State Capitalism vs. Private Enterprise [*] [†]

Donghua Chen
School of Business
Nanjing University

Dequan Jiang
School of Economics and Management
Wuhan University

Alexander Ljungqvist
Stern School of Business
New York University
and *NBER*

Haitian Lu
School of Accounting and Finance
Hong Kong Polytechnic University

Mingming Zhou
College of Business
University of Colorado at Colorado Springs

February 6, 2017

[*] Thanks for helpful comments go to Heitor Almeida, Yakov Amihud, Tim Baldenius, Mara Faccio (our ABFER discussant), Hui He (our NBER discussant), Takeo Hoshi, Kose John, Jun-koo Kang, Barbara Katz, Bin Ke (our MIT Asia discussant), Kenneth Kim, Ross Levine, Agnes Lo, Meijun Qian (our JFLA conference discussant), Antoinette Schoar, Henri Servaes, Andrei Shleifer, Denis Sosyura, Marti Subrahmanyam, Daniel Wolfenzon (our AFA discussant), Donghui Wu, Xueping Wu, and Bernard Yeung, and to audiences at various conferences and seminars. We thank Lei Zhen for outstanding research assistance. Chen gratefully acknowledges financial support from the China National Natural Science Foundation (grant no. 71372032). Jiang gratefully acknowledges financial support from the China National Natural Science Foundation (grant no. 71502130). Ljungqvist gratefully acknowledges the hospitality of Hong Kong Polytechnic University while working on this project. Zhou gratefully acknowledges financial support from UCCS.

[†] Address for correspondence: Stern School of Business, New York University, Suite 9-190, 44 West Fourth Street, New York NY 10012-1126. e-mail: aljungqv@stern.nyu.edu.

State Capitalism vs. Private Enterprise

Abstract

We study the efficiency of capital allocations at state-controlled and privately owned business groups in China. Using highly granular data on within-group capital transfers, we document stark differences: while private groups allocate more capital to units with better investment opportunities, state groups do the opposite, especially when part of the "national team." Minority shareholders in state owned enterprises suffer as a result. External monitoring by outside investors helps discipline state groups' tendency to ignore investment opportunities. We trace capital allocation decisions to the objectives of the Chinese Communist Party, which incentivizes managers to maintain social stability. Consistent with the party's policy preferences, capital allocations are used to prop up struggling employers in high-unemployment areas and when many young men enter the local labor market, but the interests of the party and of managers may be misaligned.

Key words: State capitalism, business groups, internal capital markets, private enterprise.

JEL classification: G31, G32, G34, G15.

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, state capitalism, as practiced in China and other emerging economies, has won adherents as an alternative to Western capitalism.[1] State capitalism 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.

We ask how efficiently capital is allocated under state capitalism. Our focus is on China, the country where state capitalism is perhaps the most entrenched.[2] Because China's capital markets are relatively underdeveloped and firms cannot access them without political approval (Allen, Qian, and Qian 2005), we focus on firms' internal allocations of capital – i.e., the internal capital markets operating inside business groups. As we show, Chinese firms rely much more heavily on capital obtained from fellow group members than they do on external capital markets.

We investigate the efficiency of capital allocation empirically by contrasting how state business groups and privately owned business groups in China allocate capital across their member firms. Prior evidence suggests that we should find greater capital efficiency at private groups. Allen, Qian, and Qian (2005), for example, document that private enterprises in China are often credit-rationed by state banks. Financial constraints imply a high shadow cost of capital, so private enterprises should allocate capital efficiently. State owned enterprises, in contrast, often face soft budget constraints (e.g., in the form of state directed lending) and can thus afford to be more profligate (Kornai, Maskin, and Roland 2003). Our empirical findings confirm this prediction, with an important twist.

Using data on all internal transfers among group member firms at 211 state business groups and 76 private business groups over the period 2004 to 2013, we measure a group's capital efficiency as the sensitivity of each member firm's capital allocation in the group's internal capital market to the

[1] See, for example, "The Rise of State Capitalism", The Economist, Jan. 21, 2012.
[2] To illustrate, China's state firms account for two-thirds of China's stock market capitalization in 2014. China's state firms are large even by global standards: 92 of Fortune's 2014 list of the 500 largest firms worldwide are Chinese, and 85 of these are state owned firms; their collective revenues of $4.6 trillion are equivalent to over 60% of China's 2014 GDP.

firm's investment opportunities.[3] Our tests reveal differences that go well beyond private enterprises being more capital efficient. We show that private groups in China allocate more capital to member firms with better investment opportunities, as measured by Tobin's *Q*. This pattern (which may be surprising, given China's weak institutions) is consistent with maximizing group value. State groups, by contrast, not only use capital less efficiently, they turn efficiency on its head by reallocating capital from high-*Q* to low-*Q* member firms. This pattern is remarkably robust in the data.

Three pieces of evidence suggest that the negative sensitivity of capital allocations to *Q* at China's state groups reflects a deliberate choice. First, state groups divert less capital away from high-*Q* firms over which they have less control, suggesting that outside minority investors help monitor capital allocation decisions. Even so, we find that minority investors are harmed when capital is diverted away from state firms with relatively better investment opportunities. Second, capital allocation policies vary with a group's access to cheap external capital. In particular, we find that China's "national team" of privileged state groups enjoying the softest external budget constraints are especially prone to allocating capital in a non-value-maximizing way. And third, high-*Q* state firms operating in industries that Beijing favors in its five-year plans appear to be shielded from having their capital redistributed to weaker siblings.

Our findings suggest that China's version of state capitalism does a poor job of allocating capital efficiently. This is remarkable not least because the state owned enterprises (SOE) in our sample include China's crown jewels: under the 1997 "Grasp the big, let go of the small" reforms of the state sector, China restructured the more successful or more strategically important of its SOEs into a set of "national champions" that were showered with privileges, such as being allowed to list on the stock market. The rest were "let go", that is, closed down or transferred to provincial governments.

The failure to allocate internal capital in a value-maximizing way likely reflects the fact that the objective function of the Chinese Communist Party (CCP), which ultimately controls most functions

[3] As Stein (1997) and Almeida, Kim, and Kim (2014) note, an efficient internal capital market allocates more capital to units with relatively better investment opportunities.

of state, is not (or not exclusively) the maximization of profits or shareholder value but also the pursuit of a "harmonious society," the political doctrine in force over most of our sample period. This doctrine is widely understood to be aimed at avoiding social unrest resulting from job losses, something commentators argue the CCP "has long feared," at a time when tens of millions of young workers entered the labor force every year and when job losses among the less privileged SOEs that were "let go" were rampant.[4]

We find evidence of the CCP's desire to avoid social unrest, both in the formal criteria by which the party judges the performance of SOE managers and in their actual implementation: consistent with a desire to maintain socio-political stability, we show that the chairmen of state groups in our sample are rewarded with promotions for avoiding large scale job losses, which is easily the most economically important determinant of their career outcomes in our tests.

Moreover, our tests show that state group chairmen are quite responsive to the career incentives the CCP gives them. Not only are internal capital allocations used to prop up large and struggling employers with poor prospects operating in areas of high unemployment and when many young men enter the local labor market, consistent with the CCP's policy aims under the "harmonious society" doctrine. Capital allocations are also particularly distorted whenever group chairmen are up for promotion and they cease to be distorted once a group chairman becomes ineligible for promotion under the CCP's rules on mandatory retirement.

In principle, such behavior could be in the CCP's best interest, by staving off layoffs, but a final test suggests that state group chairmen's interests may be misaligned. We find that capital allocations become 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,

[4] See, for example, a confidential 2006 report by the Congressional Research Service entitled "Social Unrest in China," available at https://wikileaks.org/wiki/CRS:_Social_Unrest_in_China,_June_12,_2006. The report argues that "In the late 1990s, labor protests became commonplace in older industrial cities as workers in moribund state owned enterprises faced unemployment, cuts or suspension in pay and benefits, and loss of pensions. … Fears of greater unrest have triggered debates with[in] the Communist Party leadership about the pace of economic reforms. … The CCP has long feared a worker's democratic movement similar to Poland's Solidarity movement."

state group chairmen may prefer to lie low for a while and not misallocate capital for their private career ends. Our results are consistent with this interpretation.

Our paper contributes to the literature on state and private firms, surveyed in Megginson (2016), by providing the first empirical comparison of their capital allocation decisions. Prior work 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), such as keeping redundant workers employed or reducing regional variation in incomes by locating plants in uneconomic areas (Musacchio and Lazzarini 2012). Our evidence is consistent with both sources of inefficiency. The influence of chairmen's career concerns is suggestive of the political view, while transferring capital to struggling firms with poor prospects 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.

Finally, our paper contributes to the growing literature on corporate governance in China. Prior work shows that the presence of outside private investors at SOEs improves 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 investors make it harder for state groups to divert resources away from member firms with good investment opportunities, but they cannot guarantee it: a stock market listing is not sufficient to instill shareholder-friendly corporate governance at state firms, and when the interests of shareholders and party are in conflict, the party wins.

1. Measuring Capital Efficiency

To measure how efficiently Chinese business groups allocate capital internally, we estimate the extent to which a business group's capital allocations to its member firms correlate with each member firm's investment opportunities in a particular year. According to neoclassical theories of capital budgeting, the correlation should be positive: the parent should allocate more capital to a unit the better the unit's investment opportunities (Almeida, Kim, and Kim 2015).

We follow the empirical literature on internal capital markets and use Tobin's *Q* to capture investment opportunities (see, for example, Gopalan, Nanda, and Seru 2007 or Almeida, Kim, and Kim 2015). Unlike in the U.S., where a multi-segment firm's divisions are rarely themselves stock market listed, it is common outside the U.S. for business groups to include multiple firms that are stock market listed. This greatly facilitates the measurement of each member firm's *Q* ratio. Korea's chaebols are a prominent example of such a group structure;[5] China's business groups is another.

We can measure the direction, magnitude, and nature of all internal capital transfers that occur within each business group in China courtesy of two stock market listing rules. The first rule requires listed firms, starting in 2004, to disclose related-party transactions. This allows us to measure capital transfers among firms in a group at a highly granular level, for example in the form of loans or cash advances.[6] (In the U.S., in contrast, multi-segment firms need only disclose segment-level data on

[5] See Bae, Kang, and Kim (2002), Baek, Kang, and Lee (2006), Bae, Cheon, and Kang (2008), and Almeida et al. (2011).
[6] 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.

sales, cash flow, and capital expenditure,[7] necessitating creative but indirect approaches to infer intra-group capital allocations.[8]) The second rule requires listed firms to disclose their ultimate controlling shareholders. This allows us to identify the group membership and ultimate control of each listed firm in China.

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

$$net\ capital\ allocation_{i,t} = \alpha Q_{i,t-1} + \beta X_{i,t-1} + \varpi_{j,t} + \upsilon_{k,t} + \varepsilon_{i,t} \quad (1)$$

for firm *i* operating in industry *k* and belonging to business group *j* in year *t*. The dependent variable, *net capital allocation*, is a measure of firm *i*'s (potentially negative) net capital allocations 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, a firm's net allocation should increase in its *Q* (i.e., $\alpha > 0$).[9] Testing whether $\alpha > 0$ requires some care. The reason is that investment opportunities vary both within and across groups and within-firm. The variation of interest, in our setting, is the within-group one.

To see why we do not want to capture cross-group variation, 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 another group is of no consequence. From a capital allocation point of view, it is equally irrelevant how investment opportunities vary within-firm over time. Consider a group whose lowest-*Q* firm experiences a large improvement in investment opportunities that still leaves its *Q* far below those of its sister firms. If

[7] Under SEC rule S-K and FASB rule 14, U.S. firms have to break out sales, cash flow, and capital expenditure for any segment selling primarily to unaffiliated customers and accounting for 10% or more of consolidated sales.
[8] For example, Shin and Stulz (1998) and Shin and Park (1999) regress a segment's CAPEX on the cash flows of its parent's other segments. A positive coefficient is interpreted as evidence that the segment is a net recipient of capital. For a critique of approaches of this kind, see Billett and Mauer (2003).
[9] 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).

capital is allocated based on ranking member firms according to their investment opportunities, the change in *Q* is only relevant insofar as it changes the relative ranking, which is fully captured by the point-in-time within-group variation we focus on.

To ensure that we estimate α from within-group variation in the way each group allocates capital across its various member firms in a given year, we follow Almeida, Kim, and Kim (2015) and include a set of group-year fixed effects, $\varpi_{j,t}$. These fixed effects allow us to test whether groups allocate *relatively* more capital to *relatively* higher-*Q* member firms, allowing each group to have its own time-varying average level of capital allocations and its own time-varying average level of *Q*.

The regression in equation (1) controls for a set of lagged firm-level characteristics $X_{i,t-1}$, 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.[10]

Following Almeida, Kim, and Kim (2015), 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.

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 private groups, the ultimate parent is usually a family. For state groups, the ultimate parent is an unlisted holding company that is either controlled by the State-Owned Asset Supervision and Administration

[10] We use the China Securities Regulatory Commission's 13 industry groups (agriculture, mining, communications, construction, manufacturing, utilities, trade, transport, IT, finance, real estate, social services, and miscellaneous).

Commission (SASAC) in Beijing or a provincial equivalent.[11]

Using these criteria, we identify 230 state and 91 private business groups between 2004 and 2013.[12] (Of the former, 82 are controlled by SASAC in Beijing and 148 are controlled by a local equivalent.) Owing to the need to construct lags, our empirical models use data for 287 business groups (211 state and 76 private ones), with a total of 5,013 firm-year observations. Between them, the state groups control 660 listed SOEs while the private groups control 166 listed firms.

In addition, business groups invariably also control unlisted firms. Unlisted firms have no disclosure requirements and so are not covered in the CSMAR database.[13] To get a sense of their relative importance, we use group-level data manually extracted from two print directories of SOEs.[14] Using these, we estimate that listed member firms account for 34.3% of group assets, 30.5% of group sales, and 29.1% of group employees in the average state group. (Equivalent data for private groups are not publicly available.) Even though we lack data on business groups' unlisted firms, it is important to note that our measure of within-group capital allocations, described next, captures all internal capital transfers that listed firms receive or make, regardless of whether they originate at or are sent to a listed or unlisted member firm.

2.1 Measuring Within-Group Capital Allocations

The preferred way to transfer capital internally within a business group differs across countries, owing to differences in accounting standards, stock market listing rules, and the tax code. In Korea, for example, the preferred way involves intra-group share sales (Almeida, Kim, and Kim 2015), while in India, the preferred way involves intra-group loans (Gopalan, Nanda, and Seru 2007).

[11] To clarify with a concrete example, PetroChina and Sinopec are two separate state business groups, even though both are ultimately controlled by SASAC. See Appendix A for details of how state groups are identified.
[12] 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.
[13] Readers familiar with China's "Industrial Survey" and "Economic Census" may wonder why we do not use these sources to collect data on unlisted member firms. The primary reason we do not is that listed groups do not have to disclose the names of their unlisted subsidiaries. Thus, we have nothing to search on. Even if we did, these sources would not be of much use to us because they contain no data on internal capital allocations and because they are sporadic (the Survey data end in 2008 while Census data are available only for 2004, 2008, and 2013).
[14] The directories are "Large Corporations of China" (中國大企業集團名錄), published by the National Bureau of Statistics (2003 to 2008), and "The Development Report on Top 500 Enterprises of China" (中國 500 強企業發展報告), published by China Enterprise Confederation and China Enterprise Directors Association (2007 to 2013).

China's rules favor short-term intra-group loans; other ways to transfer capital internally within a business group, such as transfer pricing,[15] dividends,[16] or equity investments,[17] are uncommon.

Following Li, Sun, and Wang (2004), our baseline measure of the net amount of capital a group member firm is allocated in a given year is the sum of the differences between accounts payable and receivable, between notes payable and receivable, between advances and accounts prepaid, and between other accounts payable and receivable. We then scale by beginning-of-year total assets to make the measure comparable across firms. Net capital allocation can be positive or negative, depending on whether a firm is a net recipient or a net source of capital within the group. Appendix A contains further details on the construction of this measure.

Several comments are in order. First, we do not use aggregate line items to construct the net capital allocation measure. Aggregate line items (such as those available in a firm's income statement filed with regulators) include not only transactions among related firms within a group but also transactions involving unaffiliated suppliers and end-customers. The great advantage of China's mandatory disclosure of related-party transactions is that firms must break out capital transfers involving affiliated firms at a highly granular level, and it is these data we use.

Second, our capital allocation measure has superficial parallels to empirical measures used in the tunneling literature started by Johnson et al. (2000). It differs not in the types of transactions it is constructed from, but in the groups of counterparties it includes: while tunneling measures focus on the diversion of corporate resources from a firm (and thus from its minority shareholders) to the

[15] China requires detailed disclosure of how transactions between related parties are priced. Of the 81,676 related-party transactions in our sample, only 15.9% by value occur at "negotiated prices", rather than at "market prices" or a "national price standard." While "negotiated prices" are in principle open to manipulation, the China Securities Regulatory Commission (CSRC) holds managers *personally* liable for deviating "substantially" from market prices, to ensure that related-party transactions are not used to "manipulate reported profits." (See "CSRC Notice 2004/No. 1 on Further Improvements to Listed Company Financial Reporting Quality", 關於進一步提高上市公司財務信息披露質量的通知.) Lo, Wong, and Firth (2010) document that prices charged internally diverge from arms-length prices by less than 5%.
[16] Only 29 of the 5,013 firm-years in our sample involve capital transfers in the form of within-group dividends.
[17] This is not to say that Chinese firms do not hold equity stakes in other firms. But due to two onerous tax rules, it is rare for Chinese business groups to use share sales to transfer capital internally. (See "Official Reply of the State Administration of Taxation on the Application of Laws, Regulations, and Relevant Provisions on Special Tax Adjustment to Affiliated Equity and Debt Transactions, Letter No. 262", 國家稅務總局關於關聯股權債權交易適用特別納稅調整法律法規及有關規定的批覆, and "Notice of the State Administration of Taxation on Issuing Measures for the Implementation of Special Tax Adjustments No. 2" 國家稅務總局關於印發《特別納稅調整實施辦法(試行)》的通知).

parent or controlling shareholder, our capital allocation measure focuses on the flows of capital among a group of sibling firms (some of which may flow via the group parent). As the Internet Appendix shows, our results are unaffected if we remove flows to the group parent altogether, which removes any possibility of tunnelling.

Third, our measure is based on accounting quantities normally associated with a firm's working capital. As such, these accounting quantities capture both internal capital transfers and ordinary-course-of-business transactions among group members. As the Internet Appendix shows, our findings are robust to standard empirical attempts to strip out ordinary-course-of-business cash flows, the reason being that these do not vary with Tobin's *Q* and so do not contaminate the estimates.[18]

Fourth, we capture intra-group capital allocations using a firm's *stock* of what are essentially working capital loans, rather than using the year-on-year change. This approach is sensible because the loans business groups use to transfer capital from one member firm to another, being short-term, have to be either repaid or rolled over from year to year. The correct measure of how much capital a member firm is allocated in a given year is thus the total amount it borrows from elsewhere in the group. This equals the amount rolled over from the previous year plus any change compared to the previous year – in other words, the stock of working capital loans. Using instead the change would not capture the amount of capital the firm is allocated in a given year.

2.2 Variable of Interest and Controls

Our main variable of interest is Tobin's *Q*, the standard proxy for a firm's investment opportunities in the corporate finance literature generally and the internal capital markets literature specifically. Following convention, we approximate 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. How well *Q* captures investment opportunities in China is an empirical question; though not by any means

[18] Specifically, our findings are robust to using Jian and Wong's (2010) "related lending" variable (the difference between the amount lent to and the amount borrowed from group members) and Jiang, Lee, and Yue's (2010) "orec" measure (which ignores accounts receivable/payable and instead uses only "other" receivables/payables involving group members).

perfect, *Q* has been shown to work about as well in China as in other countries.[19] We investigate whether our results can plausibly be attributed to measurement error in *Q* in Section 3.2.[20]

In addition to *Q*, our empirical models include the following standard controls: return on assets and log total assets (Gopalan, Nanda, and Seru 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 struggling firms at risk of delisting).

2.3 Summary Statistics

Table 1 presents summary statistics for the firms in the 211 state groups and the 76 private groups in our estimation sample. Averaged across the sample, SOEs and private firms are allocated an average of 0.622% and 0.328% of lagged assets from other group members, respectively. This calculation pools users and sources of internal transfers and so understates the economic magnitudes involved.[21] The average state user receives transfers equivalent to 3.9% of its assets, while the average state source of internal capital makes funds equivalent to 3.9% of its assets available to sister firms. To appreciate just how large these internal capital flows are, note that they exceed a year's profit: returns on assets among SOEs average only 2.9%.

Comparing SOEs to private firms reveals that state groups are heavier users of internal capital markets: while state sources transfer an average of 3.9% of their assets to state users, private sources transfer an average of only 2.7%. The difference is significant at the 1% level.

Table 1 also reports summary statistics for external funding. This reveals that internal capital

[19] See Bai et al. (2004), Sun and Tong (2003), Wei, Xie, and Zhang (2005), or Lin et al. (2011), among others.
[20] Giroud and Mueller (2015) use reductions in travel time between headquarters and a plant (as captured by the introduction of a direct air link) as a shock to investment opportunities within a business group, finding that investment and employment rise at the treated plant and fall at the group's other plants. Unfortunately, we cannot adopt their empirical design because China already had an extensive airline route network before the start of our sample period, such that fewer than 1% of firm-years in our sample are treated with a travel time reduction.
[21] These averages are not zero, because they are computed from the internal capital flows at *listed* member firms. The fact that the averages are positive implies that nonlisted member firms, on average, serve as sources of capital.

markets in China are a considerably more important source of capital than are external capital markets, for both state and private groups. For example, in the average firm-year, SOEs raise 1.1% and 0.5% of total assets via external equity and bond issues, respectively, or a total of 2% of assets when all external sources (including bank loans) are considered. This is only a little over half the amount of capital the average SOE user of internal capital receives from sister firms per year.

Compared to SOEs, firms belonging to private groups look different on a number of dimensions: they are smaller in terms of assets, sales, and employees; they have higher Tobin's *Q* and are more profitable, but they are also less productive[22] 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 outside private investors and less by state entities or institutional investors; and their CEOs are more likely to own equity. Each of these differences between state and private enterprises is statistically significant.

2.4 Selection and Unobserved Heterogeneity

State ownership is clearly not randomly assigned. Nor, however, is it a choice variable: over our sample period, no private group is taken over by the state, nor is any state group privatized. Accordingly, we treat state ownership as both historically and econometrically predetermined. The main identification challenge is hence not self-selection but systematic differences between state and private firms. In our regressions, we control for the observable differences shown in Table 1 to ensure that they do not drive any differences in capital allocation practices between state and private business groups. This leaves unobserved heterogeneity.

Short of random assignment, the presence of unobserved heterogeneity in observational data is inevitable. However, it is important to note what unobserved heterogeneity does and does not affect in our setting. It does not affect the validity of the fact we establish: state groups behave differently from private groups in China, regardless of whether or not state and private groups differ

[22] 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.

systematically along some unobserved dimensions. The only aspect of our analysis that unobserved heterogeneity does potentially affect is the interpretation of this fact: what is the mechanism that explains why state groups behave differently? Hence, while we trace the mechanism to the CCP's policy objectives and – potentially – to agency problems, we cannot rule out that state groups allocate capital differently not due to state ownership but because they differ in some other unobserved way from private groups.

3. Capital Allocations in State and Private Business Groups

3.1 Baseline Results

Table 2 presents our baseline results. Column 1 regresses net capital allocations 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. We interact *Q* with an indicator for SOEs to allow for differences in the way state and private groups allocate capital among member firms.

For private enterprises, we find that capital allocations are significantly positively related to *Q*. Given our focus on within-group/year variation, the economic interpretation is that in private groups, member firms are relatively heavier users (providers) of intra-group capital allocations the higher (lower) their *Q*. The sensitivity is quite large: for every unit by which its *Q* exceeds the group average, the average private enterprise is allocated an additional 0.52% of its assets via the group's internal capital market (p=0.006).

Capital allocations in state groups, on the other hand, are significantly *negatively* related to *Q*: SOEs are allocated relatively more internal capital the lower their *Q* ratios compared to their sister firms. Summing the coefficients for the main and interaction effects, the average SOE is allocated an additional 0.26% of its assets for every unit by which its *Q falls below* the group mean (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 2 and 3 confirm these findings by estimating capital-allocation regressions separately for private and state groups. Tables IA.1 and IA.2 in the Internet Appendix show robustness to

alternative measures of internal capital allocations.

There are two potential mechanical explanations for the observed negative *Q* sensitivity at state groups. First, the fact that some SOEs are near-monopolies could induce a spurious correlation. Since monopolies maximize profits by restricting output, rather than by expanding production, it might make economic sense for state groups to transfer capital from monopolistic member firms (which may have high *Q* ratios) to member firms more exposed to competition (which may have low *Q* ratios). However, using the inverse Lerner Index in a firm's industry as a measure of product-market competition following Aghion et al. (2005), we find no support for such flows, and the magnitude of the negative *Q* sensitivity remains unchanged (see column 4). Second, it is possible that state groups use their high-*Q* firms as conduits for raising "cheap" funds in external capital markets and then channel such externally raised funds internally to their lower-*Q* firms. However, columns 5 through 7 show that neither equity issues, nor bond issues, nor aggregate net external funding (which includes bank loans) vary with *Q* at state groups. Moreover, external fundraising is anyway rare: according to Table 1, fewer than 10% of state firm-years in our sample involve equity or bond issues.

The results in Table 2 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 member firms with the best investment opportunities, state groups reallocate capital from high-*Q* to low-*Q* firms.[23] We next explore if this data fact reflects deliberate policy rather than measurement error in *Q* which, for whatever reason, differs systematically between SOEs and private firms.

3.2 Deliberate Policy or Measurement Error?

If the negative *Q* sensitivity in state groups is the result of deliberate policy, and if it is costly to source firms, it should vary predictably with constraints on a state group's ability to divert resources from its most promising member firms. A possible constraint is corporate governance. Since all

[23] Since *Q* is a forward-looking measure, it will be affected by investors' expectations of the value transfers we document. However, this does not invalidate the use of *Q* for our purposes. If investors expect high-*Q* SOEs to be drained of capital, the *Q* we observe will be lower than it would have been had capital been allocated efficiently. Similarly, if investors expect low-*Q* SOEs to receive capital infusions, their observed *Q* will be higher. Thus, the observed within-group range of *Q*s will be narrower but the within-group ranking of units – which is what our tests exploit – will be unchanged.

member firms in our sample are stock market listed, they each have outside investors with an incentive to monitor capital allocation decisions (Gupta 2005). Columns 1 and 2 of Table 3 allow the *Q* sensitivity in state groups to depend on the size of the parent's ownership stake in the member firm.[24] The results indicate that high-*Q* firms are used more heavily to fund sister firms 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 finding it harder to divert capital from high-*Q* firms over which they have limited control.

A second constraint on state groups' internal capital allocation decisions may be the tightness of their external budget constraints (Almeida, Kim, and Kim 2015, Matvos and Seru 2014). The SOE reforms adopted by the CCP's 15th National Congress in 1997 created a two-tier state sector in this regard. Known under the slogan "Grasp the big, let go of the small," the reforms sought to create national champions in industries deemed strategically important (such as defense, utilities, energy, and transport). Since 2003, these national champions (often referred to as the "national team") have been organized as state groups that are controlled directly by the central SASAC in Beijing. They enjoy the highest privileges in terms of monopolistic status, virtually zero bankruptcy risk, and preferential access to capital, such as loans from state banks.[25] SOEs in non-strategic industries – "the small" – were either closed down or transferred to the oversight of local SASACs in China's administrative regions. The resulting locally controlled state groups were left to fend for themselves in the marketplace. Accordingly, they could not expect special treatment or budgetary assistance from Beijing (though some may receive privileges from their local SASAC).

Columns 3 and 4 of Table 3 estimate the average *Q* sensitivity separately for locally and centrally

[24] A note on estimation is in order. This conditioning variable varies across firms in a given 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. Throughout the paper, we adopt this approach when conditioning on variables that vary within-group/year.
[25] See Hsieh and Song (2015) for further details of the 1997 SOE reforms.

controlled state groups, respectively. Both types of state groups are prone to allocating internal capital from high-*Q* to low-*Q* member firms, but the negative *Q* sensitivity is nearly three times as large for central groups as for local groups. This economically large difference (with a *p*-value of 0.07) is consistent with China's "national champions" facing a softer external budget constraint and so a lower shadow cost of capital than their locally controlled counterparts (though apparently not so low as to obviate the need to operate an internal capital market in the first place).

A third potential constraint is the will of the central government in Beijing, which attempts to steer the economy through a succession of five-year plans. Our sample period covers the tenth, eleventh, and twelfth plans, running from 2001 to 2005, from 2006 to 2010, and from 2011 to 2015, respectively. Among other things, each plan singles out a set of "highly favored industries" that are the focus of Beijing's industrial policies for the next five years. Examples include passenger aircraft (tenth plan), high-speed rail (eleventh plan), or industrial robots (twelfth plan). We conjecture that high-*Q* member firms operating in industries that are included in the highly-favored list are shielded, for the duration of their inclusion in the list, from the kind of redistributive internal capital allocation policies Table 2 documents for the average SOE.

To test this conjecture, we code a treatment variable equal to one when the main industry an SOE operates in is named a highly favored industry. This treatment variable is then turned on for the duration of the five-year plan. Columns 5 and 6 show that the tendency to move capital from high-*Q* to low-*Q* member firms within a state group is confined to firms in industries that are not currently favored by Beijing. For firms in favored industries, the *Q* sensitivity switches sign and, though not statistically significant, becomes economically large. The *F*-test shows that *Q* sensitivity varies significantly with an industry's favored status (p=0.041).

The tests in Table 3 suggest that the negative *Q* sensitivity at state business groups found in Table 2 is deliberate rather than an artifact of measurement error or other randomness. Randomness cannot explain why the tendency at state groups to move capital from high-*Q* to low-*Q* member firms is moderated when outside shareholders have greater control, why national champions are more

prone to ignoring the stock market's price signals, or why redistributive allocation policies are suspended once a member firm's industry is singled out by Beijing for special treatment.

3.3 Economic Magnitudes and Consequences

We next give a sense of the economic magnitudes involved by comparing internal transfers at source and recipient firms to their respective profits, investment budgets, and dividend payouts. We begin by sorting sample SOEs into quintiles based on the difference between their actual net capital allocation in year *t* and the net capital allocation they would have received had their business group applied the same internal capital allocation policy as the average private group in column 2 of Table 2. Quintile 1 then consists of SOEs with the lowest (most negative) net capital allocations relative to investment opportunities, which we call "source" firms. The "recipient" firms in quintile 5 are those receiving the highest allocations relative to investment opportunities.

Table 4 reports average firm-level characteristics for each of the quintiles. Panel A focuses on the year of the capital transfer while Panel B focuses on the year after. Not surprisingly, given our findings so far, source firms have much higher *Q*s than do recipient firms: the average *Q* of 2.147 among source firms is 48% higher than the average of 1.451 at recipients.

Despite having higher *Q*s, source firms transfer an average of 6.5% of their assets to other group members. This amounts to 2.6 times their net income, 1.35 times their annual CAPEX, and 4.2 times their dividend (in each case scaled by total assets). In other words, source firms experience sizeable capital outflows. Recipient firms receive 8.8% of their assets in internal transfers, which amounts to 4 times their net income, 1.7 times their CAPEX, and 5.7 times their dividend. Fully 88% of recipients receive transfers exceeding their previous year's net income.

One year later, source firms suffer a large and statistically significant fall in their Tobin's *Q*s, which decline by 11.8% to 1.894 on average (though they remain higher than in the other four quintiles). Since the numerator of *Q* is the firm's market capitalization, this suggests that source-firm share prices fall. (We investigate this further in the next section.) Recipient firms' *Q*s, by contrast, do not increase significantly. Over the next year, source firms continue to make sizeable transfers to

sister firms, and recipients continue to receive sizeable inflows, but the magnitudes are significantly smaller than the year before, suggesting there are limits to how much capital a source firm can spare. Consistent with the existence of such limits, we find that source firms suffer a large and significant decline in their sales growth, down from 18.2% to 13.7%.

What do recipient firms do with their capital inflows? They do *not* increase CAPEX, or pay larger dividends, or reduce their borrowing. Recipient firms' profitability and sales growth are also little changed, so there is no evidence that their performance improves as a result of receiving large capital transfers. The one metric in the table that does increase by a large (albeit not statistically significant) amount is employment growth: recipients hire 12.7% more workers one year after the capital inflow, up from 9.4% the year before.

3.4 Are Minority Shareholders Harmed?

The significant decline in the Tobin's *Q*s of source firms found in Table 4 hints at the possibility that minority shareholders are harmed when the firm they have invested in transfers capital to sister firms with worse investment opportunities. To test whether minority shareholders indeed suffer negative returns, we estimate standard calendar-time buy-and-hold portfolio returns for a trading strategy based on deviations from "efficient" internal capital allocations. This strategy echoes the sorting approach taken in Table 4, except that we ensure it is tradable by requiring actual allocations to be known to investors before portfolios are formed.

Each April, we sort group-affiliated SOEs into quintiles based on the deviation between their actual capital allocations (as disclosed in their annual reports, usually filed in March) and the predicted capital allocations had they followed the same allocation "rules" as those estimated for private groups in column 2 of Table 2. We then hold each portfolio for 12 months before resorting

firms based on their next disclosure of capital allocations the following March.[26]

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 alphas for each quintile as well as for a hedge portfolio that is long firms receiving the highest net allocations relative to investment opportunities (quintile 5) and short firms with the lowest (most negative) net allocations relative to investment opportunities (quintile 1). Panel A reports equal weighted returns. The three bottom quintiles experience significantly negative risk-adjusted returns, of around half a percent per month. The top quintile earns zero abnormal returns on average. The hedge portfolio earns a three-factor alpha of 0.48% per month (p=0.026), which means that source firms' share prices underperform those of recipient firms by an annualized 5.93% on a risk-adjusted basis. Including a momentum factor, shown in Panel B, 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 even 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 the firm making the transfer is not fairly compensated for it (at least

[26] The portfolio return in month t is $\sum_{i=1}^{n_t} R_{it} x_{it} / \sum_{i=1}^{n_t} x_{it}$, 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 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 values of all portfolio stocks.

in investors' opinion).[27] Internal capital allocation practices at state groups thus appear to harm minority shareholders who invest in SOEs that transfer capital to sister firms despite having better prospects themselves. Given that shareholders in recipient firms only break even (in risk-adjusted terms), investors in SOEs collectively underperform the risk benchmarks we use. In other words, internal capital allocation practices at Chinese state groups create losers without creating winners, at least among their investors, and so reduce shareholder value overall.

3.5 Discussion

The results in Tables 2 through 5 are consistent with the interpretation that state groups allocate internal capital inefficiently in the neoclassical sense. At state groups, internal capital allocations favor low-*Q* firms over high-*Q* firms, the opposite of what we see among private groups in China (or indeed in the U.S.). This tendency to transfer capital to the firms with the relatively worst investment opportunities is stronger when the parent has greater control over the member firm and when the group is part of the "national team" and so faces a particularly soft external budget constraint. The tendency is weaker when outside investors own a larger slice of the member firm's equity and among local state groups. Minority shareholders of SOEs that transfer capital to sister firms with worse investment opportunities suffer negative risk-adjusted returns as a result.

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

4. The State's Objective Function

The internal capital allocations we observe at state groups suggest that the state's objective function is not (or not only) to maximize profits or firm value. What objective function is being pursued instead? Over much of our sample period, the Communist Party's signature ideology revolved around the concept of a "harmonious society," introduced in 2005. This concept was intended to maintain economic growth while avoiding social unrest and political instability resulting from rising inequality and perceived economic injustices (Geis and Holt 2009). A concrete objective

[27] The fact that the long-short portfolio alphas are economically and statistically significant suggests that investors were surprised by the extent to which high-*Q* state owned enterprises were used as sources of capital.

that emerges from this, we conjecture, is the desire to avoid mass layoffs.

We ground this conjecture in two observations. The first is our finding in Table 3 above that internal capital allocations appear particularly distorted in centrally controlled state groups, i.e., in China's "national champions." This is noteworthy because the reforms that led to their creation gave China's "national champions" preferential access to capital and other privileges in return for a commitment that the firms provide their employees with an "iron rice bowl," that is, guaranteed job security, steady income, and other benefits.

The second observation is based on a comparison of diversified and focused state business groups. As Table 6 shows, the tendency to transfer capital from high-*Q* to low-*Q* firms is particularly pronounced in diversified state groups, especially those operating in three or more industries. At focused groups, the tendency is economically weaker and not statistically significant. If labor is more mobile among firms that operate in the same industry (Cestone et al. 2015), one interpretation of these patterns is that focused groups respond to changes in investment opportunities by transferring employees across firms, whereas diversified groups resort to propping up firms with stranded labor by way of internal capital transfers.

If the party's objective is indeed to maintain employment and thereby social stability, we expect the CCP to incentivize managers accordingly. State groups' key decision-makers have the title of chairman (董事长). Like all top managers at China's SOEs, group chairmen are party-appointed civil servants (Li 1998). Their pay and benefits are largely determined by the civil-service rank of their position, with the chairmanships of more important groups having higher ranks. The CCP's main incentive tool is to offer the prospect of a promotion (Li and Zhou 2005) rather than increased pay or bonuses. For group chairmen, this means promotion to an office of higher rank, whether at another state group, in the party (e.g., in the Politburo), or in administration (e.g., a ministerial post or provincial governorship). Member-firm chairmen can be promoted to the chairmanship of a larger SOE, a group chairmanship, or a government position. As Deng et al. (2015) note, career success depends on "adherence to [CCP] policies."

Every three years, the CCP evaluates SOE managers for promotion (Du, Tang, and Young 2012). The CCP's promotion criteria help shed light on the CCP's objective function. Marks are given both for "operational performance" (50%) and for "political qualities, coordination skills, and personal integrity" (50%).[28] The former includes criteria that correlate with maximizing profits, such as improving productivity and financial performance. The latter covers such areas as "making politically responsible decisions", "civic cohesion", and "corporate social responsibility" – criteria that are widely interpreted as the avoidance of layoffs.[29] Thus, at least on paper, SOE managers are incentivized, in part, to help maintain socio-political stability.

To investigate how these promotion criteria are applied in practice, and so whether SOE managers are indeed incentivized to pursue a mix of socio-political and economic objectives, we empirically model each SOE manager's career path during our sample period. For this, we hand-collect data on the career progressions of each group chairman and each member-firm chairman from party and government websites. Since member-firm chairmen report to the chairman of their group, while group chairmen report to SASAC, we estimate separate models for member-firm chairmen and group chairmen. Each position – whether at an SOE, in the CCP, or in administration – has a unique rank in the civil-service hierarchy, so promotions and demotions can be identified without requiring subjective coding on our part. A promotion is simply a move to a position of higher rank according to the civil-service scale, and a demotion is a move to a position of lower rank.[30]

Of the 353 group-level chairmen in our sample, 36 are promoted and 16 are demoted over our sample period. (In addition, 51 reach the mandatory retirement age and leave, 7 move to the private sector, and 5 are disciplined for misconduct.) Of the 1,222 member-firm chairmen, 55 are promoted and 166 are demoted.

[28] See the "Interim Provisions on Performance Evaluations for Executives of C-SOEs", first issued by the Chinese Communist Party's Central Organization Department in 2003 and revised in 2006 and 2009.
[29] 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).
[30] 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 moved to the position of party secretary of Hainan province, the administrative equivalent of the rank of minister and hence a promotion.

4.1 Group Chairmen's Career Outcomes

Table 7, Panel A focuses on the determinants of the likelihood that a group chairman is promoted (columns 1-3) or demoted (columns 4-6). To capture the formal evaluation criteria laid down by the CCP, we focus on key commercial events at the group, such as mass layoffs at one or more member firms, large-scale hiring, productivity improvements or impairments, and large changes in profitability.[31] To proxy for a chairman's political or social connections, we include the log distance between group headquarters and the group's principal (the Beijing SASAC in the case of centrally controlled groups or the provincial SASAC in the case of locally controlled ones). We estimate Cox proportional hazard models with time-varying covariates that also control for group size (log total group assets) and the group chairman's age.

Chairing a larger group significantly increases the chance of promotion (p=0.005 in column 1) and reduces the risk of demotion (p=0.01 in column 4). Age also matters: group chairmen in their 50s are significantly less likely to be promoted than those in their 40s. Those in their 60s are nearly never promoted, a finding that reflects a mandatory retirement age of 65 for highly-ranked offices coupled with the fact that such offices usually have a five-year term.[32] Proximity to SASAC does not help a chairman gain a promotion. It does, however, increase the risk of demotion (p=0.012 in column 4), perhaps because it enables closer monitoring.

Holding age, group size, and distance to SASAC constant, we find that both profit-related and socio-political objectives affect group chairmen's careers. The socio-political objectives appear especially strong, consistent with the CCP's emphasis on "social harmony." In particular, group chairs are rewarded for avoiding mass layoffs: doing so significantly increases the chance of promotion (p=0.022 in column 1) and reduces the risk of demotion (p=0.002 in column 4). The career impact is sizeable. This can best be seen by converting the coefficient estimates into hazard ratios. For example, a group chairman's chance of promotion falls by 71.8% after a year in which a

[31] See Appendix A for details of how these events are coded.
[32] See Article 3, Paragraph 3 of the 1982 "Chinese Communist Party Central Committee's Decision on the Establishment of the Retirement System for Senior Party Cadres" (中共中央關於建立老乾部退休制度的決定), available in Chinese at http://cpc.people.com.cn/GB/64162/71380/71387/71591/4854975.html.

member firm laid off 10% or more of its workforce. Interestingly, this effect is asymmetric: large scale hiring has no effect on career outcomes.

To explore the CCP's sensitivity to job losses further, Figure 1 plots the hazard ratios associated with mass layoffs for different cut-offs ranging from 1% to 20% of the workforce. Figure 1a reveals that a group chairman's chance of promotion is quite sensitive to the size of the job losses, declining monotonically from +6% to –71.8% as layoffs rise from 1% to 10% of the workforce. Beyond 10%, it declines further, albeit not quite monotonically; for a chairman who has presided over a jobs cut larger than 18%, the chance of promotion is reduced by around 86%, all else equal. The effect becomes statistically significant beyond a 5% cut in jobs.

Figure 1b shows the corresponding effect on the chairman's risk of demotion. Starting at a 5% cut in jobs, the career hazard of presiding over mass layoffs becomes statistically significant. It is also economically large: a 5% jobs cut increases the risk of demotion by a factor of 3.6, all else equal, while a 10% jobs cut increases it by a factor of 4.7.

The results for the profit-related objectives are more mixed. Presiding over a 10% improvement in productivity boosts the chairman's chance of promotion by an economically large 92.9% in column 1 and reduces his risk of demotion by 68.1% in column 4, but both estimates are only marginally statistically significant. (Figures 2a and 2b plot the corresponding effects for TFP improvements ranging from 1% to 20%.) Boosting profitability does not help a chairman gain a promotion, though there is weakly significant evidence in column 5 that it helps avoid demotion.

The CCP's evaluation criteria make no mention of internal capital allocations. To see if group chairmen are nonetheless punished for misallocating capital, column 2 adds a measure of the extent of a state group's capital misallocation.[33] Interestingly, the measure has no effect on career outcomes. This non-result is consistent with the fact that the CCP does not evaluate group chairmen on their

[33] The measure is estimated as follows. As in Tables 3 and 4, we compute deviations between actual and predicted net capital allocations for each SOE member firm using the private-group estimates from column 2 of Table 2 as a benchmark. 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 under private-group practices.

capital efficiency.[34] The apparent absence of sanctions for misallocating capital could, in turn, free group chairmen to allocate capital in a way that the CCP apparently does care about: avoiding layoffs. We investigate this possibility in Section 4.4.

4.2 Member-firm Chairmen's Career Outcomes

Given the presence of outside investors at member firms, group chairmen need to have a mechanism for rewarding member-firm managers for ceding capital to less deserving sister firms. After all, as Table 5 shows, doing so harms outside investors. One plausible mechanism is to support compliant underlings' bids for a promotion. Table 7, 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 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. Proximity to group HQ significantly improves a chairman's chances of gaining a promotion. The effect is economically large: a one-standard-deviation reduction in distance in column 1 is associated with a 44.6% increase in the likelihood of promotion (p=0.011). Improving profitability or productivity has no effect on a member-firm chairman's chance of promotion or risk of demotion, though reductions in profitability increase the risk of demotion (p=0.024 in column 6).

Holding these factors constant, we find that capital transfers among member firms affect a member-firm chairman's career prospects asymmetrically: serving as a source of capital to sister firms with worse investment opportunities than his own firm's increases his chance of promotion (p=0.045 in column 2) without affecting his risk of demotion (p=0.885 in column 5).[35] This finding is

[34] Alternatively, our measure, though intuitive, may do a poor job of capturing the extent of capital misallocation.
[35] Following the sorting approach used in Tables 3 and 4, the relevant variable, *residual capital allocation*, is the deviation of a member firm's actual net capital allocation from the allocation predicted had state groups allocated capital in the same way as private groups. Thus, the negative coefficient in column 2 implies that being allocated less capital (or transferring more capital) than is warranted by the firm's *Q* improves the chairman's chance of promotion.

consistent with SOE chairmen being rewarded, by their superiors, with promotions for ceding capital to less deserving sister firms.

4.3 Discussion

We interpret these results as follows. Both on paper and in practice, the CCP incentivizes group chairmen to pursue a mixture of commercial and socio-political objectives, with the latter perhaps best characterized, for our purposes, as the avoidance of mass layoffs. Our finding that member-firm managers are rewarded for allowing capital to be transferred to sister firms with worse prospects, even though doing so harms the outside shareholders to whom they owe a fiduciary duty, suggests that group chairmen view internal capital transfers as a tool to help achieve the CCP's objective and thereby advance their careers. What to a neoclassical economist appears as "misallocation" could, in that sense, be efficient given the CCP's objective. A testable implication of this view is that capital allocations should favor certain types of firms – say, loss-making ones or those employing a large workforce. We next test whether this is the case.

4.4 What SOEs are Favored in Capital Allocation Decisions?

To see whether capital allocations favor SOEs that could pose a risk to socio-political stability, we first allow the *Q* sensitivity of internal capital allocations to vary with profitability. The results, shown in columns 1 and 2 of Table 8, reveal a significantly more negative *Q* sensitivity among loss-making member firms than among profitable ones. In other words, state groups appear to "prop up" loss-making units that have poor prospects. One reason for doing so may be to avoid job losses. When we allow 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, column 3) and a near-zero and statistically insignificant *Q* sensitivity of –0.023 among member firms with above-average TFP (p=0.883, column 4). To the extent that low productivity reflects overstaffing, these findings are consistent with a desire to avoid layoffs by propping up units with poor prospects.

To investigate this possibility further, we examine how internal capital allocations vary with employment considerations. We first investigate the effect of local employment conditions. The

results, shown in columns 1 and 2 of Table 9, suggest that the local labor market plays a role in capital allocation decisions. Groups headquartered in provinces whose unemployment rate exceeds the national average are more prone to channeling internal capital from high-*Q* to low-*Q* member firms than are groups headquartered in provinces with low unemployment. The difference in *Q* sensitivities is not only statistically significant, with a *p*-value of 0.0008, but also economically large: –2.94 ($p<0.001$) vs. –0.21 ($p=0.035$).[36]

Next, we allow the *Q* sensitivity to vary with the number of young men entering the local labor market. Under the "youth bulge" hypothesis, political scientists view large numbers of unemployed young men as a potential source of social unrest (Goldstone 1991). To capture this, we exploit the fact that Article 56 of China's Military Service Law requires SOEs (and local governments) to "give preference to" discharged conscripts who hail from rural areas and to "place" those from cities or towns.[37] The number of discharged conscripts entitled to a placement per province and year is published in the Civil Affairs Statistics Yearbook (中國民政統計年鑒). Variation in this number is essentially predetermined two decades earlier (reflecting demographic variation in birth cohorts and gender ratios) and so can be viewed as a plausibly exogenous shock to local labor market conditions.

Columns 3 and 4 of Table 9 show that the negative *Q* sensitivity is both economically and statistically stronger among SOEs located in provinces that experience unusually large inflows of young men into the local labor market (specifically, where the number of servicemen to be placed exceeds the three-year moving average). Moreover, for SOEs headquartered in provinces with normal inflows, the *Q* sensitivity, while still negative, is economically small and statistically zero.

Our final proxy for employment considerations is the size of a firm's workforce. The model shown in columns 5 and 6 classifies a member firm as large if it employs more than 10,000 workers and as small otherwise. We find strong evidence that the *Q* sensitivity is significantly more negative

[36] The average (median) state business group operates in two (one) provinces. Results are little changed if we split the sample according to whether a business group operates "predominantly" in high-unemployment provinces.
[37] Since the end of our sample period, SOEs have been ordered to reserve 5% of their vacancies for discharged soldiers. See "China Orders SOEs to Hire Former Soldiers", Financial Times, Dec. 29, 2015.

when the member firm has a large workforce. To illustrate, for every unit by which its *Q* falls short of the group average, a firm with more than 10,000 workers receives an additional 2.78% of assets in transfers 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 ($p=0.027$). These *Q* sensitivities are highly significantly different from each other ($p<0.001$).[38]

Unlike state groups, private groups have no reason to pursue socio-political objectives. This key difference allows us to use private groups as a placebo in a falsification test. Table IA.3 in the Internet Appendix shows that the *Q* sensitivity of private groups – always positive – does not vary with local employment conditions, the size of the "youth bulge," or a member firm's workforce.

5. Party Objectives, Managerial Incentives, And Interest Alignment

The results reported in Section 4.4 are consistent with the interpretation that internal capital allocation decisions at state groups are influenced by socio-political objectives – such as the desire to prop up unproductive firms with large workforces but poor prospects, especially when local unemployment rates are high and many young men enter the local labor market. These patterns suggest that state groups allocate capital in ways the CCP appears to care about. We next consider whether this occurs because group chairmen respond to their explicit career incentives. Finding that it does, we end by asking whether the interests of the CCP (acting as the principal) and of the group chairmen (the CCP's agents) are aligned.

5.1 Do Promotion Incentives Affect Capital Allocations?

To tie the observed capital allocation patterns directly to state group chairmen's career incentives, we first exploit the fact that the career incentives lose their bite when the group chairman is older than 60: as we saw in Table 7, Panel A, the chances of a promotion then are essentially nil, owing to mandatory retirement at 65 and fixed five-year terms for high-level political offices. If it is their career incentives that induce group chairmen to allocate capital in a way that ignores investment opportunities and harms minority shareholders, we therefore expect a greater degree of such

[38] As Table IA.3 in the Internet Appendix shows, the difference becomes even larger for higher cutoffs.

"misallocation" before they turn 61 than after.

Table 10 provides strong support for this prediction. 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. 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 reallocate 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. This pattern suggests that the CCP's promotion incentives play a role in explaining internal capital allocations at Chinese state groups.[39]

Further evidence along these lines comes from the evaluation cycle. As mentioned earlier, the practice at state groups is for the CCP to evaluate the group chairman's performance every three years. This could induce horizon effects, such that internal capital is more severely "misallocated" closer to the exogenous end of the cycle. Columns 3 and 4 test for such patterns, focusing on "young" chairmen (the only ones with an incentive to impress party officials). While we see a negative *Q* sensitivity both in the early part of the cycle and in the evaluation year, the (absolute) magnitude of the effect is much larger (–0.922 vs. –0.295) in the evaluation year, and the difference is marginally significant (p=0.099).

In addition to their triennial managerial reviews, state group chairmen are also evaluated in their capacity as political cadres. This political review typically takes place every five years in connection with the CCP's quinquennial party congress and could lead to similar horizon effects.[40] Columns 5 and 6 show that the tendency to allocate more internal capital to lower-*Q* group members is concentrated in the two years leading up to the party congress; in the three years after, the *Q*

[39] A potential caveat is that the identification strategy here is cross-sectional, so the pattern could be due to omitted variables (say, "old" chairmen manage groups that, for whatever reason, optimally have a near-zero *Q* sensitivity). To remove omitted variables, we would ideally estimate the effect within-chairman but our research design already includes two sets of fixed effects and cannot accommodate a third. If we replace one or the other of our baseline fixed effects with a set of person fixed effects, we find the results in Table 10 to be robust: as a group chairman reaches age 61, his group's negative *Q* sensitivity drops by around 75% and ceases to be statistically significant.

[40] Piotroski, Wong, and Zhang (2015) find that Chinese SOEs suppress negative news ahead of the party congress.

sensitivity remains negative but it is significantly smaller than before (–0.130 vs. –0.533) and not in fact significantly different from zero (p=0.192).

These horizon effects further support our conclusion that the CCP's promotion incentives play a role in explaining how capital is allocated at state business groups in China.

5.2 Are Interests Aligned?

Taken together, our evidence suggests that Chinese state groups allocate internal capital not solely with a view to maximizing firm value, as private groups appear to do, but with the aim of furthering socio-political objectives such as avoiding layoffs. This approach to capital allocation appears to reflect the preferences of the Chinese Communist Party, which provides policy-driven career incentives to which state group chairmen appear responsive, at least until they are too old to benefit from them. Capital allocations at state groups thus do not appear efficient in the neoclassical sense of maximizing profits or group value. We end by considering whether they are likely to be optimal in the sense of maximizing the CCP's objective function.

The principal-agent relationship between the CCP and state group chairmen could result in allocation decisions that are privately optimal for the agent but do not maximize the principal's objective. Given their relatively short-term career horizons, group chairmen may allocate capital in a way that is excessively focused on the short-term at the expense of long-term benefits to the economy (and the CCP). For example, preserving jobs today may involve diverting capital from investments that could have led to larger job creation (or larger job preservation) in the medium term – by which time the group chairman, having impressed his triennial evaluation committee, has been promoted to a higher position in the state apparatus. (See Stein (1988) for a signal-jamming model in which managers rationally maximize their utility by acting myopically.)

Whether interests are aligned or diverge is clearly a tougher question to answer than establishing that state-group capital allocations are inefficient in the neoclassical sense. For a start, we cannot hope to observe what the dynamics of job creation and job preservation would have been under alternative capital allocations, as we do not observe these counterfactuals. Instead, we offer indirect

evidence. If state group chairmen "game" the promotion system by making allocation choices that are privately optimal but that run counter to the long-term interests of the CCP, we expect group chairmen to moderate their self-serving behavior after an increase in the risk of detection (or equivalently, in the intensity of monitoring).

The final two columns of Table 10 provide indirect evidence of such gaming behavior distorting capital allocation decisions. As an exogenous shock to the intensity with which SOE managers believe they are monitored, we use corruption crackdowns targeting officials in the group's province.[41] We do not include corruption probes of the SOE managers themselves, since such probes could mechanically affect behavior at the SOEs concerned. Instead, we focus on crackdowns targeting highly ranked officials in provincial or local government. We conjecture that corruption crackdowns of this kind raise the risk to an SOE manager of being punished for self-serving behavior, both because Beijing is paying particularly close attention to the goings-on in the manager's province and because investigations of government officials often ensnare the officials' associates and protégés outside government, including those running SOEs. As a result, SOE managers may choose to be on their best behavior, reining in practices designed to help their careers at the expense of the party.

There were 92 cases of province-level crackdowns on high government officials over our sample period.[42] Our identifying assumption is that these 92 purges form a staggered set 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 7 of Table 10 shows that the *Q* sensitivity at state groups becomes significantly less negative following a purge: 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 still negative (and thus far from perfect in a

[41] An alternative approach, in the spirit of Giroud and Mueller (2015), would be to use the introduction of direct air links between the relevant SASAC and group HQ as an exogenous shock to monitoring intensity. Unfortunately, with a single exception, each SASAC-HQ city-pair was served by direct flights throughout our sample period.

[42] 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).

neoclassical sense), this is a remarkable improvement.

Given that the purges are staggered across time and provinces, it is hard to see what other reason than avoiding to be seen to act selfishly might induce group chairmen to moderate the negative *Q* sensitivity. Nonetheless, to rule out that the crackdowns coincide in time and space with some other 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 8 of Table 10 confirm this prediction.

While conclusive empirical proof is necessarily elusive, a reasonable interpretation of the results in Table 10 is that the interests of the CCP and the group chairmen to whom the party delegates capital allocation decisions are not necessarily aligned.

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 transfers, we document stark differences. Private business groups transfer capital 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. External monitoring by outside investors 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 negative risk-adjusted returns and so appear to suffer economic harm.

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.

Empirically, we find that a state group's chairman is substantially more likely to be promoted if he avoids layoffs. Consistent with career concerns affecting decision-making, we show that capital allocations are used to prop up large and struggling employers in areas of high unemployment and when the local labor market faces an unusually large inflow of young men. While perhaps desirable in the short-run, propping up struggling group members in this way is unlikely to serve the state's interests 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. Favoring low-*Q* firms with generous internal capital allocations 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. In our view, 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 possible misalignment between the state's interests and the actions of its agents.

Against the background of China's recent macroeconomic slowdown, our findings suggest that China could potentially raise its growth rate not only by sorting out its inefficient banking sector, as many commentators have advocated, but also by improving the way state firms allocate capital. An important caveat is that China's current way of allocating capital may have positive externalities that are hard to quantify, such as maintaining social order, so the overall welfare effects of reforming capital allocation at SOEs are unclear.

References

Aghion, P., N. Bloom, R. Blundell, R. Griffith, and P. Howitt, 2005, Competition and innovation: An inverted-U relationship, *Quarterly Journal of Economics* 120, 701–728.

Aharoni, Y., 1986, *The Evolution and Management of State Owned Enterprises*, Cambridge, MA: Ballinger.

Ahn, S., D.J. Denis, and D.K. Denis, 2006, Leverage and investment in diversified firms, *Journal of Financial Economics* 79, 317–337.

Allen, F., J. Qian, and M.J. Qian, 2005, Law, finance, and economic growth in China, *Journal of Financial Economics* 77, 57–116.

Almeida, H., B. Kim, and C.S. Kim, 2015, Internal capital markets in business groups: Evidence from the Asian financial crisis, *Journal of Finance* 70, 2539–2586.

Almeida, H., S. Park, M. Subrahmanyam, and D. Wolfenzon, 2011, The structure and formation of business groups: Evidence from Korean chaebols, *Journal of Financial Economics* 99, 447–475.

Almeida, H., and D. Wolfenzon, 2006, A theory of pyramidal ownership and family business groups, *Journal of Finance* 61, 2637–2680.

Bae, G., Y. Cheon, and J.K. Kang, 2008, Intra-group propping: Evidence from the stock-price effects of earnings announcements by Korean business group, *Review of Financial Studies* 21, 2015–2060.

Bae, K.H., J.K. Kang, and J.M. Kim, 2002, Tunneling or value added? Evidence from mergers by Korean business groups, *Journal of Finance* 57, 2695–2740.

Baek, J.S., J.K. Kang, and I. Lee, 2006, Business groups and tunneling: Evidence from private securities offerings by Korean Chaebols, *Journal of Finance* 61, 2415–2449.

Bai, C., Q. Liu, J. Lu, F.M. Song, and J. Zhang, 2004, Corporate governance and market valuation in China, *Journal of Comparative Economics* 32, 599–616.

Bertrand, M., and S. Mullainathan, 2003, Pyramids, *Journal of the European Economic Association* 1, 478–483.

Bertrand, M., P. Mehta, and S. Mullainathan, 2002, Ferreting out tunneling: An application to Indian business groups, *Quarterly Journal of Economics* 117, 121–48.

Billett, M.T., and D.C. Mauer, 2003, Cross-subsidies, external financing constraints, and the contribution of the internal capital market to firm value, *Review of Financial Studies* 16, 1167–1201.

Cao, J., X. Pan, and G. Tian, 2011, Disproportional ownership structure and pay-performance relationship: Evidence from China's listed firms, *Journal of Corporate Finance* 17, 541–554.

Carhart, M., 1997, On persistence in mutual fund performance, *Journal of Finance* 52, 57–82.

Cestone, G., C. Fumagalli, F. Kramarz, and G. Pica, 2015, Insurance within groups: The role of internal labor markets, Unpublished working paper, City University London.

Chen, S.M., Z. Sun, S. Tang, and D.H. Wu, 2011, Government intervention and investment efficiency: Evidence from China, *Journal of Corporate Finance* 17, 259–271.

Claessens, S., S. Djankov, J. Fan, and L.H.P. Lang, 2002, Disentangling the incentive and entrenchment effects of large shareholdings, *Journal of Finance* 57, 2741–2771.

Deng, Y., R. Morck, J. Wu, and B. Yeung, 2015, China's pseudo-monetary policy, *Review of Finance* 19, 55–93.

Du, F., G. Tang, and S.M. Young, 2012, Influence activities and favoritism in subjective performance evaluation: Evidence from Chinese state owned enterprises, *The Accounting Review* 87, 1555–1588.

Fama, E.F., 1998, Market efficiency, long-term returns, and behavioral finance, *Journal of Financial Economics* 49, 283–306.

Fama, E.F., and K. French, 1993, Common risk factors in the returns of stocks and bonds, *Journal of Financial Economics* 33, 3–56.

Fan, J.P.H., T.J. Wong, and T.Y. Zhang, 2013, Institutions and organizational structure: The case of state-owned corporate pyramids, *Journal of Law, Economics and Organization* 29, 1217–1252.

Geis, J.P., and B. Holt, 2009, Harmonious society: Rise of the new China, *Strategic Studies Quarterly* 3, 75–94.

Gertner, R., A.E. Powers, and D. Scharfstein, 2002, Learning about internal capital markets from corporate spin-offs, *Journal of Finance* 57, 2479–2506.

Giroud, X., and H.M. Mueller, 2015, Capital and labor reallocation within firms, *Journal of Finance* 70, 1767–1840.

Goldstone, J.A., 1991, *Revolution and Rebellion in the Early Modern World*, Berkeley, CA: University of California Press.

Gopalan, R., V. Nanda, and A. Seru, 2007, Affiliated firms and financial support: Evidence from Indian business groups, *Journal of Financial Economics* 86, 759–795.

Gul, F.A., J. Kim, and A.A. Qiu, 2010, Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China, *Journal of Financial Economics* 95, 425–442.

Gupta, N., 2005, Partial privatization and firm performance, *Journal of Finance* 60, 987–1015.

Hsieh, C.T., and Z. Song, 2015, Grasp the large, let go of the small: The transformation of the state sector in China, NBER Working Paper no. 21006.

Jian, M., and T.J. Wong, 2010, Propping through related-party transactions, *Review of Accounting Studies* 15, 70–105.

Jiang, G.H., C.M.C. Lee, and H. Yue, 2010, Tunneling through inter-corporate loans: The China experience, *Journal of Financial Economics* 98, 1–20.

Johnson, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 2000, Tunnelling, *American Economic Review* 90, 22–27.

Khanna, N., and S. Tice, 2001, The bright side of internal capital markets, *Journal of Finance* 56, 1489–1528.

Khanna, T., and K. Palepu, 2000, Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups, *Journal of Finance* 55, 867–891.

Kornai, J., E. Maskin, and G. Roland, 2003, Understanding the soft budget constraint, *Journal of Economic Literature* 41, 1095–1136.

La Porta, R., and F. Lopez-de-Silanes, 1999, The benefits of privatization: Evidence from Mexico, *Quarterly Journal of Economics* 114, 1193–1242.

La Porta, R., F. Lopez-de-Silanes, and A. Shleifer, 1999, Corporate ownership around the world, *Journal of Finance* 54, 471–517.

Lamont, O., 1997, Cash flow and investment: Evidence from internal capital markets, *Journal of Finance* 52, 83–109.

Li, D., 1998, Changing incentives of the Chinese bureaucracy, *American Economic Review* 88, 393–397.

Li, H., and L. Zhou, 2005, Political turnover and economic performance: The incentive role of personnel control in China, *Journal of Public Economics* 89, 1743–1762.

Li, X., X.W. Liu, and Y. Wang, 2014, A model of China's state capitalism, Unpublished Working Paper, Hong Kong University of Science and Technology.

Li, Z.Q., Z. Sun, and Z.W. Wang, 2004, Tunneling and ownership arrangements: Evidence from the fund appropriation by the controlling shareholder in Chinese listed companies (in Chinese), *Accounting Studies* 12, 3–13.

Lin, C., Y. Ma, P. Malatesta, and Y. Xuan, 2011, Ownership structure and the cost of corporate borrowing, *Journal of Financial Economics* 100, 1–23.

Lo, W.Y., M.K. Wong, and M. Firth, 2010, Can corporate governance deter management from manipulating earnings? Evidence from related-party sales transactions in China, *Journal of Corporate Finance* 16, 225–235.

Matvos, G., and A. Seru, 2014, Resource allocation within firms and financial market dislocation: Evidence from diversified conglomerates, *Review of Financial Studies* 27, 1143–1189.

Megginson, W.L., 2016. Privatization, state capitalism, and state ownership of business in the 21st century, *Foundations and Trends in Finance* (forthcoming).

Motta, A., 2003, Managerial incentives and internal capital markets, *Journal of Finance* 58, 1193–1220.

Musacchio, A., and S.G. Lazzarini, 2012, Leviathan in business: Varieties of state capitalism and their implications for economic performance, Unpublished working paper, Harvard Business School.

Olley, G.S., and A. Pakes, 1996, The dynamics of productivity in the telecommunications equipment industry, *Econometrica* 64, 1263–1297.

Ozbas, O., and D. Scharfstein, 2010, Evidence on the dark side of internal capital markets, *Review of Financial Studies* 23, 581–99.

Peyer, U.C., and A. Shivdasani, 2001, Leverage and internal capital markets: Evidence from leveraged recapitalizations, *Journal of Financial Economics* 59, 477–515.

Piotroski, J.D., T.J. Wong, and T.Y. Zhang, 2015, Political incentives to suppress negative information: Evidence from Chinese listed firms, *Journal of Accounting Research* 53, 405–459.

Rajan, R., H. Servaes, and L. Zingales, 2000, The cost of diversity: The diversification discount and inefficient investment, *Journal of Finance* 55, 35–80.

Scharfstein, D., 1998, The dark side of internal capital markets II: Evidence from diversified conglomerates, NBER Working Paper no. 6352.

Scharfstein, D., and J.C. Stein, 2000, The dark side of internal capital markets: Divisional rent-seeking and inefficient investment, *Journal of Finance* 55, 2537–2564.

Shin, H.H., and Y.S. Park, 1999, Financing constraints and internal capital markets: Evidence from Korean chaebols, *Journal of Corporate Finance* 5, 169–191.

Shin, H.H., and R.M. Stulz, 1998, Are internal capital markets efficient?, *Quarterly Journal of Economics* 113, 531–552.

Shleifer, A., 1998, State versus private ownership, *Journal of Economic Perspectives* 12, 133–150.

Shleifer, A., and R.W. Vishny, 1998, *The Grabbing Hand: Government Pathologies and Their Cures*, Cambridge, MA: Harvard University Press.

Stein, J.C., 1988, Takeover threats and managerial myopia, *Journal of Political Economy* 96, 61–80.

Stein, J.C., 1997, Internal capital markets and the competition for corporate resources, *Journal of Finance* 52, 111–134.

Stein, J.C., 2003, Agency, information and corporate investment, in: George Constantinides, Milton Harris, and Rene Stulz (eds.), *Handbook of the Economics of Finance*, Amsterdam: Elsevier Science.

Sun, Q., and W.H.S. Tong, 2003, China share issue privatization: The extent of its success, *Journal of Financial Economics* 70, 183–222.

Toninelli, P.A., 2000, The rise and fall of public enterprise: The framework, in: P.A. Toninelli (ed.), *The Rise and Fall of Public Enterprise in the Western World*, Cambridge: Cambridge University Press.

Tu, Q., 2011, An empirical study of corruption cases on China's provincial level officials: Evidence from 72 corruption convictions since the 16th Party Congress (in Chinese), *Contemporary China Politics Studies*, 222–246.

Wei, Z., F. Xie, and S. Zhang, 2005, Ownership structure and firm value in China's privatized firms: 1991-2001, *Journal of Financial and Quantitative Analysis* 40, 87–108.

Xuan, Y., 2009, Empire-building or bridge-building? Evidence from new CEOs' internal capital allocation decisions, *Review of Financial Studies* 22, 4919–4948.

Appendix A. Variable Definitions.

Summary statistics and capital allocation models

State groups are identified as follows. Since 2004, the China Securities Regulatory Commission (CSRC) requires listed companies to disclose their ultimate controlling shareholder in Item 25 of their annual reports. We obtain the ultimate controlling shareholder's name and status (whether the ultimate controlling shareholder is a state-related entity) from the China Listed Firm Shareholder Research Database of CSMAR. In a few instances where the ultimate controlling shareholder's status is missing, we obtain ownership data from Peking University's China Center for Economic Research.

Net capital allocation follows Li, Sun, and Wang (2004) and is defined as [(*accounts payable + notes payable + advances from other group members + other accounts payable*) – (*accounts receivable + notes receivable + advances to other group members + other accounts receivable*)]/*lagged total assets*, with each variable in the numerator reflecting transfers among group members only (i.e., not including transactions with external entities, such as customers or suppliers). This variable is positive for a firm receiving capital transfers from other group members and negative for a firm transferring capital 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 (i.e., another enterprise controlled by the same parent), any firm that exercises joint control over a member firm, and any 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 internal transfers 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.

"Orec" is Jiang, Lee, and Yue's (2010) "other receivables" measure. It is defined as (*other accounts payable – other accounts receivable*)/*lagged total assets*, with each variable in the numerator reflecting transactions among group members only. This variable is positive for a firm receiving capital transfers from other group members and negative for a firm transferring capital 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 firm that can exercise significant influence over the member firm. The data come from the CSMAR database.

Related lending follows Jian and Wong (2010) and is defined as [(*funds payable + notes payable + advance receipts + payable debts + other accounts payable*) – (*funds receivable + notes receivable + accounts prepaid + receivable investment + other accounts receivable*)]/*lagged total assets*, with each variable in the numerator reflecting transactions among group members only. This variable is positive for a firm receiving capital transfers from other group members and negative for a firm transferring capital 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 firm that can exercise significant influence over the member firm. The data come from the CSMAR database.

No tunneling flows is a variation on our baseline net capital allocation measure that strips out capital flows to the group parent (which may be used to "tunnel out" profits from a group member firm). The data come from the CSMAR database.

Equity issues / lagged assets is the total amount a firm raises on the stock market via seasoned equity issues or rights offers, scaled by beginning-of-year total assets. The data come from the CSMAR database.

Bond issues / lagged assets is the total amount a firm raises via bond issues according to the firm's cash flow statement, scaled by beginning-of-year total assets. The data come from the CSMAR database.

Net external funding / lagged assets is the aggregate amount a firm raises from external sources, net of debt repayments, according to the firm's cash flow statement, scaled by beginning-of-year total assets. Specifically, it equals the *subtotal of cash inflow from financing activities* less the *subtotal of cash outflow from financing activities*, net of financing activities involving other group members. 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. Sales growth is the year-on-year change in sales.

Employees is defined as the total number of employees who are on the firm's regular payroll. The data come from the CSMAR database. Employment growth is the year-on-year change in employment.

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. Before China's 2005 reform, SOEs had a split-share structure consisting of tradable and non-tradable shares. Chen et al. (2011) show that non-tradable shares were priced close to book value in over-the-counter trading. Accordingly, we follow Chen et al. and compute a firm's market value of equity as the end-of-year share price times the number of tradable shares plus the net asset value of non-tradable shares, with the latter term dropping out as a firm implements the 2005 reform.

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

CAPEX is measured as the sum of cash paid for the acquisition of fixed assets, intangible assets, and other long-term assets according to the firm's cash flow statement, scaled by total assets. The data come from the CSMAR database.

Dividends is measured as the cash dividend paid, scaled by total assets. The data come 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 ($b \times c$). 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 ultimate parent's *voting rights* and *cash flow rights*.

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.

Product market competition is measured using the average inverse Lerner index in the firm's industry, constructed following Aghion et al. (2005) as follows. For each listed firm *i* in year *t*, we first compute the price-cost margin as operating profits net of depreciation, provisions, and financial cost divided by sales: L_{it} = (*operating profit – financial cost*) / *sales*. The data come from the CSMAR database. For each industry *j* in year *t*, we then compute $c_{jt} = 1 - (1/N_{jt}) \Sigma_{i \in j} L_{it}$, where *i* indexes firms, *j* indexes industry, *t* indexes time, and N_{jt} is the number of firms in industry *j* in year *t*. A value of 1 indicates perfect competition (price equals marginal cost) while values below 1 indicate some degree of market power.

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 7, 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.

Log distance to SASAC is the natural logarithm of one plus the geodesic distance (in miles) between group headquarters and either Beijing (for centrally controlled state business groups) or the provincial capital (for locally

controlled state business groups).

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 2 of Table 2. We then take deviations between actual and predicted net capital allocations 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 7, 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.

Log distance to group HQ is the natural logarithm of one plus the geodesic distance (in miles) between the member firm's headquarters and group headquarters.

Mass layoff is an indicator set equal to one if the SOE cut its workforce by at least 10% 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 capital allocation 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 2 of Table 2. The residual net capital allocation is the deviation between actual and predicted net capital allocations for each SOE member firm.

Conditioning variables (Tables 3, 6, 8-10)

Favored industries is an indicator set equal to one when the main industry a member firm operates in is named a "highly supported industry" (重點支持行業) in the Chinese central government's tenth, eleventh, or twelfth five-year plan, announced in October 2000, October 2005, and October 2010, respectively, and zero otherwise. The list of highly supported industries is extracted from the respective five-year plans, as published on the central government's website. ***Other industries*** are those that are not "highly supported."

Diversified is an indicator set equal to one if a member firm is part of a group whose listed members operate in multiple broadly defined industries. We use the "CSRC Guidelines for the Industry Classification of Listed Companies" to define industries. Similar to one-digit SIC codes in the U.S., the Guidelines group economic activity into the following thirteen industries: 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. Firms that are not part of a ***diversified*** business group are coded as being part of a ***focused*** business group.

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.

High unemployment is an indicator set equal to one if a group is headquartered in a province whose unemployment rate in the previous year exceeded the national average, and zero otherwise. The data come from the China Population and Employment Statistics Yearbook.

Low unemployment is an indicator set equal to one if a group is headquartered in a province whose unemployment rate in the previous year is below the national average, and zero otherwise. The data come from the China Population and Employment Statistics Yearbook.

Large inflow of young men is an indicator set equal to one if the number of discharged conscripts in a province in a given year exceeds the three-year moving average in that province, and zero otherwise. The data come from China's Civil Affairs Statistics Yearbook.

Normal inflow of young men is an indicator set equal to one if the number of discharged conscripts in a province in a given year does not exceed the three-year moving average in that province, and zero otherwise. The data come from China's Civil Affairs Statistics Yearbook.

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.

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.

Early in evaluation cycle is an indicator set equal to one if the chairman of a state business group is in years 1 or 2 of the three-year job-performance evaluation cycle, and zero otherwise.

Last year before evaluation is an indicator set equal to one if the chairman of a state business group is in year 3 of the three-year job-performance evaluation cycle, and zero otherwise.

Post party congress is an indicator set equal to one in the first three fiscal years that are reported after the Chinese Communist Party's quinquennial congress, and zero otherwise. The congress usually takes place in October, in years ending in 2 or 7. To illustrate the coding using the October 2007 congress as an example, fiscal years 2007, 2008, and 2009 are coded as "post party congress" as they are reported in March 2008, March 2009, and March 2010, respectively.

Run-up to party congress is an indicator set equal to one in the last two fiscal years that are reported before the Chinese Communist Party's quinquennial congress, and zero otherwise. The congress usually takes place in October, in years ending in 2 or 7. To illustrate the coding using the October 2007 congress as an example, fiscal years 2005 and 2006 are coded as occurring in the "run-up to party congress" as they report in March 2006 and March 2007.

Figure 1. Effect of Mass Layoffs on Career Outcomes.

The figure plots the effect of mass layoffs, for different cut-offs ranging from 1% to 20% of the workforce, on the probability that a group chairman is promoted to higher office (Fig. 1a) or demoted (Fig 1b) in the following year. The effects of mass layoffs on promotions and demotions are estimated using Cox proportional hazard models with time-varying covariates using specifications analogous to those shown in columns 1 and 4 of Table 7, Panel A, respectively. (The estimates reported in that table assume a 10% cut in the workforce.) The figure plots hazard ratios (the bold line) rather than coefficient estimates. A hazard ratio of 1 indicates that mass layoffs have no effect on career outcomes. Statistical significance is hence computed relative to a hazard ratio of 1 and illustrated in the figure using 90% and 95% confidence bands (the dashed and dotted lines, respectively). Following convention, confidence intervals around hazard ratios are obtained by exponentiating the confidence intervals around the corresponding Cox coefficient estimates. This ensures that the confidence band is bounded below by zero, as a hazard ratio cannot be negative. As a result, confidence bands around hazard ratios need not be symmetric.

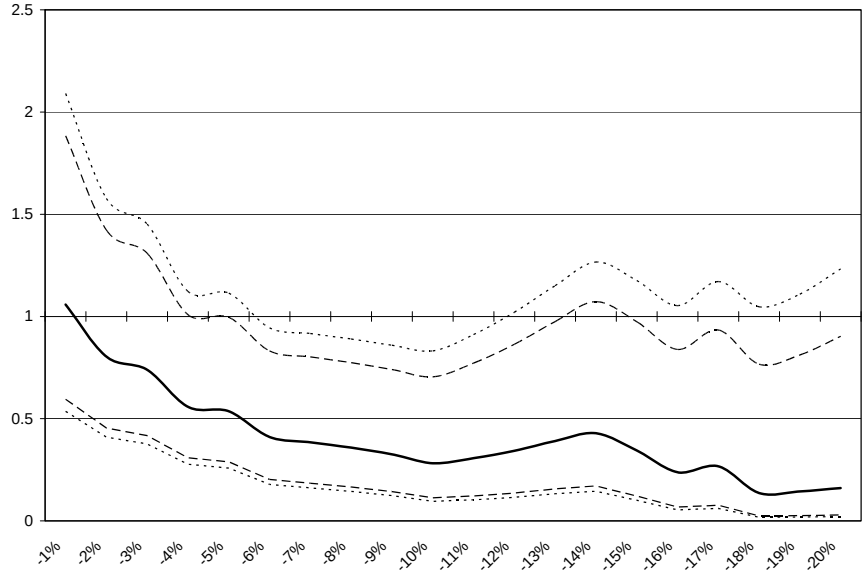

Figure 1a : Promotions

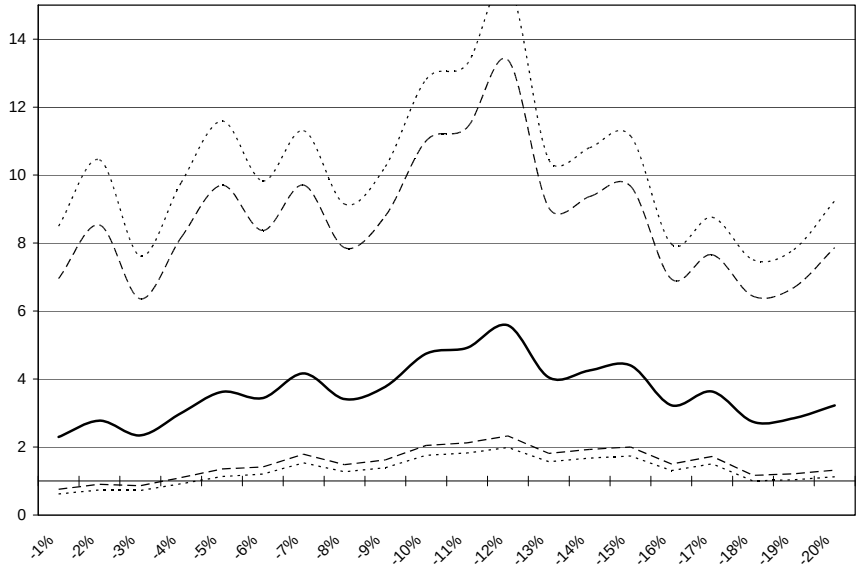

Figure 1b: Demotions

Figure 2. Effect of TFP Improvements on Career Outcomes.

The figure plots the effect of TFP improvements, for different cut-offs ranging from 1% to 20%, on the probability that a group chairman is promoted to higher office (Fig. 2a) or demoted (Fig 2b) in the following year. The effects of TFP improvements on promotions and demotions are estimated using Cox proportional hazard models with time-varying covariates using specifications analogous to those shown in columns 1 and 4 of Table 7, Panel A, respectively. (The estimates reported in that table assume a 10% improvement in TFP.) The figure plots hazard ratios (the bold line) rather than coefficient estimates. A hazard ratio of 1 indicates that TFP improvements have no effect on career outcomes. Statistical significance is hence computed relative to a hazard ratio of 1 and illustrated in the figure using 90% and 95% confidence bands (the dashed and dotted lines, respectively). Following convention, confidence intervals around hazard ratios are obtained by exponentiating the confidence intervals around the corresponding Cox coefficient estimates. This ensures that the confidence band is bounded below by zero, as a hazard ratio cannot be negative. As a result, confidence bands around hazard ratios need not be symmetric.

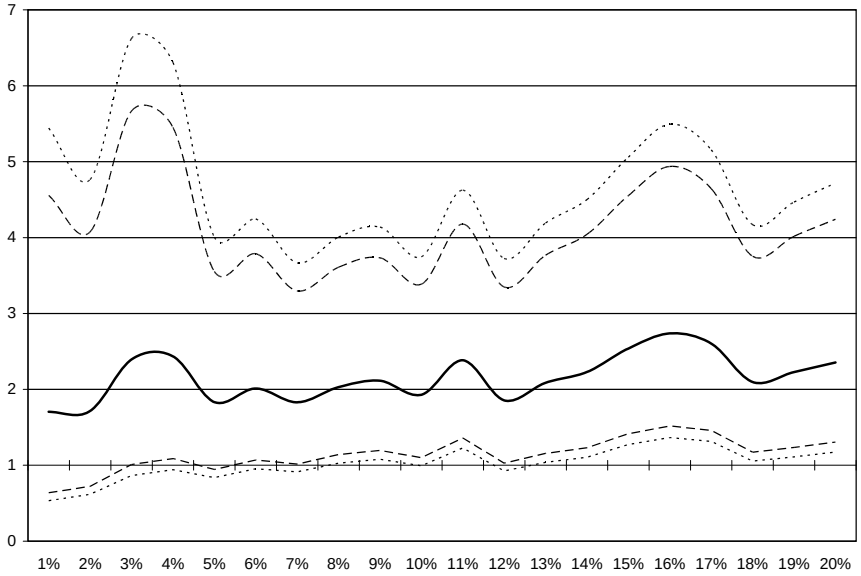

Figure 2a : Promotions

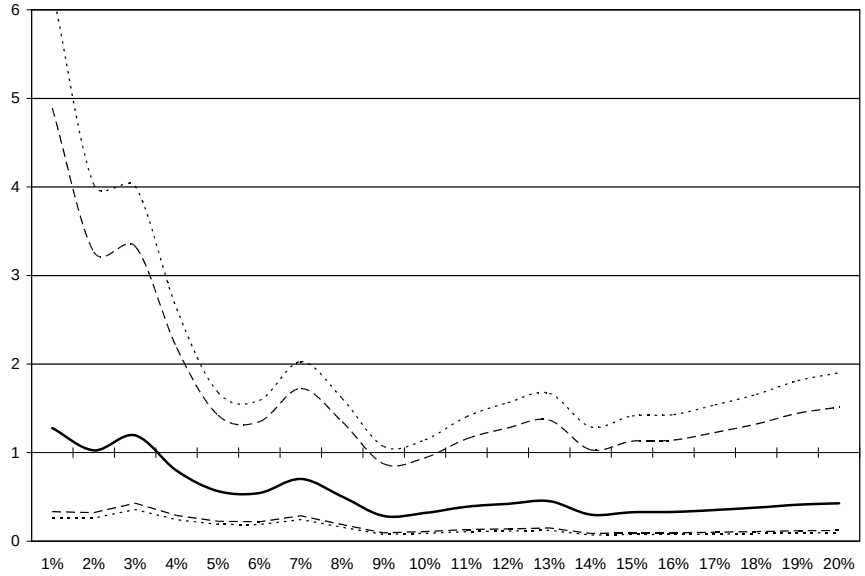

Figure 2b: Demotions

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 overall net capital allocations, the three external funding measures, 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 allocations (in %)	0.622	7.468	-3.695	0.009	6.104	0.328	6.159	-1.502	0.000	2.424
net users of internal capital	3.944	6.915	0.048	1.105	10.694	2.654	5.929	0.009	0.254	9.515
net sources of internal capital	-3.855	6.871	-11.105	-1.052	-0.037	-2.801	7.169	-5.434	-0.470	-0.006
external fundraising (in %)										
equity issues	1.083	4.811	0.000	0.000	0.000	1.192	5.354	0.000	0.000	0.000
bond issues	0.464	2.085	0.000	0.000	0.000	0.603	2.488	0.000	0.000	0.000
net external funding	2.026	13.416	-9.005	0.000	16.664	1.433	12.815	-10.005	-0.050	14.931
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	9,883	39,600	475	2,547	14,521	4,423	11,300	214	1,785	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
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 and External Capital Allocations.

Columns 1-4 report 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 members 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 as defined in Appendix A. This measure is based on internal capital transfers between and among the parent, any of its subsidiaries (whether listed or unlisted), other enterprises controlled by the parent, and any firm who exercises significant control over the member firm. For specifications using alternative measures that (i) widen or narrow the set of entities whose capital transfers are included and that (ii) vary the types of transfers included, see Tables IA.1 and IA.2 in the Internet Appendix. Columns 5-7 report tests of the sensitivity of external capital raises to Tobin's *Q*. 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 allocation				Equity issues	Bond issues	Net ext. funding
	all groups	private	state business groups		state business groups		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Tobin's *Q*	0.520***	0.498***	-0.228**	-0.230**	0.083	0.002	0.006
	0.189	*0.189*	*0.102*	*0.103*	*0.058*	*0.030*	*0.004*
… x SOE	-0.784***						
	0.215						
Controls							
ROA	0.013	0.055	-0.039	-0.039	0.029**	0.001	0.099
	0.031	*0.051*	*0.045*	*0.045*	*0.012*	*0.005*	*0.072*
log total assets	-0.560***	-0.676	-0.541***	-0.543***	-0.100	0.253***	-0.272
	0.152	*0.472*	*0.169*	*0.169*	*0.099*	*0.053*	*0.287*
leverage	0.046**	0.058**	0.040*	0.040*	0.006	0.000	0.042**
	0.019	*0.025*	*0.022*	*0.022*	*0.004*	*0.001*	*0.017*
collateral	0.049***	0.023	0.058***	0.058***	0.005	0.000	-0.002
	0.011	*0.027*	*0.012*	*0.012*	*0.008*	*0.003*	*0.023*
voting rights	-0.002	-0.006	0.003	0.003	0.008	-0.006	0.050**
	0.011	*0.025*	*0.012*	*0.012*	*0.008*	*0.004*	*0.024*
cash flow wedge	0.031	0.015	0.031	0.031	-0.017	-0.010	-0.035
	0.023	*0.044*	*0.026*	*0.026*	*0.016*	*0.008*	*0.044*
institutional ownership	-0.006	-0.007	-0.004	-0.004	0.005	0.002	0.008
	0.012	*0.028*	*0.013*	*0.013*	*0.010*	*0.003*	*0.022*
=1 if CEO is shareholder	-0.259	-0.494	-0.236	-0.240	0.199	0.135	0.282
	0.347	*0.873*	*0.387*	*0.387*	*0.253*	*0.120*	*0.773*
=1 if firm has 'ST' status	0.876	2.122	0.567	0.565	-0.510	0.022	0.155
	1.693	*3.603*	*1.960*	*1.961*	*0.372*	*0.133*	*2.445*
inverse Lerner Index				0.861			
				3.196			
Diagnostics							
R^2	49.4%	72.6%	47.9%	47.9%	40.3%	44.7%	42.2%
F-test: equal sensitivity to *Q*?			14.59***				
No. of firms	807	166	660	660	660	660	660
No. of business groups	287	76	211	211	211	211	211
No. of observations	5,013	893	4,120	4,120	4,120	4,120	4,120

Table 3. Measurement Error or Deliberate Policy?

The table tests how external monitoring by outside investors, access to a soft budget constraint, and directives from Beijing affect the tendency of state business groups to allocate internal capital from high-*Q* to low-*Q* member firms. To capture the influence of outside investors, columns 1-2 allow the *Q* sensitivity of internal capital allocations to depend on whether the group parent has a large or small equity stake in the member firm (evaluated at the sample median). Note that this conditioning variable varies across member firms within a given group, rather than only varying across groups. To ensure that we continue to estimate within-group capital allocations, we keep the group structure in columns 1-2 intact by estimating a fully interacted model allowing each coefficient to vary with the conditioning variable and including (as in Table 2) group-year fixed effects and industry-year fixed effects. In other words, the coefficients shown in columns 1-2 come from a single fully-interacted regression model. To capture access to a soft budget constraint, we distinguish between locally and centrally controlled state business groups. The latter (often called the "national team" or "national champions") enjoy preferential access to external capital. This conditioning variable varies across but not within groups, so columns 3 and 4 are estimated as separate models. To capture directives from Beijing, we code a treatment variable equal to one when the main industry a member firm operates in is named a "highly favored industry" in the Chinese central government's eleventh or twelfth five-year plan, announced in October 2005 and October 2010, respectively. This treatment variable is then turned on for the duration of the five-year plan. It varies within business group (and indeed within firm across time), so columns 5 and 6 show coefficients estimated from a single fully-interacted regression 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 and include the same control variables as in Table 2 (not shown to conserve space). 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 allocation					
	below-median cash flow rights	above-median cash flow rights	locally controlled business groups	centrally controlled business groups	favored industries	other industries
	(1)	(2)	(3)	(4)	(5)	(6)
Tobin's *Q*	-0.167*	-0.830***	-0.208**	-0.591***	0.279	-0.329**
	0.091	*0.266*	*0.105*	*0.226*	*0.268*	*0.138*
Controls	yes	yes	yes	yes	yes	yes
Diagnostics						
F-test: equal sensitivity to *Q*?	6.16**		2.19*		4.17**	
R^2	48.8%		61.6%	41.0%	48.8%	
No. of firms	451	368	343	325	323	553
No. of business groups	192	177	78	133	146	203
No. of observations	4,120		1,936	2,184	4,120	

Table 4. Characteristics of Source and Recipient Firms.

The table reports average firm-level characteristics for stock market listed state owned enterprises in our sample according to whether they are "source" or "recipient" firms in their respective group's internal capital market. We sort firms into quintiles based on the difference between their actual net capital allocation in year *t* and the net capital allocation they would have received had their group applied the same internal capital allocation policy as the average private group. (In other words, we use the coefficient estimates from the private-group regression reported in column 2 of Table 2 to predict net capital allocations for SOEs and then rank SOEs by the difference between actual and predicted allocation.) Quintile 1 consists of SOEs with the lowest (most negative) net capital allocations relative to their investment opportunities. In Panel A, Tobin's *Q* is measured at the start of year *t* while the remaining variables are measured over the course of year *t*. In Panel B, Tobin's *Q* is measured at the start of year *t*+1 while the remaining variables are measured over the course of year *t*+1. Panel C takes the differences over time between the variables reported in Panels A and B and reports significance levels using ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

	Source firms				Recipient firms
	quintile 1	quintile 2	quintile 3	quintile 4	quintile 5
Panel A: Levels year *t*					
Tobin's *Q*	2.147	1.610	1.487	1.369	1.451
net capital allocation	-0.065	-0.003	0.003	0.008	0.088
return on assets	0.025	0.026	0.034	0.035	0.022
CAPEX	0.048	0.061	0.066	0.060	0.053
dividends	0.015	0.013	0.016	0.017	0.015
leverage	0.566	0.570	0.527	0.482	0.595
sales growth	0.182	0.174	0.181	0.175	0.199
employment growth	0.057	0.068	0.114	0.110	0.094
Panel B: Levels year *t*+1					
Tobin's *Q*	1.894	1.630	1.541	1.454	1.490
net capital allocation	-0.039	0.003	0.005	0.009	0.063
return on assets	0.022	0.021	0.032	0.034	0.026
CAPEX	0.046	0.056	0.058	0.058	0.049
dividends	0.015	0.012	0.014	0.016	0.014
leverage	0.567	0.579	0.537	0.496	0.597
sales growth	0.137	0.157	0.173	0.158	0.199
employment growth	0.057	0.096	0.108	0.102	0.127
Panel C: Changes year *t* to year *t*+1					
Tobin's *Q*	-0.254***	0.020	0.054**	0.085***	0.040
net capital allocation	0.026***	0.006***	0.002	0.001	-0.025***
return on assets	-0.002	-0.005***	-0.002	-0.002	0.004
CAPEX	-0.002	-0.004**	-0.007***	-0.002	-0.003*
dividends	-0.001	-0.001***	-0.002***	-0.002***	-0.001***
leverage	0.002	0.008***	0.009***	0.017***	0.002
sales growth	-0.047***	-0.019	-0.008	-0.015	0.001
employment growth	-0.001	0.027**	-0.006	-0.008	0.033

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 allocations (as reported in their annual reports filed in March) and the predicted net capital allocations had they followed the same capital allocation rules as those estimated for private groups in column 2 of Table 2. (The sorting algorithm thus differs from the one used in Table 4 by requiring actual capital allocations to be known to investors before portfolios are formed at the beginning of April. This ensures that the strategy is, in principle, tradable.) The hedge portfolio is long firms receiving the highest net capital allocations relative to their investment opportunities (quintile 5) and short firms with the lowest (most negative) net capital allocations relative to their investment opportunities. Portfolios are rebalanced every April, such that each position is held for 12 months until the next annual report is released. 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. Diversified vs. Focused State Business Groups.

The table compares internal capital allocations at diversified and focused state business groups. We classify business groups by the number of broadly defined industries their listed member firms operate in. We use the "CSRC Guidelines for the Industry Classification of Listed Companies," which group economic activity into 13 industries as follows: 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. In column 1, we code a business group as being diversified if its listed member firms operate in two or more broad industries. In column 3, we code a business group as being diversified if its listed member firms operate in three or more broad industries. 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 and include the same control variables as in Table 2 (not shown to conserve space). 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 allocation			
	diversified (operating in 2 or more broad industries)	focused (operating in 1 broad industry)	diversified (operating in 3 or more broad industries)	focused (operating in up to 2 broad industries)
	(1)	(2)	(3)	(4)
Tobin's Q	-0.227**	-0.165	-1.240***	-0.131
	0.109	*0.245*	*0.466*	*0.093*
Controls	yes	yes	yes	yes
Diagnostics				
F-test: equal sensitivity to *Q*?	0.06		4.92**	
R^2	49.2%	47.7%	34.6%	53.0%
No. of firms	454	346	175	583
No. of business groups	131	130	26	205
No. of observations	2,418	1,702	735	3,385

Table 7, 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/chairman characteristics						
group size	0.247***	0.273***	0.297***	-0.633***	-0.546**	-0.561**
	0.089	*0.091*	*0.094*	*0.246*	*0.242*	*0.237*
log distance to SASAC	-0.028	-0.055	-0.044	-0.359**	-0.329**	-0.333*
	0.074	*0.080*	*0.080*	*0.143*	*0.142*	*0.189*
=1 if chairman is in his/her 50s	-0.788**	-0.933**	-0.972***	-0.580	-0.601	-0.334
	0.367	*0.368*	*0.373*	*0.630*	*0.643*	*0.647*
=1 if chairman is in his/her 60s	-2.290**	-2.311**	-2.353**	1.244*	1.027	1.163*
	0.928	*0.922*	*0.931*	*0.684*	*0.655*	*0.643*
Socio-political objectives						
=1 if mass layoffs	-1.265**	-1.251**		1.558***	1.764***	
	0.551	*0.539*		*0.507*	*0.516*	
=1 if large scale hiring			-0.144			0.153
			0.354			*0.531*
Profit-related objectives						
=1 if TFP improvement	0.657*	0.546		-1.144*	-1.505*	
	0.339	*0.339*		*0.652*	*0.777*	
=1 if TFP impairment			0.241			0.457
			0.428			*0.589*
=1 if ROA improvement	-0.299	-0.331		-0.976	-1.713*	
	0.351	*0.373*		*0.780*	*1.037*	
=1 if ROA impairment			-0.131			-0.743
			0.384			*0.760*
Capital allocations						
internal capital misallocation		0.020	0.007		0.023	-0.001
		0.039	*0.038*		*0.032*	*0.034*
Diagnostics						
Pseudo R^2	6.5%	6.9%	4.5%	21.9%	24.1%	12.2%
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)	1,412	1,302	1,302	1,412	1,302	1,302

Table 7, 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/chairman characteristics						
firm size	0.248***	0.269***	0.272***	-0.193***	-0.192***	-0.197***
	0.070	*0.071*	*0.069*	*0.056*	*0.056*	*0.054*
log distance to group HQ	-0.145**	-0.145**	-0.149**	0.111***	0.111***	0.110***
	0.057	*0.058*	*0.058*	*0.034*	*0.033*	*0.034*
=1 if chairman is in his/her 50s	-0.803***	-0.796***	-0.791**	0.083	0.082	0.085
	0.309	*0.309*	*0.312*	*0.157*	*0.157*	*0.158*
=1 if chairman is in his/her 60s	-1.339*	-1.358**	-1.362**	-0.035	-0.036	-0.026
	0.704	*0.690*	*0.695*	*0.401*	*0.401*	*0.399*
Socio-political objectives						
=1 if mass layoffs	0.184	0.180		-0.016	-0.015	
	0.403	*0.406*		*0.225*	*0.225*	
=1 if large scale hiring			-0.221			0.232
			0.320			*0.156*
Profit-related objectives						
=1 if TFP improvement	0.230	0.218		-0.036	-0.038	
	0.362	*0.362*		*0.197*	*0.200*	
=1 if TFP impairment			-0.057			-0.092
			0.502			*0.297*
=1 if ROA improvement	0.006	-0.029		0.138	0.137	
	0.471	*0.475*		*0.227*	*0.227*	
=1 if ROA impairment			0.347			0.466**
			0.431			*0.206*
Capital allocations						
residual net capital allocation		-0.042**	-0.043**		-0.002	-0.002
		0.021	*0.020*		*0.012*	*0.012*
Diagnostics						
Pseudo R^2	4.1%	4.7%	4.7%	1.3%	1.3%	1.6%
No. of subjects	1,222	1,222	1,222	1,222	1,222	1,222
No. of promotions/demotions	55	55	55	166	166	166
Time at risk (no. subject-years)	3,814	3,814	3,814	3,814	3,814	3,814

Table 8. Profitability and Productivity.

The table allows the *Q* sensitivity of internal capital allocations at state business groups to depend on two member-firm characteristics: the member firm's profitability (ROA) and its total factor productivity (TFP). 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. In other words, the coefficients shown in columns 1-2 come from a single regression model, as do those shown in columns 3-4. 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 and include the same control variables as in Table 2 (not shown to conserve space). 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 allocation			
	loss-making	profitable	below-average TFP	above-average TFP
	(1)	(2)	(3)	(4)
Tobin's *Q*	-0.735**	-0.218**	-0.694**	-0.023
	0.338	*0.098*	*0.272*	*0.154*
Controls	yes	yes	yes	yes
Diagnostics				
F-test: equal sensitivity to *Q*?	2.20*		4.85**	
R^2	51.7%		50.4%	
No. of firms	254	649	412	508
No. of business groups	135	211	185	196
No. of observations	4,120		4,053	

Table 9. Employment Considerations.

The table allows the *Q* sensitivity of internal capital allocations at state business groups to depend on local employment conditions (columns 1 and 2), the number of young men entering the local labor market (columns 3 and 4), and the size of the firm's workforce (columns 5 and 6). To ensure 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 splitting variable 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 with group-year fixed effects and industry-year fixed effects and include the same control variables as in Table 2 (not shown to conserve space). 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 allocation					
	high unemploy-ment (1)	low unemploy-ment (2)	large inflow of young men (3)	normal inflow of young men (4)	large (>10,000 employees) (5)	small (up to 10,000 employees) (6)
Tobin's *Q*	-2.945***	-0.210**	-0.847***	-0.129	-2.778***	-0.211**
	0.806	*0.099*	*0.315*	*0.089*	*0.666*	*0.096*
Controls	yes	yes	yes	yes	yes	yes
Diagnostics						
F-test: equal sensitivity to *Q*?	11.35***		4.70***		14.98***	
R^2	49.5%		50.2%		48.6%	
No. of firms	130	640	501	634	135	595
No. of business groups	51	203	180	208	97	208
No. of observations	4,120		4,120		4,120	

Table 10. 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. Party officers evaluate the job performance of group chairmen every three years. Columns 3 and 4 test for differences in the way "young" group chairmen allocate internal capital over the course of their individual evaluation cycle. Group chairmen are reviewed every five years in their role as party cadres, in connection with the quinquennial congress of the Chinese Communist Party. Columns 5 and 6 test for differences in the way "young" group chairmen allocate internal capital in the run-up to the party congress. Columns 7 and 8 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 and include the same control variables as in Table 2 (not shown to conserve space). 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 allocation							
	state group chairman		state business groups					
	old (1)	young (2)	early in evaluation cycle (years 1-2) (3)	last year before evaluation (year 3) (4)	post party congress (years 1-3) (5)	run-up to party congress (years 4-5) (6)	state business groups (7)	private business groups (8)
Tobin's *Q*	0.026	-0.423***	-0.295*	-0.922**	-0.130	-0.533***	-0.516***	0.560***
	0.111	*0.163*	*0.164*	*0.458*	*0.100*	*0.206*	*0.199*	*0.099*
x post-corruption crackdown							0.369**	-0.232
							0.188	*0.498*
Controls	yes	yes	yes	yes	yes	yes	yes	yes
Diagnostics								
F-test: equal sensitivity to *Q*?	5.39**		1.66*		3.08**			
F-test: Tobin's *Q* = 0 post-crackdown							3.21*	0.40
R^2	63.2%	47.5%	55.0%	47.1%	49.4%	48.5%	48.0%	72.6%
No. of firms	220	645	573	634	631	576	660	166
No. of business groups	62	208	191	207	207	194	211	76
No. of observations	489	3,624	1,079	2,545	2,700	1,420	4,120	893

INTERNET APPENDIX

(NOT INTENDED FOR PUBLICATION)

Table IA.1. Baseline Models with Alternative Measures of Internal Capital Allocations.

The table reports robustness tests of our baseline models shown in Table 2 using three alternative measures of internal capital allocations that strip out ordinary-course-of-business cash flows among group members: Jiang, Lee, and Yue's (2010) *orec* measure, Jian and Wong's (2010) *related lending* measure, and a variation on our baseline measure that strips out capital flows to the group parent (which may be used to "tunnel out" profits from a group member firm). 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.

	"Orec" (Jiang, Lee, and Yue 2010)		Related lending (Jian and Wong 2010)		No tunneling flows	
	private business groups	state business groups	private business groups	state business groups	private business groups	state business groups
	(1)	(2)	(3)	(4)	(5)	(6)
Tobin's *Q*	0.501***	-0.202***	0.510**	-0.209**	0.495***	-0.183**
	0.177	*0.068*	*0.206*	*0.083*	*0.190*	*0.094*
Controls	yes	yes	yes	yes	yes	yes
Diagnostics						
R^2	70.3%	51.6%	68.8%	47.7%	70.5%	47.2%
F-test: equal sensitivity to *Q*?	18.47***		13.99***		13.3%	
No. of firms	166	660	166	660	166	660
No. of business groups	76	211	76	211	76	211
No. of observations	893	4,120	893	4,120	893	4,120

Table IA.2. Baseline Models with Capital Transfers 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 transfers are included in the net capital allocation 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.

	Net capital allocation			
	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)
Tobin's *Q*	0.497***	0.497***	0.534***	0.552***
	0.185	*0.186*	*0.188*	*0.190*
… x SOE	-0.752***	-0.753***	-0.797***	-0.865***
	0.208	*0.209*	*0.213*	*0.235*
Controls	yes	yes	yes	yes
Diagnostics				
R^2	49.6%	49.5%	50.0%	49.6%
F-test: *Q* sensitivity of SOEs = 0?	6.64***	6.66***	6.54**	4.74**
No. of firms	807	807	807	807
No. of business groups	287	287	287	287
No. of observations	5,013	5,013	5,013	5,013

Table IA.3. Alternative Size Cut-offs and Placebo Tests.

Columns 1 and 2 report robustness tests for our Table 9 specification that conditions a state business group's *Q* sensitivity on the size of each member firm's workforce. Columns 3 through 8 re-estimate the Table 9 specifications using private business groups as placebos. To ensure we continue to estimate within-group capital allocations, we keep the group structure intact by estimating fully interacted 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. 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 allocation							
	state business groups		Private business groups					
	large (>50,000 employees)	small (up to 50,000 employees)	high unemploy-ment	low unemploy-ment	large inflow of young men	normal inflow of young men	large (>1,000 employees)	small (up to 1,000 employees)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tobin's *Q*	-7.066**	-0.227**	3.195	0.454**	0.370	0.598***	0.194	0.574**
	3.288	*0.102*	*4.953*	*0.207*	*0.606*	*0.198*	*0.551*	*0.245*
Controls	yes	yes	yes	yes	yes	yes	yes	yes
Diagnostics								
F-test: equal sensitivity to *Q*?	4.33***		0.31		0.12		0.52	
R^2	48.3%		76.7%		74.7%		74.6%	
No. of firms	25	643	33	165	122	161	127	72
No. of business groups	21	211	16	75	68	75	70	55
No. of observations	4,120		893		893		893	