State Ownership and Value of Firm: Evidence from China

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ABSTRACT

We study the relationship between the state ownership structure and Tobin's q in China. The effect of the state ownership on q ratio is found nonmonotonic; q ratios first increase, then decline and finally rise again as the state ownership increases. However, the legal person-controlled firms are better performed than the state-controlled firms. Firm value increases monotonically with increases in managerial ownership. The evidence also shows a significant positive relationship between firm value and the concentration of a few largest shareholders.

I. Introduction

The fundamental issue of the corporate governance is potential conflicts of interests between ownership and control in modern corporations. The conflict of interests is first addressed by Berle and Means (1932), and developed by Jensen and Meckling (1976) and Grossman and Hart (1980). Later, a number of papers document theoretic models and empirical evidence on non-linear relationship between managerial ownership structure and corporation value.[1] For a long time, the agency problem is formalized in the context of self-interested managers (the controllers) and outside shareholders (the owners). Recently, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (hereafter LLSV) (1998) show that the ownership structure described from Berle and Means (1932) exists in the US and other well-developed economies, but for countries with less legal protection and other external governance mechanism, the family-controlled or the state-controlled ownership structures are popular. Shleifer and Vishny (1997) argue that the central agency problem in these countries is not the failure of the professional managers to serve minority shareholders, but rather the expropriation of minority shareholders by controlling shareholders.

La Porta, Lopez-de-Silanes, and Shleifer (1999) present evidence that the state or families as controlling shareholders are present in most large companies in developing economies. La Porta, Lopez-de-Silanes, and Shleifer (2002) study government ownership of banks around world. Claessens, Djankov, and Lang (2000) and Claessens, Djankov, Fan and Lang (2002) show pyramidal ownership structure and cross-holdings in most of large firms in East Asia. Along this line of study, our

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[1] Among them include Fama (1980), Demsetz (1983), Fama and Jeansen (1983), Demsetz and Lehn (1985), Stulz (1988), Mrock, Shleifer and Vishny (1988), McConnell and Servaes (1990), Hermalin and Weisbach (1991), Cho (1998), Holderness, Kroszner and Sheehan (1999), and Himmelberg, Hubbard, and Pjalia (1999).

paper examines another type of ownership structure - the state ownership of corporations. Specifically in this paper, we document the relationship between the state-owned companies and their valuation using China data. Our analysis focuses on three issues of the state ownership: (1) what is valuation effect of the state ownership structure? (2) What is relationship between managerial ownership and value of firm? (3) How does ownership concentration affect on firm value?

We choose China because of its uniqueness of the state ownership structure. In contrast to the managerial control and holding structure in US, and to the pyramidal ownership structure in the East Asia, the state ownership is the most important part of corporate ownership structure in China. The state is simply the single largest shareholder in majority of corporations owning both controlling rights and cash flow rights because of its significant large stack in the firms' equity. The government plays a key role in corporate governance, appointing and monitoring own employees to the board of directors, and executives. In such environment with less investor protection and external corporate control, the conflict of interests exists between controlling shareholders (the state) and minority shareholders (outsiders). Our paper explores the functioning of the government ownership under these circumstances and provides new evidence of the agency problem.

Our study of the government ownership relates to the issue of the state versus private ownership in the economics literature. The debate about pros and cons of the government function in the economy has traced back many years, from Lewis (1949), who is in favor of government ownership of firms when facing market inequities or imperfections, to Friedman (1962) who strong opposes the state ownership and advocates the laissez-faire economy even taking into account of social goals. Recently, failures of the state ownership caused by bureaucratic system, bribes and scandals

push many governments to adopt economic reform and privatize the state controlled-firms. Shleifer (2002) argues that private ownership should generally be preferred to the state ownership when the incentives to innovate and to contain costs strong.

For currently over 1,100 listed companies on the Shanghai Stock Exchange and the Shenzhen Stock Exchange, the government controls more than two-third of them, individuals and legal person control the rest one-third. Therefore, we observe co-existence of a growing private ownership along with the overwhelming state ownership, which are not seen in the US and other countries. While the Chinese government recently tried to reduce its controlling power by selling its shares to private companies, and even to foreign investors in the market, we will not see any dramatic change in the ownership structure in the near future. The co-existence of the both state and private ownerships of firms in China provides us with opportunities to empirically examine the agency problem between the controlling state ownership and outside individual shareholders as well as comparison between the state and other ownership structures.

Our study also shed light on several issues on the effects of corporate ownership structure on firm valuation. First issue is the managerial ownership structure and performance. Since Chinese corporation rests primarily with the state ownership, plus managerial holding in corporations is insignificant, an entrenchment effect of the managerial holding virtually does not exist. Therefore, the relationship between managerial ownership and firm value is likely different from that observed in the US. Similar to Morck, Nakamura and Shivdasani (2000) who find positive relationship between managerial shareholding and firm value at high level of the bank holdings, we also find a monotonically positive relationship between managerial holding and

firm value. The result is consistent with the incentive effect of the managerial ownership.

Another issue is ownership concentration and valuation. In a country such as China where investor rights are poorly protected, will control in such an environment be concentrated in the hands of an entrepreneur or dispersed among many investors? LLSV (2002) document differences of ownership concentration among countries and argue that such differences can be explained by the differences in laws and the effectiveness of their enforcement across countries. Bennedsen and Wolfenzon (2000) argue that when investor protection is poor, dissipating control among several large investors - none of whom can control the decisions of the firm without agreeing with others - may serve a commitment to limit expropriation. We provide supportive evidence of positive relationship between the concentration of a few large shareholders and q ratio. Further, we show q ratio rises as increase in ratio of shareholdings of the 2^{ed} – 5th largest owners to that of the 1st largest owner. The results confirm the arguments made by Bennedsen and Wolfenzon (2000) and LLSV (2002).

The remaining of the paper is organized as follows. Section II provides background information and describes owner structure of the Chinese public companies. Section III presents data and test methodology. Empirical results are discussed in Section IV and Summary is followed in Section V.

