and other non-operating items.[9] Performance or operating margins are calculated as EBIT profits divided by revenues.

[9] We should note that, while conventional approaches to models such as these would typically log the dependent variables—particularly in the cases of the two profitability variables—our models do not take this approach for two

Key independent variables: From the areas of inquiry described above, we generate a number of key independent variables for our analyses below:

- *State ownership*: We test the impact of state ownership in two ways. First, we test this issue as a function of the percentage of shares of firm *i* that are owned by state administrative offices other than SASAC (i.e., those shares that are *guojia gu*, Figure 1, category 1). Second, we assign a dummy variable (1=yes) if a state ministry office is the largest owner.
- *SASAC ownership*: Similar to the state-ownership variables, we look at the percentage of shares of firm *i* that are owned by SASAC (i.e., those shares that are *guoyou faren gu*, Figure 1, category 2Aa), and we assign a dummy variable (1=yes) if SASAC is the largest owner.
- *Private ownership*: Here again, we look at the percentage of shares of firm *i* that are owned by institutional investors with private interests (i.e., those shares that fall into categories 2B+2C in Figure 1), and we assign a dummy variable (1=yes) if a private institutional investor occupies the largest ownership category.
- *Multiple owners of >5%*: We control for whether a firm has more than one owner holding more than 5% of the shares.
- *Ownership concentration (OC)*: We look at the percentage of shares owned by the top ten controlling owners for firm *i*.[10]
- *Interaction of OC and time*: We address the question of changes in ownership concentration over time by including an interaction of ownership concentration and a time-trend variable.

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reasons. First, there are a significant number of cases that yield negative values on these outcomes, making the natural log of the outcome variables undefined in those cases. In order to test the importance of this issue, in addition to all of the models presented below, we also ran all of the models based upon the following transformation for the Net Profits and EBIT Profits: $Y_i^* = \ln[Y_i + (|Y_c| + 1)]$, where Y_i represents either the dependent variables Net Profits or EBIT Profits and Y_c represents the largest negative value for Y_i. In none of these models were there substantive differences in the magnitude or significance of the effects, so, for the sake of simplicity and interpretability of the results, we present results based on the untransformed variables. Second, the distributions of the outcome variables are not in the least skewed, with the exception of one outlier. We also ran all untransformed models omitting this sole outlier and found no substantive differences from the results we present here. All of these results are available upon request from the first author.

[10] We have also run the analyses presented below by looking at the 1-, 3-, and 5-largest owners. For the sake of parsimony, we simply report the results for the ownership concentration among the 10 largest owners. However, it is noteworthy that, while the effects are the same in the analyses for the top-5 and top-10 owners (virtually identical), they are weaker for top 3-owners and they are not significant for analyses of ownership concentration run on the single largest owner.

Control variables: We also include a number of control variables in our analyses. We control for volume of economic activity by including the natural log of sales. We use debt-to-asset ratio as a measure of firm distress. A dummy variable for firm listing allows us to control for differences between the Shanghai and Shenzhen exchanges (Shenzhen=1). Chinese firms are officially broken down into the following categories: agriculture, mining, manufacturing, electronics, construction, transportation, information and technology, trade (wholesale and retail), insurance, real estate social services, communications, and "others". The lion's share of listed firms is categorized as "manufacturing" (57.9%). In addition, the domestic exchanges collapse these sectors into five primary categories: agriculture and mining, manufacturing, energy and construction, services, and others. We follow these categorizations comparing the four combined sectoral categories against the left out category of manufacturing. Finally, we also include dummy variables for each year.

Table 1 presents the means, standard deviations, and definitions for the critical variables included in our analysis. As Table 1 shows, over the course of the first decade of publicly-traded firms in China, these organizations had revenues of 1.16 billion yuan (~$143 million). The average net profit of these firms over the last decade was 69 million yuan (~$8.6 million), and cash operating profits averaged 117 million yuan (~$14 million). The average operating margin was 21%, and the average price-to-equity ratio was a surprising 111. These firms had an average percentage of state shares of 11%, an average percentage of state institutional shares of 13%, and an average of percentage shares of less than 1 percent. These numbers are somewhat misleading, however, because many of the firms have zeros in each of these categories, a fact that brings the overall averages down. The numbers in parentheses beneath the means are the average percentages excluding the zero categories; in other words, among firms for which the Chinese state is a principal, the state controls an average of about 35% of the shares. Finally, the average percentage of shares held by the top ten shareholders for these firms is nearly 60%.

(Table 1 about here)

We model the determinants of firm profitability and efficiency using both fixed and random effects models:

$$Y_{it} = \alpha + \underline{\gamma}'\underline{Z}_{it} + \beta'(OC)_{it} + \delta_i + \lambda_t + \varepsilon_{it}, \qquad (1)$$

where Y_{it} is the outcome for firm i, $i = 1, \ldots, n$, at time t, $t = 1, \ldots, T$, $\underline{Z}_{it}$ is a column vector of measured variables, $\underline{\gamma}$ is a column vector of regression coefficients corresponding to $\underline{Z}_{it}$, β is the

effect of ownership concentration $(OC)_{it}$, and ε_{it} is a random error term with mean $E(\varepsilon_{it} \mid \underline{Z}_{it}, (OC)_{it}, \delta_i, \lambda_t) = 0$ and variance σ^2. Note that the vector $\underline{Z}_{it}$ can include lagged dependent variables. (Accordingly, we present results for both the lagged and unlagged cases.)

