Large investors, capital expenditures, and firm value:
Evidence from the Chinese stock market

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Abstract

This paper investigates the value effect of large investors through their impact on corporate investment policy using a sample of listed firms in the Chinese stock market where large shareholdings and concentrated ownership are a norm. We find that the impact of capital expenditures on firm value is closely related to the level of large shareholdings (non-tradable or state shareholdings). Capital expenditures are negatively associated with firm value if firms are controlled by entrenched large shareholders. Although there is a general tendency of over-investment, the negative impact of over-investment is cancelled out if firms are controlled by incentive-aligned large shareholders. We also find that, the incentive-alignment effect of large investors is stronger in scenarios where agency conflicts are more intensified. Our findings suggest that capital investment is an important channel through which the value effect of large investors is achieved.

1. Introduction

The impact of large shareholdings and concentrated ownership on the value of firms has been studied extensively over the past decades. On the one hand, the presence of large investors helps overcome manager-shareholder conflicts because they have strong incentives to maximize firm value and are able to collect information and oversee managers (Jensen and Meckling, 1976). On the other hand, resent research showed that there are costs associated with large investors, that is, expropriation of minority shareholders' wealth. Shleifer and Vishny (1997, p.758) pointed out that, "(L)arge investors may represent their own interests, which need not coincide with the interests of other shareholders, or with the interests of employees and managers." Moreover, the benefits of large shareholdings and concentrated ownership are larger in countries that are less developed, where property rights are not well protected and enforced by judicial system (Shleifer and Vishny, 1997). Thus, it appears that both the incentive-alignment and entrenchment effects of large shareholdings co-exist in influencing firm value. Consistent with the above theoretical prediction, a large body of literature provided evidence on a non-monotonic relation between large shareholdings and firm value (Morck, Shleifer, and Vishny, 1988; McConnell and Servaes, 1990; Claessens, Djankov, Fan, and Lang, 2002).

Although a general consensus has been reached that large shareholdings matter for firm value, less is understood about how large shareholdings affect firm value. In this paper, we contribute to the literature by showing how the cost and benefit of large shareholdings are manifested. We focus on investigating the channel through which large shareholdings impact firm value using a sample of Chinese listed companies. We argue

that capital expenditures are one of important channels linking large shareholdings and firm value. We examine capital expenditures for several reasons. First, given that capital stock of a typical firm undergoes continuous adjustments, capital expenditures are seen as the heaviest and the most frequent usage of corporate recourses. Hennessy and Whited (2005) find that, on average, annual capital expenditures-to-asset ratio is as high as 13% in a sample of U.S. listed companies, and it is 7.5% for a sample of worldwide firms (Kusnadi and Wei, 2007). Second, capital investment of firms is closely related to firm value. Burkart, Gromb, and Panunzi (1997) and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002) show that inefficient investment projects tend to lower the probability of good state and generate less expected cash flows, which is associated with lower firm value. Thirdly, recent research has shown that controlling shareholders have stronger incentives to over-invest under weaker investor protection environment. *The higher investment* increases both the volatility of capital accumulation and equity risk premia, which sharply discounts firm value (Albuquerque and Wang, 2008). Thus, corporate investment policy itself has strong implications for the cost of capital and firm value, in particular in emerging markets with weaker corporate governance.

We focus on the analysis of the emerging Chinese stock market because the unique ownership structure of listed firms allows for powerful tests of how large investors affect firm value. With the opening of the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) in 1990 and 1991 respectively, the Chinese stock market has been the fastest growing market in the world over the past two decades. By the end of 2007, there were 1464 firms issuing A-shares and 109 firms issuing B-shares in the Chinese stock market. The total capitalization of Chinese stock market was over 3.2

trillion RBM, the forth largest stock market in the world (after U.S, Japan, and U.K).[1] An interesting feature of Chinese listed companies is that nearly all firms are carved out from state-owned or state-controlled enterprises. To be listed, a SOE must first be restructured into a shareholding company via selling shares to its own employees, other SOEs, and legal entities at a price around the book value of equity. At the time of IPO, a firm usually sells about one third of ownership to the general public. Therefore, shares of a typical listed firm are split into state, legal-entity, and tradable shares, with the restriction that state and legal-entity shares cannot be traded publicly until early 2005 when ownership-split (*gu quan fen zhi*) reform started. State shares are those owned by the central or local government. Legal-entity shares are those held by domestic institutions such as listed companies, financial institutions, etc., most of which are partially owned by central or local government. Tradable shares are the only class of shares that can be traded on domestic stock exchanges, and are further classified into A- and B-shares.[2] Regardless of share type, each share is entitled to the same cash flow and voting rights. Another significant feature of Chinese listed firms is that ownership is concentrated in hands of large shareholders, in particular, government. Over our sample period, government controlled on average 56 percent of cash flows and control rights of a listed firm, while non-tradable shareholders collectively hold 59 percent of total shares outstanding in a listed firm. This unique ownership structure in the Chinese stock market provides a natural experimental setting to study the impact of large investors on firm value.

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[1] See footnote 2 for an explanation of A- and B-shares in the Chinese stock market. At the end of 2007, the exchange rate of RMB against U.S. dollar is about 1 USD = 7.3 RMB. Data source: China Securities Regulatory Commission (http://www.csrc.gov.cn).
[2] Tradable A-shares are ordinary shares available exclusively to Chinese citizens and institutions. B-shares are denominated in U.S or HK dollar and designated for overseas investors prior to opening the market to domestic

To investigate the value effect of ownership through its impact on capital expenditures, we first base on the evidence of the U-shaped relation between ownership and firm value to split our sample into two groups according to the turning point.[3] Firms with a higher level of ownership are those whose non-tradable or state shareholdings are above the turning point, while firms with a lower level of ownership are those whose non-tradable or state shareholdings are below the turning point. We then investigate the impact of capital expenditures on firm value for the different ownership-based groups over the subsequent year. We find that the impact of capital expenditures on firm value is closely tied to the level of large shareholdings. Capital expenditures are negatively associated with firm value for firms with a lower level of ownership (i.e., non-tradable or state shareholdings are below the turning point). Although there is a general tendency of over-investment, the negative impact of over-investment is cancelled out for firms associated with a higher level of ownership. These findings suggest that the incentive-alignment effect of large shareholdings serves to contain a firm's over-investment behavior. Our results are in general robust to an alternative measure of firm value – stock return.

We further investigate the value effect of large shareholdings via capital expenditures conditional on several variables like investment opportunities, cash flows, and cash dividend payouts that have implications for both agency problems and corporate investment policy. We show that, consistent with the previous findings, firms are better monitored in their investment policies if they are controlled by incentive-aligned large

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investors in February 2001.
[3] Tian and Estrin (2005) examine a large sample of Chinese listed firms and also find a U-shaped relation between state shareholdings and firm value. That is, firm value deceases with state shareholdings at a lower level of state ownership, however, when state shareholdings excess a certain threshold (about 30%-40%) in their study, firm value increases with the shareholding of state owners.

shareholders. More importantly, for firms with a higher level of ownership, the incentive alignment effect of large shareholdings through their impact on capital expenditures is stronger in scenarios where agency conflicts are more intensified, that is, firms are associated with better investment opportunities, higher cash flows, or lower cash dividend payouts. These findings suggest that, in the emerging Chinese stock market where external monitoring mechanisms are weak, incentive-aligned large shareholders play an important role in addressing agency problems.

By investigating the channel through which large shareholdings affect firm value, our paper complements the finance literature on the value effect of ownership. Jensen and Meckling (1976), Shleifer and Vishny (1986), and Shleifer and Vishny (1997) contend that large shareholders have strong incentives to collect information and oversee managers, and thus avoid the conventional free-rider problem and enhance firm value. However, there is conflict of interests between large and small shareholders, and large shareholders may expropriate the wealth of monitory shareholders, resulting in value destruction. Shleifer and Vishny (1997), Morck, Shleifer, and Vishny (1988), Stulz (1988), McConnell and Servaes (1990), and Claessens, Djankov, Fan, and Lang (2002) provide evidence showing that the incentive-alignment and entrenchment effects of large shareholdings co-exist in the U.S and East Asian listed companies, which results in a non-monotonic relation between the level of large shareholdings and firm value. In this paper, we document a U-shaped relation between large shareholdings and firm value in the Chinese stock market. More importantly, we identify that corporate investment policy is a channel through which the cost and benefit of large shareholdings are manifested.

Our paper is related to the literature that links corporate governance with investment

policies. Denis, Denis, and Sarin (1997), Hartzell, Sun, and Titman (2006), among others, show that managers who are better monitored or controlling shareholders who are incentive-aligned tend to adjust investments to maximize firm value according to investment opportunities. Richardson (2006) reports that certain ownership structures like active shareholders serve to contain a firm's over-investment behavior. However, less is understood how outside investors are benefited if a firm's over-investment behavior is contained. Titman, Wei, and Xie (2004) is an exception. Titman, Wei, and Xie examine the relation between abnormal investment and stock returns for a sample of U.S firms and find that firms that increased capital investments subsequently achieve negative benchmark-adjusted returns for at least 5 years and this negative relation disappeared in the period when hostile takeovers were active. These authors conclude that the negative relation between investment and stock returns results from managerial over-investment, while external governance mechanisms place some constrains on the over-investment behavior. In this paper, we explicitly test the hypothesis that the relation between capital expenditures and firm value differ between firms controlled by incentive-aligned and entrenched large shareholders.