II. Ownership structure in China

The ownership structure of the Chinese corporations is substantially different from the private ownership structure in the US because majority of the Chinese listed companies are previously state-controlled enterprises. Analysis of the Chinese

corporate history shows that the all of the large firms originally were the state-controlled enterprises that the government owns all assets of firm. Starting in early 1990s, the government adopted the market-oriented economic reform and opened stock market, many state-owned enterprises have been restructured into corporations, and some of them went to public through issuing stock on the exchange.

As results of historical reasons and government regulation, when a company goes to public, its owner structure typically consists of three classes: the state, the legal person and individual shareholders. The state shares are ones held by the government directly, or indirectly through government owned-holding companies. The initial value of the state share was determined by the net asset value of the prior state-owned enterprise, which then was converted into certain amount of new shares based on face value of the stock.[2] Legal person shares are those subscribed by institutions and other corporations, and their share value is calculated at either the face value or the offering price at the time the company is ready to public for the first time. Legal person consists of large institutions and companies. These companies become legal persons when they involve in forming a new company either as sponsors or investors at the time or before the company prepares to go public first time.[3] Individual shares refer to those issued to general public. In contrast to the state and legal person shares usually formed and determined before the company goes to public, individual shares are offered to general public through the computer network subscription.

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[2] For example, the net worth of a state-owned enterprise was first estimated and taken as the state equity. Then prior to going public, the state equity was transferred into the state shares (the state equity divided by face value of the stock) based on face value of the stock, which is always set as RMB 1.

[3] Definition of legal person share sometimes is confusion. According to the State Document dated on May 15, 1992, the legal person share refers to shares held by a legal identity (e.g., a company, a social organization, and a public or private institution) that makes own investment into the corporation.

Table 1 describes different classes of shares and their proportions of all listed companies by the end of 2001. As Panel A of Table 1 shows, the state clearly is the largest owner in the market. The state share accounts for 44.27% of total shares in the market, while legal person accounts for 20.61% and individual shares for 25.53% respectively. The sum of the state shares and legal person shares exceeds more than 66% of the total issued shares. Ironically, a company goes to public simply because it issues public shares, but normally the public shares only has about one-third of total equity.

Shares owned by the state, the legal person and individual are called A shares, which are traded in the domestic stock market. Besides class A share, Table 1 also lists class B share and H share. B share was initially issued to foreign investors only and traded on either the Shanghai Stock Exchange or the Shenzhen Stock Exchange.[4] H shares are issued and traded on the Hong Kong Stock Exchange. By the end of 2001, total 112 firms have issued B shares and 35 firms listed H shares in Hong Kong, they account for 2.56% and 6.17% of the total market share respectively.

Another major feature of the ownership structure in a Chinese company is that the state and legal person shares are prohibited to trade on the stock exchange. According to the government regulation, only shares held by individual investors are allowed to trade on the stock exchange. This is a differential treatment among different classes of shares. The China Security Law says that all shareholders have the same legal right (including right to vote, residual claim, etc) and the same responsibilities. Therefore, the only difference between individuals and the state, legal

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[4] Shanghai B shares are denominated in US dollars and traded on the Shanghai Stock Exchange. Shenzhen B shares are denominated in Hong Kong Dollars and traded on the Shenzhen Stock Exchange. After the government relaxed the restriction of B-share trading on May 31, 2001, B shares are no longer exclusively for foreigners, anyone who own foreign currency in China can open B share account now.

person is their right to access the stock market. As a result, shareholders who likely control the company (e.g., the state and legal person) can't trade their holdings, and individual shareholders who are able to freely trade their shares can't control the company. While the state and legal person shares can't legally trade on the exchange, these shares still can be transferred among companies and institutions (now including foreign investors) upon the approval from the State Treasury Department. Typically it happens when a company is under restructuring or takeover process, and the transfer price is decided through private negotiation or public auction.

Existence of the large, and non-tradable state and legal person shares leads to the third major feature of the Chinese companies – extremely high concentration of the ownership and low shareholding of top management. Panel B of Table 1 lists ownership concentration for the top one, top five and top ten largest shareholders. On average, the largest shareholder controls more than 44% of a company shares, and the largest five and the largest ten shareholders own about 58% and 61% respectively. In contrast to US, top managers and board of directors of a Chinese company only have a very small stake in a company's equity, typically less than 0.1 %. Besides, the share holdings of the top management are prohibited from trading during the period of their tenure. According to Rule 147 of the Chinese Security Law, corporate board members and top executive managers are not allowed to transfer their shares until six months after they leave office. In short, the government control, high ownership concentration, and limited tradable shares are three major features of the ownership structure in China.

III. Data and Methodology

1.   Data Description

Our analysis is based on a data set of all publicly traded companies in 2001. Total 1,160 companies have listed their shares on either the Shanghai Stock Exchange or the Shenzhen Stock Exchange by the end of year 2001. Of total 1,160 companies, 1,023 companies issued A shares exclusively, 88 companies have dual issued both A shares and B shares, 25 companies have dual issued both A shares and H shares, and Another 24 companies issued B shares exclusively. Since our focus is the state ownership structure, we require our sample to include companies that offer domestic A shares, and therefore 24 companies that issue only foreign B shares are dropped. To limit the initial public offerings (IPOs) effect, we also require companies to be included to have at least one-year history after the IPO. Therefore, total 74 companies that went to public in 2001 are eliminated from our sample. Again, we exclude 5 financial institutions from our sample because their operating activities are not comparable to other companies in our study. After a careful selection and adjustment, our sample has total 1,051 companies.

One of major difficulties to study the China stock market and public firms in the past was to collect reliable data. Company financial data are often compiled and collected from different resources and these data are sometimes not comparable because of changes in the reporting standard and the method they are collected. Recently since the China Securities Regulatory Commission (CSRC thereafter) set the standardized financial reporting system and various disclosure requirements for listed companies in 1998, quality of the data has been greatly improved. Thanks to the research database compiled by the Finance Research Center of The Hong Kong Polytechnic University and Shenzhen GauTaiAn Information Technology, we are able to get a complete database for financial statements and market information data for this study. In this paper, except for the data specifically identified, all company

financial data are collected from three databases of the Financial Research Center: the China Financial Statement Research Database, the China Stock Market Database and the China Corporate Governance Research Database.