In the fixed effects formulation, δ_i is a fixed constant that represents measured and unmeasured time-invariant characteristics of the $i(th)$ firm and λ_t is a fixed constant that represents measured and unmeasured characteristics that vary over time but are common to all firms. In this case, we use ordinary least squares (OLS) regression to estimate the model parameters (α, $\underline{\gamma}'$, β', δ_1, …, δ_n, λ_1, …, λ_T). In the random effects formulation, the δ_i are independent and identically distributed random variables representing unmeasured time-invariant characteristics of the $i(th)$ firm with mean 0 and variance σ_δ^2. Similarly, the λ_t are independent and identically distributed random variables with mean 0 and variance σ_λ^2 that represent unmeasured characteristics that vary over time but are common to all firms. The error term is now $v_{it} = \delta_i + \lambda_t + \varepsilon_{it}$, where the three error components are assumed to be independent of each other and independent of regressors. Because the errors v_{it} are correlated, the generalized least squares (GLS) estimator is more efficient than the OLS estimator. We used the Hausman specification test (Hausman 1978) to adjudicate between these two formulations. In essence, this test asks whether the errors v_{it} are correlated with the regressors in the model. If the answer is no, the random effects model is better on efficiency grounds. Otherwise, the random effects estimator is inconsistent. The results, in some of the models, suggested some correlation between the errors and the regressors. However, fixed effects models do not allow us to report time-invariant parameters, thus eliminating some descriptive nuance in the reported results. Thus, we report results of both random and fixed effects models herein.[11]

RESULTS

Tables 2 and 3 present the analysis of the profitability of the publicly-traded firms on the Shanghai and Shenzhen stock exchanges. Models I and II are directed toward hypotheses 1a and 2a, showing the effects of SASAC- and private-dominant ownership compared to state-dominant

[11] In our empirical analyses, we have also run all models with lagged independent variables where relevant (i.e., all variables except for the industry and year controls). We present models with both lagged and unlagged dependent variables for a couple of reasons: first, there are no substantive differences between the lagged and unlagged models for the key independent variables. However, the interpretation of the fixed effects models with lagged independent variables is considerably more complicated. For the sake of simplicity, we present the basic models and the models with lagged dependent variables.

ownership. Model I shows some support for hypotheses 1a and 2a; there is a statistically significant positive relationship between private-dominant ownership compared to state-dominant ownership and a smaller positive effect between of SASAC-dominant ownership. The results for EBIT profits are not statistically significant, however, if we treat this group of firms not as a sample but as a population of firms (which it is), the effects do come out in the predicted orders. Thus, based on Model I, on average, for the population of China's domestic publicly-traded firms, controlling for other factors, firms with a dominant SASAC owner make about 14,600,000 yuan in net profits and 10,200,000 yuan in cash operating profits (about $1.8MM and $1.3MM) more than other publicly-traded firms in the domestic economy; private firms make about 16,300,000 and 12,600,000 yuan (about $2.04MM and $1.6MM) more than other publicly-traded firms. Model II is the more rigorous model, because it includes a lagged dependent variable. In this Model, the positive effects of SASAC-dominant ownership go away (and even reverse for the population), but the effect of private-dominant ownership remains robust to this more rigorous test, and is even stronger for EBIT profits. Having a dominant owner from the private sector (which is actually a very small proportion of the firms in this population) is worth a premium of 13,600,000 and 18,300,000 yuan (about $1.7MM and $2.3MM) for net and cash operating profits respectively. Thus, there is strong support for hypothesis 1a but not for 2a.

Looking at property rights as a continuum and thinking about whether more or less of any of these types of ownerships influences firm profitability (hypotheses 1b and 2b), there are not strong results for this part of the analysis. Models VII and VIII are the most conservative models (firm-level fixed effects with lagged dependent variables), and in both of these cases, the percentage of state shares has a negative effect on firm profitability for both net and EBIT profits. However, these effects are not statistically significant, so can only be seen as meaningful with respect to this population of firms. With respect to this population of firms, for each percentage increase in state ownership, firms earn about 240,000 yuan and 350,000 yuan (about $30,000 and $44,000) less in net and EBIT profits respectively (based on Model VIII). Nevertheless, it should be emphasized here that there is not generalizable support for hypotheses 1b and 2b.