Our paper also relates to the vast amount of literature on the privatization of state owned enterprises (SOE). Previous studies show that state ownership is detrimental to firm performance (Vickers and Yarrow, 1988; Shleifer and Vishny, 1998; Megginson and Netter, 2001). Several researchers have also argued that state ownership is preferential to firm performance or firm value (Kole and Mulherin, 1997; Blanchard and Shleifer, 2000). By studying the value effect of state ownership though its impact on capital expenditures in a large sample of share-issue privatized firms in the Chinese stock market, this paper

complements the privatization literature and integrates the above two seemly conflicted arguments into a unified explanation. Our paper shows that the value effect of state ownership critically depends on the level of ownership. State ownership contributes to firm value only when state shareholders are incentive aligned with other shareholders. Moreover, this paper shows that corporate investment policy is one of important channels through which state ownership influences firm value, which results in the U-shaped relation between the level of state shareholdings and firm value as shown by, for example, Tian and Estrin (2005).

A recent study related to ours is Dittmar and Mahrt-Smith (2007). Dittmar and Mahrt-Smith investigate the value effect of corporate governance by focusing on corporate cash holdings of listed firms in the U.S. stock markets. These authors find that poorly governed firms earn low accounting returns when they invest on excess cash reserves in assets and this negative effect is offset if a firm is well governed. Our paper differs from theirs by identifying capital expenditures as an alternative important channel through which well-governed firms restrain over-investment behavior.

The remainder of this paper is organized as follows. In Section 2, we discuss the related literature and hypothesis development. Section 3 consists of data description and summary statistics. Section 4 presents the methodology and empirical results. In Section 5, we provide further evidence on the value effect of ownership through its impact on capital expenditures conditional on investment opportunities, cash flows, and cash dividend payouts. Section 6 examines the value effect of large shareholdings using stock return as an alternative measure of firm value. The final section concludes.

2. Related literature and hypothesis development

2.1 Related literature

A. Large investors and firm value

Corporate governance serves as a mechanism to monitor managerial opportunistic behavior and to align the incentives between insiders and outside investors. In spirit of Jensen and Meckling (1976), concentrated ownership and large shareholdings are perceived as the most direct way to address the conflicts of interest between shareholders. As Shleifer and Vishny (1997, p.758) argued that, "(T)he benefit from large shareholders is theoretically clear: they have both the interests in getting their money back and the power to demand it." In particular, large shareholders have enough control rights to put pressures on management, or even oust management through proxy fights or takeovers. Therefore, large investors could effectively address the agency conflicts between managers and shareholders and between large and small shareholders, and have their interests to be respected (Shleifer and Vishny, 1986; Burkart, Gromb, and Panunzi, 1997; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2002).

The presence of large shareholders is also associated with costs. The separation of ownership and control allows controlling shareholders to pursue their private benefits because their interests do not necessarily coincide with those of other shareholders, managers, or employees (Shleifer and Vishny, 1997). Controlling shareholders tend to enjoy corporate resources exclusively, which is often achieved through expropriating minority shareholders (Zingales, 1994; Johnson, La Porta, Lopez-de-Silanes, and Shleifer, 2000; Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2007).

The co-existence of cost and benefit of large investors predicts a non-linear relation

between large shareholdings and firm value. Empirically, Morck, Shleifer, and Vishny (1988) examine the relation between the ownership of large shareholders and profitability of firms, as measured by Tobin's Q for a sample of U.S firms. These authors focus on the investigation of one of important types of large shareholdings – managerial ownership. Morck, Shleifer, and Vishny report an inverse U-shaped relation between managerial ownership and firm value, that is, profitability of firms rises in the range of ownership between 0-5 percent, and falls afterwards. One interpretation of their findings is that, consistent with the role of incentives in reducing agency costs, firm profitability increases with managerial ownership due to the incentive-alignment effect of managerial ownership, however, when managerial ownership exceeds a certain level, managers become entrenched and pursue private benefits at the expense of outside investors. Stulz (1988), McConnell and Servaes (1990), and Claessens, Djankov, Fan, and Lang (2002) also show that the incentive-alignment and entrenchment effects of large shareholdings co-exist in the U.S and East Asian listed companies, which results in a non-monotonic relation between large shareholdings and firm value.

However, extant literature has provided little clue as to how the value effect of large shareholdings is achieved. A recent study of Dittmar and Mahrt-Smith (2007) appears the first attempt to attack on this issue. Dittmar and Mahrt-Smith investigate the value effect of corporate governance by focusing on corporate cash holdings of listed firms in the U.S. stock markets. These authors find that poorly governed firms earn low accounting returns when they invest on excess cash reserves in assets and this negative effect is offset if a firm is well governed. These findings imply that corporate cash policy is a channel through which corporate governance affects firm value. Our paper differs from Dittmar

and Mahrt-Smith (2007) by showing that corporate investment policy is another important channel through which the value effect of large shareholdings is achieved.

B. Detrimental and preferential effects of state ownership

Previous studies show that state ownership is detrimental to firm performance (Vickers and Yarrow, 1988; Shleifer and Vishny, 1998; Megginson and Netter, 2001). This strand of literature contends that state-owned enterprises in general do a poor job of monitoring management, they underperform those without government ownership, and their performance improves after privatization. Shleifer and Vishny (1994) present a model in which listed firms are dominated by the government as shareholder in a typical emerging market environment. The controlling owner often interferes in corporate activity using its voting rights to influence business decisions, and the political interference is usually at the expense of corporate profitability. Frye and Shleifer (1997) and Shleifer and Vishny (1998) argue that government may have a "grabbing hand", leading it to expropriate other shareholders' wealth in public firms. The expropriation may be facilitated through the politically connected directors sitting on the corporate board. The expropriation of shareholders' wealth by state owners results from the fact the government bureaucrats are corrupted, and often impose predatory regulations on firms and their will in commercial disputes with these firms. Moreover, state owners may play a social role, expropriating other shareholders' wealth to benefit other members of society. In the context of Chinese listed firms, Bai, Liu, and Song (2004) show that state controlled firms usually trade at a discount compared with other firms. Sun and Tong (2003) analyze a large sample of share-issue privatized firms in China and find that firm performance is significantly improved after share-issue privatization.

Several researchers have also argued that state ownership is preferential to firm performance or firm value because these firms can gain from close connections with governments (Kole and Mulherin, 1997; Shielifer and Vishny, 1998; Blanchard and Shleifer, 2000). These specific benefits from political connections include borrowing on preferential terms from state-owned banks (Khwaja and Mian, 2005), government sponsored bailouts (Faccio, Masulis, and McConnell, 2006). Blanchard and Shleifer (2000) and Qian (2003) contend that state ownership of Chinese firms is helpful to firm performance because government has strong market interests in the successful performance of state owned firms and has clearly articulated guideline to remove managers if they are responsible for financial losses over a certain period. By studying the value effect of state ownership though its impact on capital expenditures in a large sample of share-issue privatized firms in the Chinese stock market, this paper complements the privatization literature and integrates the above two seemly conflicted arguments into a unified explanation. Our paper shows that the value effect of state ownership critically depends on the level of ownership. State ownership contributes to firm value only when state shareholders are incentive-aligned with other shareholders. Moreover, this paper identifies capital expenditures as an important channel through which state ownership influences firm value, which results in the U-shaped relation between the level of state shareholdings and firm value as shown by, for example, Tian and Estrin (2005).

C. Corporate governance and investment policy

The Q-theory of investment first proposed by Tobin (1969) and extended to models of investment assuming convex costs of adjusting capital stock by Hayashi (1982) and

Cochrane (1991) show a positive relation between investment and marginal Q. Since firms choose the level of investment to maximize the firm value, investors rationally value the future cash flows of firms using an appropriate discount rate, and therefore, the level of investment is negatively associated with the discount rate or the expected return of the firm. Cochrane (1991), Lamont (2000), Li, Livdan, and Zhang (2007), among others, find evidence supportive of the negative investment-return relation in the U.S stock markets.