We use Tobin's q as a measure of company value. Similar to previous studies (e.g., Perfect and Wiles, 1994, Chung and Pruitt, 1994), the numerate of q is the market value of assets, proxied by the book value of assets minus the book value of equity minus deferred taxes plus the market value of common stock. The denominator of q is the replacement value of assets, proxied by the book value of assets. Table 2 presents summary statistics and characteristics for the sample, grouped by level of the state ownership. Because of wide dispersion of the sample statistics, we also report the median value shown below the mean value in Table 2. The sample distributions are skewed toward low degree of the state ownership. There are total 289 companies with zero state ownership, 53 firms have less than 10% of the state ownership, while 100 firms have the state ownership more than 70%. In total 1,019 firms, 371 firms have more than 50% of the state ownership and account for 36.4% of the whole sample.

The average asset size is about 1.716 billion RMB for firms with less then 10% of the state ownership, comparing 8.488 billion RMB for firms with more than 90% of the state ownership. Clearly large companies have a much higher proportion of the state shares than small companies. One interesting notice of Table 2 is an average magnitude of Tobin's q, which span a range of 1.86 to 3.83 among different group of the state ownership. We find that Tobin's q for a typical Chinese firm is about 2.5, which is substantially higher than the Tobin's q in the US firm (for example, Morck, et al. (1988) report the average Tobin's q of less than 1). Such a high q ratio is mainly contributed by high stock prices of firms. As Table 2 shows, the

company's average market-to-book ratio is in a range of 3.65 to 6.97, which helps to explain high level of q.

To control for various factors other than the level of the state ownership that can jointly affect the firm performance, we include a set of control variables that likely be correlated with firm's assets as well as with state ownership. These variables include the size, financial leverage, tradable ratio, and industry influence. The size is measured by total asset of the firm, and the financial leverage is calculated by long-term debt over the total capital (long-term debt plus total equity). The tradable ratio is defined as proportion of individual shares to total shares. The industry is classified by five broad categories set by the CSRC: Utilities, Properties and Construction, Conglomerates, Industries, and Consumer Retailers. We use industry dummy variables to detect its influence. As Table 2 shows, the large asset size is associated with companies with high proportion of the state shares. An interesting observation is a financial leverage, ranging from 3% to 6%, for most of firms, much lower than the leverage ratio in the US.

While using the data of year 2001 for our analysis, we observe that there is a significant change of ownership structure for the Chinese corporations in recent years. For example, even overall government role in the corporate ownership has not much changed recently; there is an increasing trend towards individual and legal person ownership due to company restructuring and seasonal new issues. Through various activities such as the company restructuring, exchange of assets for ownership rights, and other seasonal new issues and stock dividends to expand tradable shares and attract institutional investors, some of previous state-dominated companies no longer exist. Instead, they now become either legal person-dominated firms or individual controlled firms. In some cases, we find companies have completely moved away

from the state ownership and become privatized firms. To taking these change into account, based upon who is the controlling owner of the firm, we divide our sample into three ownership groups: the state-controlled, Legal persons-controlled and individual-controlled firms. Of total 1,019 firms, the state-controlled, the legal person-controlled and individual-controlled firms are 450, 330, and 239 respectively. We find that the legal person controlled firms have the highest q value among three types of owners, with a mean q of 2.927 and a median of 2.344.

Table 3 reports correlations among selected firm's variables for whole sample, and the p-values are shown in parenthesis. As the table indicates, the level of the state ownership positively and significantly correlates to the market capitalization (the correlation coefficient = 0.1664), and negatively correlates to q (the correlation coefficient = - 0.1118). The correlation coefficient is 0.2693 (p-value = 0.0000) between q and the financial leverage, and is –0.1194 (p-value =0.0001) between q and the market capitalization.

2.   Testable issues

A. Does the State ownership have any impact on the firm value?

Following the methodology of Morck et al. (1988), we use the average of q as a measure of firm value. We also report the profit ratio as an alternative measure for the performance of the firm. Similar to Demsetz and Willalonga (2001), the profit ratio is defined as the net income to book value of assets. We use piecewise linear regression to identify the relation of the state ownership and valuation. The threshold values in the regression model are set to be 5% and 30%, based upon whether the state owns controlling power. Typically the state plays dominate role if it owns 30% or more of total shares. On the other hand, state owning less than 5% of stock indicates little influence on firms, which are usually controlled by either individuals

or legal person. The government may have certain, but not decisive, impact on the firm decisions when it owns voting power between 5% and 30% of stock of companies. The regression model is specified as,

$$Q_i = \alpha_0 + \alpha_1 STATE.0to5_i + \alpha_2\, STATE.5to30 + \alpha_3\, STATE.over30_i + \alpha_4\, Leverage_i$$

$$+ \alpha_5\, SIZE_i + \alpha_6\, Tradable\ Ratio_i + \alpha_t \sum IDUM_i + \varepsilon_i$$

$$i = 1, 2, \dots N \hspace{6cm} (1)$$

where

STATE.0to5	= State ownership if its ownership < 0.05,
	= 0.5 if State ownership $\geqslant 0.05$;

STATE.5to30 = 0 if the State ownership < 0.05,
            = State ownership minus 0.05 if $0.05 \leqslant$ State ownership < 0.30;
            = 0.25 if State ownership $\geqslant 0.30$;

STATE.over30= 0 if State ownership < 0.30,
            = State ownership minus 0.30 if State ownership $\geqslant 0.30$;

Leverage$_i$ = financial leverage measured by the long-term debt divided by assets;

SIZEi   = Log of the total assets.

Tradable Ratio$_i$ = proportion of tradable shares to total outstanding shares.

IDUM$_i$ = Industry dummy, i=1,2, ..,5 for manufacturing, utility, property, conglomerates, and commerce respectively.

