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DOI: <https://doi.org/10.1111/jifm.12014>

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Citation

Wang, Jiwei and YE, Kangtao. Managerial Agency Costs of Socialistic Internal Capital Markets: Empirical Evidence from China. (2014). *Journal of International Financial Management and Accounting*. 25, (1), 1-37. Research Collection School Of Accountancy.
Available at: https://ink.library.smu.edu.sg/soa_research/235

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Managerial Agency Costs of Socialistic Internal Capital Markets: Empirical Evidence from China

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Forthcoming

Journal of International Financial Management and Accounting

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We are especially grateful to the Co-Editor (Richard Levich) and two anonymous reviewers for their insightful and constructive suggestions. We appreciate helpful comments from Robert Bushman, Kevin Chen, Yuan Ding, Li Jin, Zhengfei Lu, Morong Yang, Hongqi Yuan and seminar participants at the 2007 International Symposium on Empirical Accounting Research at Xiamen, the 2008 European Accounting Association Congress at Rotterdam, the 2008 China International Conference in Finance at Dalian, the American Accounting Association 2008 Annual Meeting at Anaheim and 2009 Global Finance Conference at Honolulu. Wang acknowledges the financial support of Singapore Management University (approval number: C206/MSS7A002). Ye thanks the National Natural Science Foundation of China for financial support (approval number: 71072145 and 71132004). All remaining errors and omissions are our own.

Managerial Agency Costs of Socialistic Internal Capital Markets: Empirical Evidence from China

ABSTRACT

This study provides empirical evidence of managerial agency costs in socialistic internal capital markets. Listed Chinese companies are required to disclose the amount of resources that are reallocated to other firms of the parent company, which provides us with a direct measure of the socialistic subsidization of weak member firms by strong member firms within a business group. We hypothesize that in strong member firms, managerial compensation is less sensitive to firm performance because cross-subsidization makes it difficult for group CEOs to hold the managers in strong firms accountable for their own firms' performance, and also increases the noise in performance measures. We also hypothesize that socialistic cross-subsidization results in an increase in managerial agency costs of strong member firms due to the low pay-performance sensitivity and low incentive to work hard. We document empirical results that are consistent with these two predictions.

JEL classification: G15, G32, G34

Keywords: Managerial agency costs, Managerial compensation, Conglomerate, Business group, Socialistic internal capital markets.

Managerial Agency Costs of Socialistic Internal Capital Markets: Empirical Evidence from China

The presence of large conglomerates or business groups is a dominant feature of both developed and developing countries. This business form is known to have both benefits and costs (see Stein, 2003 for a literature review). A key benefit is that the existence of an internal capital market within a business group allows the economically significant reallocation of resources across member firms and avoids the constraints that are imposed by imperfect external capital markets (see, for example, Williamson, 1975; Stein, 1997; Deloof, 1998; Dewaelheyns and Hulle, 2006).¹ However, the downside is that a group's Chief Executive Officer (CEO) may reallocate resources from member firms with good investment opportunities (strong firms) to cross-subsidize members with poor investment opportunities (weak firms), a phenomenon that Scharfstein and Stein (2000) calls "socialism."

The socialistic internal capital market is believed to be inefficient because a well-functioning internal capital market or non-socialistic internal capital market should channel scarce capital resources into their most productive use. It means that non-socialistic internal market capital should reallocate more resources to member firms with better investment opportunities. Then why socialism exists in internal capital markets? Scharfstein and Stein (2000) argue that managers of weak member firms with poor investment opportunities have stronger incentives to spend time lobbying to have more capital allocations. When there is a preference of group CEOs to compensate these managers with capital allocations rather than with higher salaries, this behavior leads to larger than efficient allocations or inefficient capital allocations

¹ Like Almeida and Wolfenzon (2006), we use the terms "conglomerate" and "business group" interchangeably, because both have internal capital markets in which capital is allocated among member firms (in the case of business groups) and among divisions (in the case of conglomerates).

to weaker member firms. The inefficiency of the socialism also arises from the agency costs in strong member firms with good investment opportunities because their managers are not happy with the cross-subsidization of weak member firms. This paper provides empirical evidence of managerial agency costs in strong member firms that arise in socialistic internal capital markets using a unique dataset of listed companies in China.

The socialism of internal capital reallocation causes agency problems for the managers of stronger member firms for two reasons. Brusco and Panunzi (2005) argue that the potential threat of resources being taken away from strong member firms and passed to weak member firms can diminish the incentive of the managers of strong member firms *ex ante*. As managers of strong member firms have to share the firm's surplus with weaker members while internalizing all of the disutility of their efforts, they may choose to work less (Brusco and Panunzi, 2005) or to invest inefficiently to protect their surplus (Rajan *et al.*, 2000). A mechanism to ameliorate the agency problems in strong member firms is to set managerial compensation based on firm's surplus. However, the presence of socialistic capital allocation makes it difficult for group CEOs to hold the managers in strong member firms accountable for their own firms' performance, and also increases the noise in performance measures, which thus negatively affects pay-performance sensitivity in strong member firms. Accordingly, managerial effort will still be lower in strong member firms.

There are two features that make the Chinese setting distinct. The first is that the socialistic cross-subsidization in Chinese group companies is more pronounced because there is a greater diversity of investment opportunities between strong and weak member firms. Most of China's newly listed firms are restructured state-owned enterprises (SOEs) (Aharony *et al.* 2010) and they have unlisted controlling corporate

shareholders or parent companies (Sun and Tong, 2003) with which they form a business group. However, going public is restricted by the Chinese government, and priority is given to firms with better investment opportunities. Hence, during the process of restructuring, SOEs spin off the more profitable units and keep the less profitable units as part of the parent company (Aharony *et al.*, 2010).² This unique restructuring process creates a huge tension between the parent company and its listed affiliates, because the CEO of the parent company has a strong incentive to reallocate resources from profitable listed member firms to unprofitable unlisted parent units (Yao *et al.*, 2010). As Scharfstein and Stein (2000) and Rajan *et al.* (2000) argue that socialistic cross-subsidization should be more pronounced when there is a greater diversity of investment opportunities within a business group, the internal capital markets of China's group companies should be featured with more socialism than their counterparts in other countries.

Another distinct feature of the Chinese setting is that we can directly observe the magnitude of resource reallocation from strong to weak member firms. Listed companies are required to disclose information on related party transactions with their parent company, and must specifically disclose the receivables from their affiliated parent company in the financial footnotes to their annual reports (Aharony *et al.*, 2010).³ These receivables represent the amount of resources that are reallocated from

² We hand collect the financial information of parent companies from the prospectuses provided by listed companies when they went public. We also search the internet for parent companies' financial performance when the information is not available in the prospectuses. We obtain the financial performance of the parent companies for 195 listed companies in the IPO year. More than 83% of the listed firms are more profitable than their parent companies. The mean (median) of ROE for listed firms is 20.8% (18.8%), while the mean (median) of ROE for their parent firms is merely 10.3% (7.1%). The difference in ROA also exhibits similar pattern. Both the parametric and non-parametric statistical tests indicate that the 195 listed companies are significantly more profitable than their parent companies. These findings further corroborate our argument that, during the process of IPO, Chinese companies spin off the more profitable units and keep the less profitable units as part of the parent company.

³ In 1997, China Ministry of Finance released "Accounting Standards for Enterprises - Disclosure of Related Parties and Transactions", effective for reporting periods beginning January 1, 1997. The

the listed company to other member firms of the parent company. There are two types of reallocated resources: operational and non-operational resources. Operational reallocated resources derive from operating activities, such as sales of goods and services to the parent company, and are represented by the amount of *accounts receivable* from the parent company. Non-operational resources derive from non-operating activities and are represented by the amount of *other receivables*. We argue that operational accounts receivable cannot be termed socialistic resource reallocation because they are part of normal operating activities, and thus the magnitude of reallocated resources is indicated by the amount of non-operational other receivables from the parent company as disclosed in the annual reports of listed member firms.⁴

Socialistic resource reallocation or cross-subsidization through non-operating activities can take many forms such as one-off sales of assets, loan guarantees, corporate loans and transfer pricing. Exhibit 1 of Aharony *et al.* (2010, page 5) presents a more complete list of means which may relocate resources from listed companies to unlisted parent companies in China. Among all the means of cross-subsidization, both Aharony *et al.* (2010) and Jiang *et al.* (2010) show that corporate loans (a major type of other receivables) is the most popular means of resources reallocation in China's listed firms. A report by *New Fortune* magazine investigates 58 firms sanctioned by the China Securities Regulatory Commission for the diversion of resources out of the listed firms by parent companies from 2005 to 2006 (Sheng, 2006). The report finds that 48 of these cases are related to inter-corporate loans. Thus both academic research and anecdotal evidence suggest that corporate loans is the most pervasive means of cross-subsidization in China's listed firms. We acknowledge

China Securities Regulatory Commission required all listed firms to comply with the standard and disclose details about related party transactions since 1997.

⁴ As a robustness check, we also use operational accounts receivable as a proxy for resource reallocation in our analysis but we do not find any impact on managerial pay-performance sensitivity. The results are presented in Table 4.

that transfer pricing may be another direct means of cross-subsidization but there is no disclosure of transfer prices. Hence we employ the amount of other receivables to measure the cross-subsidization.⁵ In summary, the two distinctive features of the Chinese setting give us not only a direct measure of resource reallocation within a group, but allow us to investigate *socialistic* internal capital markets.

Using a sample of 1,395 Chinese firms that listed on Shanghai Stock Exchange or Shenzhen Stock Exchange during the period of 2004 to 2008, we find empirical results that are consistent with the predictions. Specifically, we find that a higher level of resource reallocation from listed company to parent company is associated with lower managerial pay-performance sensitivity in the listed companies. We also show that the amount of resource reallocation is positively associated with managerial agency costs in the listed companies. Following Ang *et al.* (2000), we measure agency costs using two alternative efficiency ratios: the expense ratio, which is operating expenses scaled by annual sales, and the asset utilization ratio, which is annual sales divided by total assets. In addition, we use cash payments for traveling and entertainment as a proxy for the perks that are enjoyed by managers.⁶ For all three measures, we find the level of managerial agency costs to be positively associated with the magnitude of resource reallocation. Economically, operating expenses will increase by 0.242 dollars for every dollar of financial resources that is reallocated from a listed company to a parent company.

⁵ Cross-subsidization may also happen in overseas listed Chinese firms. CNOOC Limited, dual-listed in New York and Hong Kong in February 2001, is China's largest producer of offshore crude oil and natural gas. According to its annual reports between 2002 and 2005, CNOOC lent or deposited as much as RMB 6.6 billion to its sister company CNOOC Finance without approval from minority shareholders. The Stock Exchange of Hong Kong censured CNOOC Limited for breaching its listing rules in 2005 (<http://www.hkexnews.hk/listedco/listconews/sehk/20051006/LTN20051006085.pdf>).