Although elegant and empirically supported, the Q-theory is derived under assumptions of perfect financial markets. In the real world, however, firms' capital investment policy is often influenced by agency conflicts, asymmetric information, and other market imperfections. In particular, the negative investment-return relation may not hold because agency conflicts can prevent a firm from behaving optimally to adjust capital expenditures.[4] Based on this observation, recent research attempts to relate investment policy to corporate governance. Denis, Denis, and Sarin (1997) and Hartzell, Sun, and Titman (2006) find that managers who are monitored better or controlling shareholders who are incentive-aligned tend to adjust investments to maximize firm value according to investment opportunities. Richardson (2006) reports that certain governance structures like active shareholders serve to contain a firm's over-investment behavior. Hoshi, Kashyap, and Scharfstein (1991) show that certain outsiders such as banks tend to reduce information cost of the firm and make them suffer less from liquidity constraints. Titman, Wei, and Xie (2004) report that firms that increased capital investments subsequently achieve negative benchmark-adjusted returns for at least 5 years, and this

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[4] For the literature on the agency explanation of investment policy, see Jensen (1986), Shleifer and Vishny (1989), Stulz (1990), Titman, Wei, and Xie, (2004).

negative relation between investment and returns disappeared over the period with active hostile takeovers.

Therefore, corporate governance, particularly ownership structure, plays a crucial role in influencing firm value through monitoring investment projects.[5] Theoretical models demonstrate the "governance effect" using the marginal cost of expropriation through over-investment, which increases with the strength of shareholder protection. The stronger corporate governance, the higher the cost of expropriation, and therefore, the lower the tendency of over-investment (Himmelberg, Hubbard, and Love, 2006; Li, 2007; Albuquerque and Wang, 2008). However, less work is done on how corporate governance influences firm value through its impact on capital expenditures. In this paper, we complement the related literature by investigating the impact of large shareholdings on the relation between capital expenditures and firm value.

2.2. Hypotheses

Combining the above strands of literature, we hypothesize that the trade-off between cash flow claims and private benefits of large investors influence corporate investment policy, which in turn affects firm value. When the level of large shareholdings is low, large shareholders tend to be entrenched, resulting in over-investment, and subsequently lower firm value. In contrast, by putting their substantial stake in a firm up to a certain level, large shareholders are incentive aligned with other shareholders, which contains the over-investment behavior, and leads to value creation. Therefore, our main hypothesis is thus stated as follows.

H1: Firms controlled by entrenched large shareholders have a tendency to

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5 For the related literature, please refer to Jensen and Meckling (1976), Denis, Denis, and Sarin (1997), Burkart, Gromb, and Panunzi (1997), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002), Himmelberg, Hubbard, and Love

over-invest, resulting in value destruction, while the negative effect of over-investment is offset or the value creation effect presents if firms are controlled by incentive-aligned shareholders.

Extant literature documents evidence that firms are prone to over-invest in certain scenarios where agency conflicts are more intensified, for example, when firms face good investment opportunities, possess abundant free cash flows, etc. Philippon (2006) and Li (2007) argue that managerial overinvestment is increased in good times because management is left with more discretionary authority. Jensen and Meckling (1976), Jensen (1986), Bertrand and Mullainathan (2005), Richardson (2006), among others, point out that firms tend to over-invest when they possess higher levels of cash flows. Easterbrook (1984), Jensen (1986), La Porta, Lopez-de-Silanes, Shleifer, and Vishny. (2000), and Albuquerque and Wang (2008) find that over-investment is positively associated with cash dividend cuts. Corporate governance aims at mitigating the conflict of interest, and therefore, we conjecture that over-investment behavior is better contained for well-governed firms when agency conflicts are more intensified. Thus, our further hypothesis is stated as follows.

H2: The incentive-alignment effect of large shareholdings in mitigating over-investment is stronger in scenarios when agency problems are more intensified.

3. Data

Our sample consists of all listed companies traded on the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) over the 1999-2004 interval. A firm that is included in our sample must satisfy the following criteria. First, a firm should have financial data for at least 4 consecutive years to compute abnormal capital investment.

(2006), Albuquerque and Wang (2008), and Li (2007).

This also serves to exclude firms that suffer from significant performance deterioration subsequent to their IPOs (Chan, Wei, and Wang, 2004; Wang, 2005). Second, a firm must not be a designated Particular Transfer (PT) company. PT is referred to as a firm that has been losing money for at least three continuous years and its shares can only be traded on Fridays under special arrangements. Lastly, a firm must have complete financial and ownership information. This data screening procedure results in 3384 firm-year observations. All of our financial data and ownership data are collected from the Chinese Stock Market and Accounting Research Database (CSMAR).

Panel A of Table 1 presents the distribution of our sample by exchange and by calendar year. Our sample consists of 163 firms on the SHSE and 111 firms on the SZSE in 1999. By the end of 2004, the number of listed companies in our sample increased to 442 and 410 for the SHSE and the SZSE respectively. This roughly mirrors the rapid growth of Chinese stock market over the sample period. Accordingly, the later two years contribute almost half of our firm-year observations.

[Insert table 1 here.]

Following Titman, Wei, and Xie (2004), we use the abnormal capital investment (CI_t) to measure the level of capital expenditures. CI_t for a firm in year t is computed as

$$CI_t = \frac{CE_t}{(CE_{t-1} + CE_{t-2} + CE_{t-3})/3} - 1 \quad ,$$

where CE_t is a firm's capital expenditures in year t scaled by total sales, and capital expenditure is measured as the change in value of fixed assets, intangible assets, and short-term capital investment from year $t-1$ to t. The simple average of CE_{t-1}, CE_{t-2}, and CE_{t-3} provides a benchmark level of a firm's capital expenditures. We delete the CI_t observations if the level of investment benchmark is negative. A positive (negative) CI_t

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indicates that a firm's capital expenditures in year t are greater (smaller) than the prior 3 years' average.

We measure ownership structure in the Chinese stock market in two dimensions: Non-tradable shareholdings (*NON_TRADE hereafter*) and state shareholdings (*STATE hereafter*). High levels of non-tradable shareholdings represent the key feature of corporate governance in China (Chen and Xiong, 2002; Wang, 2005). *NON_TRADE* is defined as the percentage of non-tradable shares over total shares outstanding of a firm. Non-tradable shareholdings consist of two categories: state shareholdings (STATE) and legal-entity shareholdings. Legal-entity shares are those held by domestic institutions such as listed companies, financial institutions, etc. STATE is the number of shares held by the State Asset Management Commission, State Asset Management Bureaus of provincial or municipal governments, or large state-owned corporations divided by the total share outstanding of a listed firm.

Tobin's *Q* is used as the main proxy for firm value in this paper. Tobin's Q is calculated as the sum of market value of common stocks and book value of total debts scaled by total assets. One difficulty with measuring Tobin's Q in the Chinese stock market is that there is no consensus in computing the market value of a listed firm with a large portion of non-tradable shares. Investigating a sample of non-tradable share transfers in a Shanghai-based OTC market, Chen and Xiong (2002) report that non-tradable shares have an average illiquidity discount of about 70% to 80% compared to the corresponding tradable shares. Moreover, the ownership-split reform started in 2005 establishes a norm, that is, non-tradable shareholders typically offer 30 percent of their shares to tradable shareholders to obtain the marketability options. Thus, in this

study we compute the market value of non-tradable shares as the product of 70 percent of corresponding tradable share price and the number of non-tradable shares.[6] As a robustness check, we also utilize the annualized stock return to measure firm value. The annualized stock return is calculated by compounding the monthly stock return over the year for each firm.

Panel B of Table 1 presents summary statistics of capital expenditures, Tobin's Q, stock returns, and ownership variables. The mean (median) of abnormal capital expenditures (CI) is -0.0301 (-0.5494) over the sample period, with a standard deviation of 27.3474, suggesting that the distribution of *CI* is highly skewed, and the level of abnormal capital expenditures is quite volatile. The mean (median) of Tobin's Q is 2.13 (1.63), with a standard deviation of 2.06, which is high compared to that in developed markets, but comparable to that in Bai, Liu, and Song (2004) and Tian and Estrin (2005) in the Chinese stock market. Over our sample period, the mean annual return is -5.04% and the standard deviation of return is 0.40, suggesting that the Chinese stock market was in general a declining market over the 1999-2004 interval.

NON_TRADE has a mean of about 59% and a standard deviation of about 0.14%. The average percentage of state shareholdings (*STATE*) is about 56%, and the standard deviation is 0.14%. These figures indicate the dominance of non-tradable shares and state's significant influence on listed companies in the Chinese stock market.

3. Empirical results

The aim of our paper is to investigate the value effect of large investors through their impact on capital expenditures. To do so, we first attempt to identify the non-linear

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[6] Bai, Liu, Song, and Zhang (2005) use a similar approach to measure Tobin's Q for Chinese listed companies.

relation between ownership and firm value by regressing Tobin's Q on the level of

ownership and squared ownership at the end of previous fiscal year (Tian and Estrin,

2005; Wang, 2005). The empirical model is specified as

$$Y_{it} = \alpha + \beta_1 OWN_{it-1} + \beta_2 OWN_{it-1}^2 + \sum_{j=1}^{j} \delta_j X_{it}^{\ j} + \varepsilon_{it}$$

(1)

where Y_{it} is the Tobin's Q for firm i in year t, and $OWN_{i,t-1}$ denotes non-tradable

(*NON_TRADE*) or state shareholdings (*STATE*) for firm *i* in year *t-1*.