Model 1 analyzes the issue whether different level of the state ownership has any significant valuation impact on firms. Hence we do not identify legal person and individual ownership in their functions of the ownership structure. To further find structure impact on the valuation of each of three types of owners, and compare the impacts on valuation among different controlling owners, we divide our sample into three groups based on the controlling power: the state-controlled, the legal person-controlled, and individual-controlled firms. A firm is defined as the state-controlled if the total amount of the state shares exceeds the sum of the legal persons and tradable

shares. Similarly, a firm is called the legal person-controlled (or private-controlled) firm if the legal person (or tradable) shares account for more than 50% of total shares. Separation of the state-controlled firms from the legal person or private-controlled firms enables us to further decompose the impacts of different shareholders on the firm value. The state-controlled firm is used as a reference, and a regression model is specified as,

$$Q_i = \alpha_0 + \alpha_1 \text{IND.DUMMY}_i + \alpha_2 \text{LEGAL.DUMMY}_i + \alpha_3 \text{Leverage} + \alpha_4 \text{SIZE}_i + \alpha_5$$

$$\text{Tradable Ratio}_i + \alpha_\iota \sum \text{IDUM}_i + \varepsilon_i \qquad i = 1, 2, \dots N \qquad (2)$$

where

IND.DUMMY$_i$ =1 if the tradable shares account for more than 50% of total shares.
                   =0, otherwise

LEGAL.DUMMY$_i$ = 1 if the legal person ownership accounts for more than 50% of
                   total shares,
                   = 0, otherwise.

B. Does top managers' holding have any impact on the firm value?

Many studies find a non-monotonic relation between managerial ownership and value in the US. Demsetz and Lehn (1985), Morck, Shleifer and Vishny (1988), McConnell and Servaes (1990), Holderness, Kroszner and Sheehan (1999), among others, study the effect of managerial ownership and distinguish them as the entrenchment effect and the incentive effect.

We also investigate this issue to see whether a similar pattern exists and whether managerial incentives are any different under the state-controlled companies in China. We define managers as senior executives, board directors and supervisors. Disclosure of top managers and board directors' income and shareholdings was required first time in 1995 by the CSRC 's "Rule No. 2: Contents and Format of

Information Disclosure in Annual Report for Listed Companies". But Rule No.2 did not specify how the manager's income was disclosed and reported. Therefore, many companies didn't fully tell how the managers are compensated in cash income and the company shares. Until the end of 1999, the CSRC issued revised Rule No.2, clearly requiring that "board directors, supervisors, and senior officers disclose their annual shareholding and total annual income" and "based upon the executives' income distribution, a listed company should divide level of the annual income into several brackets and report total number of the directors and top managers in each bracket, and also disclose names of directors and top managers who are not paid from the company". Our analysis is based on the managers' annual income and shareholdings disclosed from the company's annual report.

Ideally, we would calculate the shareholding ratio of these top managers to measure their ownership, as one specified from Morck, etc (1988). But the managerial holdings of the Chinese companies are only a very small portion of the company shares, typically no more than 0.1 % of total shares.[5] Thus, instead of computing the fraction of the managerial holdings, we use two alternative measures for the managers ownership structure: (1) the value of the managerial stock holdings (defined by total number of shares multiplied by the market price) and (2) the ownership multiple (defined by the value of the managerial holdings divided by their cash compensation). The first measure is to compare share value of the top managers and is expected to be positively associated with q ratio. The second measure is similar to one used by Core and Larcker (2002).

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[5] Most of listed firms are from previous state-owned enterprises in which managers traditionally had a low salary, and few shareholdings. After going to public, many firms adopted managerial shareholding plan, but the total rewarding is still relative low.

Specifically we regress q ratio on the managerial holding after taking into account for the control variables in following models,

$$Q_i = \alpha_0 + \alpha_1 \text{Log (stock value)}_i + \alpha_2 \text{LEVERAGE}_i + \alpha_3 \text{SIZE}_i + \alpha_4 \text{Tradable Ratio}_i$$

$$+ \alpha_5 \sum \text{IDUM}_i + \varepsilon_I \quad i = 1, 2, \dots N \tag{3}$$

where

Log (stock value)$_i$ = Log(stock value) is the natural logarithm of the value of stock

owned by top executives and board of directors.

and

$$Q_i = \alpha_0 + \alpha_1 \text{OM}_i + \alpha_2 \text{LEVERAGE}_i + \alpha_3 \text{SIZE}_i + \alpha_4 \text{Tradable Ratio}_i$$

$$+ \alpha_5 \sum \text{IDUM}_i + \varepsilon_I \quad i = 1, 2, \dots N \tag{4}$$

where

OM$_i$ = ownership multiples defined as the stock value owned by top executives and

board of directors divided by their cash income.

C. Does owner concentration has any impact on firm value?

As pointed out by McConnell and Servaes (1990), equity blockholders and institutional investors can exert to force the firm toward value maximization, and they find a significant positive relation between q and fraction of share owned by institutional investors. Since institution shareholders in the Chinese companies have far more large holdings than their counterparts in the US, we are interested in whether they have a similar influence on the firm value.

As shown in Table 1, the top five owners typically hold more than 58% of a company's total shares in China, significantly higher than other countries. In addition, the ownership concentration in China has some special features. First, the large

owners in firms in China, unlike block shareholders in US who are normally outside institutional investors, usually take seat in the company board and involve important business decisions. Second, they, unlike the family owners in most of large firms in East Asia, are usually the state government or big holding companies. To examine the effect of ownership concentration, we calculate fraction of total shares held by the largest, the largest five and the largest ten shareholders to measure the degree of the concentration. In addition, as pointed by Bennedsen and Wolfenzon (2000) that dissipating control among several large shareholders may serve an effective way to limit expropriation, we analyze whether power sharing and balance among a few big shareholders have this function. To do so we calculate the balance ratio of total amount of shares held by 2^{ed}-5th largest owners to the shares held by the largest owner. The model is specified as,

$$Q_i = \alpha_0 + \alpha_2 L_1 + \alpha_3 L_5 + \alpha_4 L_{10} + \alpha_5 Balance_i + \alpha_6 LEVERAGE_i + \alpha_7 SIZE_i + \alpha_8$$

$$Tradable\ Ratio_i + \alpha_9 \sum IDUM_i + \varepsilon_I \quad i = 1, 2, \dots N \tag{5}$$

where,

L_1, L_5 and L_{10} = fraction of shares owned by the largest, the largest five, and the largest ten shareholders respectively.

Balance = ratio of total amount of shares held by 2^{ed}-5th largest owners to the shares held by the largest owner.

