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ABSTRACT

We study the efficiency of internal capital markets at state-controlled and privately owned business groups in China. Using highly granular data on within-group capital flows, we document stark differences: while private groups allocate more capital to units with better investment opportunities, state groups do the opposite. Minority shareholders in state owned firms suffer as a result. Product market competition and external monitoring by outside investors help discipline state groups' tendency to ignore investment opportunities. We conjecture that capital allocations at state groups reflect the private career objectives of their chairmen. We show that promotion depends not on increasing profitability but on avoiding layoffs. Consistent with a career motive, we find that capital allocations are used to prop up large and struggling employers, but only if the chairman has a realistic chance of being promoted and if the cost of self-interested behavior is not too high.

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The key function of an economic system is to allocate scarce resources efficiently. Having proved superior to central planning, Western liberal capitalism, based on markets and private enterprise, was in the ascendant following the collapse of the Soviet Union. More recently, however, state capitalism has won adherents around the world as an alternative to Western capitalism.[1] State capitalism, as practiced in China, Russia, and many other emerging economies, combines the power of the state with the use of capitalist tools: the state controls access to capital, picks winners, and influences investment decisions, while at the same time listing state firms on domestic or overseas stock markets and providing patient long-term capital through sovereign wealth funds.

In this paper, we ask how efficiently state firms allocate capital. Our focus is on China, the country where state capitalism is perhaps the most entrenched. To illustrate, China's state firms account for nearly 70% of China's stock market capitalization in 2013. The combined profits of three of the largest, PetroChina, Sinopec, and China Shenhua, exceed the combined profits of *all* the 1,454 private enterprises listed on China's stock markets in 2013. China's state firms are large even by global standards: 95 of Fortune's 2013 list of the 500 largest firms worldwide are Chinese, and 80 of these are state owned firms; their collective revenues of $4.6 trillion are equivalent to half of China's 2013 GDP. And according to the SWF Institute, China's sovereign wealth fund, which manages over $1.22 trillion, is currently the world's largest.

We investigate the efficiency of capital allocation by contrasting how state business groups and privately owned business groups in China allocate capital across their member firms. As Stein (1997) notes, an efficient capital market allocates more capital to units with relatively better investment opportunities. This is exactly how, according to our evidence, private groups in China allocate capital. State groups, in contrast, do the opposite.

[1] See, for example, "The Rise of State Capitalism", The Economist, Jan. 21, 2012.

Our setting has some parallels with studies of internal capital markets at multi-segment firms in the U.S., insofar as we test for the efficiency of capital allocations, but our focus on state groups is novel. Besides having few state firms, the U.S. also suffers from two data handicaps compared to China. First, unlike group member firms in China, business segments in the U.S. are rarely stock market listed and so standard proxies for their investment opportunities (such as Tobin's *Q*) cannot be estimated directly. Second, U.S. firms have to disclose little segment-level data,[2] unlike Chinese stock market listed firms, which are required to disclose detailed data on intra-group capital flows pursuant to a listing rule in force since 2004. These data, which are highly granular, allow us to test the efficiency of capital allocations by measuring how sensitive to its investment opportunities a firm's inflow of capital from other group members is.

Using data on all internal capital flows among group member firms at 211 state business groups and 76 private business groups over the period from 2004 to 2013, we find startling differences. Private groups allocate more capital to units with better investment opportunities, consistent with maximizing group value. This is true despite the well documented fact that private enterprises in China tend to suffer from financial constraints: they are often credit-rationed by state banks and face much higher interest rates (Allen, Qian, and Qian 2005). State groups, by contrast, reallocate capital from high-*Q* to low-*Q* member firms. This pattern is remarkably robust in the data.

Two pieces of evidence suggest that the negative sensitivity of capital allocations to *Q* at China's state groups reflects deliberate policy. The first is evidence showing that product market competition constrains state groups' tendency to ignore price signals. Specifically, we find that exogenous increases in product market competition (resulting from cuts in tariffs on goods

[2] Under SEC rule S-K and FASB rule 14, U.S. firms have to report certain accounting information for any segment selling primarily to unaffiliated customers and accounting for 10% or more of consolidated sales. Disclosable accounting information is confined to segment sales, segment cash flow, and segment capital expenditure.

imported into China) appear to put pressure on state groups to allocate capital less inefficiently. Conversely, reductions in competition appear to reduce product market discipline on state groups. The second piece of evidence is that state groups divert fewer cash flows away from high-*Q* firms over which they have less control, suggesting that outside minority investors monitor their capital allocation decisions. Even so, we find that minority investors are harmed when capital flows out of state firms with relatively better investment opportunities.

Our empirical results suggest that state capitalism does a poor job of allocating capital efficiently, at least in the context of China's state business groups. This likely reflects the fact that the objective function of the Chinese Communist Party (CCP), which ultimately controls most functions of state, is not exclusively the maximization of profits or shareholder value but also the maintenance of a 'harmonious society.' Consistent with this, we document that the chairmen of state groups in our sample are rewarded with promotions to higher political office not only for raising productivity but also for avoiding large scale job losses. Clearly, these aims can be in conflict (maintaining overstaffing may make raising productivity difficult) and over time may be incompatible (subsidizing unproductive jobs may divert resources away from creating productive ones).

Our evidence suggests that state-group chairmen let these career incentives influence their internal capital allocation decisions. Consistent with chairmen maximizing their prospects for political promotions, we find that capital allocations are used to prop up large and struggling employers with poor prospects. Such behavior could in principle be in the CCP's best interest, as it may help avoid layoffs, but two further tests suggest that state group chairmen's interests are potentially misaligned.

First, we show that internal capital allocations are only distorted if the group chairman is

below the age of 60 and so is eligible for another promotion under the CCP's rules. Second, we find that capital allocations are significantly less distorted after crackdowns on corruption among holders of high political offices in the province in which a state group is headquartered. To the extent that such crackdowns are perceived as exogenous shocks to the risk of being held accountable for self-serving behavior, state-group chairmen may prefer to lie low for a while and not misallocate capital for their private ends. Our results are consistent with this interpretation.

Our paper contributes to the literature on state and private firms, surveyed in Megginson and Netter (2001), by providing the first empirical comparison of their capital allocation decisions. Prior literature identifies two sources of inefficiencies at state firms. The "political view" argues that politicians extend a "grabbing hand" to divert public resources for their own benefit (Shleifer 1998, La Porta and Lopez-de-Silanes 1999). The "social view" argues that the state pursues non-commercial objectives beyond maximizing profits or shareholder value (Aharoni 1986, Toninelli 2000). These objectives include job creation, regional development, and income redistribution. Meeting them entails keeping redundant workers, pricing goods and services below market (and sometimes below cost), locating plants in uneconomic areas, or keeping unprofitable facilities open (Musacchio and Lazzarini 2012).

Our evidence is consistent with both sources of inefficiency. The influence of group chairmen's career concerns is suggestive of the political view, while allowing capital to flow to struggling group members with poor investment opportunities is suggestive of the social view. Indeed, our results suggest the two sources of inefficiency are interlinked in China: by pursuing social objectives political appointees at state firms maximize their personal chances of obtaining political benefits.

Our paper also contributes to the literature on business groups. This literature, reviewed in

Stein (2003), emphasizes two views of internal capital markets. According to the 'bright side' view, divisions compete for corporate resources while group management picks winners based on the quality of their investment opportunities (Khanna and Tice 2001, Peyer and Shivdasani 2001). According to the 'dark side' view, rent-seeking behavior by divisional managers may lead to inefficient capital allocations (Lamont 1997, Scharfstein and Stein 2000, Shin and Stulz 1998, Rajan, Servaes, and Zingales 2000, Gertner, Powers, and Scharfstein 2002, Motta 2003, Ozbas and Scharfstein 2010). Our evidence suggests that for private groups in China, the 'bright side' of internal capital markets appears to dominate. For Chinese state groups, on the other hand, the 'dark side' of internal capital markets appears to dominate. Interestingly, on this score, we find that the negative sensitivity of capital allocations to *Q* at state groups is particularly strong for member firms that are geographically closer to group headquarters.

Finally, our paper contributes to the growing literature on corporate governance in China. Prior work shows that the presence of outside private investors at state owned enterprises improves firm value (Wei, Xie, and Zhang 2005), operating performance (Sun and Tong 2003), transparency (Gul, Kim, and Qiu 2010), and pay-for-performance sensitivity (Cao, Pan, and Tian 2011). We add to this the finding that outside private investors make it harder for state groups to divert resources away from member firms with good investment opportunities.

1. Empirical Model

Our objective is to analyze how efficiently state and private business groups in China allocate capital among member firms via their internal capital markets. Our empirical models estimate the extent to which a given business group's internal capital allocations to its member firms correlate with the member firms' individual investment opportunities in a particular year. According to neoclassical theories of capital budgeting, this correlation should be positive: the parent should

allocate more capital to a unit the better the unit's investment opportunities.

This prediction mirrors capital budgeting rules familiar from standard MBA textbooks. Such rules call for managers to fund all projects (or in our context, all member firms) that have a positive expected net present value (NPV). For firms (or in our context, groups) that are financially constrained, the rules call for managers to rank all projects by their expected profitability per unit of capital invested and to fund all profitable projects in descending order until the capital runs out.

Expected NPVs being unobservable, the empirical literature on internal capital markets uses Tobin's *Q* to capture investment opportunities, and we follow the same approach. As Almeida, Kim, and Kim (2014) note, work on internal capital markets in the U.S. is often hampered by the fact that a multi-segment firm's divisions are rarely themselves stock market listed. Their Tobin's *Q* can thus not be directly measured, even if the parent firm is listed. Outside the U.S., in contrast, it is common for business groups to include multiple firms that are stock market listed, greatly facilitating the measurement of each such firm's *Q*. A prominent example of a group structure of this kind is Korea's chaebols.[3] China's business groups is another.

Two features of China's stock market listing rules greatly facilitate our analysis. The first is that all listed firms are required to disclose detailed information about related-party transactions in the footnotes of their annual reports.[4] This rule allows us to measure intra-group capital flows among group member firms at a highly granular level, including intra-group loans, cash

[3] See Bae, Kang, and Kim (2002), Baek, Kang, and Lee (2006), Bae, Cheon, and Kang (2008), and Almeida et al. (2011). Our approach follows theirs in using listed member firms' *Q*s to capture investment opportunities. It departs from theirs in using highly granular data on intra-group capital flows that are uniquely available in China.

[4] Prior work uses these mandated disclosures to study whether controlling shareholders in China expropriate minority shareholders. See Jiang, Lee, and Yue (2010), Jian and Wong (2010), Berkman, Cole, and Fu (2009), and Peng, Wei, and Yang (2011).

advances, and so on.[5] In the U.S., in contrast, multi-segment firms need only disclose segment-level data on total sales, cash flow, and capital expenditure, necessitating creative but highly indirect approaches to infer intra-group capital flows.[6]

The second listing rule we exploit requires listed firms to disclose detailed ownership information about their controlling shareholders, including the structure of any pyramidal chains leading up to the ultimate controlling shareholder. This rule helps identify the group membership and ultimate control of each listed firm in China. Together, the two listing rules allow us to measure the direction, magnitude, and nature of all internal capital flows that occur within each business group in China.

Using the data described in the next section, we estimate regressions of the following general form:

$$Net\,flow_{i,t} = \alpha Q_{i,t-1} + \beta X_{i,t-1} + \varpi_{j,t} + \upsilon_{k,t} + \varepsilon_{i,t} \qquad (1)$$

for firm *i* operating in industry *k* and belonging to business group *j* in year *t*. The dependent variable, *net flow*, is a measure of firm *i*'s (potentially negative) net inflow of capital from elsewhere in its business group. The main variable of interest is $Q_{i,t-1}$, the firm's beginning-of-year investment opportunities as measured by its lagged Tobin's *Q*.