Following the literature, control variables (X^j) used in this study include firm size

(SIZE), leverage (LEV), age of a listed firm (AGE), sales to asset ratio (SALE), B- or

H-share listings (BH), designated Special Treatment status (ST), industry (IND), and year

(YR). SIZE is measured as the natural logarithm of total assets at the end of previous

fiscal year. Firm size also captures information about a firm's growth stage. LEV is the

total long-term debt scaled by total assets, which is correlated with firms' both

accounting and market performance (Titman and Wessels, 1988; Rajan and Zingales,

1995). SALE is measured as the total sales scaled by total assets, which controls for the

firms' profitability effect on Tobin's Q. AGE is the number of years of a firm since its

IPO year. Because almost all earlier listed firms in China are re-constructed from state

owned enterprises, AGE not only measures the life cycle of the firm, but also is

correlated with state shareholdings. EX is a dummy variable that is equal to one if a firm

is listed on the Shanghai Stock Exchange, and zero if it is listed on the Shenzhen Stock

Exchange. BH is a dummy variable that equals one if a firm also issues B- or H-shares,

and zero otherwise. Firms issued B- or H-shares are regarded as receiving more strict

supervision than those of A-shares, resulting in different market valuation compared to

those of A-shares. ST is a dummy variable that equals one if a firm is a designated

Special Treatment (ST) in year t, and zero otherwise. We control for ST because

propping is pervasive when a listed firm gets into financial distress and the firm is likely

to be designated as ST (Bai, Liu, and Song, 2004). IND is a dummy variable to indicate

the industry in which a firm mainly operates. We use industry classification system of the

CSRC (China Securities Regulatory Commission) and obtain 20 industry dummy

variables. The year dummy (YR) is included to control for variation in macro-economic

conditions across the time.

[Insert table 2 here.]

Panel A of Table 2 presents the coefficient estimates for ownership and squared

ownership variables. The coefficient estimates for OWN_{it-1} are negative and significant at

the 1% level, and the coefficients for OWN^2_{it-1} are positive and significant at the 1% level

for both of the two ownership variables. Thus, there is a U-shaped relation between

ownership and firm value in the Chinese stock market. Based on the squared functional

form, we compute the turning points using the first-order condition for each ownership

variable. The turning points for non-tradable and state ownership are about 46% and 43%,

respectively.

The results in Table 2 on the non-linear relation between ownership and firm value

are broadly consistent with the hypothesis that the alignment-of-interest and large

shareholders' expropriation co-exist to influence firm value (Jensen and Meckling, 1976;

Fama and Jensen, 1983; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998;

Claessens, Djankov, Fan, and Lang, 2002). In the Chinese stock market, large

shareholders with a lower level of cash flow rights tend to expropriate minority

shareholders. As ownership of large shareholders increases to a certain level, the alignment-of-interest effect dominates. Shleifer and Vishny (1997), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999), and Dharwadkar, George, and Brandes (2000) show that the expropriation of value by controlling shareholders is the greatest source of agency problems. In East Asian economies, Claessens, Djankov, Fan, and Lang (2002) find that the expropriation of minority shareholders is a rule rather than an exception. Tian and Estrin (2005) also document a U-shape relation between state shareholdings and Tobin's Q over the 1992-1998 interval in the Chinese stock market. The U-shape relation suggests that, on the one hand, state as a large shareholder of a typical firm tends to expropriate other shareholders when its cash flow rights are relatively small; on the other hand, when state ownership is high state shareholder has an incentive to improve corporate value via monitoring managers and providing preferential treatments via, for example, bank loans, direct government purchases, preferential pricing policy, etc. Wang (2005) finds a similar non-linear relation between ownership structure and operating performance of Chinese IPOs.

To analyze the value effect of large investors through their impact on capital expenditures, we classify our sample into two groups: A and B. Group A consists of firms whose non-tradable or state shareholdings are above the turning point estimated from Equation (1), and Group B includes firms whose non-tradable or state shareholdings are below the turning point. Firms in Group B can be seen as controlled by "entrenched shareholders," while firms within group A as controlled by "incentive-aligned shareholders." To check whether capital investment is endogenously determined by ownership structure, we provide the distributional characteristics of the level of capital

investment (*CI)* in Panel B of Table 2. The result shows no evidence that there is a

significant difference in means or medians of *CI* between the high and low ownership

groups.

Based on the estimated U-shape cutoffs in Equation (1), we investigate the value

effect of ownership through its impact on capital expenditures by conducting the

following OLS regressions

$$Y_{it} = \alpha + \beta CI_{it-1} + \gamma CI_{it-1} \times OWNDUM_{it-1} + \lambda OWNDUM_{it-1} + \sum_{j=1}^{J} \delta_j X_{it}^{\ j} + \varepsilon_{it} \qquad (2)$$

where $OWNDUM_{it-1}$ is a dummy variable that is equal to one if the percentage of

ownership (*NON_TRADE* or *STATE)* is above the turning point estimated from Equation

(1), and zero otherwise. The control variables are the same as those in Equation (1). We

focus on the analysis of the relation between lagged abnormal capital expenditures and

firm value to alleviate potential concerns about endogeneity between investment and firm

value. These concerns arise because the level of capital expenditures is positively related

to a firm's Tobin Q in year t-1 that is commonly considered as a proxy for investment

opportunities, and the Q at the beginning of year t determines the level of capital

expenditures (Denis, 1994；Lang, Ofek, and Stulz, 1996). The inclusion of $OWNDUM_{it-1}$

into the equation allows for control of other governance factors influencing firm value

other than capital expenditures.

We conjecture that, given that agency conflicts influence investment policy, capital

expenditures will result in distinct effects on subsequent Tobin's Q between groups of

firms with higher and lower levels of non-tradable or state shareholdings. In particular, γ

is expected to be positive. A positive coefficient for the interaction term indicates that,

capital expenditures add to firm value if firms are controlled by incentive aligned

shareholders.

Table 3 reports the results of estimating Equation (2). The estimation results of

model (1) show that the coefficients for abnormal capital expenditures are insignificant

when only abnormal capital expenditures and control variables are included. The

estimated coefficient on abnormal capital expenditures is 0.0001 (t= 0.12), suggesting

that, without specifying the type of controlling shareholders, capital expenditures have no

effect on the subsequent firm value. Model (2) includes a dummy variable (*NONDUM*)

that is equal to one if the level of non-tradable shareholdings is greater than the estimated

turning point, and zero otherwise as reported in Table 2, and the interaction term between

CI and *NONDUM*. Estimation results show that the estimated coefficients on *CI* and

CI×*NONDUM* is -0.0059 (t = -3.24) and 0.0063 (t = 3.09) respectively. This suggests

that capital expenditures contribute positively to firm value only when the level of

non-tradable shareholdings exceeds the turning point. The magnitude of estimated

coefficient for *CI* is smaller than that of *CI*×*NONDUM*. It appears that firms in general

tend to over-invest, however, the negative effect of over-investment is cancelled out if the

firms are controlled by incentive-aligned shareholders. These findings imply that, the

commonly reported positive relation between ownership and firm value could be

attributable to the fact that incentive aligned shareholders-controlled firms are associated

with a prudent corporate investment policy. To better understand the coefficient on the

interaction term, consider a firm has one unit of abnormal capital expenditures. If

ownership has no value effect, the coefficient would be zero. The estimated coefficient on

the interaction term implies that one unit of abnormal capital expenditures is associated

with an increase of firm value by 0.63% for firms controlled by inventive aligned shareholders, which is both statistically and economically significant. Similarly, in model (3) we examine the value effect of state shareholdings via capital expenditures. The results reported in column (3) show that the coefficients for *CI* and *CI×STATEDUM* are -0.0069 (t=-4.90) and 0.0074 (t=4.39) respectively, suggesting that capital expenditures contribute to firm value only when the level of state ownership exceeds the turning point, and capital expenditures are one of important channels through which the cost and benefit of state shareholdings are manifested.

[Insert table 3 here.]

The results in Table 3 show that ownership structure significantly influences the relation between capital expenditures and firm value. The over-investment behavior is significantly contained if a firm is associated with a higher level of non-tradable or state shareholdings. Related to the large body of finance literature showing that corporate governance or ownership structure affects firm value (Jensen and Meckling, 1976; Morck, Shleifer, and Vishny, 1988; McConnell and Servaes, 1990; Claessens, Djankov, Fan, and Lang, 2002; Gompers, Ishii, and Metrick, 2003; Joh, 2003), our findings suggest that the value effect of corporate governance derives at least partly from corporate investment policy. Firms controlled by incentive-aligned shareholders tend to acquire additional capital to enhance firm value.