Since these largest shareholders represent interests of their own groups, we also test their separate impact on the firm performance by dividing the largest shareholders into three categories: the state, legal person and individual. The state owner, if it is the largest owner, is chosen as a reference. A regression model is,

$$Q_i = \alpha_0 + \alpha_1 LIND.DUM_i + \alpha_2 LLEGAL.DUM_i + \alpha_3 Leverage + \alpha_4 SIZE_i$$

$$+ \alpha_5 \text{ Tradable Ratio}_i + \alpha_t \sum \text{IDUM}_i + \varepsilon_i \qquad i = 1, 2, \dots N \qquad (6)$$

Where,

IIND.DUM$_i$ $\qquad$ =1 if the largest shareholder is an individual,
$\qquad\qquad\qquad$ = 0, otherwise.

LLEGAL.DUM$_i$ $\qquad$ = 1 if the larges shareholder is a legal person,
$\qquad\qquad\qquad$ = 0, otherwise.

IV. Empirical Results

1. State ownership

Table 4 presents the piecewise linear regressions of average q ratios on the level of the state ownership, controlling for size, financial leverage, tradable ratio, and industry influence. The results are consistent cross first three models. Focusing the level of the state ownership, we see average q is always statistically dependent on at least one measure of the state ownership, sometimes all state dummy variables, but the signs of the regression coefficients are different. Model (1) and (2) shows a negative relationship between q ratio and the state ownership ranging from 5% to 30%. In model (3), we find the relation between the state ownership and firm value is positive when the state owns less than 5% of the equity, but is negative when the state ownership falls between 5% and 30%, and it turns into positive once the state share exceeds 30%. They are all statistically significant. Clearly, the impacts of the state ownership on the firm value is non-monotonic linear, similar to the pattern of the managerial holdings found by Morck, et al. (1988).

The evidence on the role of the state ownership is mixed. We observe q ratio rises at a low level of the state ownership at which the state has little influence. When the state increases its equity stack, it has a significant negative effect. This finding is consistent with the arguments in Sheleifer (2002). However, the puzzle is, at a high level of the state ownership, q ratio rises as the state ownership increases. It seems to

contradict to the argument of the inefficient and corruption of the government ownership. We offer several possible explanations. First, when the government holds a substantial stack in equity, both of the cash flow rights and voting rights have also become larger, and therefore it has incentive to maximize its own interests by balancing between the grabbing hand and the helping hand. As pointed out by Jensen and Meckling (1976) and LLSV(2001), the expropriation cost is high as high cash flow ownership. Second, we find companies with significant large stack of the government ownership usually occupy a substantial market share of the product, and play a dominating role in an industry, and they likely receive the price protection and subsidy from the government to maintain their position. So this additional value can be generated from this monopoly power. Third, although we observe the positive impact on valuation as the government shares rises, this impact may not necessarily imply the higher the government ownership and the better performance, because, as mentioned previously, legal person-controlled and individual-controlled firms are two alternative important ownerships in China.

To examine whether the state ownership has better valuation impact than the legal person or individual shareholders, we divide our whole sample into three controlling ownerships: the state, legal and individual controlling groups. The results are summarized in Table 5. Among three ownerships, it turns out that legal person owners are better than the state owners. The correlation coefficient of the legal person dummy variable is 0.1786 (p-value = 0.0109) significantly from zero. The coefficient estimation of individual owner dummy variable is –0.0089 (p-value = 0.9292), not statistically significantly different from zero. This funding suggests that legal persons controlled ownership is the superior to both the state and individual ownership.

2. Managerial ownership

Table 6 summarizes distribution of managerial shareholdings and their relationship with ownership structure. Panel A of Table 6 measures top managers holdings by their stock value (number of the executive stock multiplied by the price at the end of 2000). We find 234 firms, out of total 823 firms, have not offered executive shareholding plan. For the rest of 589 firms, we divide them into five quintile groups, based on the executive stock value. As indicated in Table 6, the stock holdings of top managers are various cross companies. The smallest group provides average of only 6,217 RMB for each manager, while the largest one has average of 794,287 RMB. However, the significant difference of the share value cross groups does not appear related to the state ownership structure. Panel B of Table 6 reports executives shareholdings in terms of the ownership multiple (value of the executive shares divided by their cash income). Similar to Panel A, we also divide all sample into five quintiles. The lowest quintile has average ownership multiple of 0.2257 times, and in contrast, the highest quintile has stock value more than 20 times of their cash income. Again, we do not observe any significant change in the state ownership cross groups.

Table 7 reports the impacts of managerial holdings on the value of firm. In model (1), we use the share value of the management as a measure of managerial ownership. The coefficient estimate on this variable is 0.0813 (p-value = 0.0003). The result is statistically significant and it indicates that the managerial shareholding is positively associated with firm value. Alternatively we measure managerial holding using equity multiplier and result is shown in model (2). The coefficient estimate is 0.003 (p-value = 0.0067) and statistically significant. This finding is consistent with the results of Morck, Nakamura and Shivdasani (2000) who find firm value rises monotonically with increased managerial ownership. With respect to the control variables, we find the asset size and the tradable ratio are negatively related to Tobin's

q. Using profit ratio as dependent variable, we find the results are mixed and are consistent with the share value measure, but not significant with measure of the equity multiple.

Our results show that managers are willing to act to maximize shareholder value if doing so provides management with greater reward no matter they work for private firms or state-controlled firms. At current low level of the shareholding, financial incentives of the managers are aligned with shareholders, and it is unlikely for them to consume the benefit of control at the expenses of their shareholders.

3. Ownership concentration

Table 8 summarizes ownership concentration measured in the fraction of total shares held by the largest owner, the largest five owners, and the largest ten owners respectively. A few facts stand out. First, on the average, the largest owner holds about 44% of total shares in a company, and more than 53% of the largest shareholder owns more than 55% of companies' shares. Second, the number of the state owner out of the total largest owners increases as increase in the concentration ratio. Taking the largest owner on the left columns of Table 8 as an example, the state owner only accounts for 30% when the concentration ratio is below 10%, while the state owner rises to 77% when the concentration ranges from 81 to 90%. We observe the same pattern when examining the largest five and the largest ten shareholders.