⁶ We obtain these data from a cash flow statement item called "Cash payment for other operating-related activities," which mainly includes cash payments for traveling, entertainment, rent, insurance, and fines.

Our paper provides a direct measure of socialistic cross-subsidization from strong to weak member firms. Empirical studies, such that of as Rajan *et al.* (2000), can only roughly define socialistic cross-subsidization as the industry-adjusted investment of low-q divisions minus the industry-adjusted investment of high-q divisions. Other studies, such as those of Lamont (1997) and Shin and Stulz (1998), use the sensitivity of a division's investment to the cash flow of other divisions to infer the possible existence of cross-subsidization within a diversified conglomerate. We are able to directly observe the magnitude of socialistic cross-subsidization because all of the receivables from parent companies are disclosed in the annual reports of the listed companies.

Our paper also provides direct empirical evidence of managerial agency costs in socialistic internal capital markets. Existing studies, such as those of Rajan *et al.* (2000) and Shin and Stulz (1998), link socialistic internal capital markets with a diversification discount, and ascribe the poor performance of diversified firms (diversification discount) to inefficient (socialistic) resource reallocation.⁷ In contrast, we examine the costs of socialism from the perspective of the agency conflicts between group CEOs and managers in strong member firms, and posit that cross-subsidization reduces the incentive of managers and hence increases the managerial agency costs in strong member firms.

The incentives to allocate resources from listed companies to unlisted parent companies could be that shareholders of parent companies intend to expropriate minority shareholders of listed companies (the expropriation incentive) or parent CEOs intend to cross-subsidize weak member firms (the socialism incentive).

Although the two incentives are non-exclusive, they ascribe the poor performance

⁷ As mentioned by Stein (2003), this linkage has been challenged on methodological grounds because of the endogeneity of the diversification decision.

associated with internal capital transfer to two different agency problems. As Villalonga and Amit (2006) point out, there are two types of agency problems: the classic owner-manager conflicts (type I agency problem or the managerial agency problem in our paper) and the conflicts between controlling shareholders and minority shareholders (type II agency problem). The expropriation argument primarily focuses on the type II agency problem of internal capital market. For instance, Aharony *et al.* (2010) and Jiang *et al.* (2010) show that Chinese parent companies expropriate their listed subsidiaries' minority shareholders by reallocating funds from listed companies to parent companies, which implies that the poor performance in listed subsidiaries can be attributed to the type II agency problem (the expropriation of minority shareholders by the controlling shareholders). Other studies such as Bertrand *et al.* (2002) and Joh (2003) also primarily ascribe poor performance associated with internal capital markets to type II agency costs. Our study instead suggests that the poor performance may arise from the type I agency costs, i.e., the conflicts between shareholders and managers or managerial agency costs in this paper (the socialism incentive). Unlike the expropriation argument that ignores the adverse impacts of tunneling on managerial incentives, the socialism argument sheds light on the impact of internal capital transfer on managerial agency costs (Brusco and Panunzi, 2005; Inderst and Laux, 2005; Rajan *et al.*, 2000).

Our paper complements the existing literature to empirically show that socialistic internal capital markets create not only type II agency problem but also the classic type I agency problem. Specifically, we find that socialistic internal capital markets result in higher operating expenses and managerial perks, and lower asset utilization efficiency, from which both controlling shareholders and minority shareholders suffer. The reason for controlling shareholders to engage in cross-subsidization is

because the net benefits from cross-subsidization for the controlling shareholders are very likely to be positive as the resources transferred to the controlling shareholders generally exceed the controlling shareholders' losses from the type I agency issues. For instance, we document that operating expenses will increase by 0.242 dollar for every dollar of cross-subsidization. As the average ownership by controlling shareholders is 37%, this suggests that controlling shareholders will lose merely 0.09 dollar ($0.242 \times 37\% = 0.09$) due to cross-subsidization, which is far less than the benefit (one dollar) from cross-subsidization for the controlling shareholders. However, minority shareholders will suffer from both the type I and type II agency costs.

The remainder of this paper is organized as follows. In Section I, we review the literature on socialistic internal capital markets and develop our hypotheses. In Section II, we present the research design that is used to test the hypotheses, which is followed in Section III by descriptions of the sample and data. We then present the empirical results in Section IV and give a summary and conclusions in Section V.

I. Literature Review and Hypotheses Development

In this section, we briefly review the literature on socialistic internal capital markets, and develop two hypotheses.

A. Literature on Socialistic Internal Capital Markets

The central question of an internal capital market is whether a business group's CEO can efficiently reallocate resources across the member firms in the group. The advantage of internal capital markets lies in the "smarter-money" and "winner-picking" effects which are well documented in the literature (see, for example, Alchian, 1969; Stein, 1997; Matsusaka and Nanda, 2002). The main idea is that group

CEOs will use their high-quality information as a basis for making value-enhancing resource reallocations across member firms.⁸

The downside of internal capital markets is the decreasing of value by division managers who may sway their CEOs to reallocate resources inefficiently. In theoretical models by Milgrom (1988), Milgrom and Roberts (1988), and Meyer *et al.* (1992), division managers are portrayed as rent-seeking agents who try to actively persuade their CEOs to give them more resources. However, these models fail to take into account that such rent-seeking behavior may be recognized by CEOs, and also fail to demonstrate that such resource reallocation is necessarily inefficient.

Rajan *et al.* (2000) extend the literature by assuming that the group CEO acts on behalf of the shareholders. They argue that the principal CEO is likely to believe that a more equal capital budget increases the incentive of division managers to engage in cooperative, joint-surplus-maximizing behavior, as opposed to self-interested, rent-seeking behavior. They thus predict that when the diversity of resources and opportunities among divisions increases, resources will flow toward the most inefficient division, which leads to more inefficient investment and a reduction in firm value. Scharfstein and Stein (2000) relax the principal CEO assumption and assume the CEO to be an agent that may direct resources to weaker divisions to retain division managers, thus saving the firm's cash for other, more privately attractive purposes. These two studies introduce a theoretical socialistic internal capital market within a conglomerate or business group in which weak divisions are subsidized by stronger divisions. Their predictions are also supported by empirical evidence (e.g., Rajan *et al.*, 2000; Scharfstein, 1998).

⁸ There may be external costs even when conglomerates have efficient internal capital markets. Almeida and Wolfenzon (2006) argue that because of the financial market imperfections that are engendered by imperfect investor protection, conglomerates that engage in winner-picking find it optimal to allocate scarce capital internally to mediocre projects, even when other firms in the economy have more productive projects that are in need of additional capital.

Whether there exists efficiency of internal capital market in China's group companies is still under debate. Prior literature suggests that the "smarter-money" and "winner-picking" effects do not exist in Chinese companies (Yang *et al.*, 2010; Shao and Liu, 2009). However, Zheng *et al.* (2007) show that the internal capital market is more efficient when the level of internal transactions is low. Literature on the inefficiency of internal capital market centers on the expropriation incentive, i.e., the controlling shareholders tend to use internal capital markets to exploit minority shareholders and reallocate capital from stronger member firms (the listed firms) to weaker member firms (the parent firms) (Aharony, *et al.*, 2010; Jiang *et al.*, 2010). To the best of our knowledge, there is no study to examine the impact of socialistic internal capital market on managerial agency costs in China's group companies.

B. Managerial Agency Costs in Socialistic Internal Capital Markets

Socialistic cross-subsidization may weaken the incentive of the managers of strong member firms to work hard, thus creating managerial agency problems. For example, Brusco and Panunzi (2005) and Inderst and Laux (2005) argue that if managers of strong member firms cannot be certain that they will be able to reinvest all of the profits that are generated by their firm, they will not want to work as hard to create these profits in the first place. They may also adopt a defensive investment that, although inefficient, will better protect the firm's surplus (Rajan *et al.*, 2000).

A mechanism to ameliorate the agency problems in strong member firms is to set managerial compensation based on the firm's surplus. However, prior literature suggests that, in the presence of agency and information problems, optimal incentive schemes are less powerful, and thus managerial effort will still be lower in the strong member firms (Bernardo *et al.*, 2006). The reason for this is that the information rents

that are paid to managers increase with project quality, which implies that the marginal cost of providing incentive schemes is higher in strong member firms because they have higher average project quality. In this case, Bernardo *et al.* (2006) theoretically show that the managers of the strong divisions of group firms receive lower-powered incentives compared to the managers of the weak divisions of group firms or independent firms (see their discussions on page 496 and Corollary 4 on page 497).⁹

Furthermore, Bertrand *et al.* (2002), Aharony *et al.* (2010) and Jiang *et al.* (2010) document that the parent companies use inter-corporate loans (the socialistic capital allocation in our paper) to extract funds from listed firms, which is detrimental to the interests of listed firms' minority shareholders. Such rent-seeking activities will negatively affect managerial pay-performance sensitivity in three ways. First, Fan and Wong (2002), Chen and Chu (2005), and Desai and Dharmapala (2009) suggest that in order to facilitate such rent-seeking activities, the insiders need to create vague information to mislead the outsiders. Chen and Chu (2005) contend that such vagueness will reduce the informational value of financial performance in managerial compensation contracting. As managerial incentive schemes rely on quality performance information (Bushman and Smith, 2001), deterioration in the quality of such information then reduces pay-performance sensitivity.

Second, it is usually difficult to infer the shadow price of capital in the absence of a well-developed external financial market. Managers in strong member firms may ascribe their poor performance to the cross-subsidization of capital. The cross-subsidization then makes group CEOs more difficult to distinguish the managerial

⁹ Another mechanism is to base the compensation of the managers of member firms more on overall group performance (Bushman *et al.*, 1995). However, Palia (1999) finds that the compensation of a member firm manager is less likely to be linked to overall group performance when socialistic cross-subsidization is severe.

shirking effect from the socialistic cross-subsidization effect when a firm's performance is poor. If group CEOs cannot perfectly filter out the impact of capital transfer on the profitability of strong member firms, then the noise of the performance measures in strong member firms will increase. This also implies that it is hard to write member firm managers' compensation based on their own firms' performance.

Third, to encourage listed firms' managers to optimize the performance of business groups rather than that of the listed firms and to facilitate the capital reallocation from listed firms to parent units, the controlling shareholders may tend to place a lower weight on listed firms' performance when designing the incentive contracts for listed firms' managers (Bushman *et al.*, 1995).

Overall, the presence of socialistic capital allocation increases the noise of the performance measures in listed firms, makes managers less accountable for firm performance, places a lower weight on listed firms' performance when designing the incentive contracts and hence leads to lower pay-performance sensitivity.¹⁰ This leads to the first hypothesis, which is stated in an alternative format as follows.

H1: The managerial pay-performance sensitivity in strong member firms (listed firms) is negatively associated with the amount of subsidization from strong to weak member firms (parent firms).

¹⁰ We acknowledge that political promotion may provide additional incentive for managers in China. However, Cao *et al.* (2010) find that merely 8.6% of managers (272 out of 3160 observations) are politically promoted in Chinese listed firms during the period of 2002-2007. This suggests that monetary compensation still plays a significant role in managerial incentives for a majority of Chinese listed firms. Furthermore, political promotion-based incentive is typically applied to state-owned enterprises (SOEs) and managers with political connection (Cao *et al.*, 2010). We have controlled for SOEs and political connected managers in our empirical tests. Table 4 in our paper suggests that political connection reduces pay-performance sensitivity, which is consistent with Cao *et al.* (2010).

As we discussed in the literature review, managers in strong member firms have less incentives to work hard *ex ante* due to the socialistic cross-subsidization. The lower managerial pay-performance sensitivity further exacerbates the managerial agency problems in strong member firms.¹¹ This leads to the second hypothesis, which is stated in an alternative format as follows.¹²

H2: Managerial agency costs in strong member firms (listed firms) are positively associated with the amount of resources that are reallocated from strong to weak member firms (parent firms).

II. Research Design

In this section, we describe the research methodologies that are designed to test these two hypotheses.

A. Socialistic Internal Capital Market and Managerial Pay-Performance Sensitivity

We employ the following model to investigate the impact of socialistic internal capital markets on managerial pay-performance sensitivity in listed companies:

¹¹ Market for corporate control may play roles in monitoring managers of listed companies and hence reduce managerial agency costs. However, we believe managers of China's listed firms face less pressure from market for corporate control than their counterparts in the west. Unlike in the U.S. and the U.K., listed firms in China are characterized by concentrated ownership structure. For example, the average ownership held by the parent companies is 37% in our sample (see Table 2 for descriptive statistics). The concentrated ownership structure insulates the managers from the disciplinary pressure from the capital markets, as it is unlikely for external shareholders to purchase enough shares to replace the incumbent controlling shareholders and managers. Consequently, takeover activities are rare in China and very few managers are evicted from their current positions for poor performance by external shareholders or outside independent directors.

¹² We acknowledge that both hypotheses are expressed as association, rather than causality relation, which is a limitation of the study.

$$\begin{aligned} \Delta CEOPAY_{it} = & \beta_0 + \beta_1 \Delta OI_{it} + \beta_2 RETURN_{it} + \beta_3 NOR_{it} * \Delta OI_{it} + \beta_4 NOR_{it} * RETURN_{it} \\ & + \beta_5 NOR_{it} + \beta_6 POLITIC_{it} + \beta_7 POLITIC_{it} * \Delta OI_{it} + \beta_8 POLITIC_{it} * RETURN_{it} \\ & + \beta_9 \Delta TA_{it} + YearDummies + IndustryDummies + \varepsilon_{it} \end{aligned} \quad (1)$$

where $\Delta CEOPAY_{it}$ is changes in CEO cash salaries and bonuses (in Chinese RMB) of listed firm i from year $t-1$ to year t . Managerial compensation in China is not so complicated as it is in the United States. Typically, a CEO's pay is made up of a cash salary and a cash bonus. Very few firms have executive stock option schemes and anyway their disclosures are insufficient to allow us to reliably measure the value of stock options.¹³ We thus use a CEO's total cash salaries and bonuses to measure CEO compensation in China ($CEOPAY$).

We employ both accounting and stock performance measures to show the sensitivity between managerial compensation and firm performance. The accounting performance measure is changes in operating income of firm i from year $t-1$ to year t (ΔOI_{it}); the stock performance measure is the stock return of firm i at year t minus the market return at year t ($RETURN_{it}$).

Our main independent variable is the measure of socialistic internal capital markets. Chinese companies are required to disclose receivables from related parties such as the parent company and its subsidiaries. There are two types of receivables: operational receivables that arise from sales of goods and services to the parent company (accounts receivable) and non-operating receivables (other receivables) that arise from non-operating activities such as loans to the parent company. Both represent the amount of resources that are reallocated from a listed company to the parent company. However, we believe that the reallocation of operational resources

¹³ Up until 2006, Chinese securities regulations precluded domestic listed firms to offer equity-based compensation to executives and directors. By the end of 2008, there are only 67 firms (less than 5% of our sample firms) issuing stock options.

cannot be termed socialistic reallocation because these resources are a part of normal operating activities. Thus, the magnitude of reallocated resources is measured by the net amount of other receivables from the parent company and its subsidiaries in a specific year (NOR_{it}).¹⁴ Specifically, NOR_{it} is calculated as firm i 's other receivables ($OREC$) from its parent company and the parent company's subsidiaries in year t net of firm i 's other payables ($OPAB$) to its parent company and the parent company's subsidiaries in year t if $OREC$ is greater than $OPAB$, and zero otherwise, deflated by annual sales (excluding related party sales) in year t . Higher NOR indicates a larger magnitude of cross-subsidization from listed firms to parent firms.¹⁵ According to the first hypothesis, we expect a negative impact of NOR on the managerial pay-performance sensitivity, that is, the estimation of β_3 and β_4 should be significantly negative.

We include some control variables in the regression model. Fan *et al.* (2007) suggests that Chinese firms with politically connected CEOs have poor corporate governance. There may be a possible systematic difference in compensation packages between politically connected CEOs and non-politically connected CEOs. Politically connected CEOs may also have different incentives (such as promotion to a government position) from non-politically connected CEOs. Thus we include a politically connected CEO indicator ($POLITIC$) that equals one if the CEO serves as former or current government bureaucrat, that is, a current or former officer of the central or local governments or the military, and zero otherwise. ΔTA_{it} is changes in book value of total assets (in thousands Chinese RMB) of firm i from year $t-1$ to year

¹⁴ Studies such as Aharony *et al.* (2010) and Jiang *et al.* (2010) show that Chinese parent companies use corporate loans (reported as other receivables) to siphon assets from a listed company. These findings also support our view that other receivables represent the socialistic resources allocation.

¹⁵ In an early version of this study, we use $OREC$ alone (not net of $OPAB$) to proxy for cross-subsidization and obtain similar results.

t . We also control for time and industry effects by including year dummies and industry dummies in the regression model.

B. Managerial Agency Costs of Socialistic Internal Capital Markets

We employ the following model to examine how the presence of a socialistic internal capital market affects a firm's managerial agency costs.

$$MAC_{it} = \gamma_0 + \gamma_1 NOR_{it} + \sum_{k=2}^{11} \gamma_k D_{it}^k + YearDummies_{it} + IndustryDummies_{it} + \varepsilon \quad (2)$$

In Model (2), MAC_{it} is our measure of the managerial agency costs of firm i in year t and NOR_{it} is our measure of socialistic internal capital markets as defined in Model (1). D^k represents control variables, which we explain in detail as follows. We also control for time and industry effects by including year and industry dummies in the model.

Managerial agency costs: We use three alternative measures of managerial agency costs. The first two are based on the study of Ang *et al.* (2000).¹⁶ The first measure is an expense ratio (*OEXP*), which is calculated as operating expenses (excluding managerial compensation and bad debt expense) divided by annual sales (excluding related party sales). This measure captures excessive expenses, including perk consumption. Higher other receivables (*NOR*) requires more allowance for bad debt expense, and hence increase operating expense (*OEXP*) mechanically. We thus exclude bad debt expense for calculation of operating expense. Our second measure of agency costs is calculated as the ratio of annual sales to total assets (excluding other receivables) multiplied by -1 to give an asset utilization efficiency ratio (*AUR*). This measure is a proxy for the loss in revenue that is attributable to inefficient asset

¹⁶ Unlike Ang *et al.* (2000), we do not have a zero agency cost benchmark to control, and thus our measures of agency costs may suffer from measurement error.

utilization as a result of poor investment decisions or shirking by the management. By multiplying the measure by -1, we align the direction of all three measures with agency costs, such that higher measures correspond to higher agency costs. Higher other receivables also increase book value of total assets, and hence increases asset utilization ratio (*AUR*) mechanically. We thus exclude other receivables from calculation of total assets. Our third measure of agency costs (*CENT*) is the amount of cash that is paid for traveling and entertainment as disclosed in the cash flow statement. Although this cash outflow is listed as expenditure on other activities that are related to operations, detailed disclosures tell us that most of it comprises payment for traveling and entertainment. We believe that this measure is a more direct means of capturing excessive consumption by managers. In order to examine the validity of *CENT*, we also hand collect the perquisite information which is disclosed under selling, general and administrative (SGA) expenses in company's financial statement notes, and use the sum of traveling, entertainment, overseas training and corporate limousine expenses (*PERK*) as our measure of managerial perks. Note, however, approximately only 30% of our sample firms disclose the breakdown of SGA expenses and hence we only have 1,440 observations for *PERK*. We find that *CENT* is highly correlated with *PERK* (Pearson correlation=0.534, $p < 0.001$), indicating that *CENT* is a good proxy for perks. In the robustness analyses, we also use *PERK* as a proxy of agency costs, and our results remain qualitatively the same.

Kalcheva and Lins (2007) find that when shareholder protection is weak, there are more severe managerial agency problem when managers hold more cash. We thus introduce the beginning-of-period cash holdings (*CASH*), deflated by sales (excluding related party sales), to control for the potential impact of cash holdings on managerial agency costs. Similar to Ang *et al.* (2000), we also introduce managerial ownership

measured as percentage of shares held by managers (*MOWN*), parent firm ownership measured as percentage of shares held by parent company (*POWN*), leverage measured as long-term liability divided by total assets (*LEV*), and firm size (*lnTA*) as control variables. Grinstein and Hribar (2004) argue that managerial compensation affects managerial efforts, and Eldenburg and Krishnan (2003) find that government-owned organizations are less efficient. Thus, we also include CEO compensation (*lnCEOPAY*) and a state ownership indicator (*STATE*) as control variables. Finally, as corporate governance mechanisms affect managerial agency costs, we also include additional corporate governance variables, *i.e.*, board independence (*INDIRECT*) measured as the percentage of independent directors sitting on the board, audit quality (*AUDIT*) measured as one if the auditor is an international Big-4 auditing firm and zero otherwise, and politically connected CEO (*POLITIC*) to complete Model (2).

III. Sample and Data Description

Our sample comprises all of the firms that are listed on the Shanghai Stock Exchange or the Shenzhen Stock Exchange during the period 2004-2008. Before 2004, few firms disclosed CEO compensation.¹⁷ We restrict our sample to firms that have listed for at least one year. Aharony *et al.* (2010) find that parent companies prop up affiliated listed companies during the initial public offering (IPO) process, which indicates that socialistic internal capital markets (resource reallocation from listed companies to affiliated parent companies) may not exist in the IPO process. We also exclude firms without related party transaction data disclosed in financial statement notes or other necessary data, and obtain 4,193 observations that represent 1,395

¹⁷ Chinese government started to require listed companies to disclose individual director and executive's compensation in 2004. Before 2004, firms disclosed the compensation of their top three executives as an aggregated number. In an earlier version of this paper we used the aggregated compensation for top three executives to examine the same hypotheses during 2001 and 2003. We found qualitatively the same results as these presented in the current paper for the period 2004-2008.

unique firms. Related party transaction data, stock return data, and other accounting information are drawn from the China Securities Markets and Accounting Research (CSMAR) database. Panel A of Table 1 reports the sample selection process.¹⁸

(Insert Table 1 here)

Panel B of Table 1 shows the sample composition by year. The sample observations are almost evenly distributed across years except for year 2004. Because managerial compensation data is missing for most firms in 2004, the number of observations for year 2004 is small (20 observations). Removing year 2004 observations from our sample does not change the main results. Panel C reports the sample composition by industry. The machinery industry has the largest composition (682 observations and 16.27%), followed by the petrochemicals industry (469 and 11.19%) and the minerals industry (389 and 9.28%).¹⁹

Table 2 presents the descriptive statistics of selected variables that are used in this study. We winsorize all of the continuous variables at 1% at each tail. The average amount of the net of other receivables and other payables due from and to the parent company and its subsidiaries (*NOR*) is about 2.12% of annual net sales.²⁰ As the distribution of *NOR* is much skewed, we also run our regressions with the ranking of *NOR* in place of the actual values, and the results reported in this paper still hold.

¹⁸ The sample selection process reveals that there are 1,594 firm-year observations that do not disclose compensation and internal capital transfer information. We compare firms with and without compensation and internal capital transfer data. We find that firms disclosing such information are typically larger, have more independent directors on the board, have higher managerial ownership, and have lower controlling shareholder ownership. We use Heckman selection model to correct the potential sample selection bias and find that our main findings remain valid after correcting for the sample selection bias.

¹⁹ We exclude all the observations in the machinery industry and get similar empirical results. Thus the high composition of machinery companies should have no impact on our main results.

²⁰ Deflation by total assets does not significantly change our main results.

In terms of the three measures of agency costs, on average, operating expenses (*OEXP*) and cash payments for traveling and entertainment (*CENT*) comprise about 16.99% and 18.76% of annual net sales, respectively. The average asset utilization ratio (*AUR*) is about 71.75%, which indicates that one dollar in assets generates about 0.72 dollars in sales.

The ownership structure variables show that, on average, the shares that are held by the parent company (*POWN*) and the top executives (*MOWN*) are 37.0% and 0.04%, respectively. These statistics are consistent with the fact in China listed companies are dominated by the largest shareholder (parent company), and the managers hold very little ownership (Sun and Tong, 2003). In addition, more than 69% of our sample firms are controlled by the Chinese government (*STATE*).

The corporate governance statistics show that about 35.4% of directors are independent directors, 5% of sample firms have Big-4 auditors, 9% of CEOs are politically connected, and the mean (median) CEO compensations (*CEOPAY*) is 320,140 RMB (230,800 RMB). In terms of other firm characteristics, the average *ROA* is about 1.98%, the average stock return (*RETURN*) is 6.58%, the average firm size (*TA*) is 4,814 million RMB, and the average long-term leverage ratio (*LEV*) is 5.67%.²¹

(Insert Table 2 here)

Table 3 presents the Pearson correlation coefficient matrix for our main regression variables. The amount of cross-subsidization (*NOR*) is negatively associated with managerial compensation (the Pearson coefficient is -0.153 at a

²¹ We also adopt the ratio of total liabilities to total assets as the proxy for leverage, and obtain qualitatively the same regression results.

significance level of 1%) and positively associated with all three measures of managerial agency costs. The three measures of agency costs are also highly positively correlated. We do find significant correlation among the other control variables: for example, the Pearson correlation coefficient between firm size and CEO compensations is 0.404 at a significance level of 1%. The variance inflation factors of all of the independent variables indicate there is no serious multi-collinearity problem in our regressions.

(Insert Table 3 here)

IV. Empirical Results

A. Socialistic Internal Capital Markets and Managerial Pay-Performance Sensitivity

We employ the pay-performance sensitivity Model (1) to investigate the impact of socialistic internal capital markets on CEO pay-performance sensitivity. To control for possible heteroskedasticity and autocorrelation, we compute the heteroskedasticity-robust standard errors clustered by firm and year.

Panel A in Table 4 presents the ordinary least square (OLS) regression results for Model (1) using the full sample. Management compensation is significantly sensitive to operating income in all regressions. Specifically, in the first regression when *NOR* and firm size are included, the estimation of coefficient on changes in operating income (ΔOI) is 0.189 at a significance level of 1%, indicating that managers' compensation changes RMB 0.189 for every RMB 1,000 changes in firm's operating income.²² We do not find that management compensation is significantly associated with firm stock returns. This is reasonable as parent companies were not allowed to

²² We recognize that the sensitivity may not be economically significant although it is statistically significant.

sell their shares on the stock market in China before 2006, therefore stock returns did not affect the wealth of parent companies directly, and they may not have the incentive to contract managerial compensation based on stock returns. Pan *et al.* (2006) and Li *et al.* (2013) also find that Chinese managers' compensation is mainly contracted based on accounting performance, rather than stock performance.

We are mainly interested in the impact of socialistic internal capital markets on the pay-performance sensitivity. We find that the reallocation of a large amount of cross-subsidization (*NOR*) has a significantly negative impact on the pay-performance sensitivity. Specifically, the estimated coefficient of *NOR*ΔOI* is -0.002, which is significantly negative at the 5% level (the *t*-value is -2.57). The negative impact of *NOR* on the pay-performance sensitivity is consistent with our first hypothesis that managerial compensation is less sensitive to firm performance with the presence of socialistic internal capital markets. *NOR*RETURN* is negative but insignificant, suggesting that cross-subsidization does not affect the association between CEO compensation and stock returns. We also find that the level of *NOR* is negatively associated with changes in manager's compensation and there is no association between changes in firm's assets and manager's compensation.

The second regression includes *POLITIC*. We find that politically connected CEOs have lower pay-performance sensitivity, and other results are almost the same as those in the first regression. The lower pay-performance sensitivity for politically connected CEOs may be due to different compensation structure and incentives such as the promotion of politically connected CEOs to government positions. As the net of accounts receivable and accounts payable due from and to parent companies (*NAR*) may also reflect cross-subsidization, we include *NAR* in the third regression. *NAR* is calculated as the net of accounts receivable (*AR*) and accounts payable (*AP*) due from

and to the parent company and its subsidiaries if $AR > AP$, and zero otherwise, deflated by sales (excluding related party sales). We find that NAR does not affect CEO compensations and pay-performance sensitivity, suggesting that NAR may not represent cross-subsidization.

(Insert Table 4 here)

We further carry out the cross- and within-tests. For cross-test, we construct a dummy variable ($NORDUM$) which is equal to one for firms with positive internal capital transfer and zero otherwise. We then interact $NORDUM$ with firm performance ($NORDUM * \Delta OI$). Panel B in Table 4 reports the regression results of the cross-test. The cross-test indicates that there is a weak negative association between the existence of the internal capital market and pay-performance sensitivity (the coefficient on $NORDUM * \Delta OI$ is -0.114, $p < 10\%$). We also carry out the within-test by focusing on firms with positive internal capital transfer and test whether the magnitude of NOR has an impact. The within-test indicates that the magnitude of NOR also negatively affects pay-performance sensitivity for firms with positive internal capital transfer (the coefficient on $NOR * \Delta OI$ is -0.002, $p < 5\%$).

Gibbons and Murphy (1990) find that changes in CEO pay are negatively and significantly affected by relative performance evaluation such as industry and market performance. Prior studies also show that the uncertainty in the firm's operating environment may affect the degree to which the manager's performance can be efficiently monitored and may relate to pay-performance sensitivity (Demsetz and Lehn 1985; Lippert and Moore 1994). Thus, we control for industry performance and firm risk in the pay-performance sensitivity regression. Industry performance is

measured as the industry median changes in operating income. Firm risk is measured as the standard deviation of *ROA* over the past three years. Panel C of Table 4 reports the OLS regression results. The number of observations reduces to 2,881 due to some missing values on firm risk measures. The main results on pay-performance sensitivity are qualitatively the same as those reported in Panel A. However, we find that industry performance (*INDOI*) is significantly and positively related to CEO pay, which is contradicted to Gibbons and Murphy (1990). It may suggest that Chinese listed firms do not use relative performance to evaluate their managers. The coefficient on the interaction between firm risk and accounting performance (*RISK* Δ OI*) is significantly negative, indicating that the uncertainty in firms' operating environment negatively affects pay-performance sensitivity which is consistent with prior literature (e.g., Aggarwal and Samwick, 1999).

Although pay-performance elasticity is more stable than pay-performance sensitivity, Murphy (1999) claims that "the primary advantage of the sensitivity approach is that sensitivities have a more natural economic interpretation. The pay-performance sensitivity represents the executive's "share" of value creation. Since agency costs arise when agents receive less than 100% of the value of output, the "sharing rate" seems a natural measure of the severity of the agency problem; elasticities have no corresponding agency-theoretic interpretation." Since our paper centers on managerial agency problem, we report the main results based on pay-performance sensitivity rather than elasticity. As a robustness test, we also employ pay-performance elasticity to test our first hypothesis. The dependent variable is changes in the natural log of CEO compensations and the performance measure is changes in return on assets. The untabulated reports suggest that the results based on pay-performance elasticity are similar to those based on pay-performance sensitivity.

In summary, Table 4 shows that the presence of socialistic internal capital markets negatively affects Chinese managers' pay-performance sensitivity, which is consistent with our first hypothesis.²³

B. Managerial Agency Costs of Socialistic Internal Capital Markets

We employ Model (2) to empirically examine the relation between managerial agency costs and socialistic internal capital markets. Table 5 presents the OLS regression results for Model (2). The reported results in all three regressions indicate a significantly positive association between managerial agency costs and the measure of socialistic internal capital markets (*NOR*). For example, when agency costs are measured by operating expenses (*OEXP*), the estimated coefficient of *NOR* is 0.242 (*t*-statistic is 3.59 which is at 1% significance level). Economically, this indicates that operating expenses will increase by 0.242 dollars for every dollar of financial resources that is reallocated from a listed company to a parent company. These results are consistent with our second hypothesis.

We also find some results in the three regressions which are consistent with existing literature. Consistent with Kalcheva and Lins (2007), we find that the level of cash holdings (*CASH*) is positively associated with all three agency costs measures. We also find managerial ownership (*MOWN*) and parent firm ownership (*POWN*) to be negatively related to agency costs in all three agency costs measures which is consistent with Ang *et al.* (2000). However, state ownership (*STATE*) is significantly negatively related to agency costs measured by assets utilization (*AUR*) and managerial perks (*CENT*) but not operating expenses (*OEXP*). It may be due to the

²³ If managers, rather than group CEOs, are able to control both inter-firm transfers and managerial compensation, low pay-performance sensitivities reported in Table 4 may be chosen because of risk-aversion of managers. However, most of our sample firms are controlled by their parent companies, indicating group CEOs have the control of inter-firm transfers and managerial compensation.

fact that managers in government firms may be offered other incentive schemes, such as promotion to a government officer position. This result is also consistent with the finding of Claessens *et al.* (2002) that the entrenchment effect of large shareholdings is more pronounced in family-controlled groups than in state-controlled groups. Politically connected CEOs (*POLITIC*) is only negatively related to agency costs measured by operating expenses (*OEXP*) but not the other two measures (*AUR* and *CENT*). The negative impact on agency costs may also due to other incentives offered by the government to politically connected managers.

We also find that leverage is positively related to agency costs, which indicates that state-owned banks do not perform their monitoring function well in China. Tian and Estrin (2007) ascribe the failure of governance role by debt to the soft budget constraints in the relationship between state-owned companies and government-controlled banks in China. Managerial compensation (*lnCEOPAY*) is significantly negatively associated with *AUR*, which suggests that higher levels of compensation can reduce agency costs.

(Insert Table 5 here)

As we discussed in Section II, we hand collect the perquisite information from financial statement notes to examine the validity of *CENT*. Approximately 30% of the sample firms disclose the details of the selling, general and administrative (SGA) expenses and hence we only have 1,440 observations in the regression which uses *PERK* as a proxy of agency costs. The results reported in Table 6 (Regression 1) are generally consistent with those in Table 5.

We employ another two alternative proxies of agency costs. The first proxy is the asset liquidity ratio, which is defined as the sum of cash and marketable securities scaled by total assets (Prowse, 1990). Larger cash holdings are accompanied by greater management discretion in the employment of these funds which exacerbates the agency problems. As cross-subsidization reduces the cash holdings in listed companies mechanically, a more appropriate measure here is the cash holdings before cross-subsidization. We thus define the adjusted asset liquidity ratio as $(\text{Cash} + \text{Marketable Securities} + \text{OREC} - \text{OPAB})/\text{Assets}$. The second proxy is the magnitude of free cash flows. Greater retention of free cash flows is envisaged as being indicative of potential agency problems (Lehn and Poulsen, 1989). As Chinese firms generally classify intra-group loans as cash flows from operations, we also employ the free cash flows before cross-subsidization, which is defined as $(\text{Cash flows from operations} - \text{Income taxes} - \text{Interests} - \text{Dividends} + \text{OREC} - \text{OPAB})/\text{Assets}$. The results reported in Table 6 suggest that both the asset liquidity ratio (*ALIQ*) and the free cash flows (*FCF*) are positively and significantly related to our measure of cross-subsidization, further corroborating our second hypothesis.

(Insert Table 6 here)

Our tests implicitly assume that the observations are independent of each other, but the variables may be highly correlated across time. To control for this problem, we compute standard errors clustered by firm and year. We also compute the firm-level averages of all of the variables over the sample period, and test our model using the average values. The untabulated findings reveal that our results are robust to this problem.

C. Endogeneity

As both *NOR* and the proxies for agency costs may be correlated with certain omitted firm characteristics, the absence of these variables may lead to a spurious relation between *NOR* and agency costs. To control for this potential endogeneity, we also carry out firm fixed-effects regressions and two-stage least-squares (2SLS) regressions. In the 2SLS regressions, we use lagged *NOR* as the instrument variable for *NOR*. Unreported analyses show that the lagged *NOR* is highly correlated with *NOR* but uncorrelated with the second-stage error terms, thus ensuring the validity of our instrument. The untabulated results for both the firm fixed-effects and 2SLS regressions are quantitatively the same as those in OLS regressions in Table 5.

The validity of 2SLS regressions largely depends on the choice of instrumental variables in the first stage. The lagged values used in this paper may be not good instrument variables because these variables can be very sticky. Arellano and Bover (1995) and Blundell and Bond (1998) suggest that when appropriate exogenous variables are not available and when the endogenous variable is highly serial correlated, we can employ GMM method to address potential endogeneity issues which uses the lagged values of dependant variables as instruments. The system GMM regression results are reported in Table 7. The association between socialistic internal capital markets (*NOR*) and managerial agency costs is still positive and significant, indicating that our results in Table 5 are robust to potential endogeneity issues.

(Insert Table 7 here)

D. The Validity of the Measure of Socialistic Cross-Subsidization

This study provides a direct measure of socialistic cross-subsidization from strong to weak member firms. We also investigate the validity of our measure by comparing it to the other measures in the existing literature. Prior literature primarily uses the following measures to assess the capital reallocation efficiency for segment j (Datta *et al.*, 2009; McNeil and Moore, 2005; Rajan *et al.*, 2000) :

$$AE1 = (q_j - \bar{q}) \left(\frac{I_j}{BA_j} - \frac{I_j^{SS}}{BA_j^{SS}} \right);$$

$$AE2 = (q_j - \bar{q}) \left(\frac{I_j}{BA_j} - \frac{I_j^{SS}}{BA_j^{SS}} - \sum_{j=1}^n \omega_j \left(\frac{I_j}{BA_j} - \frac{I_j^{SS}}{BA_j^{SS}} \right) \right);$$

$$AE3 = (q_j - 1) \left(\frac{I_j}{BA_j} - \frac{I_j^{SS}}{BA_j^{SS}} \right);$$

where q_j is the Tobin's q for segment j ; \bar{q} is the asset-weighted average q of the business group's segments; I_j is capital expenditures for segment j ; BA_j is the book value of assets for segment j at the beginning of the year; $\frac{I_j^{SS}}{BA_j^{SS}}$ is the asset-weighted average ratio of capital expenditures to beginning assets for stand-alone firms operating in the same industry as segment j . ω_j is the proportion of segment j 's book value of assets to business group's assets.

As the parent companies are non-listed companies, we cannot obtain the investment and market value data of the parent companies and thus could not

calculate \bar{q} and $\sum_{j=1}^n \omega_j \left(\frac{I_j}{BA_j} - \frac{I_j^{SS}}{BA_j^{SS}} \right)$. We therefore use $AE3$ to measure socialistic

cross-subsidization. Similar to Rajan *et al.* (2000), we define socialistic cross-

subsidization ($SCSI$) as one if $q_j - 1 > 0$ and $\frac{I_j}{BA_j} - \frac{I_j^{SS}}{BA_j^{SS}} < 0$, and zero otherwise,

where j represents the listed firms. Pearson correlation analyses indicate that $SCS1$ is significantly and positively correlated with our measure of socialistic cross-subsidization, NOR (Pearson correlation coefficient = 0.0747, $p < 0.001$), which supports the validity of our measure.

We also hand collect the accounting performance for 195 parent companies from the prospectuses provided by listed companies when they went public. We define an alternative proxy for socialistic cross-subsidization ($SCS2$) as one if the listed firms are more profitable than their parent units in ROE (or in ROA when ROE

data is missing) and $\frac{I_j}{BA_j} - \frac{I_j^{SS}}{BA_j^{SS}} < 0$, where j represents the listed firms. Again we

find that $SCS2$ is positively and significantly associated with NOR (Pearson correlation coefficient = 0.0782, $p < 0.10$). This corroborates the validity of our measure.

E. The Impact of the Split-Share Structure Reform in 2005

Before 2005, Chinese listed companies had split-share ownership structure: shares owned by most controlling shareholders (typically the government or legal persons) are not allowed to be traded in the stock market and shares owned by minority shareholders are typically tradable. One of the main problems of the split-share structure is that controlling shareholders do not care about the movement of stock prices because their shares are not tradable on the market (Firth *et al.*, 2010). The China Securities Regulatory Commission (CSRC) issued a guideline in April 2005 to reform the split-share structure by converting the non-floating shares into floating. The reform guideline allows non-floating and floating shareholders to decide between themselves the acceptable compensation that the former group has to pay to

the latter to convert non-floating shares into floating. The reform represented an exogenous shock to firms' governance systems that increased incentives for large shareholders to be concerned about share prices. To control for possible changes of managers' incentives, we include a dummy variable which equals to one for years after 2005 and zero otherwise in the main regression models. Untabulated regression results show that the reform has a positive impact on the managerial pay-performance sensitivity and a negative impact on one of the operating expenses measures (*OEXP*). However, our main findings are robust to the inclusion of the split-share reform dummy.

F. The Moderation Role of Corporate Governance

Well-functioning corporate governance systems are expected to mitigate the managerial agency problems and hence impact the association between socialistic internal capital transfer and managerial agency costs. We employ three measures to capture internal corporate governance systems: the percentage of independent directors sitting on the board (*INDIRECT*), hiring an international Big-4 auditor (*AUDIT*), and managerial ownership (*MOWN*). We anticipate that board independence, audit quality, and managerial ownership can alleviate the positive association between internal capital transfer and managerial costs by enhancing monitoring of management or better aligning the interests of managers and shareholders. As institutional investors typically have incentives to monitor management, we use institutional investors' ownership (*IOWN*) as a proxy for external governance. Bai *et al.* (2004) suggest that the percentage of shareholding by minority shareholders (*SOWN*) is positively associated with firm value. We thus also use minority shareholdings as another measure of external governance. Table 8

suggests that the association between managerial agency costs and internal capital transfer is weaker for firms with more independent boards, better audit quality, and higher managerial ownership. This implies that strong internal corporate governance alleviates the impact of internal capital transfer on managerial agency costs. However, the association between managerial agency costs and internal capital transfer is not weaker for firms with higher institutional ownership and minority shareholder ownership. This may suggest that minority shareholders and institutional investors exert very limited influences over management in China.

(Insert Table 8 here)

V. Summary and Conclusion

This study provides empirical evidence of managerial agency costs in socialistic internal capital markets. The socialistic subsidization of weak member firms by strong member firms reduces the managerial incentive in strong member firms, because managers are obliged to share the surplus that is generated by their own firm with other member firms. This cross-subsidization also increases the noise in performance measures and negatively affects the pay-performance sensitivity in strong member firms, which induces lower-powered incentives and exacerbates the agency problem in strong member firms.

Using a unique dataset from China, we show that the pay-performance sensitivity of Chinese managers is negatively associated with the amount of resources that are reallocated, indicating that incentive schemes are less powerful in the presence of a socialistic internal capital market. We further document a positive relation between socialistic cross-subsidization and managerial agency costs in strong member firms.

Our study is the first to directly empirically test the impact of cross-subsidization on agency costs in strong member firms within a business group. The Chinese setting of the study is distinct because listed companies in China are required to disclose their other receivables from their parent company in the notes to their financial statements. Our study complements existing studies, which can only indirectly measure socialistic internal capital markets, and provides an alternative explanation for the diversification discount that is related to internal capital markets, namely, that the discount may partly result from the agency conflicts between group headquarters and the managers of strong member firms.

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Table 1
Sample Selection and Composition

The table reports the sample selection process and sample composition by year and industry. The industry classification is based on the classification by China Securities Regulatory Commission.

Panel A: Sample Selection Process

| | Firm-year observations |
|--|------------------------|
| All firms listed on the Shanghai and Shenzhen Stock Exchanges during 2004-2008 | 8,491 |
| Firms listed less than one year | (654) |
| Firms without required financial, stock return, and governance information | (2,050) |
| Firms without CEO compensation data | (1,234) |
| Firms without internal capital transfer data | (360) |
| Final sample | 4,193 |

Panel B: Sample Composition by Year

| Year | Observations | Percentage |
|-------|--------------|------------|
| 2004 | 20 | 0.48% |
| 2005 | 1017 | 24.25% |
| 2006 | 1028 | 24.52% |
| 2007 | 1022 | 24.37% |
| 2008 | 1106 | 26.38% |
| Total | 4193 | 100.00% |

Note: Because managerial compensation data is missing for most firms in 2004, the number of observations for year 2004 is small. Removing year 2004 observations from our sample does not change the main results.

Panel C: Sample Composition by Industry

| Industry | Observations | Percentage |
|---------------------|--------------|------------|
| Agriculture | 96 | 2.29% |
| Mining | 75 | 1.79% |
| Food | 176 | 4.20% |
| Textiles | 183 | 4.36% |
| Furniture | 14 | 0.33% |
| Paper | 81 | 1.93% |
| Petrochemicals | 469 | 11.19% |
| Electronics | 159 | 3.79% |
| Minerals | 389 | 9.28% |
| Machinery | 682 | 16.27% |
| Pharmaceuticals | 295 | 7.04% |
| Other manufacturing | 48 | 1.14% |
| Utilities | 171 | 4.08% |
| Construction | 91 | 2.17% |
| Transportation | 147 | 3.51% |

| | | |
|------------------------|------|---------|
| Information technology | 271 | 6.46% |
| Retail | 250 | 5.96% |
| Finance | 2 | 0.05% |
| Real estate | 200 | 4.77% |
| Services | 137 | 3.27% |
| Communications | 37 | 0.88% |
| Conglomerates | 220 | 5.25% |
| Total | 4193 | 100.00% |

Table 2
Descriptive Statistics of Sample Firms

NOR is the net of other receivables (*OREC*) and other payables (*OPAB*) due from and to the parent company and its subsidiaries if $OREC > OPAB$, and zero otherwise, deflated by sales (excluding related party sales). *OEXP* is the operating expenses minus the compensation of the top executives and bad debt expense, deflated by sales (excluding related party sales). *AUR* is the asset utilization ratio, which is computed as sales divided by average total assets (excluding other receivables) multiplied by (-1). *CENT* is the cash payment that is made for other operating activities (mainly traveling and entertainment activities), deflated by sales (excluding related party sales). *POWN* is the percentage of shares that are held by the parent company, and *MOWN* is the percentage of shares that are held by managers. *STATE* is a dummy that equals one if the firm is controlled by the state or a state-owned firm, and zero otherwise. *INDIRECT* is the proportion of independent directors on board. *AUDIT* is a dummy that equals one if the firm has a Big-4 auditor, and zero otherwise. *POLITIC* is a dummy that equals one if CEO serves as former or current government bureaucrat and zero otherwise. *CEOPAY* is the cash salaries and bonuses that are paid to the CEO. *ROA* is the operating income divided by the total assets at the beginning of the period. *RETURN* is the firm's annual stock return minus market return in the same period. *TA* is the book value of total assets at the end of the year. *LEV* is the leverage ratio, which is computed as long-term liabilities divided by year-end total assets. All of the continuous variables are winsorized at 1% at each tail.

| <i>Variable</i> | <i>Mean</i> | <i>Median</i> | <i>Std. Dev.</i> |
|----------------------------------|-------------|---------------|------------------|
| <i>NOR (%)</i> | 2.119 | 0.000 | 14.414 |
| <i>OEXP (%)</i> | 16.985 | 11.762 | 19.907 |
| <i>AUR (%)</i> | -71.745 | -59.528 | 50.635 |
| <i>CENT (%)</i> | 18.764 | 8.730 | 38.810 |
| <i>POWN (%)</i> | 37.002 | 34.950 | 15.314 |
| <i>MOWN (%)</i> | 0.043 | 0.000 | 0.223 |
| <i>STATE</i> | 0.694 | 1 | 0.461 |
| <i>INDIRECT (%)</i> | 35.359 | 33.333 | 4.719 |
| <i>AUDIT</i> | 0.049 | 0 | 0.217 |
| <i>POLITIC</i> | 0.091 | 0 | 0.288 |
| <i>CEOPAY (in thousands RMB)</i> | 320.140 | 230.800 | 371.691 |
| <i>ROA (%)</i> | 1.976 | 2.756 | 8.663 |
| <i>RETURN (%)</i> | 6.580 | -3.438 | 70.855 |
| <i>TA (in millions RMB)</i> | 4,813.6 | 1,791.2 | 27,083.7 |
| <i>LEV (%)</i> | 5.670 | 1.647 | 8.412 |

Table 3
Pearson Correlation Matrix of the Variables

This table reports the Pearson correlations for our main regression variables. *NOR* is the net of other receivables (*OREC*) and other payables (*OPAB*) due from and to the parent company and its subsidiaries if $OREC > OPAB$, and zero otherwise, deflated by sales (excluding related party sales). *OEXP* is the operating expenses minus the compensation of the top executives and bad debt expense, deflated by sales (excluding related party sales). *AUR* is the asset utilization ratio, which is computed as sales divided by average total assets (excluding other receivables) multiplied by (-1). *CENT* is the cash payment that is made for other operating activities (mainly traveling and entertainment activities), deflated by sales (excluding related party sales). *POWN* is the percentage of shares that are held by the parent company, and *MOWN* is the percentage of shares that are held by managers. *STATE* is a dummy that equals one if the firm is controlled by the state or a state-owned firm, and zero otherwise. *INDIRECT* is the proportion of independent directors on board. *AUDIT* is a dummy that equals one if the firm has a Big-4 auditor, and zero otherwise. *POLITIC* is a dummy that equals one if CEO serves as former or current government bureaucrats and zero otherwise. *CEOPAY* is the cash salaries and bonuses that are paid to the *CEO*. *ROA* is the operating income divided by the total assets at the beginning of the period. *RETURN* is the firm's annual stock return minus the market return. *TA* is the book value of total assets at the end of the year. *LEV* is the leverage ratio, which is computed as long-term liabilities divided by total assets. The coefficients in bold are significant at the 1% level (two-tailed).

| | <i>NOR</i> | <i>OEXP</i> | <i>AUR</i> | <i>CENT</i> | <i>POWN</i> | <i>MOWN</i> | <i>STATE</i> | <i>INDIRECT</i> | <i>AUDIT</i> | <i>POLITIC</i> | <i>CEOPAY</i> | <i>ROA</i> | <i>RETURN</i> | <i>TA</i> | <i>LEV</i> |
|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------|--------------|----------------|---------------|--------------|---------------|--------------|------------|
| <i>NOR</i> | 1.000 | | | | | | | | | | | | | | |
| <i>OEXP</i> | 0.227 | 1.000 | | | | | | | | | | | | | |
| <i>AUR</i> | 0.112 | 0.292 | 1.000 | | | | | | | | | | | | |
| <i>CENT</i> | 0.143 | 0.533 | 0.255 | 1.000 | | | | | | | | | | | |
| <i>POWN</i> | 0.005 | -0.122 | -0.098 | -0.098 | 1.000 | | | | | | | | | | |
| <i>MOWN</i> | -0.025 | -0.011 | -0.048 | -0.032 | -0.044 | 1.000 | | | | | | | | | |
| <i>STATE</i> | -0.010 | -0.096 | -0.107 | -0.116 | 0.243 | -0.187 | 1.000 | | | | | | | | |
| <i>INDIRECT</i> | -0.028 | 0.013 | 0.028 | 0.011 | -0.024 | 0.017 | -0.058 | 1.000 | | | | | | | |
| <i>AUDIT</i> | -0.027 | -0.041 | -0.035 | -0.051 | 0.065 | -0.009 | 0.061 | 0.029 | 1.000 | | | | | | |
| <i>POLITIC</i> | -0.010 | -0.021 | 0.060 | 0.021 | 0.001 | 0.020 | -0.012 | -0.011 | -0.019 | 1.000 | | | | | |
| <i>CEOPAY</i> | -0.153 | -0.156 | -0.212 | -0.134 | -0.020 | 0.066 | 0.028 | 0.046 | 0.196 | -0.011 | 1.000 | | | | |
| <i>ROA</i> | -0.294 | -0.404 | -0.186 | -0.248 | 0.127 | 0.069 | 0.034 | -0.033 | 0.062 | 0.016 | 0.301 | 1.000 | | | |
| <i>RETURN</i> | -0.052 | -0.059 | -0.048 | -0.038 | 0.025 | -0.043 | 0.003 | 0.014 | -0.005 | -0.002 | 0.095 | 0.189 | 1.000 | | |
| <i>TA</i> | -0.168 | -0.330 | -0.154 | -0.218 | 0.233 | -0.070 | 0.252 | 0.016 | 0.328 | 0.017 | 0.404 | 0.259 | 0.103 | 1.000 | |
| <i>LEV</i> | -0.052 | -0.087 | 0.221 | -0.022 | 0.033 | -0.052 | 0.083 | 0.013 | 0.081 | 0.032 | 0.064 | -0.010 | 0.046 | 0.325 | 1.000 |

Table 4
Socialistic Internal Capital Markets and Managerial Compensation

This table reports the OLS regression results for Model (1). The dependent variable is changes in managerial compensation ($\Delta CEOPAY$) which is calculated as the cash salaries and bonuses that are paid to CEO. ΔOI is changes in operating income (in thousands RMB). $RETURN$ is the firm's annual stock return minus the market return. NOR is the net of other receivables ($OREC$) and other payables ($OPAB$) due from and to the parent company and its subsidiaries if $OREC > OPAB$, and zero otherwise, deflated by sales (excluding related party sales). $POLITIC$ is a dummy that equals one if CEO serves as former or current government bureaucrat and zero otherwise. NAR is the net of accounts receivable (AR) and accounts payable (AP) due from and to the parent company and its subsidiaries if $AR > AP$, and zero otherwise, deflated by sales (excluding related party sales). ΔTA is changes in the book value of total assets at the end of the year (in millions RMB). The t -values in parentheses are based on heteroskedasticity-robust standard errors clustered by firm and year. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively (two-tailed).

Panel A: Full sample regressions

| | <i>Regression 1</i> | <i>Regression 2</i> | <i>Regression 3</i> |
|----------------------------------|---|---|---|
| | Dependent Variable = $\Delta CEOPAY$ | Dependent Variable = $\Delta CEOPAY$ | Dependent Variable = $\Delta CEOPAY$ |
| ΔOI | 0.189*** (3.130) | 0.222*** (2.959) | 0.223*** (2.933) |
| $RETURN$ | 80.703 (0.782) | 70.324 (0.641) | 75.830 (0.666) |
| NOR | -277.121** (-1.969) | -264.692* (-1.653) | -268.063* (-1.850) |
| $NOR*\Delta OI$ | -0.002** (-2.567) | -0.002*** (-2.626) | -0.002*** (-2.662) |
| $NOR*RETURN$ | -2.141 (-0.853) | -2.116 (-0.860) | -2.126 (-0.830) |
| $POLITIC$ | | -11,186.992 (-1.398) | -11,394.585 (-1.418) |
| $POLITIC*\Delta OI$ | | -0.258*** (-3.052) | -0.259*** (-3.012) |
| $POLITIC*RETURN$ | | 8.498 (0.077) | 7.007 (0.063) |
| NAR | | | -99.215 (-0.289) |
| $NAR*\Delta OI$ | | | -0.001 (-1.063) |
| $NAR*RETURN$ | | | -3.633 (-1.521) |
| ΔTA | -2.075 (-0.220) | -1.618 (-0.178) | -1.679 (-0.186) |
| <i>Constant</i> | 14,822.519 (1.404) | 15,346.891 (1.220) | 15,294.058 (1.034) |
| <i>Year and industry dummies</i> | Included | Included | Included |
| <i>Observations[#]</i> | 3002 | 3002 | 3002 |
| <i>Adjusted R-squared</i> | 0.033 | 0.038 | 0.037 |

[#] As some observations lack CEO compensation information for year t-1, the sample size in this table is less than 4,193.

Panel B: Cross-test and within-test regressions

| | Regression 1: Cross-test | Regression 2: Within-test (The subsample of firms with positive NOR) |
|---------------------------|---|---|
| | Dependent Variable = Δ CEOPAY | Dependent Variable = Δ CEOPAY |
| Δ OI | 0.236*** (3.284) | 0.242** (2.302) |
| NORDUM | -8,602.902* (-1.901) | |
| NORDUM* Δ OI | -0.114* (-1.754) | |
| NOR | | -264.431 (-0.888) |
| NOR* Δ OI | | -0.002** (-2.234) |
| POLITIC | -10,652.232 (-1.165) | 11,998.031 (0.383) |
| POLITIC* Δ OI | -0.254*** (-3.437) | -0.335 (-0.744) |
| Δ TA | -1.478 (-0.162) | -15.810*** (-3.387) |
| Constant | 9,192.125*** (4.974) | 36,253.767*** (5.660) |
| Year and industry dummies | Included | Included |
| Observations | 3003 | 324 |
| Adjusted R-squared | 0.039 | 0.077 |

Note: NORDUM is a dummy variable equal to one when NOR>0 and zero otherwise.

Panel C: Control for industry performance and firm risk

| | Dependent Variable = Δ CEOPAY |
|---------------------------|--------------------------------------|
| Δ OI | 0.244*** (2.872) |
| NOR | -99.370 (-0.515) |
| NOR* Δ OI | -0.001*** (-3.498) |
| POLITIC | -9,316.607 (-0.730) |
| POLITIC* Δ OI | -0.131** (-2.164) |
| INDOI | 2.775** (2.163) |
| RISK* Δ OI | -0.395* (-1.656) |
| Δ TA | 1.508 (0.234) |
| Constant | 71151.67 (1.26) |
| Year and industry dummies | Included |
| Observations | 2881 |
| Adjusted R-squared | 0.040 |

Note: INDOI is the industry median changes in operating income (in thousands RMB). RISK is the standard deviation of ROA over the past three years.

Table 5
Socialistic Internal Capital Markets and Managerial Agency Costs:
OLS Regressions

This table reports the OLS regression results for Model (2). The dependent variables are the three measures of managerial agency costs. *OEXP* is the operating expenses minus the compensation of the top executives and bad debt expense, deflated by sales (excluding related party sales). *AUR* is the asset utilization ratio, which is computed as sales divided by average total assets (excluding other receivables) multiplied by (-1). *CENT* is the cash payment that is made for other operating activities (mainly traveling and entertainment activities), deflated by sales (excluding related party sales). *PERK* is the sum of entertainment, traveling, overseas training and traveling, and corporate limousine expenses disclosed in annual reports, deflated by sales (excluding related party sales). *NOR* is the net of other receivables (*OREC*) and other payables (*OPAB*) due from and to the parent company and its subsidiaries if *OREC*>*OPAB*, and zero otherwise, deflated by sales (excluding related party sales). There are 324 observations with non-zero *NOR*. *POWN* is the percentage of shares that are held by the parent company, and *MOWN* is the percentage of shares that are held by managers. *STATE* is a dummy that equals one if the firm is controlled by the state or a state-owned firm, and zero otherwise. *INDIRECT* is the proportion of independent directors on board. *AUDIT* is a dummy that equals one if the firm has a Big-4 auditor, and zero otherwise. *POLITIC* is a dummy that equals one if CEO serves as former or current government bureaucrats and zero otherwise. *CEOPAY* is the cash salaries and bonuses that are paid to CEO. *CASH* is the beginning-of-period cash holdings, deflated by sales (excluding related party sales). *TA* is the book value of total assets (excluding other receivables) at the end of the year. *LEV* is the leverage ratio, which is computed as long-term liabilities divided by total assets. The *t*-values in parentheses are computed with heteroskedasticity-robust standard errors clustered by firm and year. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively (two-tailed).

| | <i>Regression 1</i> | <i>Regression 2</i> | <i>Regression 3</i> |
|----------------------------------|--|---|--|
| | <i>Dependent Variable</i> = <i>OEXP</i> | <i>Dependent Variable</i> = <i>AUR</i> | <i>Dependent Variable</i> = <i>CENT</i> |
| <i>NOR</i> | 0.242*** (3.585) | 0.273*** (6.990) | 0.259** (2.081) |
| <i>POWN</i> | -0.070*** (-3.516) | -0.258*** (-4.515) | -0.104*** (-3.321) |
| <i>MOWN</i> | -2.702*** (-4.674) | -14.585*** (-6.317) | -7.930*** (-9.144) |
| <i>STATE</i> | -0.693 (-0.972) | -8.337*** (-3.641) | -5.461*** (-3.674) |
| <i>INDIRECT</i> | 0.102 (1.543) | 0.209 (1.466) | 0.133 (0.695) |
| <i>AUDIT</i> | 6.322*** (4.138) | 7.185* (1.713) | 3.266* (1.732) |
| <i>POLITIC</i> | -1.760** (-2.353) | 4.961 (1.364) | 1.488 (0.592) |
| <i>Ln(CEOPAY)</i> | -0.475 (-0.526) | -10.245*** (-7.108) | -1.965 (-1.423) |
| <i>CASH</i> | 5.847*** (4.513) | 37.740*** (10.860) | 10.046*** (5.438) |
| <i>Ln(TA)</i> | -5.284*** (-11.548) | -5.910*** (-5.479) | -5.596*** (-7.075) |
| <i>LEV</i> | 0.048 (1.348) | 1.538*** (14.065) | 0.164*** (3.051) |
| Constant | 128.996*** (9.810) | 132.695*** (5.623) | 159.477*** (5.267) |
| <i>Year and industry dummies</i> | Included | Included | Included |
| Observations | 4193 | 4193 | 4193 |
| Adjusted R-squared | 0.166 | 0.297 | 0.109 |

Table 6
Socialistic Internal Capital Markets and Managerial Agency Costs:
Alternative Measures of Agency Costs

This table reports the OLS regression results for Model (2) using three alternative measures of agency costs. *PERK* is the sum of entertainment, traveling, overseas training and traveling, and corporate limousine expenses disclosed in annual reports, deflated by sales (excluding related party sales). *ALIQ* is the asset liquidity ratio which is defined as (Cash + Marketable Securities + OREC - OPAB)/Assets. *FCF* is the measure of free cash flows which is calculated as (Cash flow from operations – Income taxes – Interests – Dividends + OREC - OPAB)/Assets. *NOR* is the net of other receivables (*OREC*) and other payables (*OPAB*) due from and to the parent company and its subsidiaries if *OREC*>*OPAB*, and zero otherwise, deflated by sales (excluding related party sales). There are 324 observations with non-zero *NOR*. *POWN* is the percentage of shares that are held by the parent company, and *MOWN* is the percentage of shares that are held by managers. *STATE* is a dummy that equals one if the firm is controlled by the state or a state-owned firm, and zero otherwise. *INDIRECT* is the proportion of independent directors on board. *AUDIT* is a dummy that equals one if the firm has a Big-4 auditor, and zero otherwise. *POLITIC* is a dummy that equals one if CEO serves as former or current government bureaucrats and zero otherwise. *CEOPAY* is the cash salaries and bonuses that are paid to CEO. *CASH* is the beginning-of-period cash holdings, deflated by sales (excluding related party sales). *TA* is the book value of total assets (excluding other receivables) at the end of the year. *LEV* is the leverage ratio, which is computed as long-term liabilities divided by total assets. The *t*-values in parentheses are computed with heteroskedasticity-robust standard errors clustered by firm and year. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively (two-tailed).

| | <i>Regression 1</i> | <i>Regression 2</i> | <i>Regression 3</i> |
|----------------------------------|----------------------------------|----------------------------------|---------------------------------|
| | <i>Dependent Variable = PERK</i> | <i>Dependent Variable = ALIQ</i> | <i>Dependent Variable = FCF</i> |
| <i>NOR</i> | 0.017*** (2.764) | 0.002*** (6.344) | 0.002*** (6.460) |
| <i>POWN</i> | -0.004 (-1.009) | 0.000 (0.143) | -0.000 (-0.932) |
| <i>MOWN</i> | -0.243* (-1.819) | 0.031*** (3.508) | 0.012** (2.218) |
| <i>STATE</i> | -0.521*** (-4.700) | 0.008 (1.498) | 0.007*** (3.210) |
| <i>INDIRECT</i> | -0.005 (-0.906) | -0.001*** (-2.606) | -0.000 (-0.221) |
| <i>AUDIT</i> | 0.185 (0.697) | -0.017** (-2.276) | 0.007 (1.042) |
| <i>POLITIC</i> | -0.232*** (-2.642) | -0.012 (-1.320) | 0.002 (0.288) |
| <i>Ln(CEOPAY)</i> | 0.160** (2.005) | 0.023*** (7.046) | 0.006** (2.026) |
| <i>CASH</i> | 0.556*** (4.943) | 0.105*** (12.169) | -0.015** (-2.281) |
| <i>Ln(TA)</i> | -0.511*** (-10.010) | 0.001 (0.350) | 0.005*** (3.989) |
| <i>LEV</i> | 0.006 (0.808) | -0.003*** (-14.855) | -0.000** (-2.270) |
| Constant | 10.482*** (7.206) | -0.168** (-2.279) | -0.154*** (-4.552) |
| <i>Year and industry dummies</i> | Included | Included | Included |
| Observations | 1440 | 3980 | 4037 |
| Adjusted R-squared | 0.200 | 0.245 | 0.098 |

Table 7
Socialistic Internal Capital Markets and Managerial Agency Costs:
System GMM regressions

This table reports the system GMM regression results for Model (2). The dependent variables are the four measures of managerial agency costs. *OEXP* is the operating expenses minus the compensation of the top executives and bad debt expense, deflated by sales (excluding related party sales). *AUR* is the asset utilization ratio, which is computed as sales divided by average total assets (excluding other receivables) multiplied by (-1). *CENT* is the cash payment that is made for other operating activities (mainly traveling and entertainment activities), deflated by sales (excluding related party sales). *PERK* is the sum of entertainment, traveling, overseas training and traveling, and corporate limousine expenses disclosed in annual reports, deflated by sales (excluding related party sales). *NOR* is the net of other receivables (*OREC*) and other payables (*OPAB*) due from and to the parent company and its subsidiaries if *OREC*>*OPAB*, and zero otherwise, deflated by sales (excluding related party sales). There are 324 observations with non-zero *NOR*. *POWN* is the percentage of shares that are held by the parent company, and *MOWN* is the percentage of shares that are held by managers. *STATE* is a dummy that equals one if the firm is controlled by the state or a state-owned firm, and zero otherwise. *INDIRECT* is the proportion of independent directors on board. *AUDIT* is a dummy that equals one if the firm has a Big-4 auditor, and zero otherwise. *POLITIC* is a dummy that equals one if CEO serves as former or current government bureaucrats and zero otherwise. *CEOPAY* is the cash salaries and bonuses that are paid to CEO. *CASH* is the beginning-of-period cash holdings, deflated by sales (excluding related party sales). *TA* is the book value of total assets (excluding other receivables) at the end of the year. *LEV* is the leverage ratio, which is computed as long-term liabilities divided by total assets. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively (two-tailed).

| | <i>Regression 1</i> | <i>Regression 2</i> | <i>Regression 3</i> | <i>Regression 4</i> |
|---|--|---|--|--|
| | <i>Dependent Variable</i> <i>= OEXP</i> | <i>Dependent Variable</i> <i>= AUR</i> | <i>Dependent Variable</i> <i>= CENT</i> | <i>Dependent Variable</i> <i>= PERK</i> |
| <i>NOR</i> | 0.127*** (3.415) | 0.090* (1.807) | 0.148** (2.073) | 0.022*** (4.763) |
| <i>POWN</i> | -0.059*** (-4.329) | -0.051*** (-2.701) | -0.070** (-2.422) | -0.001 (-0.745) |
| <i>MOWN</i> | -0.783 (-0.822) | -2.000 (-1.500) | -2.812 (-1.360) | 0.111 (0.847) |
| <i>STATE</i> | 0.617 (1.337) | -3.095*** (-4.785) | -1.843* (-1.854) | -0.362*** (-7.266) |
| <i>INDIRECT</i> | 0.036 (0.816) | -0.003 (-0.052) | -0.141 (-1.481) | 0.005 (1.070) |
| <i>AUDIT</i> | 4.867*** (4.943) | -2.166 (-1.620) | 3.879* (1.878) | 0.101 (0.850) |
| <i>POLITIC</i> | -1.027 (-1.394) | -0.298 (-0.300) | -1.246 (-0.810) | -0.234*** (-2.995) |
| <i>Ln(CEOPAY)</i> | -0.080 (-0.287) | -2.458*** (-6.054) | -2.200*** (-3.725) | 0.161*** (5.596) |
| <i>CASH</i> | 0.095 (0.157) | -5.143*** (-5.113) | -1.531 (-1.178) | 0.296*** (4.401) |
| <i>Ln(TA)</i> | -3.351*** (-13.281) | 1.578*** (4.495) | -3.925*** (-7.635) | -0.405*** (-13.410) |
| <i>LEV</i> | 0.059** | 0.298*** (7.226) | 0.092* (1.655) | 0.009*** (3.345) |
| <i>Lagged values of dependent variables</i> | 0.443*** (24.577) | 0.852*** (50.231) | 0.361*** (19.272) | 0.226*** (6.135) |
| Constant | 82.978*** (14.404) | -15.050* (-1.947) | 130.950*** (11.370) | 7.022*** (10.419) |
| <i>Year and industry dummies</i> | Included | Included | Included | Included |
| Observations | 4006 | 4192 | 4191 | 1257 |
| Wald Chi-squared | 2115.43 | 10956.40 | 1130.31 | 1858.84 |

Table 8
Socialistic Internal Capital Markets and Managerial Agency Costs:
The Moderating Role of Corporate Governance

The dependent variables in regressions 1 through 3 are the three measures of managerial agency costs. *OEXP* is the operating expenses minus the compensation of the top executives and bad debt expense, deflated by sales (excluding related party sales). *AUR* is the asset utilization ratio, which is computed as sales divided by average total assets (excluding other receivables) multiplied by (-1). *CENT* is the cash payment that is made for other operating activities (mainly traveling and entertainment activities), deflated by sales (excluding related party sales). *NOR* is the net of other receivables (*OREC*) and other payables (*OPAB*) due from and to the parent company and its subsidiaries if *OREC*>*OPAB*, and zero otherwise, deflated by sales (excluding related party sales). *AUDIT* is a dummy that equals one if the firm has a Big-4 auditor, and zero otherwise. *POWN* is the percentage of shares that are held by the parent company, and *MOWN* is the percentage of shares that are held by managers. *IOWN* is the percentage of shares that are held by institutional investors. *SOWN* is the percentage of shares that are held by the second to the fifth largest shareholders. *STATE* is a dummy that equals one if the firm is controlled by the state or a state-owned firm, and zero otherwise. *INDIRECT* is the proportion of independent directors on board. *POLITIC* is a dummy that equals one if CEO serves as former or current government bureaucrats and zero otherwise. *CEOPAY* is the cash salaries and bonuses that are paid to CEO. *CASH* is the beginning-of-period cash holdings, deflated by sales (excluding related party sales). *TA* is the book value of total assets (excluding other receivables) at the end of the year. *LEV* is the leverage ratio, which is computed as long-term liabilities divided by total assets. The *t*-values in parentheses are based on heteroskedasticity-robust standard errors clustered by firm and year. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively (two-tailed).

| | <i>Regression 1</i> | <i>Regression 2</i> | <i>Regression 3</i> |
|---------------------|--|---|--|
| | <i>Dependent Variable =</i> <i>OEXP</i> | <i>Dependent Variable =</i> <i>AUR</i> | <i>Dependent Variable =</i> <i>CENT</i> |
| <i>NOR</i> | 2.106*** (3.019) | 1.818*** (3.382) | 1.137 (1.204) |
| <i>NOR*INDIRECT</i> | -0.052*** (-2.665) | -0.042*** (-2.593) | -0.019 (-0.737) |
| <i>NOR*MOWN</i> | -4.781 (-1.155) | 4.428 (0.603) | -10.247* (-1.937) |
| <i>NOR*AUDIT</i> | -0.483*** (-5.407) | 0.143 (1.069) | -0.537*** (-3.084) |
| <i>NOR*IOWN</i> | -0.013 (-1.068) | 0.048*** (3.823) | -0.025 (-1.309) |
| <i>NOR*SOWN</i> | 0.000 (0.089) | -0.004 (-1.101) | -0.009 (-0.901) |
| <i>IOWN</i> | 0.123*** (3.239) | -0.370** (-2.105) | -0.089* (-1.720) |
| <i>SOWN</i> | 0.077 (1.645) | -0.273** (-2.367) | 0.095 (1.109) |
| <i>POWN</i> | -0.009 (-0.302) | -0.358*** (-3.863) | -0.046 (-0.922) |
| <i>MOWN</i> | -1.886* (-1.852) | -10.972*** (-2.667) | -5.988*** (-4.534) |
| <i>STATE</i> | -1.005 (-1.101) | -6.408** (-2.453) | -4.762*** (-3.193) |
| <i>INDIRECT</i> | 0.234*** (2.752) | 0.269 (1.271) | 0.286*** (2.659) |
| <i>AUDIT</i> | 4.965*** | 7.640 | -0.310 |

| | | | |
|----------------------------------|------------|------------|------------|
| | (2.798) | (1.447) | (-0.184) |
| <i>POLITIC</i> | -0.641 | 6.013* | 2.650 |
| | (-0.565) | (1.647) | (0.983) |
| <i>Ln(CEOPAY)</i> | -0.277 | -7.662*** | -0.148 |
| | (-0.485) | (-5.109) | (-0.166) |
| <i>CASH</i> | 3.658*** | 40.994*** | 7.564*** |
| | (3.441) | (11.574) | (2.600) |
| <i>Ln(TA)</i> | -3.951*** | -5.387*** | -2.910*** |
| | (-7.928) | (-3.681) | (-3.803) |
| <i>LEV</i> | -0.061 | 1.615*** | 0.044 |
| | (-1.536) | (13.041) | (0.530) |
| <i>Constant</i> | 93.368*** | 88.697** | 69.276*** |
| | (7.515) | (2.446) | (3.914) |
| <i>Industry and year dummies</i> | Controlled | Controlled | Controlled |
| <i>Observations</i> | 3,094 | 3,094 | 3,094 |
| <i>Adjusted R-squared</i> | 0.181 | 0.336 | 0.108 |