4. Further analyses

In the previous section, we have verified that conflicts of interest significantly influence corporate investment policy, and the value of one unit of abnormal capital

expenditures is significantly greater if firms are controlled by incentive-aligned shareholders than those controlled by entrenched shareholders**.** In this section, we focus on several explicit agency settings to further analyze the value effect of ownership through its impact on capital expenditures. We conjecture that, given that large shareholders play an important role in addressing the conflicts of interest between managers and shareholders and between large and small shareholders, the incentive-alignment effect of large investors is stronger for firms with more intensified agency conflicts. To investigate this hypothesis, we examine the cross-sectional variations of capital expenditure-Q relations with the level of large shareholdings conditional on several variables, including investment opportunities, cash flows, and cash dividend payouts. These variables are selected because they not only contain agency implications but also influence corporate investment policy.

4.1. *Large investors, capital expenditures, and firm value conditional on investment opportunities*

Recent research has shown that, conditional on investment opportunities, the level of capital expenditures is influenced by the conflict of interest between shareholders. Specifically, facing bleak future growth, capital expenditures of firms controlled by incentive-aligned shareholders will be adjusted instantly to the optimal level, while this is not the case for firms controlled by entrenched shareholders (Denis, Denis, and Sarin, 1997). While facing prospective growth, incentive aligned shareholders-controlled firms will utilize potential growth opportunities for value-maximization purpose (Hartzell, Sun, and Titman, 2006). In contrast, by withholding substantial cash flows or being delegated with more authorities, opportunistic controllers have an incentive to force the firm to take

on risky projects (Jensen and Meckling, 1976; Philippon, 2006; Li, 2007). This would be especially the case for a firm that experienced superior past performance and consequently generates richer cash flows (Jensen, 1986). Since entrenched controlling shareholders are likely to abuse their prestige in good times, given better investment opportunities, the difference in capital expenditures-Q relations between firms controlled by entrenched and incentive-aligned shareholders could be more pronounced. Therefore, we conjecture that, given investment opportunities, the value effect of ownership is stronger for firms with a higher level of ownership than that for firms with a lower level of ownership; while given a higher level of large shareholdings, the incentive-alignment effect of large investors is greater for firms facing prospective growth than for those with bleak future growth.

To examine the value effect of ownership through its impact on capital expenditures conditional on investment opportunities, we classify a firm whose Tobin's Q in the previous fiscal year is above the industry median over the same interval into the "*good investment opportunity*" group, and a firm whose Tobin's Q in the previous fiscal year is below the industry median into the "*bad investment opportunity*" group. Tobin's Q at the beginning of period has been widely used as a proxy for investment opportunity in the previous studies (Denis, 1994；Lang, Ofek, and Stulz, 1996). We then conduct OLS regressions for each investment opportunity-based group using the model as specified in Equation (2).

[Insert Table 4 here]

Table 4 reports the regression results conditional on investment opportunities. Columns (1)-(3) present the regression results for firms with bad investment opportunities.

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The coefficients for *CI×NONDUM* and *CI×STATEDUM* are 0.0029 (t= 1.52) and 0.0028 (t=1.39) respectively. The value effect of capital expenditures is positive but insignificant even for firms with a higher level of non-tradable shareholdings or state shareholdings. The coefficient estimates for CI are –0.0032 (t= -1.66) and –0.0031 (t= -1.52) for the NONTRADE and STATE regressions respectively.

Columns (4)–(6) show the results for good investment opportunities. The coefficient estimate on CI is 0.0012 but insignificant if agency problems are not accounted for. When the interaction term is added into the regression model, both coefficients on CI and the interaction term between CI and ownership dummy are significant. The coefficients for CI are –0.0036 (t= 3.01) and –0.0046 (t= -4.10) for NONTRADE and STATE regressions respectively. The estimated coefficients on *CI×NONDUM* and *CI×STATEDUM* are 0.0051 (t= 3.60) and 0.0062 (t= 4.62) respectively. These results suggest that only firms controlled by incentive-aligned shareholders quickly adjust their investment policy for value creation, while firms controlled by entrenched shareholders tend to over-invest when future opportunities are good. It is noted that the difference in magnitude of coefficient estimates between CI and OWNDUM is larger than that in Table 3. For example, β + γ is equal to 0.0015 (0.0051-0.0036) for NONTRADE regressions for firms with good investment opportunities, while this figure was 0.0004 in Table 3. Similar results hold true for STATE regressions. These findings imply that the incentive-alignment effect through its impact on capital expenditures is stronger when agency problems are more intensified. Our results also show that, given ownership structure, the value effect of capital expenditures is greater when investment opportunities are good than those when investment opportunities are bad. For example,

the coefficient on *CI×STATEDUM* is 0.0062 (t = 4.62) for firms with "good investment opportunity", while it is only 0.0028 (insignificant) for firms with "bad investment opportunity".

In summary, results in Table 4 show that entrenched shareholders display more discretion in investment policy and have a tendency to invest for opportunistic purposes. In contrast, firms controlled by incentive-aligned shareholders show a more prudential investment policy that leads to value creation. Moreover, the incentive-alignment effect of firms with a higher level of large shareholdings is stronger than when firms face bleak investment opportunity. Our findings are consistent with the agency explanations for the value effect of large investors, that is, agency conflicts are more intensified when firms are facing good growth opportunity.

4.2. Large investors, capital expenditures, and firm value conditional on cash flows

In this subsection, we analyze the value effect of ownership through its impact on capital expenditures conditional on cash flows. Jensen (1986) argues that firms with higher cash flows tend to over-invest. More recent studies documented evidence consistent with this free cash-flow view of over-investment. For example, using data from auctions of oil and gas leases, Bertrand and Mullainathan (2005) report that bidders overpay for less productive leases without expanding the scale of operations when cash flows are abundant. Richardson (2006) examines a large sample of U.S listed companies over the 1988-2002 interval and finds that firms with positive free cash flows on average over-invest 20 percent of their free cash flows, and over-investment of free cash flows is a systematic phenomenon across all types of capital expenditures. If agency problems explain the over-investment for firms with high cash flows as suggested by the extant

literature, corporate governance should play a key role in containing a firm's over-investment behavior. Therefore, we expect that, for firms with a higher level of large shareholdings, the incentive-alignment effect is greater for firms with a higher level of cash flows than for those with a lower level of cash flows.

To examine the above hypothesis, we classify a firm into the "*high cash flow*" group if its cash flow is above the industry median at the end of year *t-1,* and a firm into the "*low cash flow*" group if its cash flow is below the industry median. Cash flow is measured as the ratio of after-tax earnings plus depreciation and amortization minus payments of interest expenses, and cash dividends scaled by total assets. In each cash flow-based group, we classify firms into high ownership and low ownership groups based on the estimated turning points of Table 2. We then conduct OLS regressions for each cash flow-based group using the model specification similar to Equation (2).

[Insert table 5 here]

Table 5 reports the regression results of the value effect of large shareholdings via capital expenditures conditional on cash flows. Columns (1)-(3) present the regression results for the "*low cash flow*" group. The coefficient for CI is 0.0018 (t=2.23) when ownership variables are not included, suggesting that firms with lower cash flows contain their over-investment behavior to some extent, and therefore, capital expenditures are positively associated with firm value. Results in columns (2) and (3) show that the positive relation between capital expenditures and firm value arises solely from firms that are controlled by incentive-aligned shareholders. The estimated coefficients on *CI* and *CI×NON*DUM for the NONTRADE regression are -0.0055 (t= -3.08) and 0.0063 (t= 3.84) respectively. The magnitude of coefficient for *CI×NON*DUM is larger than that for

CI. Thus, the positive value effect from incentive aligned shareholders controlled firms surpasses the value destruction effect resulting from over-investment. Consistent with the previous results, comparing with the entrenched shareholders, incentive-aligned shareholders tend to undertake positive NPV projects to enhance firm value. In column (4), the coefficient estimate for CI is –0.0016 (t=-2.24) without the interaction term when cash flows are high, which is larger in magnitude than that when cash flows are low. This suggests that, on average, firms tend to over-invest corporate resources when they are financially slack. When the interaction terms are added in columns (5) and (6), the results show that ownership plays an important role in containing over-investment behavior when cash flow is high. The estimated coefficients on CI and *CI×NONDUM* for the NONTRADE regression are -0.0059 (t=-3.47) and 0.0072 (t=2.63) respectively. Thus, consistent with the previous findings, the value of one unit of capital expenditures is significantly greater if firms are controlled by incentive aligned shareholders. Note that the difference in the magnitude of coefficients between *CI×NONDUM* and CI is 0.013 for firms with higher cash flows, while it is 0.0008 for firms with lower cash flows. The regression results for state shareholdings are similar to those of non-tradable shareholdings. The larger difference in the coefficients for firms with high cash flows than for those with low cash flows suggests that the incentive-alignment effect of large shareholdings is stronger for firms with more intensified agency problems, consistent with the argument of Jensen (1986) that ownership structure alleviates the free cash-flow problem.

To summarize, our results in Table 5 show that, the incentive-alignment effect is greater for firms with a higher level of cash flows. Moreover, consistent with the previous

findings, for firms with the same degree of financial slack, firms tend to over-invest if they are controlled by entrenched shareholders, while the negative effect of over-investment is offset when firms are controlled by incentive-aligned shareholders.