(Tables 2 and 3 about here)

There is strong support in our analyses for the impact of ownership concentration on firm performance.[12] Let us look first at the relationship between ownership concentration and profitability (hypothesis 3). We are going to focus here on all models except models IV, VI, and VIII—at first glance, these models make it appear that there is some inconsistency in our findings on ownership concentration; however, these effects are picked up in the interaction terms suggesting a growing importance of ownership concentration over time (we will address this issue below). In all models without the interaction term, there is a strong statistically significant positive relationship between ownership concentration and firm profitability. For each percentage increase in ownership concentration, there is a 509,000 yuan and 465,000 yuan (about $63,000 and $58,000) increase in net and cash operating profits for Chinese publicly-traded firms. This is the more conservative of the two estimates: the fixed-effects models (Model VII) show a 1.3MM and 1.1MM yuan (about $162,000 and $141,000) premium for each percentage increase in ownership concentration.

There is also strong support for hypothesis 4 with respect to profitability. With respect to both net and cash operating profitability, over time, ownership concentration has increased in importance. Figure 3 shows the relationship between ownership concentration and time. We base these models on the full random effects model (Model VI). As Figure 3 shows, ownership concentration has become more important over time, as markets have become more competitive. The slope of this line has become more extreme over the course of this time period; however, the starting point of average firm profitability has declined over the same time period. In 1994, controlling for the parameters estimated in Model VI, the average firm with 10% concentration had net profits of about 103,000,000 yuan. As ownership concentration increased from 10 to 90%, net profits increased to about 117,000,000 yuan. In 2003, controlling for other factors, the average firm of 10% concentration was *losing* about 42,000,000 yuan per year; however, as concentration rose to 90%, net profitability for that same firm would have a predicted value of about 141,000,000 yuan. With respect to firm efficiency, there is little evidence of an interaction between ownership concentration and time.

(Figure 3 about here)

[12] As noted above, we use the ownership concentration of the ten-largest shareholders in these models. However, with ownership concentration of the 5-largest owners, the results look almost exactly the same across the models; with respect to the 3-largest owners, the results look the same, albeit with gentler slopes.

There is sample-level support for hypothesis 5, though these results cannot be generalized beyond the population of publicly-traded firms China's domestic stock exchanges. Model I of Table 2 shows that there is a statistically significant positive effect of having multiple owners with a significant stake in the firm. Firms with multiple principals make about 13,000,000 more yuan than those with a single principal with a significant stake. The magnitude of this effect is about the same with respect to cash operating profits, however, the effect is not statistically significant in this model. In all of the other models throughout Tables 2 and 3, the relationship between multiple (significant) principals and profitability remains positive, though it is no longer statistically significant and therefore cannot be generalized beyond this population of firms.[13]

We also examined our data to see whether the associations discussed above would also apply to firm efficiency (operating margins).[14] These results were consistent with our above findings. There is a statistically significant positive relationship between having a private sector principal as the dominant owner and firm efficiency. Firms with dominant principals from the private sector do about 2 percent better in terms of operating margins than firms with a dominant state owner. There is also a statistically significant positive effect of having SASAC as the dominant owner, compared to state ownership—though the effect is less than half of that for private-dominant ownership. In addition, there is a negative relationship between the percentage of state control and firm efficiency: The greater the level of classic state control, the less efficient firms are. On average, for each 10 percentage points of ownership that state ministries maintain over firms in the Chinese economy, these firms will be about 1 percent less efficient in terms of their operating margins. With respect to ownership concentration, across all models, there is a statistically significant positive relationship between ownership concentration and firm efficiency. For each 10% increase in ownership concentration, we see a 1 percent increase in the operating efficiency of these firms. Here again, placing this effect in the context of the range that appears in Chinese domestic firms (~10-80%), this amounts to a potential net difference of about 7% in operating margins across the population of firms.

[13] It is in exploring this effect that it is particularly important that we reiterate the fact that we ran all of these models with lagged independent variables (as noted in footnote 11), as it is with respect to this relationship that an argument for reverse causality could be made—it is conceivable that institutional investors increase their holdings of profitable firms.

[14] Our measure of operating margins (OM = P/R, where P = profits and R = revenues) is tied to profitability (as P appears in the numerator of OM), however, because firms can produce equal levels of profit with different levels of revenues (depending on how efficient firms are in terms of their expenditures), it is useful to examine the ratio between these variables.

(Table 4 about here)