If business groups in China follow neoclassical capital budgeting rules and allocate internal capital efficiently, *net flow* should increase in *Q* (i.e., $\alpha > 0$).[7] Testing whether $\alpha > 0$ requires some care. The reason is that investment opportunities vary both within and across groups. The

[5] The rule defines 24 separate categories of related party transactions among as many as 12 separate categories of related parties. See Appendix A for further details.

[6] For example, Shin and Stulz (1998) and Shin and Park (1999) regress a segment's CAPEX on a proxy for its (unobservable) *Q*, its cash flow, and the cash flows of its parent's other segments. A positive coefficient for the latter is interpreted as evidence that the segment is a net recipient of capital. For a general critique of approaches of this kind, see Billett and Mauer (2003).

[7] This prediction mirrors the use of the *Q* sensitivity of segment-level capital expenditures to measure the efficiency of internal capital markets in U.S. multi-segment firms; see Lamont (1997), Scharfstein (1998), Shin and Stulz (1998), Rajan, Servaes, and Zingales (2000), and Ozbas and Scharfstein (2009).

right variation to exploit is the within-group one. To see why, note that one group's best opportunity could be less promising than another group's worst opportunity, yet it could easily attract greater funding. The reason is simple: each group can only fund those opportunities that it has access to, so both groups in this example should rank their individual opportunities and allocate capital in descending order. How one group's opportunities compare to those of other groups is of no consequence.

To ensure that we estimate α from within-group variation in the way each group allocates capital across its various member firms, we include a set of group-year fixed effects, $\varpi_{j,t}$. These fixed effects allow us to test whether business groups allocate *relatively* more capital to *relatively* higher-*Q* member firms, allowing each group to have its own time-varying average level of capital flows and its own time-varying average level of *Q*.

The regression in equation (1) controls for a set of lagged firm-level characteristics $X_{i,t\text{-}1}$, described in the next section, as well as a set of industry-year fixed effects, $\upsilon_{k,t}$. The latter filter out the effects of industry-level booms and busts on capital allocation decisions by removing time-varying industry-level shocks that affect all firms in a particular industry in a given year. To ensure a sufficient number of firms per industry, we use the Chinese Securities Regulation Commission's twelve industry groups.[8]

We cluster standard errors at the business group level. This allows for serial correlation in a member firm over time and, importantly, for arbitrary correlations of the error term across member firms belonging to the same business group in any given year as well as over time.

[8] The twelve groups are: agriculture, forestry, livestock rearing, and fishing; mining; manufacturing; electric power, gas, and water; construction; transport and storage; information technology; wholesale and retail trade; finance and insurance; real estate; social services; communication and cultural industries; and miscellaneous.

2. Sample and Data

Much of our data comes from the CSMAR database, which contains accounting and ownership data for all stock market listed firms in China. We use the ownership data to identify all listed firms that have the same ultimate controlling shareholder and so belong to the same business group. In the typical Chinese business group, the parent is unlisted; it controls group member firms through direct equity stakes or via a pyramidal structure (Fan, Wang, and Zhang 2013). For state groups, the ultimate parent is usually either the State-Owned Asset Supervision and Administration Commission (SASAC), which is based in Beijing and administers assets belonging to the central government, or a provincial or local-level equivalent. For private groups, the ultimate parent is usually a family. Following Bertrand and Mullainathan (2003) and Bae, Cheon, and Kang (2008), we require a group to have a minimum of two listed member firms in any given year.

Using these criteria, we identify a total of 321 business groups over the period from 2004 to 2013. Of these, 230 are state groups and 91 are private groups. Owing to the need to construct suitable lags, our empirical models use data for 287 business groups (211 state groups and 76 private ones), with a total of 5,013 firm-year observations. Between them, the state groups control 660 stock market listed firms (which we call state owned enterprises or SOEs) while the private groups control a total of 166 listed firms. In addition, business groups invariably also control unlisted firms. While the CSMAR database does not cover unlisted firms, our measure of within-group capital allocations, described next, captures all internal cash flows that listed firms receive, regardless of whether they originate at a listed or unlisted group member firm.

2.1 Measuring Intra-Group Capital Allocations

To measure within-group capital allocations, we use detailed data on related-party

transactions among group member firms and other controlling entities, such as the ultimate controlling shareholder. Disclosure of such transactions became mandatory for all stock market listed firms in 2004, which thus marks the beginning of our sample period. Following Li, Sun, and Wang (2004), we compute the net capital inflow a firm receives from other group members in a given year as the sum of the differences between accounts payable and accounts receivable, between notes payable and notes receivable, and between advances and accounts prepaid.[9] We then scale by beginning-of-year total assets to make the net capital inflow numbers comparable across firms. Net inflows can be positive or negative, depending on whether a firm is a net recipient or a net source of capital within the group.

It is important to note that we do not use aggregate line items to construct these numbers. Aggregate line items (such as those available in any firm's income statement) include not only transactions between related firms within a group but also transactions involving end-customers and unaffiliated suppliers. The great advantage of China's mandated disclosure of related part transactions is that firms must break out capital flows involving affiliated firms at a highly granular level. It is these data we use to construct our measure of within-group capital allocations. Appendix A contains further details on the construction of this measure.

2.2 Control Variables

Our main variable of interest is Tobin's *Q*, a popular proxy for a firm's investment opportunities. Following the literature, we measure Tobin's *Q* as the sum of the market value of equity and the book value of debt divided by the book value of the firm's total assets.[10]

In addition, our empirical models include the following controls that are standard in the internal capital markets literature: return on assets and log total assets (Gopalan, Nanda, and Seru

[9] As we show in the Internet Appendix, our findings are robust to alternative ways to measure internal capital flows.
[10] For recent studies that use Tobin's *Q* in the Chinese context, see Bai et al. (2004), Sun and Tong (2003), Wei, Xie, and Zhang (2005), or Lin et al. (2011), among others.

2007); leverage (Bae, Cheon, and Kang 2008); collateral (Almeida and Wolfenzon 2006); the ultimate owner's voting and cash flow rights (Bertrand, Mehta, and Mullainathan 2002); institutional ownership (Khanna and Palepu 2000); and an indicator set equal to one if the firm's CEO is a shareholder (Xuan 2009). In addition, we follow Ahn, Denis, and Denis (2006) and include an indicator for firms that are in 'special treatment' (a label China's stock exchanges assign to firms at risk of delisting).

2.3 Summary Statistics

Table 1 presents summary statistics for the 211 state groups and the 76 private groups in our estimation sample. Internal capital flows among member firms are somewhat larger in state groups than in private ones. In the average firm-year, a state owned enterprise receives a net inflow equivalent to 0.622% of its beginning-of-year assets, whereas a private enterprise receives only 0.328%.

Compared to SOEs, firms belonging to private groups look very different in terms of size, performance, capital structure, and ownership. Specifically, private enterprises are much smaller in terms of assets, sales, and employees; they have higher Tobin's *Q* and are more profitable, but they are also less productive[11] and more likely to be in 'special treatment'; they have lower leverage; their parents control fewer of their votes and own less of their equity; more of their equity is owned by private outside investors and less by state entities (such as local finance bureaus) or institutional investors; and their CEOs are more likely to own equity. Each of these differences between state and private enterprises is statistically significant.

[11] As Li, Liu, and Wang (2014) note, Chinese SOEs are more productive than private firms because they dominate the upstream parts of key industries, enabling them to extract rents from private firms in downstream sectors.

3. Capital Allocations in State and Private Business Groups

3.1 Baseline Results

Table 2 presents our baseline results. Column 1 regresses net capital inflows on Tobin's *Q*, controlling for member firm characteristics, in the pooled sample of state and private business groups. The unit of observation is a member firm-year. The coefficient for *Q* is negative and economically small, at –0.064, and not statistically significant (p=0.583). In other words, the average group member firm's net capital inflow in China is unrelated to its *Q*. A potential explanation is that *Q* is so fraught with measurement error in China that it becomes a useless proxy for investment opportunities.

Happily, this turns out not to be the case. Column 2 interacts *Q* with an indicator for state owned enterprises to allow for potential differences in the way state and private business groups allocate capital among their member firms. Doing so changes the picture. For private enterprises, capital allocations are significantly positively related to *Q*. The sensitivity is quite large economically: for every unit increase in its *Q*, the average private enterprise receives a net capital inflow of 0.52% of its assets via the group's internal capital market (p=0.006). For state owned enterprises, on the other hand, capital allocations are significantly *negatively* related to *Q*. Summing the coefficients for the main and interaction effects in column 2, the average SOE experiences a net capital *out*flow of 0.26% of its assets for every unit increase in its *Q* (p=0.011). The difference in the *Q* sensitivity of private and state owned enterprises is both economically and statistically significant (p<0.001). Columns 3 and 4 confirm these findings by estimating capital-allocation regressions separately for state and private groups.

These results point to a fundamental difference in the way state and private business groups' internal capital markets work in China: while private groups allocate capital to those of their

member firms with the best investment opportunities, state groups reallocate capital from high-*Q* to low-*Q* firms.

3.2 Product Market Competition

The patterns in Table 2 need not imply that Chinese state groups allocate capital inefficiently. It is possible, for example, that *Q* is somehow measured with more error for SOEs than for private enterprises, biasing the coefficient estimate. To shed further light on this possibility, Table 3 explores how product market competition affects the relation between internal capital allocations and *Q* in China. If the negative *Q* sensitivity in state groups is the result of deliberate policy, we expect increases in product market competition to put pressure on state groups to allocate capital less inefficiently. Reductions in competition, on the other hand, would reduce product market discipline on state groups. If instead the negative *Q* sensitivity in state groups reflects measurement error, changes in product market competition should have no effect.

To capture exogenous increases (reductions) in product market competition, we follow Bernard, Jensen, and Schott (2006) and Fresard (2010) and use reductions (increases) in tariffs on imported goods.[12] As is standard, we focus on economically meaningful changes in tariffs by using only those that exceed one standard deviation (see Trefler 2004 and Lileeva and Trefler 2010). Appendix A provides further details.

Table 3 allows the *Q* sensitivity to change after a large tariff change. This reveals that tariff cuts (which increase competition for domestic producers in China) mitigate the negative *Q* sensitivity in state groups while tariff increases (which reduce domestic competition) aggravate it. These results are consistent with state groups deliberately misallocating internal capital subject to external constraints imposed on their member firms through pressure in their

[12] Tariffs affect individual product lines and so have to be mapped to the affected industry or industries by hand. For this, we use the Chinese Securities Regulation Commission's industry classification at the three-digit level.

respective product markets. The economic magnitudes are fairly large. A tariff cut reduces the negative coefficient on *Q* in column 1 by two-thirds, from –0.404 to –0.132 (= –0.404+0.272), though it remains significantly negative (p=0.05). An increase in tariffs increases the negative coefficient on *Q* in column 3 from –0.207 to –1.195 (= –0.207–0.988, p<0.001), suggesting that a reduction in competitive pressure enables state groups to ignore price signals (as captured by member firms' individual *Q* ratios) even more.

In marked contrast, private groups do not alter their internal capital allocations significantly in the wake of tariff-induced changes in product market competition (see columns 2 and 4).

3.3 Corporate Governance

Competition may not be the only constraint on state groups' internal capital allocation decisions. Another mitigating factor may be corporate governance. Since all member firms in our sample are stock market listed, they all have outside shareholders. Some of these are private-sector investors (individuals and non-state institutions) while others represent state bodies (such as local finance bureaus or a sub-national SASAC).

Private investors have an incentive to monitor capital allocation decisions (Gupta 2005, Chen, Ke, and Yang 2013). The presence of private investors may thus improve capital allocations, especially at state groups. State investors, on the other hand, may impose their own social and political agendas on private firms, such as the preservation of jobs or the location of plants in economically deprived areas (Lin, Cai, and Li 1998, Fan, Wong, and Zhang 2007, Lin and Li 2008). To the extent that these agendas conflict with value maximization, the presence of state investors could cause capital allocations to be distorted even in private groups.

Table 4, Panel A investigates the influence of private outside shareholders. Column 1 shows that state groups allocate more capital to member firms the larger a presence private shareholders

have. A one standard-deviation increase in the aggregate size of the equity stake held by private investors increases an SOE's capital allocation by 0.45% of assets, all else equal (p=0.027). For private groups, on the other hand, there is no significant effect on how much capital member firms are allocated (p=0.371 in column 2).

In addition to affecting the level of internal capital allocations in state groups, private investors may also affect the *Q* sensitivity. Columns 3 and 4 of Panel A allow the *Q* sensitivity in state groups to depend on whether outside private investors own much or little equity (evaluated at the sample median). This conditioning variable varies across firms in a given business group, so to ensure that we continue to estimate within-group capital allocations, we keep the group structure intact by estimating fully interacted models. These allow each coefficient to vary with the characteristic in question while including group-year fixed effects as before.[13]

The results indicate that private investors do indeed affect the *Q* sensitivity. The coefficient on *Q* is –0.175 (p=0.063) for state enterprises with above median private ownership and a significantly more negative –0.684 (p=0.015) for those below the median. Thus, the presence of outside private shareholders appears to mitigate the negative *Q* sensitivity in state groups, as expected. This mirrors the mitigating effects of competitive pressure from the product market.

Columns 5 and 6 of Panel A allow the *Q* sensitivity in state groups to depend on the size of the group parent's equity stake in the member firm. This reveals that high-*Q* member firms see particularly large outflows when the parent controls a larger fraction of their equity capital. The coefficients on *Q* are –0.167 (p=0.068) and –0.830 (p=0.002) for member firms with below and above median parent ownership stakes, respectively – a difference that is not only statistically significant (p=0.013) but also large economically. These patterns are consistent with state groups

[13] In other words, the coefficients shown in columns 3 and 4 for member firms with above and below median outside private ownership come from a single model. Throughout the paper, we adopt this approach whenever we condition on variables that vary within-group/year.

finding it harder to divert cash flows away from high-*Q* firms over which they have less control.

Table 4, Panel B asks whether the presence of outside state investors interferes with internal capital allocation decisions. Columns 1 and 2 show that the level of a member firm's capital allocation does not vary with the presence of outside state investors, neither for state nor for private groups. However, there is some evidence in columns 3 and 4 that outside state investors may affect *Q* sensitivity in private groups. When the aggregate size of state investors' equity stake exceeds 15% (the sample mean among private firms conditional on positive outside state investment), *Q* sensitivity is negative (albeit not significantly so). For firms with no or small outside state investment, *Q* sensitivity is positive and significant as before (p=0.018). While the difference between the two coefficients is large (–0.383 vs. 0.475), it is not statistically significant. Thus, though suggestive of changed incentives, the results are too noisy to establish that outside state investment interferes with private groups' capital allocation decisions.

3.4 Are Minority Shareholders Harmed?

If the internal capital allocation patterns we observe in state groups really are inefficient, minority shareholders should be harmed when the firm they have invested in transfers capital to sister companies with worse investment opportunities. To test this, we estimate calendar-time buy-and-hold portfolio returns for a trading strategy based on deviations from efficient internal capital allocations. Each April, we sort all group-affiliated SOEs into quintiles based on the deviation between their actual net capital inflow (as disclosed in their annual reports filed in March) and the predicted net capital inflow had they followed the same capital allocation rules as those estimated for private groups in column 4 of Table 2. We then hold each portfolio for twelve months before resorting firms based on their most recent net capital inflow disclosure.

The portfolio return in month t is given by $\sum_{i=1}^{n_t} R_{it} x_{it} / \sum_{i=1}^{n_t} x_{it}$, where R_{it} is the month t

return on stock i, n_t is the number of stocks in the portfolio, and x_{it} is the compounded monthly return of stock i from the beginning of April through month t-1. Assuming an equal dollar investment in each stock, $x_{it} = 1$ for all stocks at portfolio formation in April. This gives an equal weighted portfolio return. To construct value-weighted portfolio returns, we set x_{it} at portfolio formation equal to stock i's end of March market value divided by the sum of the market values of all stocks in the portfolio.

We compute abnormal portfolio returns by estimating three-factor (Fama and French 1993) or four-factor (Carhart 1997) alphas. These equal the intercept from a regression of the monthly portfolio return less the risk-free rate on the monthly excess return of the market over the risk-free rate and the return difference between small and large-capitalization stocks (*SMB*), high and low book-to-market stocks (*HML*), and (for four-factor alphas) high and low price-momentum stocks (*MOM*). See Appendix A for further details on how we construct these factors.

Table 5 reports monthly abnormal portfolio returns for each quintile as well as for a hedge portfolio that is long firms receiving the highest net capital inflows relative to their investment opportunities (quintile 5) and short firms with the lowest (most negative) net capital inflows relative to their investment opportunities (quintile 1). Panel A reports equal weighted returns. This shows that the three bottom quintiles experience significantly negative risk-adjusted returns, of around half a percent per month, while the two top quintiles earn zero abnormal returns on average. The hedge portfolio earns a three-factor alpha of 0.48% per month (p=0.026), which means that the firms with the highest net capital inflows outperform the firms with the lowest net capital inflows by an annualized 5.93% on a risk-adjusted basis. Including a momentum factor lowers the alpha a little, to 0.42% per month or 5.19% annualized (p=0.043).

Interestingly, forming value-weighted portfolios each April instead of equal weighted ones

yields larger annualized three- and four-factor alphas, of 10.24% and 10.85%, respectively. This suggests that it is the larger member firms that suffer the most from sharing their capital with their sister firms, perhaps because they have more capital to share and so make for more tempting targets when the group parent decides on internal capital transfers.

These patterns suggest that internal capital allocation practices at state groups harm a group of minority shareholders, namely those who invest in SOEs that transfer capital to sister firms despite having better investment opportunities themselves. Shareholders in recipient firms only break even in risk-adjusted terms, implying that collectively, investors in SOEs underperform their risk benchmarks. In other words, internal capital allocation practices at state groups create losers without creating winners, at least among their investors, and so destroy value overall.

3.5 Discussion

The results in Tables 2 through 5 are consistent with the interpretation that state groups allocate internal capital flows inefficiently. Within state groups, capital flows from high-*Q* to low-*Q* firms, the opposite of what we see among private groups in China.[14] This tendency to allocate capital to the firms with the relatively worst investment opportunities is stronger when product market competition is relatively weak and when the group parent has greater control over the member firm. The tendency is weaker when product market competition is relatively strong and when private investors own a larger slice of the member firm's equity. Minority shareholders of SOEs that transfer capital to sister companies with worse investment opportunities suffer lower risk-adjusted returns as a consequence.

We next turn to the question why state groups may allocate their internal capital in this manner.

[14] Our finding complements prior work on differences in the way Chinese SOEs and private firms invest. Chen et al. (2011) report that capital expenditure is less sensitive to *Q* for SOEs than it is for private firms in China. In contrast to the internal capital flows we study, the CAPEX sensitivity is, however, positive for both groups of firms.

4. Promotions and Demotions

Our working hypothesis is that internal capital allocation decisions at state groups reflect, to an important extent, the private objectives of the group chairman, the ultimate decision-maker in the group. Top managers at China's SOEs are appointed by the government and tend to be bureaucrats (Li 1998). Their main path for advancement in the state sector is a promotion to a government office of higher rank (Li and Zhou 2005). Every three years, SOE managers are formally evaluated for a potential political promotion (Du, Tang, and Young 2012, Bradshaw, Liao, and Ma 2013). The criteria are laid down by the CCP. They can easily be in conflict. Marks are given for "operational performance" (50%) and for "political qualities, coordination skills, and personal integrity" (50%). The former includes productivity and financial performance; the latter covers such areas as "making politically responsible decisions" and "corporate social responsibility", which is widely interpreted as avoiding layoffs.[15]

This career structure opens up the possibility that state groups allocate capital in a way that best serves the group chairman's career objectives. To investigate this possibility, we first explore how key commercial events at the group affect the group chairman's chance of promotion or risk of demotion. The key commercial events we focus on are mass layoffs, large-scale hiring, productivity improvements or impairments, and large changes in profitability. (See Appendix A for further details.) The analysis uses information on the career progressions of all group chairmen in our sample, hand-collected from government and party websites. We define a promotion as a move to a political office of higher rank.[16] Analogously, a demotion is a move to a political position of lower rank.

[15] See the "Provisional Measures Concerning the Integrated Evaluation of Top Management Teams and Managers of Central Enterprises" issued by the Central Organization Department of the Chinese Communist Party.

[16] For example, the group chairmanship of China National Offshore Oil Corporation (CNOOC) is administratively equivalent to the rank of vice minister. On one occasion, CNOOC's then chairman was promoted to the position of party secretary of Hainan province, the administrative equivalent of the rank of minister.

Table 6, Panel A reports the results of Cox proportional hazard models, estimated with time-varying covariates. These models estimate the effect of a key commercial event on the likelihood that the group chairman is promoted (columns 1-3) or demoted (columns 4-6) in the next year. We also control for group size (log total group assets) and the group chairman's age.

Column 1 shows that chairing a larger group significantly increases the chance of promotion (p<0.001). Holding group size constant, group chairmen are punished for mass layoffs (p=0.03) and rewarded for large productivity improvements (p=0.002). Both events have a sizeable impact on their careers. This can best be seen by converting the coefficients reported in Panel A into hazard ratios. A group chairman's chance of promotion falls by 74.8% after a year in which one of the member firms laid off 10% or more of its workforce. Conversely, an increase in total factor productivity of 10% or more at one of the member firms improves his chance of promotion by a factor of four. Age also matters: group chairmen in their 50s are significantly less likely to be promoted than those in their 40s. Those in their 60s have nearly a zero chance of a promotion, a finding that reflects a mandatory retirement age of 65 coupled with the fact that political offices in China usually have a five-year term. Improvements in profitability do not lead to a promotion.

Are group chairmen punished for misallocating internal capital? To answer this question, column 2 adds a measure of the extent of a state group's internal capital misallocation, estimated as follows. First, we generate predicted values for how state groups would have allocated capital had they followed the same rules as those estimated for private groups in column 4 of Table 2. We then take deviations between actual and predicted net capital inflows for each SOE member firm. Finally, to arrive at a group-level summary statistic of internal capital misallocation, we take the group-year standard deviation of the estimated member-firm-level deviations. A small

standard deviation indicates that a state group's internal capital allocations are quite close to those that would have obtained had private-group practices been followed.

Interestingly, our capital misallocation measure has no effect on the likelihood of a promotion. One interpretation of this non-result is simply that the measure, though intuitive, does a poor job of capturing the extent of capital misallocation. Another is that the CCP's promotion committees do not take capital allocations into account in their decisions. This is plausible: the rules governing promotion to political offices in China in fact make no mention of capital allocations. This, in turn, could free the group chairman to allocate capital in a way that apparently does impress promotion committees: avoiding layoffs and improving productivity. We investigate this possibility in the next section.

Column 3 shows interesting evidence of asymmetry: while layoffs are bad for the group chairman's career prospects, large scale hiring has no effect; and while productivity improvements are rewarded, productivity impairments appear to be ignored.

The demotion models in columns 4-6 provide further nuance. Chairing a large group helps avoid being demoted, all else equal (p=0.008). Mass layoffs make a demotion significantly more likely (by a factor of 4.6; p=0.001). Productivity improvements, while good for promotions, do not shield a group chairman from demotion, but group chairmen who have presided over large improvements in profitability are much less likely to be demoted (p=0.041). Age makes no significant difference to the risk of demotion.

A corollary of our working hypothesis that group chairmen let their personal career concerns influence group capital allocations is that they have a mechanism for rewarding member firms for ceding capital to less deserving sister firms, even when doing so harms outside shareholders. One plausible mechanism is to support compliant underlings' bids for a promotion. Table 6,

Panel B models the determinants of the likelihood that the chairman of a state-owned *member* firm is promoted (columns 1-3) or demoted (columns 4-6). The specifications mirror those shown for the group-chairman models in Panel A, except that all variables here are constructed at the member-firm (rather than group) level.

The results show that chairmen of larger member firms are significantly more likely to be promoted and less likely to be demoted, while the likelihood of a promotion decreases with age. These results mirror those for group chairmen in Panel A. Creating jobs is rewarded: chairmen who increase headcount by 10% or more double their chances of a promotion in the next year (p=0.016 in column 3). Improving profitability by five percentage points or more has a similarly large effect, though this is more noisily estimated (p=0.081 in column 2); it also reduces the risk of a demotion (p=0.075 in column 4). Increasing productivity is borderline damaging to a member-firm chairman's chance of promotion (p=0.051 in column 1), perhaps because it often involves layoffs. Economically, the effect of mass layoffs is large and negative, but it is not statistically significant (p=0.158 in column 1).

Holding these factors constant, column 2 shows that capital flows among member firms affect a member-firm chairman's career prospects asymmetrically: transferring more capital to sister firms with worse investment opportunities than his own firm's increases his chance of promotion (p=0.024) without materially affecting his risk of demotion (p=0.692).[17] This finding is consistent with SOE chairmen being rewarded, by their superiors, with promotions for ceding capital to less deserving sister firms.

[17] The relevant variable, residual capital inflow, is measured as the deviation of a member firm's actual net capital inflow from the inflow predicted had state groups allocated capital in the same way as private groups. Thus, the negative coefficient in column 2 implies that receiving less capital (or transferring more capital) than is warranted by the firm's *Q* improves the chairman's chance of promotion.

5. The Effects of Political Career Concerns on Internal Capital Allocation Decisions

Our analysis of promotions and demotions reveals two interesting facts. First, member-firm chairmen in state groups have an incentive to transfer capital to lower-*Q* sister firms; doing so appears to benefit their careers. Second, state group chairmen are penalized for mass layoffs that occur on their watch and rewarded for improving productivity, but they are not evaluated directly on how they allocate capital among group member firms. We now investigate whether state-group capital allocations are a means to the end of avoiding layoffs and raising productivity. This would support our working hypothesis that capital allocation decisions at state groups reflect the group chairman's private career objectives.

5.1 Employment Objectives

Table 7 allows the *Q* sensitivity to depend on the size of the member firm's workforce. The model shown in columns 1 and 2 classifies member firms as large if they employ more than 10,000 workers and as small otherwise. The model shown in columns 3 and 4 uses a higher cutoff of 50,000 workers. In either case, we find strong evidence that the *Q* sensitivity is significantly more negative when the member firm has a large workforce. To illustrate, for every unit decrease in its *Q*, a firm with more than 10,000 workers receives an additional 2.75% of assets in transfer payments from other group members ($p<0.001$); for a firm with fewer workers, the effect is a much smaller (though still significant) 0.21% of assets ($p=0.028$). These *Q* sensitivities are highly significantly different from each other ($p<0.001$). The corresponding numbers for the 50,000-worker cutoff are 5.7% and 0.23% of assets, respectively.

Private groups behave very differently, as the models in columns 5-6 and 7-8 show. Because private enterprises are so much smaller than SOEs (see Table 1), these models use cutoffs of 1,000 and 5,000 workers, respectively. In either case, we find no evidence that the *Q* sensitivity

differs significantly for large and small firms within a private group. The coefficients on *Q* are positive throughout and significantly so for the smaller member firms. The lack of significance for the larger firms could either be due to power issues or it could indicate that private groups ignore *Q* when deciding how much capital to allocate to larger group members. Either way, the results stand in marked contrast to those for state groups, whose capital allocations strongly favor large employers with poor investment opportunities.

These results are consistent with the interpretation that social objectives – such as propping up firms with large workforces but poor prospects – influence internal capital allocation decisions at state groups. Table 8 provides further evidence along these lines. The model shown in columns 1 and 2 allows SOEs' *Q* sensitivity to vary with profitability. This reveals a significantly more negative *Q* sensitivity among loss-making member firms than among profitable ones, suggesting that state groups prop up loss-making units with poor prospects, perhaps in an effort to avoid job losses (though other reasons are certainly also possible).[18]

5.2 Productivity Concerns

As we saw earlier, a group chairman's chances of promotion improve after large increases in productivity. The model shown in columns 3 and 4 of Table 8 investigates whether this in turn influences internal capital allocations by allowing the *Q* sensitivity to vary with a unit's total factor productivity. We find a large negative *Q* sensitivity of –0.694 among member firms with below-average TFP (p=0.011) and a near-zero and statistically insignificant *Q* sensitivity of –0.023 among member firms with above-average TFP (p=0.883). To the extent that it is easier to increase productivity the lower the level one starts from, these findings are consistent with a desire to improve productivity by way of internal capital allocations – even when doing so

[18] For private business groups, we find no evidence that the *Q* sensitivity varies with member firms' profitability. (Results available on request.)

involves investing capital in units with poor investment opportunities as measured by *Q*.

5.3 Lobbying and Capture

The final model in Table 8 provides an interesting wrinkle: the negative *Q* sensitivity at state groups is significantly more pronounced the closer to the group parent's headquarters a member firm is located ($p<0.001$). In other words, for a given level of *Q*, state groups allocate significantly more internal capital to units that are geographically closer. One reading of this finding is that group parents have access to better information about member firms that are closer.[19]

At the same time, the interaction effect also implies that for a given distance, state groups allocate significantly more capital to units with relatively worse prospects and vice versa. This finding is hard to reconcile with an information-advantage story. It is more nearly consistent with lobbying and quid pro quos between parents and member firms, in two ways. First, geographic proximity may help member firms lobby for greater capital allocations, even when their prospects are relatively poor.[20] Second, proximity may help the parent persuade well endowed member firms to share their capital, even when their own prospects are relatively better.

5.4 Career Objectives

A testable implication of our working hypothesis that capital allocation decisions at state groups reflect the group chairman's private career objectives is that we should see no distortions in capital allocations when the group chairman is older than 60: as we saw in Table 6, Panel A, the chances of a promotion then are essentially nil, owing to mandatory retirement at 65 and fixed five-year terms for political offices.

[19] Du, Tang, and Young (2012) show that an SOE's geographic proximity to SASAC's central office in Beijing boosts the performance evaluation scores the SOE's managers receive from SASAC, perhaps due to better information.

[20] This echoes Landier, Nair, and Wulf's (2009) finding from the U.S. that business divisions located closer to headquarters are less likely to face layoffs and to be divested.

Table 9 provides strong support for this implication. Columns 1 and 2 estimate separate allocation models for state groups whose chairmen are older or younger than 60, respectively. This reveals a small positive *Q* sensitivity for groups headed by an old chairman – the first and only time across all our models that state groups do not exhibit a negative *Q* sensitivity. For groups headed by a young chairman, in contrast, the *Q* sensitivity is large and negative, at –0.423 (p=0.01). In other words, the tendency to allocate internal capital from high-*Q* to low-*Q* member firms is only observed among state groups whose chairmen are young enough to be eligible for promotion to higher political office.

If our working hypothesis is correct, state group chairmen allocate internal capital not with a view to maximizing firm value, as private groups do, but with the aim of advancing their private career objectives. Such naked pursuit of self-interest may serve the interests of their principals in the CCP, who appear to value productivity improvements and the avoidance of job losses. But it likely also involves some degree of gaming of the promotion system for private gain, and such gaming could easily conflict with the principals' interests. For example, the preservation of jobs in the short-term may lead to larger jobs losses in the long-term, as capital that could have been deployed more productively eventually runs out.

The final two columns of Table 9 provide indirect evidence of such gaming distorting capital allocation decisions. We conjecture that the naked pursuit of self-interest and the gaming it potentially involves become riskier when the authorities crack down on graft and political corruption in the group's province. Such crackdowns often cast a wide net, and group chairmen who are gaming the system may prefer to lie low for a while. We identify 92 cases of province-level crackdowns on political officeholders over our sample period.[21] These form a staggered set

[21] The data come from Tu (2011), who tracks corruption crackdowns over the period 2002-2011, supplemented with information from a Wikipedia entry dedicated to tracking corruption cases in China (http://tinyurl.com/kv2tjq7).

of exogenous shocks to the risk of being held accountable for self-serving behavior among the group chairmen whose groups are headquartered in the province targeted in the crackdown.

Column 3 of Table 9 shows that the *Q* sensitivity at state groups is significantly less negative following an anti-corruption crackdown: in the years before a crackdown, it measures –0.516 (p=0.01); in the years after, it measures a much smaller –0.147 (= –0.516+0.369; p=0.02). While far from perfect, this is a remarkable improvement.

To rule out that the crackdowns coincide in time and space with some other, non-career-related reason why the *Q* sensitivity should improve, we use private groups as a placebo. The intuition for this placebo test is that there is no reason to expect a crackdown on political officeholders to have any effect on the way private groups allocate capital internally. The estimates shown in column 4 of Table 9 confirm this prediction.

In sum, the results in Table 9 are consistent with our working hypothesis that capital allocation decisions at state groups are affected by the group chairman's private career objectives.

6. Conclusions

We study the efficiency of internal capital markets at state-controlled and privately owned business groups in China. Using highly granular data on within-group capital flows, we document stark differences. In private business groups, capital flows from units with relatively worse investment opportunities to units with relatively better investment opportunities. This is consistent with private business groups allocating capital efficiently, i.e., in a way that increases overall group value. State groups do the opposite: on average, they reallocate capital from firms with the best prospects to the firms with the worst prospects. Product market competition and external monitoring by minority private shareholders help discipline state groups' tendency to

allocate internal capital inefficiently. Minority shareholders in SOEs that transfer capital to sister firms despite having better investment opportunities themselves earn significantly lower risk-adjusted returns and so are harmed.

Our results suggest that state capitalism does a poor job of allocating capital efficiently, at least in the context of China's state business groups. This no doubt reflects the fact that the principal (i.e., the Chinese Communist Party) does not desire its agents to maximize profits or shareholder value above all else. As we document, its agents – the group chairmen – are instead given incentives to pursue potentially conflicting goals, including raising productivity and pursuing social objectives such as the preservation of jobs. Consistent with these incentives, we show empirically that a state group's chairman is more likely to be promoted to higher political office if he raises productivity and if he avoids layoffs at group firms.

Consistent with career concerns affecting state group behavior, we find that capital allocations are used to prop up large and struggling employers. While perhaps desirable in the short-run, propping up struggling group members in this way is unlikely to further the state's interest in the long-run: all else equal, a given amount of capital will likely create more jobs if allocated to a high-*Q* firm than if allocated to a low-*Q* firm. Letting capital flow to low-*Q* firms may thus avoid job losses in the short-run, but it is likely to do so at the expense of job creation at high-*Q* firms. Thus, this approach is unlikely to maximize the overall number of jobs.

Finally, we show that state groups allocate capital inefficiently only if the group chairman has a realistic chance of being promoted and if the cost of self-interested behavior is not too high. These findings suggest a misalignment between the interests of the state and the actions of its agents.

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Appendix A. Variable Definitions.

Summary statistics and capital allocation models

Net capital inflow follows Li, Sun, and Wang (2004) and is defined as [(*accounts payable + notes payable + advances from customers + other creditors*) – (*accounts receivable + notes receivable + accounts prepaid + other receivables*)]/*total assets*, with each variable in the numerator reflecting transactions among group members only. This variable is positive for a firm receiving a net inflow from other group members and negative for a firm experiencing a net outflow to other group members. Our baseline measure includes related-party transactions between the following group members: the group parent, a subsidiary of the listed firm, a sister company (other enterprises controlled by the same parent), any firm that exercises joint control over a member firm, and any investor or firm that can exercise significant influence over the member firm. Collectively, these account for 65.9% of all related-party transactions (by value) over our sample period; most group flows involve the parent (23.4%) or a sister company (29.7%). Alternative measures that also include related-party transactions involving joint ventures with the listed company and associates of the listed company are explored in the Internet Appendix. The data come from the CSMAR database.

Narrow net capital inflow follows Jiang, Lee, and Yue (2010) and is defined as (*cash flows from other creditors – other receivables*)/*total assets*, with each variable in the numerator reflecting transactions among group members only. This variable is positive for a firm receiving a net inflow from other group members and negative for a firm experiencing a net outflow to other group members. Our baseline measure includes the following group members: the group parent, any of the parent's subsidiaries, other enterprises controlled by the same parent, any firm that exercises joint control over a member firm, and any investor or firm that can exercise significant influence over the member firm. Alternative sets of group members are explored in the Internet Appendix. The data come from the CSMAR database.

Total assets is the book value of the firm's assets in RMB million, using data from the CSMAR database.

Size is log total assets, using data from the CSMAR database.

Sales is the firm's total sales in RMB million, using data from the CSMAR database.

Employees is defined as the total number of employees who are on the firm's regular payroll. The data come from the CSMAR database.

Tobin's Q equals the sum of the firm's market value of equity plus the book value of its debt divided by the firm's total assets, all evaluated in December. The data come from the CSMAR database.

Return on assets (*ROA*) is measured as the ratio of net income to total assets, using data from the CSMAR database.

Total factor productivity (TFP) is measured using Olley and Pakes' (1996) semi-parametric approach. This assumes that at the beginning of every year, firms choose investment and variable input factors which together with the firm's current capital stock determine the firm's capital stock next year. We use log sales to measure output, log investment to proxy for unobserved productivity, and log employees, log inventories, and the log net value of fixed assets to capture the firm's other factor inputs. We include two state variables (firm age and log equity), an indicator variable set equal to one if a firm is delisted, and a set of industry-year fixed effects.

Firm has 'ST' status is an indicator set equal to one if the firm is in 'special treatment' (ST), a label China's stock exchanges assign to firms at risk of delisting. The data come from the WIND database.

Leverage is defined as the sum of the firm's long-term debt and debt in current liabilities divided by total assets. The data come from the CSMAR database.

Collateral is defined as net property, plant, and equipment plus inventories scaled by total assets, using data from the CSMAR database.

Voting rights refers to the ultimate parent's control rights over the listed subsidiary, determined as the parent's ownership stake at the weakest link of the pyramidal chain. This follows La Porta et al. (1999) and Claessens et al. (2002). For example, suppose that firm A owns fraction *b* of firm B's stock, which in turn owns fraction *c* of firm C. Then firm A's control rights in firm C is the weakest link in the pyramidal chain, i.e., min(*b*, *c*). Where multiple parallel chains exist, we take the sum of the ultimate parent's control rights across these chains. The data come from the CSMAR database.

Cash flow rights refers to the ultimate parent's cash flow rights in a listed firm. Following La Porta et al. (1999) and Claessens et al. (2002), this is calculated by multiplying the ownership percentage of each link of the pyramidal chain. For example, suppose that firm A owns fraction *b* of firm B's stock, which in turn owns fraction *c* of firm C. Firm A's cash flow rights in firm C then is (*b* × c). Where multiple parallel chains exist, we take the sum of the ultimate parent's cash flow rights across these chains. The data come from the CSMAR database.

Cash flow wedge is defined as the difference between the *voting rights* and the *cash flow rights* of the ultimate parent.

Outside private ownership is the fraction of shares held by non-state institutions and individuals, based on data taken from the CSMAR database.

Outside state ownership is the fraction of shares held by central or local government or other state institutions, based on data taken from the CSMAR database.

Institutional ownership is defined as the fraction of the firm's ownership that is held by institutional investors. The data come from the CSMAR database.

CEO owns stock is an indicator set equal to one if the CEO owns shares in the firm, and zero otherwise. The data come from the CCER database.

Tariff cut is an indicator set equal to one in year *t*-1 if the industry in which a firm operates experiences one or more large cuts in tariffs on products imported into China, and zero otherwise. A tariff cut is large if it is larger than the historic standard deviation of tariff changes. The tariff data come from the Trade Analysis Information System (TRAINS) maintained by the United Nations Conference on Trade and Development (UNCTAD).

Tariff increase is an indicator set equal to one in year *t*-1 if the industry in which a firm operates experiences one or more large increases in tariffs on products imported into China, and zero otherwise. A tariff increase is large if it is larger than the historic standard deviation of tariff changes. The tariff data come from the Trade Analysis Information System (TRAINS) maintained by the United Nations Conference on Trade and Development (UNCTAD).

Abnormal portfolio returns (Table 5)

Market risk premium equals the value-weighted average return of all China-listed A shares minus the risk-free rate of return. Share price data come from CSMAR. The risk-free rate of return is measured using the three-month interbank repo rate, obtained from Bloomberg.

SMB and ***HML*** are the returns on the small-minus-large and the high-minus-low portfolio, respectively. Their construction follows Fama and French (1993). Specifically, at the end of each June, we construct six portfolios as the intersection of two portfolios sorted on size (using the market value of equity, ME) and three portfolios sorted on the ratio of book equity to market equity (BE/ME). The size breakpoint for year *t* is the median market value of equity across all Chinese stocks at the end of June of year *t*. BE/ME for June of year *t* is book equity per share divided by ME per share as of December of *t*-1. The BE/ME breakpoints are the 30th and 70th percentiles. For each of the six portfolios, we compute the monthly value-weighted average return with dividends reinvested. *SMB* then equals the difference between the equal weighted average return on the three small portfolios (the small value, small neutral, and small growth portfolios) and the equal weighted average return on the three big portfolios (the big

value, big neutral, and big growth portfolios). *HML* equals the difference between the equal weighted average return on the two value portfolios (the small value and large value portfolios) and the equal weighted average return on the two growth portfolios (the small growth and big growth portfolios). Share price data, ME, and BE come from CSMAR.

MOM is constructed following the methodology described on Kenneth French's website. Each month, we construct six portfolios as the intersection of two portfolios sorted on size (using the market value of equity, ME) and three portfolios sorted on prior return over months -12 to -2. The size breakpoint is the median market value of equity across all Chinese stocks. The prior-return breakpoints are the 30th and 70th percentiles. For each of the six portfolios, we compute the monthly value-weighted average return with dividends reinvested. *MOM* equals the difference between the equal weighted average return on the two winner portfolios (the small winner and large winner portfolios) and the equal weighted average return on the two loser portfolios (the small loser and big loser portfolios). Share price data and ME come from CSMAR.

Promotion and demotion models at the group level (Table 6, Panel A)

Promotion is an indicator set equal to one if in year *t*+1, the chairman of a state business group is promoted to a political office with a higher administrative ranking than his chairman position, and zero otherwise.

Demotion is an indicator set equal to one if in year *t*+1, the chairman of a state business group is demoted to a political office with a lower administrative ranking than his chairman position, and zero otherwise.

Mass layoff is an indicator set equal to one if one or more of the listed subsidiaries of a state business group laid off 10% or more of its workforce in year *t*, and zero otherwise.

Large scale hiring is an indicator set equal to one if one or more of the listed subsidiaries of a state business group increased its workforce by at least 10% in year *t*, and zero otherwise.

TFP improvement is an indicator set equal to one if one or more of the listed subsidiaries of a state business group improved total factor productivity by at least 10% in year *t*, and zero otherwise.

TFP impairment is an indicator set equal to one if one or more of the listed subsidiaries of a state business group suffered a fall in total factor productivity of at least 10% in year *t*, and zero otherwise.

ROA improvement is an indicator set equal to one if one or more of the listed subsidiaries of a state business group increased its return on assets by at least five percentage points in year *t*, and zero otherwise.

ROA impairment is an indicator set equal to one if one or more of the listed subsidiaries of a state business group suffered a fall in its return on assets of at least five percentage points in year *t*, and zero otherwise.

Internal capital misallocation is estimated as follows. First, we generate predicted values for how state groups would have allocated capital had they followed the same rules as those estimated for private groups in column 4 of Table 2. We then take deviations between actual and predicted net capital inflows for each SOE member firm. Finally, to arrive at a group-level summary statistic of internal capital misallocation, we take the group-year standard deviation of the estimated member-firm-level deviations.

Promotion and demotion models at the member-firm level (Table 6, Panel B)

Promotion is an indicator set equal to one if in year *t*+1, the chairman of a state owned enterprise is promoted within the state sector, either to a political office with a higher administrative ranking than his chairman position or to a higher-ranked position at a state owned enterprise, and zero otherwise.

Demotion is an indicator set equal to one if in year *t*+1, the chairman of a state business group is demoted within the state sector, either to a political office with a lower administrative ranking than his chairman position or to a lower-

ranked position at a state owned enterprise, and zero otherwise.

Mass layoff is an indicator set equal to one if the SOE laid off 10% or more of its workforce in year *t*, and zero otherwise.

Large scale hiring is an indicator set equal to one if the SOE increased its workforce by at least 10% in year *t*, and zero otherwise.

TFP improvement is an indicator set equal to one if the SOE improved its total factor productivity by at least 10% in year *t*, and zero otherwise.

TFP impairment is an indicator set equal to one if the SOE suffered a fall in its total factor productivity of at least 10% in year *t*, and zero otherwise.

ROA improvement is an indicator set equal to one if the SOE increased its return on assets by at least five percentage points in year *t*, and zero otherwise.

ROA impairment is an indicator set equal to one if the SOE suffered a fall in its return on assets of at least five percentage points in year *t*, and zero otherwise.

Residual net capital flow is estimated as follows. First, we generate predicted values for how state groups would have allocated capital had they followed the same rules as those estimated for private groups in column 4 of Table 2. The residual net capital flow is the deviation between actual and predicted net capital inflows for each SOE member firm.

Conditioning variables (Tables 7-9)

Large (> N employees) is an indicator set equal to one if a member firm employed more than *N* workers in the previous year, and zero otherwise.

Small (up to N employees) is an indicator set equal to one if a member firm employed no more than *N* workers in the previous year, and zero otherwise.

Loss-making is an indicator set equal to one if a member firm had strictly negative net income in the previous year, and zero otherwise.

Profitable is an indicator set equal to one if a member firm had positive net income in the previous year, and zero otherwise.

Below-average TFP is an indicator set equal to one if a member firm's total factor productivity was at or below the average in its industry in the previous year, and zero otherwise.

Above-average TFP is an indicator set equal to one if a member firm's total factor productivity was above the average in its industry in the previous year, and zero otherwise.

Close is an indicator set equal to one if the geographic distance between group headquarters and a member firm's headquarters is at or below the median distance for that business group that year, and zero otherwise. Geographic distance between city pairs is calculated using the shortest distance between two points on a sphere.

Far-away is an indicator set equal to one if the geographic distance between group headquarters and a member firm's headquarters is above the median distance for that business group that year, and zero otherwise. Geographic distance between city pairs is calculated using the shortest distance between two points on a sphere.

Old is an indicator set equal to one if the age of the chairman of a state business group is strictly above 60, and zero otherwise.

Young is an indicator set equal to one if the age of the chairman of a state business group is 60 or below, and zero otherwise.

Table 1. Summary Statistics.

The sample comprises 211 state business groups consisting of 660 state-owned enterprises (SOEs) that are listed in China and 76 private business groups consisting of 166 private enterprises, also listed in China. The sample starts in 2004 and ends in 2013. In total, we have 4,120 firm-years for SOEs and 893 firm-years for private enterprises. The table reports summary statistics at the firm-year level. Each pairwise difference in means or fractions between state and private enterprises is statistically significant at the 5% level or better, with the exception of the differences in net capital inflow and collateral. For variable definitions and details of their construction see Appendix A. All financial ratios are winsorized 1% in the tails.

	State business groups					Private business groups				
			percentile					percentile		
	mean or fraction	st. dev.	10th	50th	90th	mean or fraction	st. dev.	10th	50th	90th
net capital inflow	0.622	7.468	-3.695	0.009	6.104	0.328	6.159	-1.502	0.000	2.424
total assets (RMB million)	83,718	818,539	735	3,053	23,221	11,425	103,420	546	2,015	9,972
sales (RMB million)	15,909	104,194	368	2,022	18,008	3,378	11,077	176	1,150	5,976
employees	9,878	39,632	475	2,535	14,320	4,429	11,299	218	1,797	9,067
Tobin's *Q*	1.616	1.665	0.923	1.245	2.560	1.939	2.354	0.942	1.365	3.243
return on assets	0.029	0.088	-0.012	0.031	0.093	0.040	0.181	-0.007	0.034	0.097
total factor productivity	2.210	0.662	1.445	2.161	3.030	1.971	0.674	1.273	1.949	2.806
firm has 'ST' status?	0.019					0.024				
leverage	0.547	0.276	0.252	0.547	0.797	0.519	0.292	0.227	0.505	0.726
collateral	0.443	0.188	0.202	0.445	0.690	0.414	0.183	0.184	0.401	0.662
voting rights	0.423	0.155	0.212	0.422	0.623	0.323	0.153	0.147	0.290	0.556
cash flow rights	0.366	0.173	0.149	0.354	0.601	0.200	0.156	0.039	0.168	0.436
cash flow wedge	0.057	0.085	0.000	0.000	0.199	0.123	0.090	0.000	0.110	0.241
outside private ownership	0.267	0.236	0.025	0.188	0.624	0.480	0.180	0.272	0.478	0.717
outside state ownership	0.318	0.258	0.000	0.352	0.648	0.041	0.100	0.000	0.000	0.152
institutional ownership	0.093	0.159	0.000	0.031	0.273	0.082	0.128	0.000	0.027	0.250
CEO owns stock?	0.222					0.284				

Table 2. *Q* Sensitivity of Internal Capital Allocations.

The table reports tests of the sensitivity of internal capital allocations within a business group to investment opportunities as measured by Tobin's *Q*. The unit of observation is a group member firm-year. To estimate how a given group allocates its internal capital across its member firms in a given year, we include group-year fixed effects. We remove time-varying industry shocks using industry-year fixed effects. Internal capital allocations are measured using net capital inflow as defined in Appendix A. Included in this measure are all internal capital flows between and among the parent, any of its subsidiaries (whether listed or unlisted), other enterprises controlled by the member firm's parent, and any firm or individual who exercises significant control over the member firm. For specifications using alternative measures that (i) widen or narrow the set of entities whose capital flows are included and that (ii) vary the types of cash flows included, see Table IA.2 in the Internet Appendix. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS with group-year fixed effects and industry-year fixed effects. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Net capital inflow			
	all business groups	all business groups	state business groups	private business groups
	(1)	(2)	(3)	(4)
Tobin's *Q*	-0.064	0.520***	-0.228**	0.498***
	0.117	*0.189*	*0.102*	*0.189*
… x SOE		-0.784***		
		0.215		
Controls				
ROA	0.012	0.013	-0.039	0.055
	0.033	*0.031*	*0.045*	*0.051*
log total assets	-0.534***	-0.560***	-0.541***	-0.676
	0.156	*0.152*	*0.169*	*0.472*
leverage	0.047**	0.046**	0.040*	0.058**
	0.020	*0.019*	*0.022*	*0.025*
collateral	0.051***	0.049***	0.058***	0.023
	0.011	*0.011*	*0.012*	*0.027*
voting rights	-0.001	-0.002	0.003	-0.006
	0.011	*0.011*	*0.012*	*0.025*
cash flow wedge	0.028	0.031	0.031	0.015
	0.023	*0.023*	*0.026*	*0.044*
institutional ownership	-0.005	-0.006	-0.004	-0.007
	0.012	*0.012*	*0.013*	*0.028*
=1 if CEO is shareholder	-0.289	-0.259	-0.236	-0.494
	0.349	*0.347*	*0.387*	*0.873*
=1 if firm has 'ST' status	0.881	0.876	0.567	2.122
	1.694	*1.693*	*1.960*	*3.603*
Diagnostics				
R^2	49.0%	49.4%	47.9%	72.6%
F-test: equal sensitivity to *Q*?			14.59***	
No. of firms	807	807	660	166
No. of business groups	287	287	211	76
No. of observations	5,013	5,013	4,120	893

Table 3. Mitigating Factors: Product Market Competition.

The table tests how product market competition affects the tendency of state business groups to allocate internal capital from high-*Q* to low-*Q* member firms. To capture exogenous increases in product market competition, we use reductions in tariffs on goods imported into China. We expect these to mitigate the negative *Q* sensitivity among state business groups. To capture exogenous reductions in product market competition, we use increases in tariffs on goods imported into China. We expect these to aggravate the negative *Q* sensitivity among state business groups. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS with group-year fixed effects and industry-year fixed effects. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Net capital inflow			
	Tariff cut		Tariff increase	
	state business groups	private business groups	state business groups	private business groups
	(1)	(2)	(3)	(4)
Tobin's *Q*	-0.404***	0.476**	-0.207**	0.483**
	0.147	*0.202*	*0.098*	*0.200*
x post-tariff change	0.272**	0.273	-0.988***	0.211
	0.135	*0.565*	*0.340*	*0.497*
Controls				
ROA	-0.040	0.055	-0.036	0.055
	0.045	*0.051*	*0.045*	*0.051*
log total assets	-0.570***	-0.657	-0.537***	-0.648
	0.166	*0.477*	*0.167*	*0.483*
leverage	0.039*	0.058**	0.040*	0.058**
	0.022	*0.025*	*0.022*	*0.025*
collateral	0.058***	0.023	0.059***	0.023
	0.012	*0.027*	*0.012*	*0.027*
voting rights	0.004	-0.007	0.004	-0.007
	0.012	*0.025*	*0.012*	*0.026*
cash flow wedge	0.031	0.016	0.033	0.015
	0.026	*0.044*	*0.026*	*0.044*
institutional ownership	-0.004	-0.003	-0.003	-0.004
	0.013	*0.027*	*0.013*	*0.027*
=1 if CEO is shareholder	-0.256	-0.489	-0.177	-0.488
	0.387	*0.865*	*0.385*	*0.868*
=1 if firm has 'ST' status	0.588	2.140	0.487	2.116
	1.956	*3.590*	*1.961*	*3.597*
Diagnostics				
R^2	48.0%	72.6%	48.1%	72.6%
F-test: Tobin's *Q* = 0 post-tariff change	3.86**	1.89	11.96***	2.00
No. of firms	660	166	660	166
No. of business groups	211	76	211	76
No. of observations	4,120	893	4,120	893

Table 4, Panel A. Mitigating Factors: Private Investor Influence.

The table tests how corporate governance affects the tendency of state business groups to allocate internal capital from high-*Q* to low-*Q* member firms, with a particular focus on the influence of private outside investors. Columns 1 and 2 include the aggregate size of the equity stake held by outside private minority shareholders in our baseline model. Columns 3-4 and 5-6 allow the *Q* sensitivity of internal capital allocations to depend on whether outside private investors own much or little equity and whether the group parent has a large or small equity stake in the member firm (in each case evaluated at the sample median). To ensure that we continue to estimate within-group capital allocations, we keep the group structure intact in columns 3-4 and 5-6 by estimating fully interacted models allowing each coefficient to vary with the characteristic in question and including (as in Table 2) group-year fixed effects and industry-year fixed effects. In other words, columns 3-4 are estimated as a single model and columns 5-6 are estimated as a single model. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Net capital inflow					
			state business groups			
	state business groups (1)	private business groups (2)	above median outside private owner-ship (3)	below median outside private owner-ship (4)	below-median cash flow rights (5)	Above-median cash flow rights (6)
Tobin's *Q*	-0.262**	0.505***	-0.175*	-0.684**	-0.167*	-0.830***
	0.107	*0.190*	*0.094*	*0.282*	*0.091*	*0.266*
Private investor influence						
size of private investor stake	0.019**	0.028				
	0.009	*0.032*				
Controls						
ROA	-0.040	0.056	-0.037	-0.029	-0.040	-0.015
	0.045	*0.050*	*0.063*	*0.047*	*0.053*	*0.063*
log total assets	-0.578***	-0.686	-0.476**	-0.879***	-0.666***	-0.650***
	0.167	*0.472*	*0.210*	*0.231*	*0.177*	*0.167*
leverage	0.039*	0.058**	0.015	0.095***	0.028	0.066***
	0.022	*0.025*	*0.022*	*0.015*	*0.025*	*0.016*
collateral	0.057***	0.027	0.055***	0.057***	0.052***	0.065***
	0.012	*0.026*	*0.016*	*0.017*	*0.015*	*0.015*
voting rights	0.006	-0.028	0.023	-0.003	0.027	0.000
	0.012	*0.036*	*0.019*	*0.015*	*0.035*	*0.000*
cash flow wedge	0.024	0.009	0.033	-0.004	0.059	-0.077
	0.026	*0.043*	*0.031*	*0.037*	*0.045*	*0.050*
institutional ownership	-0.003	-0.016	-0.013	0.009	0.003	0.004
	0.013	*0.028*	*0.020*	*0.017*	*0.017*	*0.018*
=1 if CEO is shareholder	-0.198	-0.432	-0.412	0.085	-0.115	-0.212
	0.386	*0.893*	*0.523*	*0.557*	*0.524*	*0.501*
=1 if firm has 'ST' status	0.590	2.395	3.423	-1.959	1.725	-0.939
	1.966	*3.637*	*3.088*	*2.317*	*2.919*	*2.489*
Diagnostics						
R^2	48.1%	72.8%	51.3%		48.8%	
F-test: equal sensitivity to *Q*?	15.7***		2.88*		6.16**	
No. of firms	660	166	548	486	451	368
No. of business groups	211	76	201	194	192	177
No. of observations	4,120	893	4,120		4,120	

Table 4, Panel B. Aggravating Factors: Outside State Minority Shareholders.

The table tests how the presence of state minority shareholders affects internal capital allocation decisions in private business groups. Columns 1 and 2 include the aggregate size of the equity stake held by outside state minority shareholders in our baseline model. Columns 3-4 allow the *Q* sensitivity of internal capital allocations to depend on whether outside state investors own much or little of the member firm's equity. To ensure that we continue to estimate within-group capital allocations, we keep the group structure intact in columns 3-4 by estimating fully interacted models allowing each coefficient to vary with the characteristic in question and including (as in Table 2) group-year fixed effects and industry-year fixed effects. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Net capital inflow			
			private business groups	
	state business groups (1)	private business groups (2)	outside state ownership >15% (3)	outside state ownership below 15% (4)
Tobin's *Q*	-0.247**	0.486***	-0.383	0.475**
	0.106	*0.189*	*2.767*	*0.200*
State investor influence				
size of state investor stake	-0.010	-0.036		
	0.009	*0.041*		
Controls				
ROA	-0.039	0.056	-0.017	0.087*
	0.045	*0.049*	*0.050*	*0.046*
log total assets	-0.551***	-0.730	-0.932	-0.699
	0.169	*0.472*	*1.996*	*0.522*
leverage	0.040*	0.058**	0.048	0.072***
	0.022	*0.025*	*0.067*	*0.024*
collateral	0.057***	0.024	-0.057	0.019
	0.012	*0.027*	*0.128*	*0.030*
voting rights	0.011	-0.003	-0.069	-0.004
	0.014	*0.025*	*0.194*	*0.027*
cash flow wedge	0.028	0.010	0.079	0.010
	0.026	*0.043*	*0.136*	*0.046*
institutional ownership	-0.003	-0.006	0.070	-0.014
	0.013	*0.029*	*0.106*	*0.035*
=1 if CEO is shareholder	-0.236	-0.448	2.517	-0.585
	0.387	*0.876*	*3.535*	*0.901*
=1 if firm has 'ST' status	0.590	2.289	2.916	1.685
	1.961	*3.634*	*5.135*	*4.566*
Diagnostics				
R^2	48.0%	72.7%	77.5%	
F-test: equal sensitivity to *Q*?	14.54***		0.10	
No. of firms	660	166	48	158
No. of business groups	211	76	40	76
No. of observations	4,120	893	893	

Table 5. Are Minority Shareholders Harmed?

This table reports monthly abnormal portfolio returns for a trading strategy based on deviations from efficient internal capital allocations. State owned enterprises are grouped into quintiles at the beginning of April based on the deviation between their actual net capital inflow (as reported in their annual reports filed in March) and the predicted net capital inflow had they followed the same capital allocation rules as those estimated for private groups in column 4 of Table 2. The hedge portfolio is long firms receiving the highest net capital inflows relative to their investment opportunities (quintile 5) and short firms with the lowest (most negative) net capital inflows relative to their investment opportunities. Portfolios are rebalanced every April, such that each position is held for 12 months. Panel A assumes equal investment in portfolio companies at portfolio formation. Panel B assumes investment in proportion to each company's market value of equity at the beginning of April. We compute abnormal portfolio returns by estimating three-factor (Fama and French 1993) or four-factor (Carhart 1997) alphas. These equal the intercept from a regression of the monthly portfolio return less the risk-free rate on the monthly excess return of the market over the risk-free rate and the return difference between small and large-capitalization stocks (*SMB*), high and low book-to-market stocks (*HML*), and (for four-factor alphas) high and low price-momentum stocks (*MOM*). See Appendix A for further details on how we construct these factors. Following Fama (1998), we estimate weighted least squares regressions by weighting each monthly observation by the number of portfolio constituents. Standard errors are clustered by month.

	Three-factor alpha		Four-factor alpha	
portfolio	coeff.	*p*-value	coeff.	*p*-value
Panel A: Equal weighted portfolios				
quintile 1	-0.45%	0.066	-0.42%	0.092
quintile 2	-0.50%	0.021	-0.54%	0.012
quintile 3	-0.54%	0.018	-0.54%	0.019
quintile 4	-0.15%	0.540	-0.16%	0.525
quintile 5	0.03%	0.897	0.00%	0.995
quintiles 5 – 1	0.48%	0.026	0.42%	0.043
annualized	*5.93%*		*5.19%*	
Panel B: Value-weighted portfolios				
quintile 1	-0.75%	0.018	-0.76%	0.020
quintile 2	-0.69%	0.010	-0.72%	0.007
quintile 3	-0.45%	0.123	-0.42%	0.151
quintile 4	0.13%	0.668	0.18%	0.560
quintile 5	0.06%	0.823	0.10%	0.721
quintiles 5 – 1	0.82%	0.083	0.86%	0.076
annualized	*10.24%*		*10.85%*	

Table 6, Panel A: Promotions and Demotions at the Group Level.

We estimate Cox proportional hazard models of the determinants of a state-business-group chairman's promotion to a political office of higher rank (columns 1 to 3) or demotion to a lower-ranked position (columns 4 to 6). The Cox models are estimated with time-varying covariates and allow for right-censoring due to our sample period ending before every chairman's subsequent career moves are observed as of the end of our sample period. Exits due to death, retirement, illness, criminal prosecution, or a move to the private sector are treated as events that remove a chairman from the risk pool. For variable definitions and details of their construction see Appendix A. Note that the table reports coefficients rather than hazard ratios. Heteroskedasticity-consistent standard errors are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Promotions			Demotions		
	(1)	(2)	(3)	(4)	(5)	(6)
group size	0.296***	0.305***	0.287***	-0.544***	-0.464**	-0.409**
	0.068	*0.070*	*0.084*	*0.205*	*0.191*	*0.185*
=1 if mass layoffs	-1.377**	-1.382**		1.540***	1.734***	
	0.633	*0.662*		*0.483*	*0.526*	
=1 if large scale hiring			0.042			-0.082
			0.390			*0.561*
=1 if TFP improvement	1.377***	1.474***		-0.412	-0.965	
	0.448	*0.472*		*1.000*	*1.147*	
=1 if TFP impairment			0.146			1.148
			0.880			*0.943*
=1 if ROA improvement	-0.270	-0.323		-1.495**	-2.075**	
	0.362	*0.367*		*0.730*	*1.054*	
=1 if ROA impairment			-0.179			-0.709
			0.405			*0.793*
=1 if chairman is in his/her 50s	-0.754**	-0.847**	-0.849**	-0.820	-0.861	-0.678
	0.349	*0.353*	*0.353*	*0.634*	*0.638*	*0.654*
=1 if chairman is in his/her 60s	-2.339***	-2.294***	-2.338***	1.066	0.820	0.795
	0.874	*0.874*	*0.895*	*0.693*	*0.638*	*0.684*
internal capital misallocation		0.021	0.015		0.011	0.006
		0.039	*0.040*		*0.033*	*0.034*
Diagnostics						
Pseudo R^2	7.8%	8.5%	4.5%	15.9%	17.5%	7.5%
No. of subjects	353	337	337	353	337	337
No. of promotions/demotions	36	34	34	16	15	15
Time at risk (no. subject-years)	1,419	1,308	1,308	1,419	1,308	1,308

Table 6, Panel B: Promotions and Demotions at the Member-firm Level.

We estimate Cox proportional hazard models of the determinants of an SOE chairman's promotion (columns 1 to 3) or demotion within the state sector (columns 4 to 6). Positions in the state sector include government or political appointments and appointments at state owned enterprises. The Cox models are estimated with time-varying covariates and allow for right-censoring due to our sample period ending before every chairman's subsequent career moves are observed as of the end of our sample period. Exits due to death, retirement, illness, criminal prosecution, or a move to the private sector are treated as events that remove a chairman from the risk pool. For variable definitions and details of their construction see Appendix A. Note that the table reports coefficients rather than hazard ratios. Heteroskedasticity-consistent standard errors are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Promotions			Demotions		
	(1)	(2)	(3)	(4)	(5)	(6)
firm size	0.286***	0.313***	0.321***	-0.237***	-0.233***	-0.229***
	0.067	*0.068*	*0.072*	*0.054*	*0.054*	*0.053*
=1 if mass layoffs	-1.419	-1.402		0.030	0.029	
	1.005	*1.003*		*0.257*	*0.257*	
=1 if large scale hiring			0.716**			-0.097
			0.297			*0.162*
=1 if TFP improvement	-0.783*	-0.755*		0.289	0.289	
	0.401	*0.391*		*0.199*	*0.199*	
=1 if TFP impairment			0.200			-0.058
			0.450			*0.290*
=1 if ROA improvement	0.655*	0.666*		-0.381*	-0.375*	
	0.391	*0.381*		*0.214*	*0.215*	
=1 if ROA impairment			-0.350			0.139
			0.734			*0.282*
=1 if chairman is in his/her 50s	-0.693**	-0.684**	-0.739**	0.019	0.017	0.026
	0.318	*0.321*	*0.323*	*0.156*	*0.156*	*0.156*
=1 if chairman is in his/her 60s	-1.313*	-1.348*	-1.377**	-0.087	-0.088	-0.098
	0.713	*0.702*	*0.687*	*0.401*	*0.401*	*0.402*
residual net capital inflow		-0.045**	-0.045**		-0.005	-0.005
		0.020	*0.020*		*0.012*	*0.012*
Diagnostics						
Pseudo R^2	4.0%	4.6%	4.5%	1.0%	1.0%	0.9%
No. of subjects	1,226	1,226	1,226	1,226	1,226	1,226
No. of promotions/demotions	53	53	53	166	166	166
Time at risk (no. subject-years)	3,830	3,830	3,830	3,830	3,830	3,830

Table 7. Social Objectives: Size of Workforce.

The table allows the *Q* sensitivity of internal capital allocations to depend on the size of the member firm's workforce. To ensure that we continue to estimate within-group capital allocations, we keep the group structure intact by estimating fully interacted models allowing each coefficient to vary with the size of the member firm's workforce and including (as in Table 2) group-year fixed effects and industry-year fixed effects. For example, columns 1 and 2 are estimated as a single model. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS with group-year fixed effects and industry-year fixed effects. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Net capital inflow							
	state business groups				private business groups			
	large (>10,000 employees) (1)	small (up to 10,000 employees) (2)	large (>50,000 employees) (3)	small (up to 50,000 employees) (4)	large (>1,000 employees) (5)	small (up to 1,000 employees) (6)	large (>5,000 employees) (7)	small (up to 5,000 employees) (8)
Tobin's *Q*	-2.751***	-0.211**	-5.669***	-0.228**	0.225	0.571**	0.098	0.498**
	0.655	*0.096*	*1.936*	*0.103*	*0.553*	*0.246*	*1.129*	*0.198*
Controls								
ROA	-0.116	-0.030	-0.353	-0.037	0.095*	0.013	0.081	0.058
	0.072	*0.046*	*0.447*	*0.045*	*0.050*	*0.082*	*0.127*	*0.054*
log total assets	-0.231	-0.644***	0.534	-0.569***	-0.417	-0.133	-0.946	-0.773
	0.218	*0.229*	*0.354*	*0.186*	*0.557*	*0.589*	*0.720*	*0.687*
leverage	-0.047	0.041*	-0.192*	0.040*	0.074***	0.049	0.145	0.052*
	0.029	*0.023*	*0.104*	*0.022*	*0.026*	*0.036*	*0.103*	*0.027*
collateral	0.054***	0.058***	-0.021	0.060***	0.024	-0.011	0.001	0.029
	0.017	*0.013*	*0.041*	*0.012*	*0.035*	*0.045*	*0.071*	*0.031*
voting rights	-0.005	0.002	-0.061	0.005	0.000	-0.023	0.025	-0.006
	0.027	*0.013*	*0.064*	*0.012*	*0.025*	*0.055*	*0.052*	*0.028*
cash flow wedge	0.046	0.039	0.000	0.030	0.027	0.037	-0.041	0.014
	0.044	*0.028*	*0.147*	*0.027*	*0.044*	*0.104*	*0.070*	*0.054*
institutional ownership	0.007	-0.004	-0.033	-0.003	-0.005	0.024	-0.010	-0.005
	0.021	*0.014*	*0.031*	*0.013*	*0.028*	*0.067*	*0.039*	*0.035*
=1 if CEO is shareholder	-2.144**	0.212	-4.654	-0.129	0.483	-3.246**	0.728	-0.787
	0.873	*0.428*	*4.296*	*0.384*	*1.043*	*1.534*	*1.903*	*1.026*
=1 if firm has 'ST' status	9.388***	0.131	n.a.	0.496	2.658	-0.764	-14.819	2.678
	2.558	*1.994*		*1.947*	*4.272*	*4.744*	*13.317*	*3.715*
Diagnostics								
R^2	48.6%		48.3%		74.5%		73.1%	
F-test: equal sensitivity to *Q*?	15.17***		7.94***		0.43		0.13	
No. of firms	135	595	26	643	127	72	45	144
No. of business groups	98	209	22	211	70	55	36	74
No. of observations	4,120		4,120		893		893	

Table 8. Propping Up and Lobbying.

The table allows the *Q* sensitivity of internal capital allocations to depend on three member-firm characteristics: the member firm's total factor productivity (TFP), profitability, and geographic distance to group headquarters. To ensure that we continue to estimate within-group capital allocations, we keep the group structure intact by estimating fully interacted models allowing each coefficient to vary with the characteristic in question and including (as in Table 2) group-year fixed effects and industry-year fixed effects. For example, columns 1 and 2 are estimated as a single model. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Net capital inflow					
	loss-making (1)	profitable (2)	below-average TFP (3)	above-average TFP (4)	close (5)	far-away (6)
Tobin's *Q*	-0.735**	-0.218**	-0.694**	-0.023	-1.165***	-0.068
	0.338	*0.098*	*0.272*	*0.154*	*0.289*	*0.085*
Controls						
ROA	-0.079	0.050	0.008	0.016	-0.030	-0.026
	0.092	*0.053*	*0.042*	*0.068*	*0.053*	*0.054*
log total assets	-0.886	-0.539***	-1.275***	-0.432**	-0.953***	-0.315
	0.627	*0.183*	*0.280*	*0.203*	*0.228*	*0.232*
leverage	0.026	0.048**	0.093***	0.058***	0.080***	0.024
	0.038	*0.024*	*0.018*	*0.015*	*0.016*	*0.024*
collateral	0.082*	0.053***	0.042**	0.062***	0.047***	0.063***
	0.050	*0.012*	*0.019*	*0.017*	*0.016*	*0.016*
voting rights	-0.014	0.006	-0.006	0.022	0.005	0.001
	0.046	*0.012*	*0.018*	*0.015*	*0.016*	*0.016*
cash flow wedge	0.091	0.017	-0.013	0.016	0.008	0.039
	0.101	*0.026*	*0.035*	*0.031*	*0.037*	*0.031*
institutional ownership	0.113	-0.017	0.011	0.002	-0.019	0.015
	0.085	*0.013*	*0.018*	*0.017*	*0.018*	*0.014*
=1 if CEO is shareholder	-0.706	-0.234	0.568	-0.494	0.013	-0.774
	1.873	*0.374*	*0.533*	*0.462*	*0.563*	*0.481*
=1 if firm has 'ST' status	-6.415	2.114	-0.225	-0.328	-1.204	2.160
	-6.415	*1.977*	*2.651*	*2.723*	*2.685*	*2.768*
Diagnostics						
R^2	51.7%		50.4%		50.8%	
F-test: equal sensitivity to *Q*?	2.20*		4.85**		13.25***	
No. of firms	254	649	412	508	408	399
No. of business groups	135	211	185	196	208	211
No. of observations	4,120		4,053		4,120	

Table 9. Career Objectives.

The table tests whether the group chairman's career objectives affect how state business groups allocate internal capital among member firms. Columns 1 and 2 split the sample according to whether the group chairman is above or below 60 years of age. Given mandatory retirement at 65 and fixed five-year terms for political office, career objectives should only influence internal capital allocation when the group chairman is below 60. Columns 3 and 4 test for changes in the *Q* sensitivity of internal capital allocations following crackdowns on political corruption in the province in which the group's headquarters are located. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS with group-year fixed effects and industry-year fixed effects. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Net capital inflow			
	state group chairman			
	old	young	state business groups	private business groups
	(1)	(2)	(3)	(4)
Tobin's *Q*	0.026	-0.423***	-0.516***	0.560***
	0.111	*0.163*	*0.199*	*0.099*
x post-corruption crackdown			0.369**	-0.232
			0.188	*0.498*
Controls				
ROA	0.036	-0.037	-0.041	0.056
	0.106	*0.048*	*0.045*	*0.052*
log total assets	-0.324	-0.567***	-0.537***	-0.720
	0.412	*0.183*	*0.168*	*0.508*
leverage	0.074*	0.035	0.040*	0.057**
	0.043	*0.023*	*0.022*	*0.025*
collateral	0.051	0.063***	0.058***	0.024
	0.041	*0.013*	*0.012*	*0.027*
voting rights	0.038	0.003	0.003	-0.005
	0.040	*0.013*	*0.012*	*0.025*
cash flow wedge	0.010	0.026	0.031	0.015
	0.060	*0.029*	*0.026*	*0.043*
institutional ownership	0.009	-0.005	-0.004	-0.006
	0.039	*0.014*	*0.013*	*0.028*
=1 if CEO is shareholder	0.489	-0.342	-0.224	-0.493
	1.337	*0.414*	*0.385*	*0.870*
=1 if firm has 'ST' status	-12.892***	0.482	0.554	2.090
	3.096	*1.998*	*1.962*	*3.608*
Diagnostics				
R^2	63.2%	47.5%	48.0%	72.6%
F-test: equal sensitivity to *Q*?	5.39**			
F-test: Tobin's *Q* = 0 post-crackdown			3.21*	0.40
No. of firms	220	645	660	166
No. of business groups	62	208	211	76
No. of observations	489	3,624	4,120	893

INTERNET APPENDIX

(NOT INTENDED FOR PUBLICATION)

Table IA.1. Baseline Models with Narrow Net Capital Inflows.

The table reports robustness tests of our baseline models shown in Table 2 using a narrow net capital inflow measure. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS with group-year fixed effects and industry-year fixed effects. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Narrow net capital inflow			
	all business groups	all business groups	state business groups	private business groups
	(1)	(2)	(3)	(4)
Tobin's Q	-0.057	0.388**	-0.202***	0.501***
	0.107	*0.178*	*0.068*	*0.177*
… x SOE		-0.597***		
		0.189		
Controls				
ROA	0.019	0.019	-0.006	0.043
	0.026	*0.024*	*0.031*	*0.045*
log total assets	-0.788***	-0.808***	-0.818***	-0.719*
	0.119	*0.115*	*0.126*	*0.434*
leverage	0.045***	0.044***	0.041***	0.051**
	0.014	*0.014*	*0.016*	*0.022*
collateral	0.021***	0.020***	0.021***	0.022
	0.007	*0.007*	*0.008*	*0.022*
voting rights	0.012	0.012	0.014	0.012
	0.008	*0.008*	*0.009*	*0.022*
cash flow wedge	0.003	0.005	0.005	-0.004
	0.014	*0.014*	*0.015*	*0.035*
institutional ownership	0.003	0.002	0.004	-0.014
	0.007	*0.007*	*0.008*	*0.026*
=1 if CEO is shareholder	-0.215	-0.193	-0.212	-0.305
	0.256	*0.255*	*0.287*	*0.688*
=1 if firm has 'ST' status	0.555	0.552	0.377	0.759
	1.246	*1.245*	*1.427*	*2.811*
Diagnostics				
R^2	52.9%	53.3%	51.6%	70.3%
F-test: equal sensitivity to *Q*?			18.47***	
No. of firms	807	807	660	166
No. of business groups	287	287	211	76
No. of observations	5,013	5,013	4,120	893

Table IA.2. Baseline Models with Related-Party Transactions for Alternative Sets of Group Entities.

The table reports robustness tests for our baseline model shown in column 1 of Table 2 using alternative measures that widen or narrow the set of entities whose capital flows are included in either the broad (columns 1-4) or the narrow (columns 5-8) net capital inflow measure. For variable definitions and details of their construction see Appendix A. All specifications are estimated using OLS with group-year fixed effects and industry-year fixed effects. Heteroskedasticity-consistent standard errors clustered at the group level are shown in italics underneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively. The number of observations is 5,013 firm-years for a total of 287 business groups and 807 member firms.

	Net capital inflow				Narrow net capital inflow			
	parent, subsidiary, or other firm controlled by parent	+ firm exercising joint control over listed firm	+ firm with significant impact on listed firm + JV w/ listed firm	+ associates of the listed firms	parent, subsidiary, or other firm controlled by parent	+ firm exercising joint control over listed firm	+ firm with significant impact on listed firm + JV w/ listed firm	+ associates of the listed firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tobin's Q	0.497***	0.497***	0.534***	0.552***	0.378**	0.378**	0.405**	0.437**
	0.185	*0.186*	*0.188*	*0.190*	*0.178*	*0.178*	*0.180*	*0.183*
… x SOE	-0.752***	-0.753***	-0.797***	-0.865***	-0.592***	-0.592***	-0.612***	-0.668***
	0.208	*0.209*	*0.213*	*0.235*	*0.188*	*0.188*	*0.191*	*0.203*
Controls								
ROA	0.016	0.015	0.016	0.010	0.016	0.016	0.018	0.013
	0.029	*0.029*	*0.031*	*0.032*	*0.024*	*0.024*	*0.024*	*0.025*
institutional ownership	-0.561***	-0.561***	-0.567***	-0.577***	-0.781***	-0.781***	-0.807***	-0.793***
	0.145	*0.145*	*0.151*	*0.159*	*0.112*	*0.112*	*0.115*	*0.119*
log total assets	0.052***	0.052***	0.046**	0.042**	0.041***	0.041***	0.044***	0.042***
	0.015	*0.015*	*0.019*	*0.019*	*0.013*	*0.013*	*0.014*	*0.013*
leverage	0.044***	0.044***	0.050***	0.051***	0.017**	0.017**	0.021***	0.019**
	0.011	*0.011*	*0.011*	*0.011*	*0.007*	*0.007*	*0.007*	*0.008*
voting rights	0.003	0.003	-0.002	0.002	0.015**	0.015**	0.012	0.012
	0.010	*0.010*	*0.011*	*0.012*	*0.008*	*0.008*	*0.008*	*0.008*
cash flow wedge	0.029	0.029	0.038	0.037	0.006	0.006	0.011	0.011
	0.022	*0.022*	*0.023*	*0.023*	*0.013*	*0.013*	*0.014*	*0.015*
collateral	-0.001	-0.001	-0.008	-0.003	0.005	0.005	0.001	0.005
	0.012	*0.012*	*0.012*	*0.013*	*0.007*	*0.007*	*0.007*	*0.008*
=1 if CEO is shareholder	-0.198	-0.185	-0.177	-0.160	-0.137	-0.138	-0.148	-0.055
	0.335	*0.335*	*0.350*	*0.370*	*0.246*	*0.246*	*0.256*	*0.273*
=1 if firm has 'ST' status	0.521	0.515	0.794	0.733	0.479	0.480	0.560	0.268
	1.527	*1.527*	*1.691*	*1.787*	*1.063*	*1.063*	*1.246*	*1.354*
Diagnostics								
R^2	49.6%	49.5%	50.0%	49.6%	54.0%	54.0%	53.6%	52.3%
F-test: *Q* sensitivity of SOEs = 0?	6.64***	6.66***	6.54**	4.74**	9.47***	9.46***	8.89***	5.99**