4.3. Large investors, capital expenditures, and firm value conditional on dividend payouts

Agency theories suggest that entrenched managers or controlling shareholders tend to retain earnings for personal usage or pursuing unprofitable projects that generate private benefits (Easterbrook, 1984; Jensen, 1986). Thus, to protect minority shareholders being expropriated by managers or large shareholders, firms will be forced to disgorge cash if there is no room for expansion (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2000). However, entrenched corporate controllers may cut dividends arbitrarily to finance over-investment (Albuquerque and Wang, 2008). Therefore, we would expect that, given dividend payout changes, the value effect of ownership is stronger for firms controlled by incentive-aligned shareholders than for those controlled by entrenched shareholders; while given a higher level of large shareholdings, the incentive-alignment effect is greater for firms with a decrease in dividend payouts than for those with an increase in dividend payouts.

To examine the value effect of ownership via capital expenditures conditional on cash dividend payouts, we classify a firm with a change of dividend payouts from year *t-1* to year *t-2* above the industry median over the same period into the "*high dividend*" group, while a firm with a cash dividend payout ratio below the industry median into the "*low dividend*" group. Dividend payout ratio is defined as the total cash dividends per share scaled by earnings per share of the firm over the same period. In each dividend

group, we further classify firms into high- and low-ownership groups based on the estimated turning points from Equation (1). A similar procedure in the previous section is followed to examine the value effect of ownership via capital expenditures conditional on cash dividends.

[Insert table 6 here]

Table 6 presents the regression results of the value effect of large shareholdings via capital expenditures conditional on dividend payout changes. Columns (1)-(3) report the results for the "*low dividend*" group. The estimated coefficient on abnormal capital expenditures without the interaction term is -0.0012 (t= -1.63), which is negative but insignificant. Therefore, it appears that firms tend to retain more earnings to finance over-investment. When the interaction terms between CI and ownership are added, the results show that the coefficient estimates on interaction terms of both the NONTRADE and STATE regressions are positive and statistically significant, while the estimated coefficients for CI are negative and significant. For example, the coefficients for CI and *CI×NONDUM* are -0.0072 (t= -4.33) and 0.0067 (t= 3.95) respectively. A similar result presents for state ownership. Therefore, only incentive aligned controllers invest prudentially when dividend payouts are decreased, while entrenched shareholders controlled firms tend to cut dividends to finance over-investment.

Results in columns (4)-(6) show that the estimated coefficients on *CI* and the interaction terms are both insignificant for the "high dividend" group. For the NONTRADE regression, the coefficients for CI and the interaction term are 0.0014 (t= 0.25) and –0.0019 (t= -0.34) respectively. These results appear inconsistent with the dividend theories, that is, either as a means of conveying information about a firm's

future profitability, or mitigating the conflict of interest between shareholders, high dividend payouts are expected to relate to higher subsequent firm value (Asquith and Mullins, 1983; Jensen, 1986; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1999, Faccio, Masulis and McConnell, 2001). Two possible reasons may explain our results. First, firms that increase their dividend payouts may have no good investment opportunities (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2000). Thus, the value effect of ownership via capital expenditures appears trivial. Second, these findings may result from the fact that the non-tradability feature of large shareholders' ownership in China forces a firm to pursue high dividend payouts for liquidation purpose. Thus, cash dividends may be used as a vehicle for tunneling, instead of alleviating agency problems (Lee and Xiao, 2004).

For firms with a higher level of ownership, the incentive-alignment effect is greater for firms that cut dividend payouts than for those that increase dividend payouts. For example, in the STATE regressions, the coefficient for $CI{\times}STATEDUM$ is 0.0068 (t = 4.10) for low dividend firms, while it is 0.0033 (t = 0.62) for high dividend firms. These findings are in line with the agency explanations for dividend policy, that is, firms that cut dividend payouts tend to over-invest, while the incentive aligned controlling shareholders play an important role in containing over-investment behavior. Similar to the effect of cash flows, cash dividends appear to another important mechanism to alleviating agency problems in the Chinese listed firms.

5. An alternative measure of firm value: Stock returns

In this section, we use stock return as an alternative measure of firm value to test

capital expenditures as a channel through which large investors affect firm value. Recent research has shown a negative relation between capital investment and stock returns, however, the negative relation is subject to alternative interpretations. Titman, Wei, and Xie (2004) document a negative relation between abnormal investment and stock returns in the U.S stock market. These authors' interpretation for their results is that investors under-react to managerial empire-building behavior. On the other hand, several studies using the real options approach argue that capital investment extinguishes risky growth options, and the risk must be lower if capital investment is financed by equity, giving rise to the negative relation between investment and the cost of capital, and thus expected return (Berk, Green, and Naik, 1999). By testing the relation between capital investment and stock returns in our context, we could distinguish between the above two conflicting interpretations by verifying whether the value effect of capital expenditures varies cross-sectionally with the level of large shareholdings. In particular, if the coefficient estimate on the interaction term between CI and OWNDUM is positive and significant, our results tend to support the agency explanation for the relation between investment and stock returns as documented in the literature.

[Insert Table 7 here]

Table 7 presents the OLS regression results of Equation (2) using annual stock returns as the dependent variable. Annual return is computed as the compounded monthly stock returns from January to December each year. The signs of estimated coefficients are similar to those in Table 3, although the estimated coefficients are not as significant as previously. In model (1) where no ownership variables are included, the coefficient for CI is -0.0001 but insignificant. However, when we add CI×OWNDUM into the equation, the

coefficient for CI turns out to be negative and the interaction term is positive. For example, in model (2) where ownership is proxied by non-tradable shareholdings, the coefficient for CI is -0.0013 (t=-1.90) and the coefficient for CI×NONDUM is 0.0012 (t=1.91). The pattern of coefficient estimates is similar to that from the STATE regressions.

Our findings in Table 7 are in general consistent with those of Table 3, suggesting that corporate investment policy is an important channel through which ownership affects firm value. Since a high level of large shareholdings tends to mitigate the agency cost of over-investment, firms controlled by incentive-aligned shareholders are more likely to invest more prudently than those controlled by entrenched shareholders. Therefore, our findings are supportive of Titman, Wei, and Xie (2004) that agency problems explain the relation between investment and stock returns.

6. Conclusions

Extant theories and evidence on large investors show a non-monotonic relation between large shareholdings and firm value (Morck, Shleifer, and Vishny, 1988; McConnell and Servaes, 1990; Shleifer and Vishny, 1997; Claessens, Djankov, Fan, and Lang, 2002; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2002). A common interpretation for this ownership-firm value relation is that, large shareholders have strong incentives as well as abilities to monitor management, leading to value creation. At the same time, large shareholders tend to expropriate minority shareholders. This paper extends the above line of research by investigating how the value effect of large shareholdings is manifested in corporate investment policy in the Chinese stock market.

To do so, we split our sample into high and low levels of ownership according to the turning point of the estimated U-shaped ownership-value relation, and investigate the value effect of capital expenditures for the higher- and lower-ownership groups over the subsequent year. We show that, while capital expenditures for firms controlled by entrenched large shareholders are negatively related to Tobin's Q (or stock return) in the subsequent year, this negative value effects are cancelled out if firms are controlled by incentive aligned large shareholders. We further investigate the value effect of ownership through its impact on capital expenditures conditional on variables like investment opportunities, cash flows, and cash dividend payouts that have implications for both agency problems and corporate investment policy. We show that, conditional on these variables, the value effect of capital expenditures differs significantly between firms with high and low levels of large shareholdings (non-tradable or state shareholdings). More importantly, the incentive-alignment effect is greater for firms with more intensified conflicts of interest. Our results are in general robust to an alternative measure of firm value - stock return.

Our paper contributes to the literature in a number of ways. First, although a large amount of literature has shown a non-monotonic relation between the level of large shareholdings and firm value, there is little evidence on how the value effect of large shareholdings is manifested in corporate financial policies. As noted by Claessens and Fan (2002) that "some corporate governance issues in Asia are clarified, many important issues are still unknown, such as how ownership structures influence investment patterns or financing structures." Our findings show that that corporate investment policy is an important channel through which the value effect of ownership is achieved. Second, our

paper contributes to the literature on corporate investment research by showing that the value effect of capital expenditures depends on the level of large shareholdings. Lastly, by investigating the value effect of state shareholdings via capital expenditures, our paper complements the privatization literature. We integrate the two conflicting viewpoints regarding SOE efficiency into the theory of large investors, that is, the preferential and the detrimental effects of state ownership. We show that state ownership contributes to firm value only when state shareholders are incentive aligned with other shareholders, and corporate investment policy is an important channel through which state ownership influences firm value.