DISCUSSION

In general, our findings show two key relationships. First, we present the precise impact of the various ownership types that matter for China's publicly-traded firms. There is evidence of a negative relationship between continued state ownership (in the classic sense) and firm efficiency, and it is clear that private ownership pays significant dividends for firms. There is some evidence that governance by SASAC has positive effects for Chinese firms. They are not doing as well as the firms that benefit from the guidance of private owners, but they are doing better than those that are still owned by the ministries and bureaus. While these results show confirm the superiority of firm governance among private owners for profitability and efficiency, we should be careful not to interpret these findings as a ringing endorsement of rapid privatization plans. Governments making the transition from plan to market must balance the benefits of privatization (e.g., higher efficiency for surviving firms) with its costs (e.g., more firms going out of business). In the process of gradual transition that China has adopted, the benefits are slower to kick in, but the costs are largely mitigated. The Chinese government's strategy with respect to this population of firms has been to gradually introduce new institutions (capital markets, new laws and regulations about state ownership) and gradually allow different types of owners into the mix. As the SASAC and private owners begin to exert their influence, firms do better and better. These results suggest that the Chinese government's model of gradualist institutional reform continues to pay dividends, as the new institutional innovations for firm governance are somewhat effective at making firms more profitable, and firms get to gradually learn from engagement with private owners. This argument is not so different from that articulated by scholars who have argued that the state has had a positive impact on firms in the transition economy in cases where it has exercised control over firms (Oi 1992; Walder 1995a) and that firms have gradually learned to compete from the emerging private economy (Naughton 1995; Guthrie 2005, 2006).

Second, irrespective of ownership type and the level of influence that different types of owners exert, as ownership concentration increases, so too does the performance of the firm, both in terms of profitability and in terms of firm efficiency. Many scholars have argued that ownership concentration helps solve the free-rider problem that agency theorists have associated

with dispersed ownership, and we believe those arguments apply here as well. However, there are important issues about ownership concentration that are specific for China. Principals with a variety of agendas are competing to control the firms in which they have an ownership stake. And when owners with multiple agendas come together, ownership concentration helps owners overcome the collective action difficulties that multiple owners face. This is not to say that single owners are better than multiple owners—indeed our preliminary analyses showed that ownership concentration for single owners does not yield the same benefit. However, when the number of multiple owners reaches 5, firms benefit from concentrating ownership among them. They are likely better able to recognize who the significant partners are, whom they should be in communication with over the strategy and future of the firm, how to collectively exert managerial control, etc. The key issue here is that, while solving the free-rider problem is important, it is also crucial to have a group of owners to share knowledge and best practices with. Beyond the sharing of knowledge, it is also important to simply have a variety of sources to draw upon for the monitoring and stability we have discussed above.

Finally, it is important to note that this effect has become more important over time. As China's domestic stock exchanges have matured over a decade-and-a-half of operation, they have almost certainly become more competitive. Over time, firms within this field have become more efficient (as evidenced by the significant positive association between operating margins and the year trend variable), markets have opened up to more competitors (including foreign entrants), especially since 2001 and China's entry into the World Trade Organization. As such, over time, ownership concentration has become more important than ever.

CONCLUSIONS

The hallmark of China's economic reforms has been a gradual receding of the state from control over the economy. And, despite popular claims to the contrary, China's economy has also been comparatively open to foreign capital (Lardy 2002; Guthrie 2006). These two facts together have created a situation in which multiple owners with very different agendas have come together as partners in ownership of many of China's large-scale domestic firms. We find some evidence that state ownership (in the classic sense) has negative consequences for firm profitability; it certainly has negative consequences for firm efficiency. State ministries simply have different goals and agendas for the firms under their control than a private owner is likely to have.

Employment and social security is the most obvious issue here, but there are many other issues that have to do with China's national economic strategies.

In our analysis, we examined the relationship between firm performance and ownership concentration. Quietly, over the last decade of the stock exchange's existence, ownership has been increasingly concentrated in fewer and fewer hands. However, it should be noted here that, while ownership concentration might intuitively like a negative factor in firm governance (at least in cases in which ultimate owners are the state), the concentration of ownership in the Chinese economy is not so different from that found in advanced industrialized capitalist economies like the United States[15], and there is a growing mass of evidence that ownership concentration is positively correlated with firm performance in economies throughout the world. Many studies around the world have shown that ownership concentration has consistent and strong positive effects on profitability, and the case of China is no different. In our study, as ownership concentration increases, Chinese firms have higher levels of profits, higher levels of cash operating profits, and higher levels of operating margins. We have argued that ownership concentration is an issue of governance and control. It is the basic way in which multiple principals gain control over the firms in which they own significant stakes. The key issue for China is not whether firms have been privatized; rather, it is whether owners have the capacity to exert control over their firms. As we have seen in the earlier years of the economic reforms, operating control within the state sector at the township and municipal levels have had positive consequences for the performance of Chinese firms (Walder 1995a; Guthrie 1999, 2005). We believe a similar dynamic is at work here: regardless of whether they are state agencies or private backers, owners who have larger stakes in their firms have greater incentives to guide their firms in directions that will lead to profitability and performance in the economy. Groups of owners who have the tightest control over their firms as shareholders are able to guide their firms through this stage of the economic reforms. There is an important nuance here, however, in that ownership should not be *too* highly concentrated: as concentrated ownership is shared across a few owners, firms perform better than when ownership is in the hands of a single owner. Finally, the effect of ownership concentration has increased over time.

[15] Our analysis of the interlocking ownership of Chinese SOEs has shown that the small-world statistics (Kogut and Walker 2001) of ownership of publicly-traded Chinese organizations are similar in magnitude to those found in the United States.

This paper has both practical and theoretical implications. From a practical perspective, the results are clear: Investors should stay away from firms that are still under the control of state ministries; they should look for firms that have higher levels of ownership concentration in the hands of 5 or more owners; they should look for the few firms that have the dominant owners that are private institutional investors; and SASAC firms might be worth watching for the future. If a private institutional investor seeks to influence firm performance, the best strategy is to become the dominant principal and exert control from that position. If that is not possible, however, pushing for ownership to become more concentrated among a handful of principals and then exerting control by aligning interests among the other key principals is the next best strategy.

On a theoretical level, we interpret our findings as fitting squarely with the research on the relationship between ownership concentration and firm performance, with a few modifications. In emerging economies, firms need stability; they need the monitoring to overcome corruption; and they need the attention of interested owners to help guide as they learn the rules of the new capitalist system. In reform-era China, ownership concentration—whether owners are the Chinese state, SASAC, or private owners (domestic or abroad)—turns out to be one of the most important factors for success, especially as markets become more competitive. When multiple owners come together to shape the direction of the firm, they most effectively influence the firm by concentrating ownership and aligning their interests with a few other key owners. Few studies have placed the reality of corporate ownership in the framework of multiple principals. Our study attempts to acknowledge the changing dynamic of corporate ownership in today's global economy and link this back to the common mechanism by which owners have long dealt with issues of ownership and managerial control—ownership concentration.

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Table 1: Means, Standard Deviations, and Definitions

Variables	Means	Standard Deviations	Definitions
Net Profit[1]	67,400,000	391,000,000	Net profit=gross profit minus indirect costs (i.e., costs not directly attributable to production that were already removed from sales revenues to arrive at the gross profit figure).
Profits (EBIT)[1]	119,000,000	664,000,000	"EBIT" (Cash operating profit)=earnings before deducting interest, taxes, depreciation, amortization, and other non-operating items.
Operating margins	.20	.23	Profits divided by sales.
Trading city	.45	.50	Dummy variable, Shenzhen (1 = yes)
Debt to asset ratio	.49	.44	Debt divided by assets.
Sales(ln)	19.98	1.27	Natural log of gross sales.
Mult. owners (>5% shares)	.52	.27	Multiple owners with more than 5% holdings (1 = yes).
Ownership concentration	41.39	13.89	Percentage of shares controlled by the ten largest shareholders.
State dominant	.405	.49	Dummy variable, state shares largest (1 = yes).
SASAC dom.	.49	.50	Dummy variable, state institutional shares largest (1 = yes).
Private dominant	.038	.19	Dummy variable, private institutional shares largest (1 = yes).
State shares (%)	23.19 (35.67)	15.30	Percentage of "state shares" [*guojiagu*] (Figure 1, category 1) owned by state offices (ministries and bureaus).
SASAC (%)	13.49 (44.70)	16.70	Percentage of "state institutional shares" [*guoyou farengu*] (Figure 1, category 2Aa) owned by SASAC.
Private shares (%)	21.08 (33.06)	2.91	Percentage of shares owned by private institutional investors (Figure 1, category 2B+2C).
Interaction term	414.39	178.96	Time trend multiplied by ownership concentration.
Time trend	6.77	2.51	Year trend.
Ag./mining	.03	.17	Dummy variable, Agriculture/ mining (1=yes).
Energy/const.	.06	.23	Dummy variable, Energy/ construction (1=yes).
Services	.28	.45	Dummy variable, Services (1=yes).
Others	.08	.27	Dummy variable, Others (1=yes).

[1] RMB

Table 2: Random and Fixed Effects Models Predicting the Determinants of Net Profitability for Chinese Publicly-Traded Firms, 1994-2003[a]

	I (R.E.)	II (R.E.)	III (R.E.)	IV (R.E.)	V (R.E.)	VI (R.E.)	VII (F.E.)	VIII (F.E.)
Lag Net profits	---	.00***	---	---	.00***	.00***	.00***	.00***
		(.00)			(.00)	(.00)	(.00)	(.00)
Shenzhen	-37.90	2.32	-40.90*	-39.30	1.44	2.12	---	---
	(24.40)	(3.95)	(24.40)	(24.40)	(3.90)	(3.90)		
Sales(ln)	57.70***	10.20***	57.60***	57.80***	9.26***	9.36***	39.20***	39.40***
	(2.75)	(1.67)	(2.77)	(2.77)	(1.67)	(1.67)	(3.36)	(3.36)
Debts/ assets	-55.70***	-5.00	-57.80***	-56.50***	-6.17	-4.99	-43.00***	-41.70***
	(4.60)	(4.47)	(4.61)	(4.62)	(4.43)	(4.43)	(5.04)	(5.05)
Owner concentration	1.09***	.45***	1.13***	.02	.50***	-1.10***	1.37***	.07
	(.25)	(.15)	(.26)	(.35)	(.16)	(.38)	(.32)	(.45)
Mult. owners (>5%)	13.00**	.16	9.25	10.00	1.15	1.10	12.60	12.90
	(6.56)	(4.03)	(6.98)	(6.98)	(4.39)	(4.38)	(8.12)	(8.11)
SASAC dummy	15.20*	-1.18	---	---	---	---	---	---
	(8.32)	(4.08)						
Private dummy	16.40*	13.90*	---	---	---	---	---	---
	(8.70)	(8.24)						
State shares (%)	---	---	-.04	-.10	.02	.00	-.57	-.61
			(.44)	(.44)	(.17)	(.17)	(.66)	(.66)
SASAC shares (%)	---	---	.14	.08	-.10	-.14	.00	.01
			(.42)	(.42)	(.16)	(.16)	(.64)	(.64)
Private shares (%)	---	---	.30	-.43	.77	.47	.90	-.14
			(.88)	(.89)	(.68)	(.68)	(1.26)	(1.29)
Sector cont.								
Ag./mining	316.00***	12.80	323.00***	321.00***	11.50	10.70	---	---
	(63.00)	(11.50)	(63.60)	(63.50)	(11.40)	(11.40)		
Energy/const.	125.00**	15.80*	123.00**	123.00**	15.80*	16.10*	---	---
	(52.00)	(8.72)	(52.10)	(52.00)	(8.58)	(8.57)		
Services	25.40	-3.13	26.70	26.60	-.79	-1.38	---	---
	(28.00)	(4.58)	(28.00)	(28.00)	(4.51)	(4.51)		
Others	14.90	4.11	17.80	19.30	5.06	4.55	---	---
	(52.00)	(7.81)	(51.50)	(51.40)	(7.72)	(7.71)		
Time controls								
Yr. trend	-5.34***	4.77***	-5.45***	-18.20***	4.88***	-10.20***	1.07	-15.10***
	(1.16)	(1.31)	(1.18)	(3.05)	(1.30)	(3.49)	(1.33)	(3.60)
Interaction	---	---	---	.21***	---	.25***	---	.23***
				(.05)		(.05)		(.06)
Yr controls	Included	Included	Included	Included	Included	Included	Included	Included
Constant	-1080***	-250***	-1070***	-1010***	-283***	-138***	-777***	-703***
	(61.70)	(35.80)	(62.20)	(63.50)	(45.10)	(41.50)	(71.30)	(73.40)
N	9,101	7,630	8,904	8,904	7,446	7,446	7,446	7,446
R^2	.10	.81	.10	.11	.82	.83	.67	.78

***p<.001, **p<.01, *p<.05 (one-tailed tests)

[a] Coefficients dividend by 1,000,000.

Table 3: Random and Fixed Effects Models Predicting the Determinants of EBIT Profitability for Chinese Publicly-Traded Firms, 1994-2003[a]

	I (R.E.)	II (R.E.)	III (R.E.)	IV (R.E.)	V (R.E.)	VI (R.E.)	VII (F.E.)	VIII (F.E.)
Lag EBIT profits	---	.00*** (.00)	---	---	.00*** (.00)	.00*** (.00)	.00*** (.00)	.00*** (.00)
Shenzhen	-59.60 (44.0))	2.17 (4.89)	-64.60 (44.0)	-62.90 (43.90)	1.18 (4.91)	2.04 (4.91)	---	---
Sales(ln)	79.70*** (3.42)	12.90*** (2.05)	79.10*** (3.46)	79.40*** (3.46)	12.50*** (2.10)	12.50*** (2.09)	58.30*** (4.15)	58.50*** (4.14)
Debts/ assets	-49.70*** (5.63)	-2.15 (5.48)	-51.50*** (5.67)	-50.10*** (5.68)	-3.80 (5.50)	-2.33 (5.50)	-38.40*** (6.16)	-36.90*** (6.17)
Owner concentration	1.07*** (.30)	.40** (.18)	1.08*** (.32)	-.08 (.44)	.47** (.20)	-1.47*** (.47)	1.24*** (.39)	-.17 (.55)
Mult. owners (>5%)	13.10 (8.14)	1.01 (4.99)	9.41 (8.69)	10.00 (8.69)	.22 (5.52)	.31 (5.50)	13.00 (10.00)	13.30 (10.10)
SASAC dummy	10.80 (10.40)	-1.88 (5.05)	---	---	---	---	---	---
Private dummy	12.70 (10.70)	18.40* (10.10)	---	---	---	---	---	---
State shares (%)	---	---	.08 (.54)	.03 (.54)	.01 (.20)	-.02 (.22)	-.57 (.66)	-.61 (.66)
SASAC shares (%)	---	---	.33 (.53)	.30 (.53)	-.12 (.21)	-.17 (.21)	.00 (.64)	.01 (.64)
Private shares (%)	---	---	.11 (1.09)	-.69 (1.11)	.97 (.85)	.59 (.85)	.90 (1.26)	-.14 (1.29)
Sector cont.							---	---
Ag./mining	548.00*** (113.00)	7.40 (14.20)	561.00*** (114.0)	559.00*** (114.00)	7.30 (14.30)	6.296 (14.20)		
Energy/const.	181.00* (93.60)	23.20 (20.80)	179.00 (93.70)	180.00 (93.50)	24.00** (10.80)	24.30** (10.80)	---	---
Services	36.20 (50.60)	-2.17 (5.68)	37.80 (50.60)	38.50 (50.50)	.11 (5.70)	-.677 (5.679)	---	---
Others	15.80 (92.40)	6.06 (9.61)	18.10 (92.70)	20.90 (92.50)	7.50 (9.74)	6.861 (9.698)	---	---
Time controls								
Yr. trend	-1.63 (1.41)	3.97** (1.60)	-1.83 (1.46)	-15.40*** (3.76)	3.99*** (1.60)	-14.20*** (4.33)	.28 (1.63)	-15.10*** (4.44)
Interaction	---	---	---	.23*** (.06)	---	.30*** (.07)	---	.25*** (.07)
Yr controls	Included	Included	Included	Included	Included	Included	Included	Included
Constant	-1500*** (80.60)	-288*** (44.20)	-1480*** (81.60)	-1410*** (82.90)	-283*** (45.00)	-164** (52.00)	-1120*** (87.80)	-1030*** (90.40)
N	9,089	7,432	8,893	8,893	7,432	7,432	7,432	7,432
R^2	.08	.90	.08	.09	.91	.91	.78	.78

***p<.001, **p<.01, *p<.05 (one-tailed tests)

[a] Coefficients dividend by 1,000,000.

Table 4: Random and Fixed Effects Models Predicting the Determinants of Operating Margins for Chinese Publicly-Traded Firms, 1994-2003

	I (R.E.)	II (F.E.)
Lag op. margins	.54***	.21***
	(.01)	(.01)
Shenzhen	.003	---
	(.004)	
Sales(ln)	-.00	.02***
	(.00)	(.004)
Debts/ assets	-.03***	-.01***
	(.005)	(.006)
Owner concentration	.003*	.002***
	(.000)	(.000)
Mult. owners (>5%)	.001	.015
	(.004)	(.009)
SASAC dummy	.008*	---
	(.004)	
Private dummy	.02*	---
	(.01)	
State shares (%)	---	-.001**
		(.001)
SASAC shares (%)	---	-.001
		(.001)
Private shares (%)	---	.000
		(.001)
Sector cont.		
Ag./mining	.006***	---
	(.01)	
Energy/const.	.19**	---
	(.09)	
Services	.02***	---
	(.005)	
Others	.001	---
	(.008)	
Time controls		
Yr. trend	.01***	.01***
	(.001)	(.002)
Yr. controls	Included	Included
Constant	.02	-.37***
	(.04)	(.08)
N	7,626	7,442
R^2	.37	.26

***p<.001, **p<.01, *p<.05 (one-tailed tests)

Figure 1: Ownership of Publicly-Traded Firms

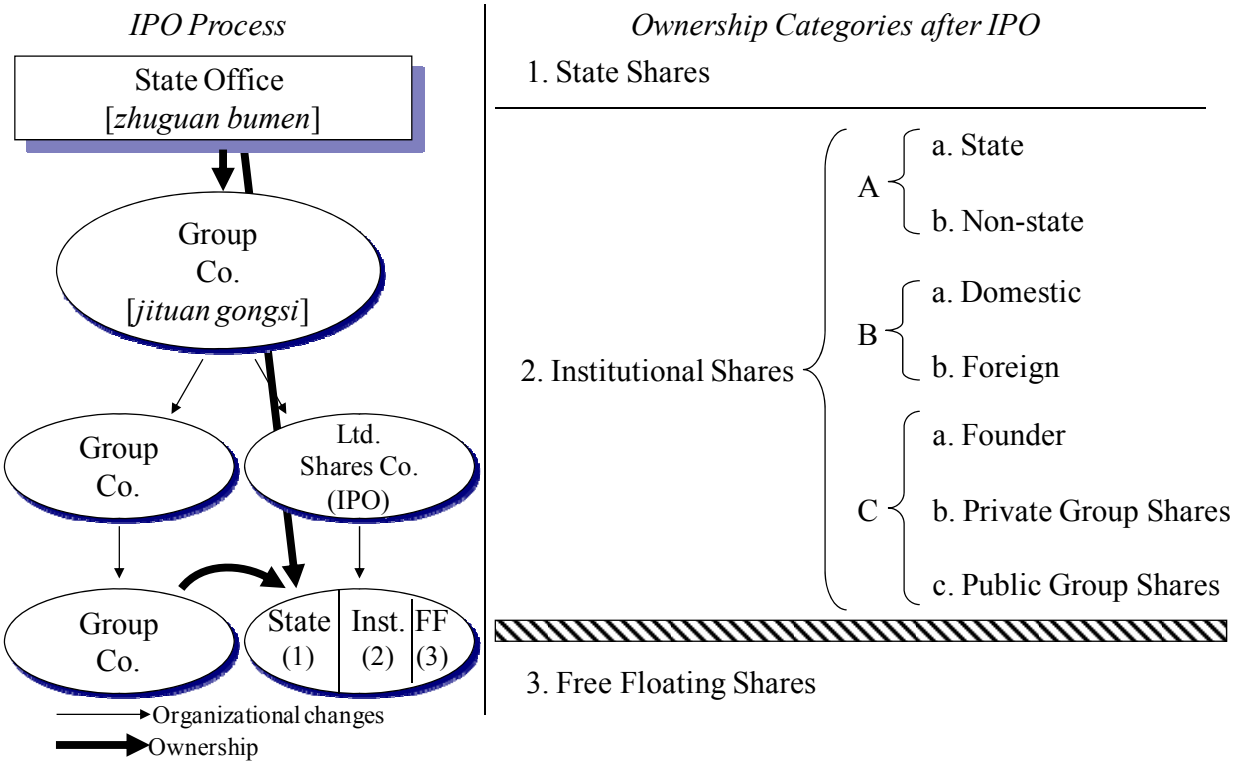


Figure 2: Ownership Concentration among Largest Owners

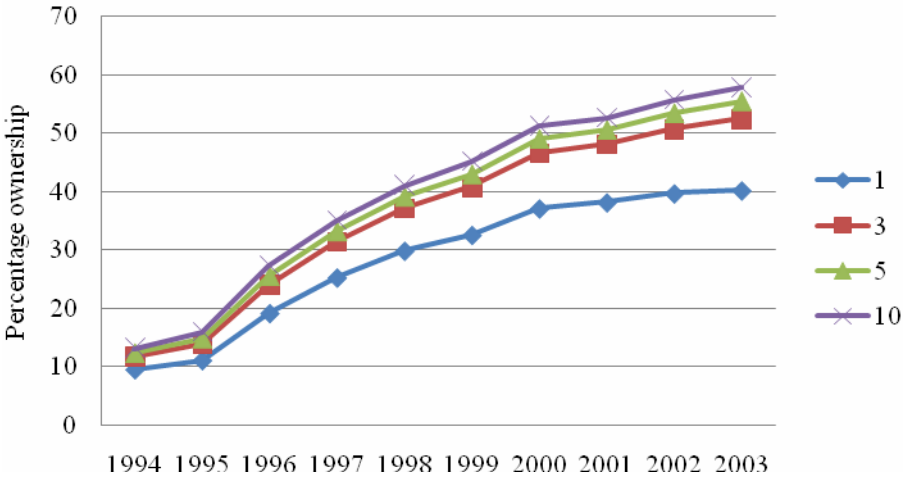
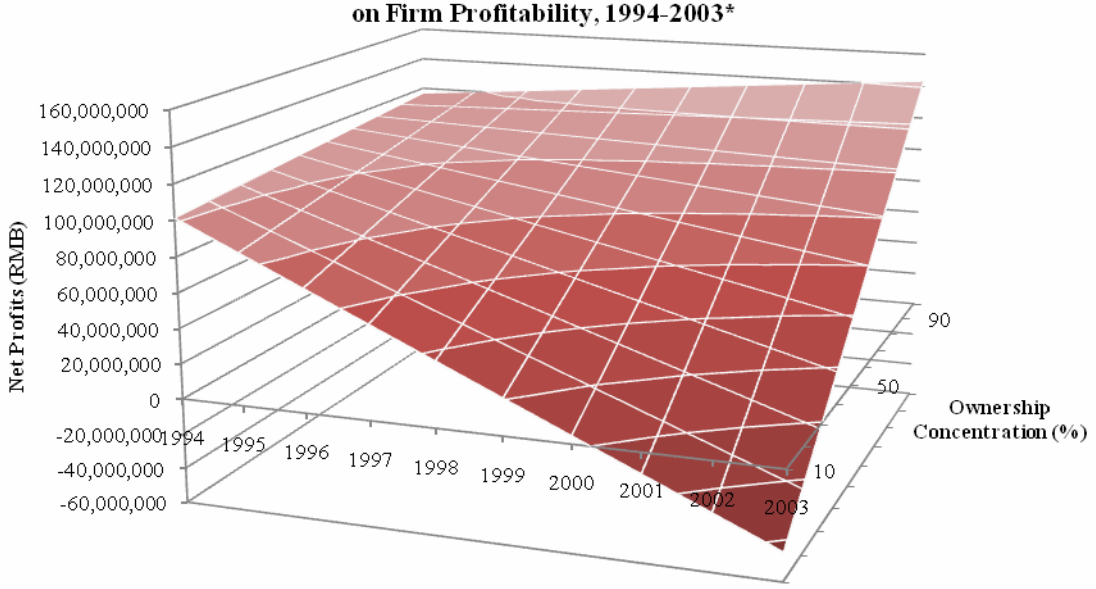


Figure 3: Interaction of the Impact of Ownership Concentration and Time on Firm Profitability, 1994-2003*



*Calculated based on full model (VI), all other variables constrained at the means