Table 9 reports regression results for effects of ownerships based on our three measures of ownership concentration. Model (1)-(3) report impacts of the largest owner, the largest five owners and the largest ten owners respectively. The coefficient estimates are 0.0013 (p-value = 0.5583), 0.0078 (p-value = 0.029) and 0.0136 (p-value = 0.0005) respectively. The results are mixed. Measured in the largest shareholder, we do not see any significant influence of the concentration on the firm

value. However, we see increasingly significant and positive effects of ownership concentration when measured in the largest five shareholders and the largest ten shareholders. The results indicate that the firm value is positively related to the concentration of several largest shareholders, but not of a single largest shareholder.

To test whether the control structure of a few large shareholder provides a better investor protection, we use a balance variable, defined as the total shareholdings of the 2^{ed} –5th largest shareholders divided by the shares of the first largest shareholder. The higher is the balance ratio, the more power sharing among the largest shareholders. We would expect a positive relationship between balance ratio and firm value if power sharing is a better mechanism for the ownership structure. Result is shown in model (4). Coefficient estimate for Balance variable is 0.2815 (p-value = 0.0079), statistically significant.

Also based on whether the largest shareholder is the state owner, legal person owner or individual owner, we also test whether ownership is concentrated in hands of the state owner is better than legal person or individual owners. The results are shown in model (5). The coefficient estimates for both dummy variables, LIND.DUM and LLEGAL.DUM are statistically significant, indicating preferable to have share concentrated to the legal person or individual shareholders.

Our results have several implications: First, they confirm the arguments that countries with poor investor protection typically exhibit more concentrated control of firms than do countries with good investor protection (LLSV, 1998). Second, they are also consistent with findings of counties such as Germany (Gorton and Schmid, 2000), Japan (Prowse, 1992) that different level of ownership concentration is related to the legal and regulatory environment. For instance, banks in Japan and Germany are generally given much power to own shares and exert control over firms. The legal

constraints and socialist philosophy in China for a long time prohibit individuals to have ability to own large amount of shares in firms. Third, our finding of large institutions-concentrated ownership further shows that several large shareholders without government may provide an efficient structure that balance power sharing and monitoring management. Unlike individual shareholders, legal persons are usually institutional investors that have a large stack in the firm, and because of that, they surely own seats on the board of directors. Therefore, they have the ability and incentive to designate and monitor managers. This finding supports the argument of Shleifer and Vishny (1986), and Prowse (1994).

V. Conclusion

We study the effect of the state ownership structure on firm value in China. The state ownership represents controlling rights, and at the same time, also represents substantial cash flow rights in many larger firms. Unlike significant separation between cash flow rights and controlling rights that exist in most of large firms in East Asia, the state has both rights because of its substantial stack in equity of a firm. Under these conditions, the conflict of interests reveals between the controlling shareholders (the state) and outside shareholders (the small investors).

Using data from companies listed by the end of 2001, we find that when the state has no controlling and cash flow rights, e.g., less than 5% of state ownership, firm value is high; and when the state has increasingly influence power, e.g., between 5% and 30% of the state ownership, it has incentive to take advantage of the controlling rights to grab the wealth and explore minority shareholder because of the low cash flow rights. However, when the state ownership increases more than 30%, and its both controlling rights and cash flow rights also increase, the state intends to

protect its own interests and balance between grabbing and helping, we find positive relationship between state ownership and q ratio, since the exploration costs are high as increase in the cash flow rights. Comparing three major ownerships, we find that legal person-dominated firms are preferred to the state-controlled firms.

Top mangers in Chinese corporations are closed monitored by their controlling shareholders because most of them are previous employees of the controlling shareholders. While these top executives actually run the firms, they have a little voting power themselves because they hold negligible amount of company's shares. Measured by either their stock value or the ownership multiple, we find the executives shareholdings are positively related to firm value. Further, we do not see any relationship between the state ownership and executive incentive shareholding plan. This finding, in contrast to both the incentive effect and entrenchment effect found from the US, indicates that the incentive plan has effectively align the executive own interests to the shareholders' under the current ownership structure of China.

Most of firms in China are virtually controlled either by a single large shareholder (often the state), or by a few large institutional shareholders. Therefore, the ownership is highly concentrated. We find a positive relationship between q ratio and level of concentration of the largest five shareholders (also the largest ten shareholders), but not in the case of the single largest shareholder. In addition, we find strong impacts of balanced power sharing among a few large owners on firm value. Our results suggest that the institutional concentrated ownership may provide an efficient way of resolving agency problem in firms with less investor protections and outside legal enforcement.

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Table 1. Description of the ownership structure and share holding concentration in the Chinese market

State shares refer to shares held by the government or government owned enterprises and institutions. Legal person shares refer to shares held by non-government-dominated institutions that subscribed shares as sponsors at the time the firm went to public. Individual shares are shares issued to general public. B shares are special Renminbi-denominated ordinary shares offered to foreign investors, and they are traded in term of foreign currency on either Shanghai Stock Exchange or Shenzhen Stock Exchange. Similarly, H shares are listed and traded on the Hong Kong Stock Exchange.

Panel A: Type of Owners	Number of Shares (Thousands)	Proportion (%)
State share	226,993,363	44.27
Legal person share	105,690,175	20.61
Individual share	130,910,538	25.53
B-share	13,111,336	2.56
H-share	31,664,185	6.17
Total	508,369,597	100.00
Panel B: Holding Concentration		
The first largest	254,876,487	44.10
The five largest	343,710,404	58.57
The ten largest	358,729,833	61.03
Total number of firms	1,130	

Table 2. Summary statistics for listed Companies, grouped by level of the state ownership

Table reports the mean and median of the firm's characteristics. State refers to proportion of the state-owned shares in a firm's total common shares. Leverage is calculated by long-term debt over total capital. Q is calculated by the book value of assets minus book value of equity plus market value of equity over the book value of assets. There are total 1,019 firms in the sample.

	No.	Asset size (thousands)	Capitalization (Thousands)	Leverage (%)	M/B	P/E	ROE (%)	ROA (%)	Q
State = 0%	269	1,888,154	3,323,804	12.68	6.02	182	-8.62	-4.66	3.29
				3.02	4.25	48	5.91	3.05	3.67
0< State < 10%	53	1,537,588	3,018,517	9.75	6.19	117	8.47	-14.81	3.83
				3.18	5.17	62	6.77	2.80	2.96
10< State < 20%	44	1,419,213	3,021,614	12.23	4.78	114	-12.4	-10.63	3.62
				5.09	5.73	51	6.13	2.15	3.07
20< State <30%	82	1,302,160	2,455,514	9.52	4.95	112	3.24	-1.60	2.972.
				4.39	4.33	58	6.16	3.04	54
30< State <40%	101	1,251,573	2,505,854	13.32	16.49	136	1.29	-0.24	3.002.
				7.70	4.14	63	5.90	2.81	68
40< State <50%	99	1,544,761	2,741,736	8.84	5.26	140	1.21	1.77	2.872.
				3.85	4.19	57	6.03	2.92	54
50< State < 60%	131	2,023,791	3,234,789	9.17	5.18	77	-2.21	1.10	2.78
				6.23	3.62	52	6.01	3.06	2.45
60< State < 70%	140	1,993,163	3,618,081	10.62	4.54	131	4.63	0.45	3.042.
				5.55	3.73	48	6.33	3.54	57
70< State <80%	71	2,302,635	4,589,190	10.87	5.59	76	4.31	0.03	3.04
				3.38	4.42	44	7.86	3.85	2.62
80< State <90%	25	7,206,710	9,311,540	10.90	6.97	248	5.45	3.35	3.01
				7.44	4.98	72	6.22	1.78	2.49
90< State <100%	4	8,488,223	10,571,628	21.64	3.65	140	-7.66	-0.30	1.861.
				12.43	2.61	47	2.17	1.18	88

Table 3 Correlation analyses

Table reports the correlation coefficient between the firms' characteristics. P-values are in parentheses. State refers to proportion of the state-owned shares in a firm's total common shares. Leverage is calculated by long-term debt over total capital. Q is calculated by the book value of assets minus book value of equity plus market value of equity over the book value of assets. There are total 1,019 firms in the sample.

	State	Asset size	Capitalization	Leverage	M/B	ROE	ROA	Q
State	1.00	0.14 (0.00)	0.17 (0.00)	-0.02 (0.47)	-0.011 (0.73)	0.05 (0.10)	0.06 (0.06)	-0.11 (0.00)
Asset size		1.00	0.82 (0.00)	0.08 (0.01)	-0.06 (0.06)	0.02 (0.47)	0.06 (0.07)	-0.29 (0.00)
Capitalization			1.00	0.015 (0.64)	-0.05 (0.13)	0.04 (0.15)	0.09 (0.00)	-0.12 (0.00)
Leverage				1.00	0.08 (0.01)	-0.02 (0.58)	0.04 (0.25)	0.27 (0.00)
M/B					1.00	0.05 (0.10)	0.00 (0.91)	0.13 (0.00)
ROE						1.00	0.04 (0.25)	0.01 (0.67)
ROA							1.00	-0.46 (0.00)
Q								1.00

Table 4 Piecewise linear ordinary least square regression analyses by state ownership

This table summarizes estimation results of Eq. (1). p-values are in parentheses. The profit rate is defined as the ratio of the firm's net income to total sales. STATE.0to5 =State ownership if its ownership < 0.05, =0.5 if State ownership $\geqslant 0.05$; STATE.5to30 = 0 if the State ownership < 0.05,= State ownership minus 0.05 if $0.05 \leqslant$ State ownership < 0.30;= 0.25 if State ownership $\geqslant 0.30$; STATE.over30= 0 if State ownership < 0.30, = State ownership minus 0.30 if State ownership $\geqslant 0.30$.

Variable	Q	Q	Q	Profit Rate
	(1)	(2)	(3)	(4)
Intercept	3.0741 (0.0001)**	3.2047 (0.0001)**	27.8045 (0.0001)**	-0.7835 (0.0030)**
STATE.0to5	6.0963 (0.1452)	5.3831 (0.2015)	6.4633 (0.0290)*	-0.1197 (0.5821)
STATE.5to30	-2.1803 (0.0193)*	-2.1165 (0.0233)*	-2.7638 (0.0001)**	0.0527 (0.5737)
STATE.over 30	-0.0382 (0.9120)	0.04750 (0.8926)	0.6840 (0.0160)*	0.0331 (0.5426)
Leverage			-0.2262 (0.1771)	-0.0863 (0.1190)
Asset Size			-1.1479 (0.0001)**	0.0399 (0.0016)**
Tradable Ratio			-1.9543 (0.0001)**	-0.0003 (0.9450)
Industry dummy	No	Yes	Yes	Yes
Number of firms	1,015	1,015	1,015	1,015
Adjusted R^2	0.01188	0.01590	0.5184	0.0578

* Significant at 95% confidence level.
** Significant at 99% confidence level.

Table 5 Linear ordinary least square regression analyses by ownership group

This table summarizes estimation results of Eq. (2). IND.DUMMY$_i$ =1 if the tradable shares account for more than 50% of total shares. =0, otherwise. LEGAL.DUMMY$_i$ = 1 if the legal person ownership accounts for more than 50% of total shares, = 0, otherwise.

Variable	Q	Q	Q	Profit Rate
	(1)	(2)	(3)	(4)
Intercept	2.8439 (0.0000)**	3.0311 (0.0000)**	27.0619 (0.0000)**	-0.8120 (0.0022)**
IND.DUMMY	-0.2328 (0.0263)*	-0.2621 (0.0133)*	-0.0089 (0.9292)	-0.0286 (0.3822)
LEGAL.DUMMY	0.4748 (0.0000)**	0.4587 (0.0000)**	0.1786 (0.0109)*	-.0022 (0.9223)
Leverage			-0.2499 (0.1384)	-0.0845 (0.1216)
Asset Size			-1.1219 (0.0001)**	0.0414 (0.0009)**
Tradable Ratio			-1.9718 (0.0001)**	-0.0421 (0.6881)
Industry dummy	No	Yes	Yes	Yes
Number of firms	1,015	1,015	1,015	1,015
Adjusted R^2	0.04173	0.04720	0.5105	0.0577

* Significant at 95% confidence level.
** Significant at 99% confidence level.

Table 6. Shareholding of top executives and board of directors

The sample consists of 766 firms adopting shareholding incentive plan by the end of year 2000. We measure the shareholding of top executives and board of directors in terms of their stock value (number of shares multiplied by the price at the end of 2000), and ownership multiples (stock value divided by cash income). For each firm, we compute the stock value and ownership multiples of the executives and directors, then rank and divide them into five groups. To make comparison, we also include firms without adopting shareholding incentive plan.

	No.	Share value	State ownership	Legal ownership	Individual ownership
Panel A: Ownership (stock value)					
Negligible	234	0	37.25	26.58	36.17
Size1 (smallest)	160	6,217	37.59	24.48	37.93
Size 2	161	24,458	32.24	29.85	37.92
Size 3	160	49,206	34.64	27.34	38.02
Size 4	161	101,379	34.90	27.47	37.63
Size 5 (largest)	161	794,287	32.36	31.34	36.29
Panel B: Ownership multiple					
Negligible	214	0	36.59	29.87	33.53
Size1 (smallest)	153	0.2257	37.95	23.81	38.24
Size 2	153	0.8006	32.24	29.68	38.08
Size 3	154	1.6523	30.39	31.56	38.05
Size 4	153	3.1930	37.16	27.52	35.32
Size 5 (largest)	153	20.3011	35.44	26.54	38.02

Table 7. Impact of top executives stock holding on value of firm

This table summarizes estimation results of Eq. (3) and (4). Log(stock value) is the natural logarithm of the value of stock owned by top executives and board of directors. OM refers to ownership multiples defined as the stock value owned by top executives and board of directors divided by their cash income. P-values are in parentheses below each coefficient.

Variable	Q	Q	Profit Rate	Profit Rate
	(1)	(2)	(3)	(4)
Intercept	25.2230 (0.0001)**	29.4776 (0.0001)**	-1.1271 (0.0001)**	-0.4829 (0.0544)
Log(stock value)	0.0813 (0.0003)**		0.0165 (0.0101)**	
OM		0.0030 (0.0067)**		0.0005 (0.2877)
Leverage	-0.2424 (0.1726)	1.5347 (0.0001)**	-0.1034 (0.0441)*	0.1391 (0.0001)**
Asset Size	-1.073 (0.0001)**	-1.2394 (0.0001)**	0.0474 (0.0001)**	0.0264 (0.0268)*
Tradable Ratio	-2.2098 (0.0001)**	-2.7872 (0.0001)**	-0.0564 (0.4521)	-0.1230 (0.1035)
Industry dummy	Yes	Yes	Yes	Yes
Number of firms	783	940	783	940
Adjusted R^2	0.4860	0.5788	0.0769	0.0761

* Significant at 95% confidence level.
** Significant at 99% confidence level.

Table 8. Ownership concentration

The sample consists of 1130 firms listed on either Shanghai stock exchange or Shenzhen stock exchange by the end of year 2001. Ownership concentration is measured at three levels: The largest owner, the largest five owners and the largest ten owners. For each level of concentration, we compute the holding ratio (fraction of shares held by the largest owner(s)) and the state-owner ratio (number of the state owners divided by total owners).

(%)	Largest owner			Largest five owners			Largest ten owners		
	No.	Holding ratio (%)	State-owner ratio (%)	No.	Holding ratio (%)	State-owner ratio (%)	No.	Holding ratio (%)	State-owner ratio (%)
0-10	10	7.01	30	1	3.78	0.00	1	4.66	0.00
11-20	76	16.01	42.1	5	16.83	4.00	2	14.84	0.00
21-30	240	25.92	43.5	25	26.28	16.00	15	26.21	7.33
31-40	175	35.19	71.4	84	35.93	16.67	58	36.09	8.28
41-50	169	44.77	66.9	174	45.63	17.59	137	45.60	9.55
51-60	206	54.96	70.9	279	55.32	20.14	271	55.42	9.67
61-70	170	64.97	82.4	318	65.12	23.77	339	64.99	13.45
71-80	71	72.70	90.14	212	73.52	23.77	265	73.78	13.36
81-90	13	83.10	76.92	25	84.40	22.40	33	83.69	11.52
90-	--	--	--	7	92.55	17.14	9	93.17	14.44

Table 9. Concentration and value of firm

This table summarizes estimated results of Eq. (5) and (6). Model (1)-(3) estimate impacts of the ownership concentration of the largest, the largest five and the largest ten owners respectively. Model (4) tests the impact of the balance and powersharing among a few largest shareholders. In model (5), LIND.DUM is one if the largest owner is an individual and zero otherwise. LLEGAL.DUM is one if the largest owner is a legal person and zero otherwise. P-values are in parentheses below each coefficient.

Variable	Q	Q	Q	Q	Q
	(1)	(2)	(3)	(4)	(5)
Intercept	29.9234 (0.0000)**	29.3853 (0.0000)**	28.7904 (0.0000)**	29.1995 (0.0000)**	29.6892 (0.0000)**
L_1	0.0013 (0.5583)			0.0097 (0.0116)*	
L_5		0.0078 (0.0290)*			
L_{10}			0.0136 (0.0005)**		
Balance				0.2815 (0.0079)**	
LIND.DUM					0.5289 (0.0496)*
LLEGAL.DUM					0.2613 (0.0001)**
Leverage	1.4091 (0.0001)**	1.4157 (0.0001)**	1.4180 (0.0001)**	1.1415 (0.0001)**	1.3979 (0.0001)**
Asset Size	-1.2611 (0.0001)**	-1.2619 (0.0001)**	-1.2576 (0.0001)**	-1.2575 (0.0001)**	-1.2483 (0.0001)**
Tradable Ratio	-2.1506 (0.0001)**	-1.6628 (0.0001)**	-1.2598 (0.0001)**	-1.6971 (0.0001)**	-2.2949 (0.0001)**
Industry dummy	Yes	Yes	Yes	Yes	Yes
Number of firms	1018	1018	1018	1018	1018
Adjusted R^2	0.5679	0.5697	0.5728	0.5709	0.5748

*   Significant at 95% confidence level.
** Significant at 99% confidence level.