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Table 1: Summary statistics

Panel A: Distribution of firms by calendar year

	SHSE	SZSE	Total	Percentage in the Sample
1999	163	111	274	8.10%
2000	174	120	294	8.69%
2001	272	214	486	14.36%
2002	357	330	687	20.30%
2003	410	381	791	23.38%
2004	442	410	852	25.18%
Total	1818	1566	3384	100%

Panel B: Characteristics of firm-year observations

Variable	Mean	Median	Std. Dev.	25th pctl	75th pctl	Obs
CI	-0.0301	-0.5494	27.3474	-0.9866	0.4641	2672
NON_TRADE	0.5856	0.5993	0.1353	0.5054	0.6840	3383
STATE	0.5615	0.5776	0.1408	0.4752	0.6598	3384
Tobin's Q	2.1322	1.6340	2.0550	1.2540	2.3537	3384
Return	-0.0505	-0.1598	0.4003	-0.2802	0.0574	3336
SIZE	21.0262	21.0122	0.9241	20.4319	21.6396	3384
LEV	0.5841	0.5139	0.8481	0.3790	0.6421	3384
SALE	0.5655	0.4309	0.5077	0.2617	0.7093	3383
AGE	7.2	7	1.8904	6	8	3380
BH	0.1383	0	0.3453	0	0	3384
ST	0.1090	0	0.3117	0	0	3384

Notes to Table 1:

This Table presents sample statistics over the 1999 – 2004 interval. *CI* is measured as $3CE_{t}/(CE_{t-1}+CE_{t-2}+CE_{T-3})-1$, where CE_t denotes capital expenditures of firm i scaled by its total sales in year *t,* and capital expenditure is measured as the change of fixed assets, intangible assets, and short term capital investment from year *t-1* to *t*. Q is the sum of market value of tradable and non-tradable shares and the book value of debts scaled by total assets. Market value of non-tradable shares is measured as the product of 70% of the corresponding tradable share price and the number of non-tradable shares. NON_TRADE is the percentage of non-tradable shares over total shares outstanding of a firm. STATE is the percentage of state shareholdings. Return is measured as the annual return at individual firm level. SIZE is the natural logarithm of the total assets. LEV is measured as total debt scaled by total assets. SALE is the net value of sales scaled by total assets. AGE is the number of years since a firm's IPO year. BH is a dummy variable that equals one if a firm also issues B share or H shares, and zero otherwise. ST is a dummy variable that equals one if a firm is a designated special treatment company, and zero otherwise.

Table 2 Turning points and distributional characteristics of *CI*

	Panel A: Turning Point			
	NON_TRADE		STATE	
OWN	-3.3970***		-2.7632***	
	(-6.40)		(-5.30)	
OWN^2	3.6843***		3.0986***	
	(7.45)		(6.13)	
Turning-Point	46.10%		43.29%	
	Panel B: Distributional characteristics of *CI*			
	NON_TRADE		STATE	
	Mean	Median	Mean	Median
CI(OWN_Low)	-0.7248	-0.4953	-0.7189	-0.4752
CI(OWN_High)	0.1418	-0.5604	0.1472	-0.5494
CI(OWN_High) *-CI(OWN_Low)*	0.8666	-0.0651	0.8661	-0.0742
	(0.653)	(0.446)	(0.660)	(0.686)
No. of obs (OWN_Low)	530		547	
No. of obs (OWN_High)	2142		2125	
No. of obs	2672		2672	

Notes to Table 2:

This Table presents the results of regressing Tobin's Q on the level of ownership and squared ownership, as well as distributional characteristics of *CI*. *OWN* denotes *NON_TRADE or STATE*. Turning points are calculated by setting the first order condition equal zero. Firms with a percentage of *NON_TRADE* or *STATE* below (above) the corresponding turning points are defined as *OWN_Low* and *OWN_High* respectively. z-statistics (Mann-Whitney two-sample ranksum test) are computed to compare the difference in mean (median) *CI* between *OWN_Low* and *OWN_High* groups. The Hadi method is followed to remove the outliers in Q at 1% level. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively.

Table 3: Large shareholdings, capital expenditures, and firm value

	(1)	(2)	(3)
Intercept	14.0935***	14.0668***	14.0963***
	(31.53)	(31.23)	(31.01)
CI	0.0001	-0.0059***	-0.0069***
	(0.11)	(-3.24)	(-4.90)
CI×NONEDUM		0.0063***	
		(3.09)	
CI×STATEDUM			0.0074***
			(4.39)
NONDUM		0.0151	
		(0.44)	
STATEDUM			0.0015
			(0.04)
SIZE	-0.5912***	-0.5903***	-0.5910***
	(-29.29)	(-29.15)	(-29.05)
LEV	0.2164***	0.2141***	0.2144***
	(2.61)	(2.58)	(2.59)
SALE	0.1579***	0.1585***	0.1597***
	(5.37)	(5.35)	(5.40)
AGE	0.0396***	0.0395***	0.0387***
	(5.20)	(5.17)	(5.08)
ST	0.0618	0.0661	0.0657
	(0.84)	(0.90)	(0.89)
BH	-0.1940***	-0.1893***	-0.1917***
	(-4.89)	(-4.71)	(-4.79)
IND	Yes	Yes	Yes
YEAR	Yes	Yes	Yes
Adj.R^2	0.49	0.52	0.52
No. of obs	2652	2652	2652

Notes to Table 3:

This Table presents the OLS regression results of Equation (2) over the 1999-2004 interval. *CI* is measured as $3CE_t/(CE_{t-1}+CE_{t-2}+CE_{T-3})-1$, where CE_t denotes capital expenditure of firm i scaled by its total sales in year *t*, and capital expenditure is measured as the change of fixed assets, intangible assets, and short term capital investment from year *t-1* to *t*. *NONDUM (STATEDUM)* is a dummy variable that is equal to one if the percentage of NON_TRADE (STATE) is above the corresponding turning point estimated from Equation (1), and zero otherwise. Control variables include *SIZE, LEV, SALE, AGE, EX, BH, ST, IND* and *YR*. The figures in parentheses are the t-statistics based on the White's heteroskedasticity- consistent standard errors. The Hadi method is followed to remove the outliers in Q at 1% level. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively.

Table 4: Large shareholdings, capital expenditures, and firm value conditional on investment opportunities

	Bad investment opportunity			Good investment opportunity		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	6.9399***	6.8145***	6.7995***	12.7852***	13.2481***	13.1299***
	(18.37)	(18.20)	(17.85)	(16.56)	(16.70)	(16.56)
CI	-0.0003*	-0.0032*	-0.0031	0.0012	-0.0036***	-0.0046***
	(-1.79)	(-1.66)	(-1.52)	(1.44)	(-3.01)	(-4.10)
CI×NONDUM		0.0029			0.0051***	
		(1.52)			(3.60)	
CI×STATEDUM			0.0028			0.0062***
			(1.39)			(4.62)
NONDUM		0.0939***			-0.1816***	
		(4.90)			(-2.63)	
STATEDUM			0.0827***			-0.1564**
			(4.09)			(-2.26)
SIZE	-0.2550***	-0.2537***	-0.2519***	-0.4863***	-0.4973***	-0.4954***
	(-15.21)	(-15.28)	(-15.06)	(-13.37)	(-13.57)	(-13.45)
LEV	0.2304**	0.2264**	0.2191**	0.2823**	0.2688**	0.2709**
	(2.53)	(2.49)	(2.37)	(2.25)	(2.17)	(2.19)
SALE	0.0974***	0.0914***	0.0941***	0.0977***	0.1068***	0.1056***
	(5.09)	(4.79)	(4.97)	(2.60)	(2.81)	(2.79)
AGE	0.0188***	0.0221***	0.0218***	0.0394***	0.0265*	0.0282**
	(3.92)	(4.54)	(4.46)	(2.97)	(1.94)	(2.12)
ST	0.0075	0.0040	0.0074	-0.0254	-0.0457	-0.0296
	(0.18)	(0.10)	(0.17)	(-0.28)	(-0.50)	(-0.32)
BH	-0.0704***	-0.0464*	-0.0522	-0.0912	-0.0927	-0.0780
	(-2.61)	(-1.70)	(-1.90)	(-1.04)	(-1.05)	(-0.89)
IND	Yes	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R²	0.55	0.58	0.58	0.46	0.50	0.51
No. of obs.	1463	1463	1463	1138	1138	1138

Notes to Table 4:

This Table presents OLS regression of Equation (2) conditional on investment opportunities over the 1999-2004 interval. Firms with Tobin's Q at the end of year t-1 below (above) the industry-year median are assigned to the "*Bad investment opportunity*" group ("*Good investment opportunity*" group). *CI* is measured as $3CE_t/(CE_{t-1}+CE_{t-2}+CE_{T-3})-1$, where CE_t is capital expenditure of firm i scaled by its total sales in year t, and capital expenditure is measured as the change of fixed assets, intangible assets and short term capital investment from year t-1 to t. *NONDUM (STATEDUM)* is a dummy variable that is equal to one if the percentage of *NON_TRADE (STATE)* is above the corresponding turning point estimated from Equation (1), and zero otherwise. Control variables include *SIZE, LEV, SALE, AGE, EX, BH, ST, IND* and *YR*. The figures in parentheses are the t-statistics based on the White's heteroskedasticity- consistent standard errors. The Hadi method is followed to remove the outliers in Q at the 1% level. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively.

Table 5: Large shareholdings, capital expenditures, and firm value conditional on cash flows

	Low Cash Flow			High Cash Flow		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	14.7446***	14.6070***	16.2028***	12.5529***	12.6873***	12.7103***
	(24.56)	(24.24)	(26.58)	(21.72)	(21.14)	(21.16)
CI	0.0011**	-0.0055***	-0.0061***	-0.0016**	-0.0059***	-0.0065***
	(2.23)	(-3.08)	(-3.80)	(-2.24)	(-3.47)	(-4.50)
CI×NONDUM		0.0063***			0.0072***	
		(3.84)			(2.63)	
CI×STATEDUM			0.0070***			0.0077***
			(4.48)			(3.45)
NONDUM		0.0653			-0.0448	
		(1.40)			(-0.88)	
STATEDUM			-0.0677			-0.0496
			(-0.78)			(-1.02)
SIZE	-0.6504***	-0.6477***	-0.6513***	-0.5233***	-0.5264***	-0.5273***
	(-22.66)	(-22.58)	(-22.70)	(-18.36)	(-18.21)	(-18.18)
LEV	0.3516***	0.3546***	0.3447***	-0.0390	-0.0408	-0.0371
	(3.80)	(3.82)	(3.72)	(-0.28)	(-0.29)	(-0.27)
SALE	0.1788***	0.1767***	0.1878***	0.1149***	0.1176***	0.1186***
	(3.00)	(2.94)	(3.13)	(3.59)	(3.66)	(3.68)
AGE	0.0338***	0.0371***	0.0328***	0.0482***	0.0439***	0.0439***
	(3.09)	(3.32)	(2.97)	(4.65)	(4.25)	(4.29)
ST	0.0391	0.0439	0.0431	0.2059	0.2017	0.2033
	(0.46)	(0.52)	(0.51)	(1.32)	(1.29)	(1.30)
BH	-0.1757***	-0.1666***	-0.1777***	-0.2022***	-0.2036***	-0.2024***
	(-2.93)	(-2.77)	(-2.97)	(-3.90)	(-3.81)	(-3.82)
IND	Yes	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.51	0.56	0.56	0.47	0.49	0.50
No. of obs.	1268	1268	1267	1327	1327	1327

Notes to Table 5:

This Table presents OLS regression of Equation (2) conditional on cash flow over the 1999-2004 interval. Firms with cash flow at the end of year *t-1* below (above) the industry-year median are assigned to the "*Low Cash Flow*" group ("*High Cash Flow*" group). Cash flow is defined as earnings after tax plus depreciation and amortization minus payment for interest expenses and dividends divided by total assets. *CI* is measured as $3CE_t/(CE_{t-1}+CE_{t-2}+CE_{T-3})-1$, where CE_t denotes capital expenditure of firm i scaled by its total sales in year *t,* and capital expenditure is measured as the change of fixed assets, intangible assets and short term capital investment from year *t-1* to *t*. NONDUM (STATEDUM) is a dummy variable that is equal to one if the percentage of *NON_TRADE (STATE)* is above the corresponding turning point estimated from Equation (1), and zero otherwise. Control variables include *SIZE, LEV, SALE, AGE, EX, BH, ST, IND* and *YR*. The figures in parentheses are the t-statistics based on the White's heteroskedasticity- consistent standard errors. The Hadi method is followed to remove the outliers in Q at 1% level. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively.

Table 6: Large shareholdings, capital expenditures, and firm value conditional on dividend payouts

	Low dividend			High dividend		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	13.1736***	13.1272***	13.0838***	13.2304***	13.1111***	13.2297
	(19.25)	(19.20)	(19.19)	(22.51)	(22.01)	(21.81)
CI	-0.0012	-0.0072***	-0.0073***	-0.0005	0.0014	-0.0038
	(-1.63)	(-4.33)	(-4.49)	(-0.50)	(0.25)	(-0.71)
CI×NONDUM		0.0067***			-0.0019	
		(3.95)			(-0.34)	
CI×STATEDUM			0.0068***			0.0033
			(4.10)			(0.62)
NONDUM		0.0407			0.0489	
		(0.88)			(1.03)	
STATEDUM			0.0604			-0.0012
			(1.34)			(-0.02)
SIZE	-0.5158***	-0.5146***	-0.5131***	-0.5523***	-0.5494***	-0.5521***
	(-18.46)	(-18.40)	(-18.33)	(-20.70)	(-20.43)	(-20.34)
LEV	0.2017	0.2002	0.2011	0.2949**	0.2966**	0.2936**
	(1.60)	(1.58)	(1.59)	(2.54)	(2.53)	(2.53)
SALE	0.1407***	0.1425***	0.1414***	0.1391***	0.1357***	0.1392***
	(2.80)	(2.82)	(2.80)	(4.04)	(3.87)	(4.02)
AGE	0.0386***	0.0389***	0.0395***	0.0423***	0.0445***	0.0423***
	(3.89)	(3.90)	(3.99)	(3.87)	(4.11)	(3.87)
ST	0.1036	0.1061	0.1006	-0.0085	-0.0031	-0.0066
	(1.13)	(1.16)	(1.10)	(-0.09)	(-0.03)	(-0.07)
BH	-0.1737***	-0.1584***	-0.1557***	-0.1713***	-0.1630***	-0.1726***
	(-3.17)	(-2.84)	(-2.82)	(-3.16)	(-2.95)	(-3.11)
IND	Yes	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R²	0.49	0.52	0.52	0.44	0.45	0.45
No. of obs	1135	1135	1135	1311	1311	1311

Notes to Table 6:

This Table presents OLS regression of Equation (2) conditional on changes of dividend payouts over the 1999-2004 interval. Firms with a change of dividend payout ratio from year t-2 to year t-1 below (above) the industry-year median are assigned to the "low dividend" group ("high dividend" group). Dividend payout ratio is the total cash dividend per share scaled by earning per share. CI is measured as $3CE_t/(CE_{t-1}+CE_{t-2}+CE_{T-3})-1$, where CE_t is capital expenditure of firm i scaled by its total sales in year t, and capital expenditure is measured as the change of fixed assets, intangible assets and short term capital investment from year t-1 to t. NONDUM (STATEDUM) is a dummy variable that is equal to one if the percentage of NON_TRADE (STATE) is above the corresponding turning point estimated from Equation (1), and zero otherwise. Control variables include SIZE, LEV, SALE, AGE, EX, BH, ST, IND and YR. The figures in parentheses are the t-statistics based on the White's heteroskedasticity- consistent standard errors. The Hadi method is followed to remove the outliers in Q at 1% level. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively.

Table 7: Large shareholdings, capital expenditures, and stock returns

	(1)	(2)	(3)
Intercept	-0.3071**	-0.2733*	-0.2749*
	(-2.00)	(-1.94)	(-1.91)
CI	-0.0001	-0.0013*	-0.0013*
	(-0.87)	(-1.90)	(-1.88)
CI×NONEDUM		0.0012*	
		(1.91)	
CI×STATEDUM			0.0012*
			(1.90)
NONDUM		-0.0127	
		(-0.98)	
STATEDUM			-0.0130
			(-1.02)
SIZE	0.0277***	0.0269***	0.0269***
	(4.17)	(4.00)	(4.01)
LEV	-0.0103	-0.0098	-0.0094
	(-0.47)	(-0.45)	(-0.44)
SALE	0.0499***	0.0509***	0.0509***
	(4.23)	(4.30)	(4.31)
AGE	0.0021	0.0013	0.0014
	(0.79)	(0.47)	(0.50)
ST	-0.0159	-0.0163	-0.0157
	(-0.59)	(-0.60)	(-0.58)
BH	-0.0088	-0.0105	-0.0100
	(-0.56)	(-0.64)	(-0.62)
IND	Yes	Yes	Yes
YEAR	Yes	Yes	Yes
Adj.R²	0.43	0.46	0.45
No. of obs	2633	2633	2633

Notes to Table 7:

This Table presents the OLS regression results of Equation (2) using stock returns as the dependent variable over the 1999-2004 interval. Annual return is computed as the compounded monthly stock returns from January to December each year. CI is measured as $3CE_t/(CE_{t-1}+CE_{t-2}+CE_{T-3})-1$, where CE_t denotes capital expenditure of firm i scaled by its total sales in year t, and capital expenditure is measured as the change of fixed assets, intangible assets, and short term capital investment from year t-1 to t. NONDUM (STATEDUM) is a dummy variable that is equal to one if the percentage of NON_TRADE (STATE) is above the corresponding turning point estimated from Equation (1), and zero otherwise. Control variables include SIZE, LEV, SALE, AGE, EX, BH, ST, IND and YR. The figures in parentheses are the t-statistics based on the White's heteroskedasticity- consistent standard errors. The Hadi method is followed to remove the outliers in Q at 1% level. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively.