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By *Hao Peng, Hong Liu, Yuxiang Jiang*

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Keywords: Finance company, Tunneling, Business group, cash holding, shadow

banking JEL classification: G23 G39

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1. Introduction

In the late 1980s, China's government began to experiment with a series of reforms aimed at improving the financial performance and productivity of firms. It started from encouraging firms to build alliances in the form of business groups, then gave some business groups access to additional financing through parent-owned finance companies (hereafter, FCs), a specialized financial institution that collects and redistributes funds within the group.² The parent company has 100% control of the cash and voting rights of these FCs. They share some similarities with banks but differ in not being allowed to collect deposits from nor originate loans to firms that are not group members. Chinese reformers originally experimented with FCs in an attempt to enable firms to reduce financial constraints and to improve management of investments within and outside the group (Keister, 1998).

Anecdotes, however, show that the effectiveness and the functioning of FCs within a business group are questionable. Figure 1 shows that from 2014 to 2016 more than half the assets of FCs were not loans to member firms but simply deposits in the central bank or other financial institutions. Such a low loan-to-deposit ratio suggests that FCs may not be as efficient as was originally planned. Conversely, Figure 3 shows that member firms often increase cash holdings dramatically in the years after first being given access to FCs, which is exactly the opposite of what an efficient internal capital market would suggest, i.e. that member firms might need to hold less cash owing to the easier access to FC finance. Such observations cast doubt on how effective FCs can be within the business group.

² See the definition proposed by the People's Bank of China (PBOC) on 13 July 2000 in the Business Group Finance Company Act. In December 2006, the China Banking Regulatory Commission (CBRC) issued the Amendment of Business Group Finance Company Regulation.

To the best of our knowledge, our paper is the first to provide systematically consistent evidence that the member firms' increase in cash holding after having access to FCs within the business group can be at least partially explained by the tunneling effect: the controlling parent company of the business group extracting benefits from minority shareholders of member firms using FCs as a tunneling vehicle. Once FCs receive a cash deposit from member firms, they can lend it either to other member firms within the business group, or to other financial institutions, e.g. commercial banks, in the form of deposits. By encouraging and requiring member firms to increase cash holdings in the form of deposits in the FC, the group parent, which is the sole owner of the FC, can reap most, if not all, of the profits from the FC's lending.

Specifically, we examine how the cash policy of Chinese firms has evolved in parallel with the development of business groups and whether this evolution can be explained by the emergence and functioning of FCs. From the China Banking Regulatory Commission's (CBRC's) official announcements between 1987 and 2014 we collected information for 196 FCs on the date of incorporation and the ownership structure.³ We traced ownership of FCs (of any duration) and matched the data with ultimate or direct shareholders of firms that list on the Shanghai and Shenzhen stock exchanges to ensure that FCs and listed firms belong to the same business group. We collected firm-level data from CSMAR and WIND.

Surprisingly, we found a stark difference in the cash held by member firms in groups with and without

³ The incorporation of a finance company is subject to a two-stage approval from the PBOC. Specifically, the first stage requires the PBOC to announce that it has given approval for a qualified business group to prepare to establish a finance company. After no more than 6 months' preparation, the business group is required to submit the application documents for examination. If the PBOC accepts the application, it will announce the opening of a qualified finance company. For this paper, we collected details from the first-stage announcement of 196 finance companies.

FCs. We found that a firm that belongs to a business group with an FC (treated firms) holds 2.49% more cash than a firm that belongs to a business group without an FC (control firms). This result is inconsistent with the precautionary theory (Keynes, 1936), which predicts that firms will hold less cash when they have access to FC funds. This result is, however, in line with the tunneling theory (Opler et al., 1999), which suggests that controlling shareholders extract private benefits by directing resources from member firms where they have low cash flow rights to the FCs.

The ability to access a FC within the business group is a plausible exogenous decision for each member firm because the establishment of FCs at parent level does not require approvals from a general meeting of all shareholders at the subsidiary level. However, there may still exist a potential endogeneity issue where whether a member firm belongs to a business group with or without an FC is determined by confounding factors that also determine member firms' cash holdings. For example, parent companies with FCs may seek to acquire subsidiaries with more cash or spin off subsidiaries with less cash. We take advantage of the *Behavioral Guidance for controlling shareholders of listed small- and middle-sized enterprises* issued by the Shenzhen Stock Exchange in 2007 (hereafter, 'the 2007 Anti-tunneling Guidance') as an exogenous shock to test the extent of tunneling by a parent company with an FC within the business group. The 2007 Anti-tunneling Guidance restricted possible harmful behaviors of controlling shareholders towards minority shareholders that could negatively affect the financial independence of firms, including requiring any listed small or medium-sized enterprise (SME) firms to deposit cash in an affiliated FC. We found that tunneling by business groups with FCs significantly reduced after the 2007 Anti-tunneling Guidance.

Four pieces of evidence further suggest that firms' increase in cash holding after gaining access to FCs

within the business group is because of incentives for the parent company to siphon resources out of the firm to increase its own wealth. First, we find the increase in cash holdings is greater in member firms where the affiliated FCs were allowed by the government to enter the interbank market in the year 2000,⁴ since the FCs find it easier and more profitable to lend through the interbank market in the presence of the dual-track interest system in China.⁵ Second, we find that this tunneling effect is stronger when the dominant shareholders have lower control. This is because the controlling shareholders want to transfer benefit from firms where their right to the cash flow is low to firms where their right is high, i.e. FCs (Bertrand et al., 2002). Third, we find that the increase in member firms' cash holdings comes mainly from issuing equity, not debt. By diluting the controlling right via equity issuance while retaining full control, the controlling shareholders could reap more private benefits from channelling cash from member firms to FCs. Fourth, we find that the cash holdings of firms with FCs are more sensitive to variations in the interbank rate (Shanghai Interbank Offered Rate, or SHIBOR) than those of firms without FCs, while insensitive to variations in the government-constrained rate, which is used in bank lending. This is further evidence to suggest that FCs rely more on interbank lending than lending to members of the group.

We attempted to rule out two possible alternative explanations for our main findings. First, because

⁴ The interbank bond and lending markets ('interbank markets') were established in 1996. They are the most important money markets in China. After the Finance company Entry Regulation was issued by the interbank bond market and the Lending Market Act (FC Entry Act 2000) was enacted by the PBOC, an FC, as an independent legal treasury entity affiliated with a business group, became eligible to apply for membership of the interbank markets after reporting three consecutive years of profits.

⁵ China has implemented a co-existing interest rate system, that is, a constrained interest rate for non-financial institutions with floors and ceilings based on the PBOC benchmark rate and a liberalised interest rate that is negotiable among financial institutions, benchmarked by the Shanghai Interbank Offered Rate (hereafter, SHIBOR). Entry to the interbank market implies a realisable arbitrage from the imparity of the two interest systems.

our sample was not randomly assigned, it is possible that members of a business group in China have lower capital efficiency before they gain access to FCs, and so the group to which they belong needs to establish an FC. If this were so, member firms might hold more cash in the FC because the controlling shareholders intend to improve the efficiency of resource allocation within the group by channeling cash from firms with lower capital efficiency to firms with good investment opportunities and hence large cash needs, using the FC as an intermediary. If this alternative explanation holds, we should expect that increases in the member firms' cash holdings would be more prevalent among business groups with poorer capital efficiency. Our empirical evidence failed to support this hypothesis. Specifically, we did not find that the trend to increase cash holdings was stronger among state-owned firms than among firms not owned by the state, which might have been expected if state-owned firms are perceived to be less efficient due to their soft budget constraints (Chen et al., 2017, Kornai et al., 2003). Second, the switch from borrowing from banks outside the business group to borrowing from FCs within the group might enable entrenched managers to avoid the discipline of external debtholders (e.g. banks) and therefore management might hold more cash to be able to pursue their own objectives. However, our test shows no significant increase in cash holdings by firms that had been more bank-dependent, and hence receiving stronger monitoring from banks, before accessing FCs.

To shed light on the impact of the presence of FCs, we tracked financial outcomes and investors' valuation of corporate cash holdings between treated and control firms. Consistent with the tunneling explanation, we found that treated firms have poorer financial profitability than control firms, as measured by ROA and ROE. We further found that treated firms made lower financial investment, as measured by cash paid for equity and debt investments, and did not increase their operational

investments, as measured by cash paid to acquire and construct fixed, intangible and other long-term assets, compared to control firms. Finally, minority shareholders were found to be harmed because an incremental increase in cash holdings brought a lower increase in firm value, as measured by the Tobin Q ratio, than experienced by firms without FCs. These findings are consistent with the tunneling view from literature, both when applied to financing choice and when investment decisions were examined (Baek et al., 2006, Johnson et al., 2000, Kalcheva & Lins, 2007, Pinkowitz et al., 2006). Our main results also survived a robustness check: we considered an alternative control sample comprised of firms that gained access to FCs through acquisition only.

Our evidence suggests that the informational and financial advantage of the group-specific bank does not result in a more efficient internal capital market with lower financial constraints and an increase in firm investment. Instead, we find that the existence of FCs in business groups yields a severe agency problem between controlling shareholders and minority shareholders. Our paper provides the first systematically consistent evidence of the role of FCs within business groups in China. Our findings are inconsistent with the claim proposed by Keister (1998) that firms in groups with FCs should show financial performance and productivity that is superior to firms without FCs. They are, however, consistent with the empirical evidence from the main bank model in Japan, where Japanese firms' high level of cash holdings are found to be consistent with rent extraction by main banks (Pinkowitz & Williamson, 2001).

Our results highlight that government needs to pay close attention to the request to establish an FC by a business group. If the regulation and supervision of FCs are not adequate the parent company, which is the sole owner of the FC, may be given incentive to tunnel which, in turn, can have detrimental

effects on subsidiary firms' financial performance and investment. Further, these effects can have a negative impact on the real economy in general.

Our paper belongs to the broad literature on business groups and contributes specifically to the literature on internal capital markets. In general, the internal capital market can be controversially motivated by a financing advantage and an intention to tunnel. In a financially constrained environment where not all projects with positive NPV can be financed, firms can create value by actively engaging in “picking winners” through internal capital markets (Almeida et al., 2015, Chen et al., 2017, Gopalan et al., 2007, Kuppuswamy & Villalonga, 2016, Stein, 1997). Moreover, a pyramidal ownership structure appears to offer financing advantages for firms with large investment requirements but low injectable cash flows (Almeida & Wolfenzon, 2006, Bena & Ortiz-Molina, 2013, He et al., 2013). However, a growing number of longitudinal studies have paid attention to the cost of such affiliations. Business groups can be associated with agency problems such as expropriation by managers or controlling shareholders. In such circumstances, the internal capital market acts as a rent-seeking vehicle through which the controlling shareholders can extract benefits from minority investors. These problems can be exacerbated in emerging markets where corporate governance and investor protection are weak (Johnson et al., 2000, Khanna & Palepu, 2000). Our paper provides evidence that tunneling may take effect through the controlling shareholder's affiliated bank within the business group.

Our paper contributes to the voluminous literature on cash holdings by highlighting a novel facet of cash-holding determinants for China's group affiliates, namely the presence of FCs. Previous empirical literature has paid attention to either the financial constraints channel (Bates et al., 2009, Duchin, 2010, Gao et al., 2013) or the agency channel (Dittmar & Mahrt-Smith, 2007, Dittmar et al., 2003, Harford

et al., 2008, Johnson, La Porta et al., 2000, Kalcheva & Lins, 2007, Pinkowitz et al., 2006) in explaining firms' cash holdings policies. Our research found that the increase in cash holdings after firms access FCs was essentially driven by desire to tunnel on the part of the parent company. By introducing the presence of FCs, our paper is the first to explore a plausible setting in which cash holdings represent an ongoing proxy instead of a future option that benefits controlling shareholders personally, but at the expense of minority shareholders.

Our paper also extends the literature that is raising concerns about the tunneling effects found in Chinese-listed firms. Previous evidence of tunneling by controlling shareholders has found different types of related-party transaction, including inter-corporate loans (Jiang et al., 2010), abnormal related sales (Jian and Wong, 2010) and other types (Peng et al., 2011). Our paper takes a step further than these articles and discovers a new type of cash tunneling: through group-affiliated FCs. Moreover, by investigating how controlling shareholders react to regulation of the ease of cash tunneling, our setting can reflect a time-dependent feature of controlling shareholders' tunneling motivations in response to a changing institutional context, whereas previous works primarily focused on a single point in time.

Finally, our paper contributes to the growing literature on shadow banking in China by providing a unique viewpoint from which to examine how controlling shareholders in business groups make use of group shadow banks as a vehicle for cash tunneling.⁶ The existing literature focuses on other forms

⁶ We adopt the definition of shadow banks proposed by Pozsar, Z., Adrian, T., Ashcraft, A. and Boesky, H. (2010), that shadow banks are financial intermediaries that conduct maturity, credit and liquidity transformation not back-stopped by central bank liquidity facilities. The focus of this paper, the group finance company, is one of the examples of shadow banks listed in their work.

of shadow bank in China. For example, Acharya et al. (2016) found that small- and medium-sized banks in China significantly increase the participation in shadow banking activity through issuing off-balance sheet wealth management products, which may induce a substantial rollover risk when they mature. Chen et al. (2017) argue that small- and medium-sized banks engage more actively in shadow banking through channelling risky entrusted loans as a response to deposit shortfalls or to regulatory prohibition of lending to risky industries, which brings the risk of shadow banking into their balance sheet. Allen et al. (2017) revealed that the pricing of affiliated entrusted loans and non-affiliated entrusted loans incorporates fundamental and informational risks.

The remainder of this paper proceeds as follows. In section 2 we briefly overview the institutional details that constitute the setting for our analysis and develop our hypotheses. We describe our data and sample in section 3. In section 4, we report our main empirical results and identification strategies and, in section 5, the robust checks we carried out. We conclude in section 6.

2. Institutional background

2.1 Finance companies in business group

Generally, there are two types of FC in China. The first type includes a diverse group of non-depository financial institutions such as leasing companies and automobile FCs, which primarily extend credit to businesses and consumers. In principle, these non-depository FCs are funded through commercial paper and medium-term notes. Hence they are not necessarily included within a business group. The second type of FC are captive financing subsidiaries of business groups that provide financial services only to group affiliates. Unlike the first type of FC, they are depository financial institutions, the main

funds of which consist of group affiliates' deposits and are supervised by bank regulations. In this paper, we focus on the second type of FC.

In China, the first FC was established in 1987. Initially, FCs were not regulated. As their activities expanded, the first regulation – the Business Group Finance company Regulation (hereafter, the FC Regulation) was implemented in 1996. It officially clarified the definition of 'finance company', and laid down terms and conditions for entry, establishment and operation.⁷ By the end of 2014, there were 196 FCs with an aggregated on- and off-balance sheet total assets of 5.53 trillion RMB (0.9 trillion USD) that provided financial services to more than 45,000 group affiliates.⁸

<Insert Figure 1 here>

Figure 1 provides an overview of FCs from 2014 to 2016. By the end of 2016, the on-balance sheet total assets of FCs had reached 4,760.39 billion RMB (777.97 billion USD) with a dramatic increase of 50.15% since 2014. On the liabilities side, deposits from group affiliates constitute over 90% of the total liabilities, while interbank borrowing only represents a small portion. Strikingly, nearly half of the total asset is made up of interbank deposits, suggesting that FCs do not make full use of the deposits from member firms for investment in loans to member firms. This casts doubt on how far these FCs are actually doing what they were initially designed to do, i.e. increase the efficiency of the internal

⁷ The Business Group Finance company Regulation clarified the terms and conditions of entry, establishment and operation for finance companies. The Regulation was initially issued in 1996 and amended in 2000 and 2006. It also provides a definition for 'business group': a business consortium that consists of one holding company as the business group parent and a group of subsidiaries and joint stock companies that are connected through equity ties. Finance companies could only provide limited financial services authorised by PBOC (before 2006) and CBRC (after 2006) to firms belonging to the business group.

⁸ See China Banking Regulatory Commission 2014 Annual Report on <http://www.cbrc.gov.cn/>

capital market.

2.2 Dual-track interest system and interbank market

During the first two decades of this century, China has made substantial efforts to liberalize interest rates. More precisely, it embarked on its long-expected steps towards interest rate liberalization after 1996, beginning with the establishment of the National Interbank Funding Centre (NIFC) and the abolition of the ceilings on interbank lending and borrowing rates. The remainder of the 1990s saw a series of relaxations of interbank repo rates and bond rates, which implies the full liberalization of interbank rates. In 2005, the deposit rates due from financial institutions were fully liberalized, followed by the foundation of SHIBOR in 2006 as an interbank benchmark reference rate gauging the liquidity and cost of funds for financial institutions.⁹ It is similar to LIBOR (the London Interbank Offered Rate) except that the market is based on the NIFC in Shanghai. However, China has been operating a controlled loans and deposits interest rate system for non-financial firms, where ceilings and floors cap deposit and loan rates.

After a battery of financial reforms in liberating the interest rate, two interest rate systems have co-existed for deposits and loans: a restricted interest rate system for non-financial institutions with floors and ceilings based on the PBOC benchmark rate and a liberalized system where the interest rate is

⁹ The price quotation group behind SHIBOR comprises 18 commercial banks: Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, Bank of Communications, China Merchants Bank, China CITIC Bank, China Everbright Bank, Industrial Bank Co. Ltd., Shanghai Pudong Development Bank, Bank of Beijing, Bank of Shanghai, HSBC, Huxia Bank, Guangdong Development Bank, Postal Savings Bank of China, China Development Bank and China Minsheng Banking Co. Ltd. All of these banks are primary dealers in the open market or market makers in the foreign exchange market, actively participating in the money market with sound information disclosure. The rate is arithmetically averaged after eliminating the top two and bottom two quotes. Currently, SHIBOR is composed of eight maturities: overnight, 1-week, 2-week, 1-month, 3-month, 6-month, 9-month and 1-year, quoted in annualised rates using 360 days per year. Retrieved from: www.shibor.org

negotiable among financial institutions, benchmarked by the interbank rate.

Against this background, the 2000 FC Entry Act allowed business group-owned FCs to enter the interbank bond market and the lending market, in which surplus funds are invested and short-term finance is raised, aiming to improve the efficiency with which cash is conducted to member firms via the FCs. Given the co-existent interest rate system, the 2000 FC Entry Act required FCs to achieve an increased return on cash holdings by lending the cash collected from member firms to the interbank market with higher, negotiable interest returns than member firms could otherwise obtain by depositing their cash in banks with constrained interest rates.

Consequently, from the perspective of stand-alone, non-financial, affiliated subsidiaries, there is no substantial difference in terms of the interest return generated between depositing in non-affiliated depository institutions or depositing in the affiliated FC, given that depository institutions could only offer constrained interest on non-financial firms' cash deposits according to the law.¹⁰ This indifference makes minority shareholders of stand-alone firms less concerned about where the cash of their firm is placed.

3. Data and sample

Our sample consists of all non-financial firms publicly listed on either the Shanghai or the Shenzhen Stock Exchange in China from 1998 to 2014. We start our sample period from 1998, the first year that comprehensive cash flow information was available for Chinese listed firms. We retrieved accounting

¹⁰ Under the Law of Penalties for Illegal Financial Activities No.260 issued by the China State Council in 1999, it is illegal for financial intuitions to solicit deposits with interest rates higher than the statutory deposit rates.

and ownership data from the CSMAR and the WIND Financial Terminal, two standard databases on Chinese capital markets, to formulate control variables for firm characteristics in the regression.

We extracted FC ownership data from the CBRC's official announcements. Whenever the application for the incorporation of a FC is approved, the CBRC will post an announcement for approval on its official website which discloses its ownership, management committee, the amount of capital stock and the authorised line of business. We only considered listed firms that belong to business groups in our empirical analysis. A typical Chinese business group is characterised as an unlisted parent controlling group member firms through direct equity ties or via a pyramidal structure (Chen et al., 2017, Fan et al., 2013). Based on the ownership dataset from CSMAR, we identified all listed firms that have the same ultimate controlling shareholder and so belong to the same business group. In particular, we traced ownership of pyramids of any length via the National Enterprise Credit Information Publicity System.¹¹ We labelled firms that are controlled by a business group in accordance with the procedure employed by Faccio and Lang (2002) and Faccio et al. (2011), that is, whenever the direct shareholder of a firm is another firm, we identified its owner, the owners of its owner, and so on until we found an owner whose legal registered name contains "Group", "Holding" or "State Asset Management" along the chain.¹² Next, we matched the ownership-of-FCs dataset with that of listed firms to ensure that FCs and listed firms belong to the same business group. For the

¹¹ See <http://www.gsxt.gov.cn/index.html>.

¹² We identify State Asset Management Agencies as business groups since these agencies sit at the top of the pyramidal structure as the ultimate owner in China. This is consistent with Fan et al. (2013), who discussed the state asset management system in detail. Moreover, State Asset Management Agencies are officially recognised as parents of business groups since many finance companies are directly owned by State Asset Management Agencies.

remainder of the paper, we refer to “firms affiliated with listed groups” as “firms”.

<Insert Figure 2 here>

Our final sample covers 21,584 firm-year observations representing 1,830 unique firms, among which 468 firms were associated with 180 FCs during 1998 to 2014. The remaining 16 FCs were either affiliated with business groups that do not have listed subsidiaries or owned by foreign business groups such as Hitachi, Panasonic and GE. These 16 FCs are not included in our sample.

<Insert Table 1 here>

Table 1 illustrates the distribution of the FCs and their affiliated listed firms in the same group over time. Column 1 in panel A shows that the total number of FCs increased from 40 in 1998 to 196 in 2014. Columns 2, 3 and 4 show that only a small proportion (6.91%) of all firms in 1998 had access to financial services from FCs. However, this ratio increased by more than four times over 16 years, indicating that more than a quarter of all firms had access to FC services by the end of 2014. Likewise, as shown in column 10 of panel B FCs dealt with 17.20% (168.76 billion RMB) of all firms’ total assets in 1998 and this ratio increased remarkably to 63.09% (19,647.71 billion RMB) in 2014. The significant increases in these numbers sheds light on the increasingly important role that FCs have been playing in China’s economy, even though, surprisingly, they have barely received attention from scholars.

<Insert Table 2 here>

<Insert Table 3 here>

Table 2 provides definitions for the variables examined and Table 3 presents summary statistics for our sample. All continuous variables are winsorised at 1% and 99%. Following the previous literature on cash holdings, we scale all continuous variables by total assets minus cash (noncash assets). We use three proxies to capture the level of firms' cash holdings in observation years. $Cash_{i,t}$ is measured as the amount of cash and cash equivalents as a percentage of total noncash assets of firm i in year t . $\Delta cash_{i,t}$ reflects the net increase in cash holdings of firm i in year t scaled by total noncash assets. To mitigate the concern that the difference in cash holdings is driven by the range of different industries across firms in our sample, we also included $Excash_{i,t}$ which is industry-adjusted cash holdings computed as the difference between an individual firm's cash holdings and the mean for its industry by years.

In Table 3, panel A, we show that the mean (and median) sample cash to noncash assets ratio was 22.93% (14.97%). Panel B tabulates the calendar time evolution in cash holdings over our sample period. At the beginning of the sample period, the mean (and median) cash to noncash asset ratio was 14.15% (9.55%). The following years witnessed some fluctuations in this ratio. It peaked in 2010 at 31.00% (18.70%), which is more than double that at the beginning of the sample period. In 2014, this ratio had fallen back slightly, to 21.19% (14.12%).

4. Main results

4.1 The average effect of access to finance companies on cash holdings

We applied the following regression for each measure of cash holdings:

$$Dependent_{i,t} = \alpha + \beta FC_{i,t} + \gamma X_{i,t} + Firm\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (1)$$

where dependent variables consist of the level of cash holdings proxied as $Cash_{i,t}$, net increase in cash holdings from time $t-1$ to t proxied as $\Delta cash_{i,t}$, the industry-adjusted cash holdings proxied as $Excash_{i,t}$. $FC_{i,t}$ is an indicator variable which equals one if firm i has affiliated with a FC in year t . $X_{i,t}$ controls for a set of firm-specific characteristics that determine the level of cash holdings, including $SIZE_{i,t}$ (logarithm of total assets), $M2B_{i,t}$ (market value to book value of equity), $LEVERAGE_{i,t}$ (ratio of total liabilities to total noncash assets), $OPCF_{i,t}$ (net cash flow from operating activities scaled by noncash assets), $CAPEX_{i,t}$ (capital expenditures scaled by noncash total assets), $INVEST_{i,t}$ (equity investments and debt investments, scaled by noncash total assets), $AGE_{i,t}$ (number of years since the firm's incorporation), $NETWC_{i,t}$ (net working capital, defined as the difference between current noncash assets and current liabilities, scaled by noncash total assets), $SOE_{i,t}$ (an indicator variable that equals one if controlling shareholder is a government agency), $EXPENSE_{i,t}$ (ratio of finance expense to total noncash assets), $Control\ right_{i,t}$ (shares held by controlling shareholders as a percentage of total shares outstanding) and $DIVIDEND_{i,t}$ (indicator variable that equals one if firm i pays cash dividends in year t). In addition, year- and firm-fixed effects are included in the regression. We cluster all standard errors at the firm level.

<Insert Table 4 here>

Table 4 columns (1), (3) and (5) tabulate the main results. In column (1), the coefficient for the FC indicator was 2.49% with a t-value of 2.35, suggesting an increase of 10.90% ($=2.49/22.85$) from the average cash holdings after having access to FCs. We also found a significant increase in net change in cash holdings (with a coefficient of 1.70%), and the amount of cash that exceeds the industry average (with a coefficient of 2.81%) after firms gained access to FCs. Collectively, these results suggest that

firms are more likely to hoard cash after they have access to FCs because finance companies provide group business parents with a convenient route for rent extraction through requiring or encouraging member firms to deposit their cash in FCs.

The estimates in columns (1), (3) and (5) only provide an average of the effect on cash holdings of having access to FCs. To investigate the dynamic pattern of firms' cash holdings around the time they gained access to FCs, we adapted a regression with the following specification:

$$Dependent_{i,t} = \alpha + \sum_{k=1}^5 \delta_k Before_{i,t}^k + \sum_{k=1}^5 \theta_k After_{i,t}^k + \gamma X_{i,t} + Firm\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (2)$$

where $Dependent_{i,t}$ is the focus of interest ($Cash_{i,t}$, $\Delta cash_{i,t}$ and $Excash_{i,t}$). $X_{i,t}$ is a set of control variables. $Before_{i,t}^k$ ($After_{i,t}^k$) indicates the k years before (after) the year in which the firm gains access to a FC. Throughout our sample period we used the controlled firms that retained no connection with FCs as a benchmark and thus the $Before_{i,t}^k$ and $After_{i,t}^k$ for those firms are always zero. We omitted the year prior to the first year that firms were affiliated with FCs as the reference category, or base year. This specification allowed us to analyse the dynamic patterns in the cash policies of treated firms that gained access to FCs during the period, which is captured by the coefficients δ_k and θ_k . Because our sample of the first year of access to FCs varies over time, one might argue that the variations over time associated with market factors could influence the decision to establish a FC, or decisions on acquisition taken by business groups with FCs, such as the clustering of establishing FCs or M&A waves. For these reasons, we included year-fixed effects in this specification to account for such variations.

Table 4 columns (2), (4) and (6) report the results. The coefficients reflect the change in the differences between treated and control firms over the five years before and after the base year. The coefficients for all three dependent variables of interest on all the $Before_{i,t}^k$ dummies are statistically insignificant, whereas the coefficients on $After_{i,t}^k$ exhibit some variation in level of statistical significance. Specifically, the cash ratio of treated firms significantly increases 4.54% (2.88%) more than control firms from year -1 to 0 (year -1 to $+1$) at the 1% level. As for the net cash ratio and excess cash ratio, we can also observe a similar, short-term, increasing trend, with the coefficients of net cash ratio on $After^l$ (5.25%) being significantly positive, and the coefficients of excess cash ratio on $After^l$ (4.71%) and $After^2$ (3.13%) being significantly positive.

4.2 Sensitivity to endogeneity: *Difference-in-difference-in-differences results*

A key assumption behind our difference-in-differences baseline regression is that having access to FCs is exogenous to each member firm. While this assumption may be plausible because the establishment of FCs at parent level does not require approval at a general meeting of all shareholders at the subsidiary's level, we may still face an endogeneity challenge where whether a member firm belongs to a business group with or without an FC is determined by confounding factors that also determine member firms' cash holdings. For example, the business group parent might prefer to acquire firms with higher levels of cash or to spin off member firms with lower levels of cash. To address this concern, we tested the impact of the 2007 Anti-tunneling Guidance as an exogenous shock to the parent firm's incentive to tunnel. The Guidance emphasised the prohibition of any possible tunneling behaviours by the ultimate controlling shareholders of firms listed on the SME Board that might harm the minority

shareholders.¹³ It does not allow firms in business groups listed on the SME Board to deposit their cash in group-affiliated FCs because of the suspicion that such behaviour might affect the financial independence of firms and, correspondingly, might induce tunneling.¹⁴ This exogenous shock allowed us to study the difference in cash policies between firms with and without FCs and the extent to which this difference could be explained by the specialisation of FCs. We hypothesise that the shock should reduce parent firms' tunneling behaviours induced by FCs.

To test this hypothesis, we employed a difference-in-difference-in-differences approach. The three differences are SME firms vs. non-SME firms, pre-2007 period vs. post-2007 period and firms with FCs vs. firms without FCs. In the presence of the firm- and year-fixed effects, the interaction of the FC dummy variable with the other two terms in the specification yields a regression framework of difference-in-difference-in-differences, which allowed us to identify a causal relation between the presence of FCs and cash tunneling. If the premise that firms having access to FCs are more likely to adopt tunneling behaviours is plausible, we should expect the coefficient on the three-way interaction term to be negative, which would imply that the tunneling effect for firms listed on the SME Board gaining access to FCs should be smaller after the 2007 Anti-tunneling Regulation than for those that are not listed on the SME Board. These correspond to estimation of the following specifications:

$$Dependent_{it} = \alpha + \beta SME_{i,t} + \delta Post2007_{i,t} + \mu FC_{i,t} + \vartheta SME_{i,t} * Post2007_{i,t} +$$

¹³ There are two main stock exchanges and three listed boards in the Chinese stock market. The Main Board is in both Shanghai Stock Exchange and Shenzhen Stock Exchange. The Small- and Medium size Enterprise Board (SME board) in Shenzhen Stock Exchange exists to help SMEs that otherwise find it difficult to get listed on the Main Board; the Growth Enterprises Market Board (GEM board) is a NASDAQ-like board that supports start-up and high-tech enterprise.

¹⁴ 2007 Anti-tunneling Guidance, Rule No. 20.

$$\theta FC_{i,t} * Post2007_{i,t} + \rho SME_{i,t} * FC_{i,t} + \sigma SME_{i,t} * Post2007_{i,t} * FC_{i,t} + \gamma X_{i,t} +$$

Firm Fixed Effects + Year Fixed Effects + \varepsilon_{i,t} (3)

where $Dependent_{i,t}$ and $FC_{i,t}$ are defined as in specification (2). We only considered firms with constant access to FCs throughout the whole sample period, or no access at all throughout. $Post2007_{i,t}$ is the time dummy which is equal to 1 for the period between 2008 and 2011 and 0 for the period between 2004 and 2007. $SME_{i,t}$ is an indicator which equals 1 for firms listed on the SME Board and 0 for other firms. In the first regression, the key coefficient of interest is ϑ , whereas the key coefficient of interest in the second regression is σ .

<Insert Table 5 here>

In Table 5 we found significant and negative three-way interaction, strong evidence corroborating the hypothesis that, for firms listed on the SME Board with access to FCs, the tunneling effect should be smaller after the 2007 Anti-tunneling Regulation than the effect found for firms that are not listed on the SME Board. Having access to FCs resulted in SME firms' cash holdings reducing by 16.64% percentage points more than the cash holdings of non-SME firms. This effect is consistent and robust to all other ways we tested for measuring cash holdings, with a statistical significance level of 5%.

4.3 Direct evidence of tunneling

We subjected our tunneling hypothesis to various further tests involving changes in FCs' functioning, control right, cash-to-cash-flow sensitivity and interbank market rates. Our findings are fully consistent with the explanation that FCs are present in business groups to allow the controlling shareholders to extract private benefits in cash holdings from minority shareholders compelled to invest them in the

FC.

4.3.1 The effect of FCs' entering the interbank market on firms' cash holdings

We first studied the effect on firms' cash holdings of allowing FCs to participate in interbank activities. As we remarked in section 2.2 of this paper, the 2000 FC Entry Act provided firms with access to FCs not only an injection of liquidity but also the opportunity to arbitrage from the disparity of the two Chinese interest rate systems. If firms with FCs essentially are more likely to engage in cash tunneling, then the arbitrage opportunity attached by the 2000 FC Entry Act would induce greater incentives to do so because the interbank market would provide a higher interest return on each dollar deposit in FCs and so the tunneling benefit would dilate. As a result, we would expect that firms with access to FCs should hold more cash after 2000. To test this conjecture, we employed the following difference-in-differences design:

$$\begin{aligned} \text{Dependent}_{it} = & \alpha + \beta FC_{i,t} + \delta \text{Post2000}_{i,t} + \theta FC_{i,t} * \text{Post2000}_{i,t} + \gamma X_{i,t} + \\ & \text{Firm Fixed Effects} + \text{Year Fixed Effects} + \varepsilon_{i,t} \quad (4) \end{aligned}$$

where $\text{Dependent}_{i,t}$ is the focus of interest ($\text{Cash}_{i,t}$, $\Delta\text{cash}_{i,t}$ and $\text{Excash}_{i,t}$). $FC_{i,t}$ equals 1 if a firm is affiliated with a FC and 0 otherwise. Note that in this analysis we are mainly interested in the variations caused by the 2000 FC Entry Act on firms with FCs, not the differences between firms before and after their access to FCs. Accordingly, we only considered firms with constant access to FCs throughout the whole sample period, or no access at all throughout.

We conducted a sample pre- and post-period running from 1998 to 2003, given that the regulation came into effect in 2000. $\text{Post2000}_{i,t}$ is the time dummy, which is 1 after 2000 and 0 otherwise. A

positive coefficient on the interaction term suggests evidence in support of tunneling behaviour.

<Insert Table 6 here>

The results are reported in Table 6. As tabulated in columns (1), (3) and (5), the coefficients on the interaction between *Post2000* and *FC* are positive and statistically significant (at a level of 1%) for cash holding, net change in cash and industry-adjusted cash, respectively. These results suggest that the difference between average cash holdings of firms with FCs and without FCs increased after 2000, which was most likely attributable to the permission to access the interbank market increasing the tunneling incentive on cash holdings.

We next examined the dynamic pattern of cash holdings, net cash and excess cash around the 2000 FC Entry Act in columns (2), (4) and (6), by using a specification similar to equation (2). The results again illustrate that in all years after the 2000 FC Entry Act the coefficients for net change in cash are positive and significant. For cash holdings and industry-adjusted cash holdings, we observed a gradually increasing pattern during the years around the 2000 FC Entry Act, with all coefficients positive and significant on *After* dummies (other than the year immediately after the 2000 FC Entry Act). This growing pattern in cash holdings is not surprising as firms with FCs are likely to hold more cash if the parent firm is tunneling (or seeking to do so), and this pattern seemed to be magnified once FCs were allowed to access interbank markets.

4.3.2 Cross-sectional variation of control right in the effects of the presence of finance companies on cash holdings

In this section we consider the cross-sectional variations in the parent's equity ownership in the

member firms and the impact of these on the tunneling effects documented in the previous sections. It is reasonable to expect that the tunneling effect will be weaker in firms where the controlling shareholders hold a larger percentage of the shares, because the private benefit of tunneling through hoarding cash is lower, in relative terms. We specified this as follows:

$$Dependent_{it} = \alpha + \beta FC_{i,t} + \theta Control\ Right_{i,t} + \delta(FC_{i,t} * Control\ Right_{i,t}) + \gamma X_{i,t} + Firm\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (5)$$

where *Control Right_{i,t}* refers to shares held by controlling shareholders as a percentage of total shares outstanding. Our emphasis is on the coefficient δ for the interaction variable ($FC_{i,t} * Control\ Right_{i,t}$). A significantly negative coefficient would support our prediction.

<Insert Table 7 here>

The results are presented in columns (1) to (3) in Table 7. The coefficients on $FC_{i,t} * Control\ Right_{i,t}$ are significantly negative in regressions on *Cash*, $\Delta cash$ and *Excash*, as dependent variables at the level of 5%, suggesting that firms with a dispersed ownership structure exhibit a greater increase in cash holdings than control firms after they gain access to FCs.

4.3.3 The effects of the presence of finance companies on cash-to-cash-flow sensitivity

In this section we identify the source of the increase in cash holdings that are directed to the FCs. We predict that cash flows from equity financing are the main source of the cash hoard for member firms. To see the reason for this prediction, suppose that the controlling shareholder is starving for cash to activate the FC's business. It is more likely to force member firms to issue equity than to borrow more because the private benefits of tunneling are stronger when equity ownership in member firms is

diluted, so long as it keeps control of the firms, while debt financing can increase the monitoring by debtholders. To test this, we decomposed cash flows into three components – net cash generated from operational activities, from investment activities and from financing activities – and carried out the cash-to-cash-flow sensitivity analysis developed by Almeida et al., (2004) to examine the firms’ propensity to accumulate the cash generated by each component of cashflow. We applied the following regression:

$$\Delta Cash_{it} = \alpha + \beta FC_{i,t} + \delta Z_{i,t} + \theta FC_{i,t} * Z_{i,t} + TobinQ_{i,t-1} + SIZE_{i,t} + CAPEX_{fix_{i,t}} + CAPEX_{fin_{i,t}} + \Delta NWC_{i,t} + \Delta SHORT DEBT_{i,t} + Firm Fixed Effects + Year Fixed Effects + \varepsilon_{i,t} \quad (6)$$

Our tests examined the change in cash holdings as the dependent variable in response to the change in each component of cashflow. Z refers to the three components of cash flow, operating cash flows ($OPCF_{i,t}$), financing cash flows ($FICF_{i,t}$) and investment cash flows ($IVCF_{i,t}$). $SIZE_{i,t}$ is the natural log of total assets. $TobinQ_{i,t-1}$ is calculated as the sum of the market value of equity plus the book value of liabilities divided by the book value of assets. We included $Size$ and $Tobin Q$ to control for economies of scale in cash management and opportunity for growth, respectively. $CAPEX_{fix_{i,t}}$ and $CAPEX_{fin_{i,t}}$ are the capital expenditures on fixed assets and financial investment, respectively. We added the change in working capital proxied by $\Delta NWC_{i,t}$ and the change in short-term debt proxied by $\Delta SHORT DEBT_{i,t}$, because these two variables can substitute for cash. In both specifications, $\theta > 0$ ($\theta < 0$) would indicate that having access to FCs increases (reduces) the propensity to save cash out of each specific components of cashflow.

<Insert Table 8 here>

The results from specification (6) are presented in Table 8. We found the change in cash holdings was only positively sensitive to net cash generated from financing activities. Our results show that having access to FCs had no significant effect on loosening financial constraints or stimulating investments, while such access did increase the firms' propensity to save cash out of financing activities, which is consistent with our tunneling hypothesis.

<Insert Table 9 here>

We further decomposed the financing cash flows into three components: cash received from issuing equity, cash received from issuing debt securities and cash borrowed from banks or other financial institutions. We re-ran the model by using these three components. The results from re-running equation (4) are presented in Table 9. We note that, out of the three financing alternatives, the change in net cash is only sensitive to the cash generated from issuing equity.

4.4 Interbank market rate and firms' cash policies

A key assumption of our tunneling explanation for the exacerbation of agency conflicts is that firms with access to FCs receive pressure from their controlling shareholders to deposit the majority of their cash holdings in those FCs rather than in other depository institutions. However, we do not have direct evidence to support this assumption, since we do not know the exact amount deposited in FCs by member firms. It is not mandatory for firms to disclose such information. To testify the validity of this assumption, we turned to consider the relationship between the interbank market rate and firms' cash policies. We believed that the controlling shareholders were incentivised by the opportunity for regulatory arbitrage presented by the imparity of the two Chinese interest rate systems, which in turn

provide the largest portion of FCs' profits, which belong to the controlling shareholders. If this assumption should hold, we would expect the cash holdings of firms with access to FCs to react positively to the regulatory arbitrage opportunity. To capture this arbitrage, we introduced a measure (the Shanghai interbank offered rate, SHIBOR), which also measures the overall availability of liquidity and credit in the economy. This rate is increasingly prevalent in recent studies on shadow banking in China (Acharya et al., 2016, Allen et al., 2017). We include all SHIBOR rates, for eight maturities, as well as the interest rate spread, defined as the difference between the overnight SHIBOR rate and the PBOC demand deposit-interest rate. Notably, SHIBOR changes over time but remained far above the PBOC deposit rate throughout our sample period, implying that a positive arbitrage profit is always available to FCs, or in other words, the higher SHIBOR rates are, the greater arbitrage profits that a FC could enjoy. To test this hypothesis, we developed the following model:

$$Dependent_{it} = \alpha + \beta FC_{i,t} + \theta RATES_{i,t} + \delta(FC_{i,t} * RATES_{i,t}) + \gamma X_{i,t} + Firm\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (7)$$

where $Dependent_{i,t}$ is the four variables of interest ($Cash_{i,t}$, $\Delta cash_{i,t}$ and $Excash_{i,t}$). $RATES_{i,t}$ include interest rate spread defined as explained above, as well as all eight SHIBOR rates: overnight, 1-week, 2-week, 1-month, 3-month, 6-month, 9-month and 1-year. Our focus is the coefficient of δ , which captures the differences between cash held by treated firms and by control firms, in response to the arbitrage opportunity in the interbank markets.

<Insert Table 10 here>

The results of these estimations are presented in Panels A to C in Table 10. For parsimony of

presentation we only present the key interaction (in the format of a matrix) while noting that all the control variables in equation (1) are included. In Panel A, with $Cash_{i,t}$ as the dependent variable, the coefficient estimate for $FC*spread$ in row 1 is 1.62% (t-statistic = 2.74, significant at the 1% level), suggesting that firms with access to FCs increase their cash holdings when arbitrage profits are higher, as proxied by $SPREAD$. Similar results are obtained from rows 2 and 4 in Panel A when we use $\Delta cash_{i,t}$ and $Excash_{i,t}$ as alternative dependent variables of cash holdings. Moving to the coefficient estimates for $FC_{i,t}*SHIBOR_{i,t}$ rates presented in Panel B, coefficient estimates on the interaction between FC and all eight SHIBOR rates are statistically significant for cash and industry-adjusted cash. An interesting finding is that the change in the amount of cash held by firms with access to FCs is only sensitive to short-term SHIBOR rates (those with maturities shorter than two weeks) and this sensitivity decreases as the maturity increases. This is probably because the short-term SHIBOR rates are more of a cash-management concern for FCs. In principle a FC, as an internal bank within a business group, not only deals with the member firms' demands for daily settlement but also relies on the profits generated from lending or investment activities to compensate the depositors. Accordingly, management of short-term liquidity should be the primary focus for FCs.

To summarise, the positive responses to interbank market rates of firms with access to FCs yields evidence in support of our tunneling inference, since the presence of FCs has an impact on firms' cash policies.

4.5 Sensitivity to alternative explanations

We considered two possible alternative explanations for our main results. The first posits that the incentive for the parent company to give member firms access to an internal FC is to improve the

efficiency of capital allocation. The parent firm will want to reallocate cash across subsidiaries, requiring firms with lower capital efficiency to deposit more cash in the FC, to be lent out to firms with good investment opportunities or invested in the interbank market, and hence may have, overall, a large cash need. If this alternative explanation holds, we would expect the tunneling effects to be stronger for state-owned firms than for firms not owned by the state (since state-owned firms are widely believed to have lower capital efficiency).

<Insert Table 11 here>

Empirical study shows that state-owned firms faced with soft budget constraints tend to be more profligate with capital than non-state-owned firms. The motivation to improve capital efficiency would contradict our tunneling explanation if we found that state-owned firms increase cash holdings to a greater extent than other firms, after gaining access to FCs. The results are reported in Table 11. We find insignificant coefficients for the interaction between FC and state ownership, indicating that tunneling effects are no stronger for state-owned firms than firms not owned by the state. This evidence is inconsistent with the first alternative explanation, capital efficiency.

<Insert Table 12 here>

The second alternative suggests that accessing an intra-group FC possibly provides management an opportunity to avoid external monitoring by creditors and hence increases the agency cost of managerial discretion, i.e. cash holdings. If this were the case, one would expect that the increase in cash holdings should be greater in firms that depend more on their banks, because the reduction in monitoring by external creditors after they gain access to FC credit would be more significant for such

firms. To test this hypothesis, we examined whether firms that were more bank-dependent during the period before accessing FCs would hoard more cash after getting access to FCs than their less bank-dependent counterparts. We determined the dependence on external bank credit by using average borrowings from banks before FC availability scaled by total noncash assets. The results in Table 12 show that there was no statistical change in cash holdings by bank-dependent firms after they gained access to FC credit (the t-statistic for FC*dependence on cash holdings is -0.20). This evidence is inconsistent with the second alternative explanation, to avoid or reduce external creditor monitoring.

4.6 The effects of the presence of finance companies on performance, decisions to invest and market reaction

Our results so far suggest that the presence of FCs increases the incentives for controlling shareholders to tunnel using FCs. In this section, we examine member firms' accounting profitability, investments and the market value of their cash holdings after they gain access to the FC. If the tunneling explanation prevails, we should expect both firm performance and funds allotted to investment to reduce.

First, we examined the effect of the presence of FCs on firms' performance and investment decisions. The agency conflict channel implies that having access to FCs would increase the incentives for controlling shareholders to tunnel, so we would expect this to be shown by falling profitability and lower investment. We used the following model:

$$Y_{i,t} = \alpha + \beta FC_{i,t} + \gamma X_{i,t} + \text{Firm Fixed Effects} + \text{Year Fixed Effects} + \varepsilon_{i,t} \quad (8)$$

where $Y_{i,t}$ refers to either profitability as measured by return on assets ($ROA_{i,t}$) and return on equity ($ROE_{i,t}$), the decision to invest as measured by capital expenditure on fixed assets ($CAPEX_{fix_{i,t}}$) or

capital expenditure on financial investment ($CAPEX_{fin_{i,t}}$). $X_{i,t}$ is the vector of control variables including proxies for the logarithm of total assets ($SIZE_{i,t}$), market value to book value of equity ($M2B_{i,t}$), the ratio of total liabilities to total noncash assets ($LEVERAGE_{i,t}$) and net change in cash holdings ($\Delta cash_{i,t}$). Both firm- and year-fixed effects are included. All standard errors are clustered at the firm level.

<Insert Table 13 here>

Table 13 reports the results from equation (8). In columns (1) and (2), the coefficient on the FC dummy for ROA (ROE) was -1.02% (-2.21%) and statistically significant at 1%, suggesting that firms experienced a significant decline in profitability after they gained access to FCs. In column (3) we show the coefficients for $CAPEX_{fix}$. We found no statistically reliable difference in capital expenditure on fixed assets after treated firms gained access to FCs. Column (4) reveals that, compared to the control firms, the treated firms significantly reduced investment in financial assets during the post-FC period. These findings imply that, after they gained access to FCs, firms were more likely to hoard cash for agency incentives than for operational purposes or for investment, which partially explains the significant decline in firm performance.

We then examined the market value of cash holdings over time, borrowing insights from a number of papers that focus on how firm value is related to changes in cash holdings (Bates et al., 2009, Dittmar & Mahrt-Smith, 2007, Kalcheva & Lins, 2007, Pinkowitz et al., 2006). To test the degree to which the agency cost of cash can explain the impact of the presence of FCs on firm value, we followed an approach akin to that of Pinkowitz et al. (2006), who designed a regression to evaluate cash holdings

based on the model in Fama & French (1998). Consistent with our agency explanation for cash holdings, we expected that firms with FCs would be more likely to experience agency conflicts, which would lead to lower increases in firm value but an incremental increase in cash holdings, compared to firms with no access to FCs. We employed the following regression specification:

$$\begin{aligned} TobinQ_{i,t} = & \alpha + \beta_1 E_{i,t} + \beta_2 dE_{i,t} + \beta_3 dE_{i,t+1} + \beta_4 dNA_{i,t} + \beta_5 dNA_{i,t+1} + \beta_6 R\&D_{i,t} + \beta_7 dR\&D_{i,t} + \\ & \beta_8 dR\&D_{i,t+1} + \beta_9 I\&D_{i,t} + \beta_{10} dI\&D_{i,t} + \beta_{11} dI\&D_{i,t+1} + \beta_{12} dTobinQ_{i,t+1} + \beta_{13} FC_{i,t+1} + \\ & \beta_{14} dCash_{i,t} + \beta_{15} (FC_{i,t} * dCash_{i,t}) + \beta_{16} dCash_{i,t+1} + Firm\ Fixed\ Effects + \\ & Year\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (9)$$

where $X_{i,t}$ is the level of variable X in year t scaled by total assets minus cash holdings. $dX_{i,t}$ indicates a change in variable X from time $t-1$ to t ($X_t - X_{t-1}$) and $dX_{i,t+1}$ refers to a change in X from time t to $t+1$ ($X_{t+1} - X_t$). *TobinQ* is a proxy for the market value of the firm, calculated as the sum of market value of equity plus book value of liabilities. E refers to net income. NA is total assets minus cash holdings. $R\&D$ is the expenditure on R&D, and we set it to zero where this information was missing. $I\&D$ is the sum of interest expenses and dividends. We also replaced the lead and lag of cash changes with the level of cash, to address a concern (discussed in connection with in equation (11) below) that increasing cash holdings might change market expectations about future growth, as suggested by Pinkowitz et al. (2006). We used the following, robust model:

$$\begin{aligned} TobinQ_{i,t} = & \alpha + \beta_1 E_{i,t} + \beta_2 dE_{i,t} + \beta_3 dE_{i,t+1} + \beta_4 dNA_{i,t} + \beta_5 dNA_{i,t+1} + \beta_6 R\&D_{i,t} + \beta_7 dR\&D_{i,t} + \\ & \beta_8 dR\&D_{i,t+1} + \beta_9 I\&D_{i,t} + \beta_{10} dI\&D_{i,t} + \beta_{11} dI\&D_{i,t+1} + \beta_{12} dTobinQ_{i,t+1} + \beta_{13} FC_{i,t+1} + \beta_{14} dL_{i,t} + \\ & \beta_{15} (FC_{i,t} * dL_{i,t}) + Firm\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (10)$$

where L proxies for two cash measures including the level of cash holdings and industry-adjusted cash.

The coefficient of β_{15} captures the difference in sensitivity of firm value to an incremental increase in cash holdings between firms with access and without access to FCs.

<Insert Table 14 here>

Table 14 shows the results of equations (9) and (10). In columns (1) to (3), we found that firms with access to FCs had significantly decreased the value of cash holdings: the coefficient of the interaction variable between all measures of cash and the FC indicator is consistently negative and significant. To take the result in column (2) for example, across all firms each dollar increase in cash was valued at 2.71 dollars by outside investors, but if the firms were controlled by shareholders who own FCs each dollar increase in cash was only valued at 1.84 dollars ($Cash - FC * Cash$).

Taken together, we found that, after they gain access to FCs, firms were more likely to hoard cash for controlling shareholders' needs and wishes than for operational purposes or for investment. The outside investors realised the potential agency conflicts led by the presence of FCs and correspondingly reduced their valuation of cash held by firms in groups with FCs. These results provide strong evidence supporting our tunneling explanation.

5. Alternative control sample: cash holdings and M&A-induced changes in controlling shareholders

As we discuss above, affiliated firms gain access to a FC either when their business parent establishes one or through being acquired by a business group that already has one. Our evidence showed that on average firms increase the level of cash held after they gain access to FCs. We infer that firms with FCs increase the cash they hold to serve the interest of their controlling shareholders in expropriation,

rather than to support operational purposes or investment. To test the plausibility of this inference, we carried out a separate analysis of an alternative control sample by looking at firms that gained access only after acquisition. The idea was to compare the cash holdings of firms acquired by business groups with FCs ('treated firms') with the average cash holdings of firms acquired by business groups that had no connection with FCs during our sample period ('controlled firms'). We assumed that belonging to a business group that owns a FC has a dominant impact on target firms' cash policies after M&A has been finished.

We retrieved all information on acquisition deals from the Thomson ONE database. We double-checked this dataset with the ownership database to ensure that the acquirers became controlling shareholders, defined as holding no less than 20% of the firms after acquisition had been completed. Moreover, we restricted our sample to firms that changed their controlling shareholders only once during our sample period. Our final M&A sample consists of 373 acquired firms. Of these, in 63 acquisitions the target firms were consolidated into business groups with existing FCs.

We believed that firms are not especially likely to self-select their acquirers according to whether the acquirers are associated with FCs. Accordingly, we assumed that the presence of a FC in an acquirer's group is relatively exogenous to the target firm's cash policies, or in other words that it would be safe to attribute any increase in cash holdings by target firms after acquisition to the presence of FCs. To test this assumption we applied the following equation:

$$\begin{aligned}
 \text{Dependent}_{it} = & \alpha + \delta(\text{FCMA}_{i,t} * \text{PostMA}_{i,t}) + \gamma X_{i,t} + \text{Firm Fixed Effects} + \\
 & \text{Year Fixed Effects} + \varepsilon_{i,t} \quad (11)
 \end{aligned}$$

where $Dependent_{i,t}$ covers the three variables of interest ($Cash_{i,t}$, $\Delta cash_{i,t}$ and $Excash_{i,t}$). $FCMA_{i,t}$ equals 1 if the target firms were acquired by business groups with FCs, and otherwise 0. $PostMA_{i,t}$ represents the period after acquisition. We would expect the estimate of the interaction term (δ) to be significantly positive.

<Insert Table 15 here>

Table 15 shows the results from equation (11). Consistently with our prediction, the coefficient estimates of the interaction terms for all dependent variables in which we are interested are statistically significant and positive, suggesting that firms that gained access to FCs through a change in controlling shareholders increased their cash holdings. This result adds value to our interference that the presence of FCs matters in explaining firms' cash-hoarding behaviours.

6. Conclusion

In this paper, we examine the role that FCs play in determining group member firms' cash policies. Surprisingly, we found that firms hold high levels of cash after they gain access to FCs and that increasing cash holdings by such firms serves no operational or investment purposes. We show that this effect is more pronounced for firms facing more agency conflicts. These findings are contrary to Chinese reformers' intention in designing such a group-specific bank, which was to encourage improved efficiency of cash management and hence reduce the financial constraints on group member firms. We interpret these results as consistent with controlling shareholders extracting rents from firms by encouraging their subsidiaries to accumulate large cash holdings and to deposit these in the group's wholly owned FC. By doing this, the controlling shareholders could reap all the benefits from lending

this cash to other financial institutions through their FCs. This interpretation is supported by another finding, that firms that had access to FCs rebalanced their cash holdings sensitively to arbitrage benefits available in the interbank market.

These results are robust to several specifications that address concerns about endogeneity and concomitant effects. To be more precise, by introducing an exogenous regulation to firms' cash policies as a natural experiment, we find that cash holdings by firms reduced after the regulator placed a restriction on depositing their cash in FCs. These results provide strong evidence in support of FCs being a mechanism by which shareholders extract rents from firms they control.

We also investigated how this rent extraction behaviour (by controlling shareholders via FCs) affects the profitability and valuation of firms. Our analyses show that firm profitability fell after they gained access to FCs. Moreover, outside investors place a substantially lower value on cash held by a firm belonging to a business group with a FC. Again, these results imply that although the close ties between finance and industry within a business group may have offered firms financial advantages, such access may not be costless. What is worse, the cost of such access may outweigh its benefits. In the absence of efficient capital markets, it is possible that the shareholders controlling business groups would take advantage of the existence of such finance–industry ties to siphon off resources for their own interests. Overall, our findings provide the first evidence that the presence of FCs inhibits rather than encouraging the growth of Chinese firms. Our paper has important implications to which policy makers need to pay close attention concerning the role of FCs in the evolution of business groups, especially on the cost side of such group-specific banking.

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Figure 1 – An overview of finance companies

This table presents the consolidated balance sheet of all existing finance companies from 2014 to 2016. The data source is China National Association of Finance Company, which can be retrieved from: http://www.cnafc.org			
	2014	2015	2016
Asset	billions		
Total Asset	3170.34	4072.63	4760.39
Including:			
Cash and Due from Central Bank	305.46	223.66	306.78
Due from Banks and Other Financial Institutions	1185.18	1753.45	1967.70
Loans	1325.18	1688.15	2078.79
Investments	208.47	291.14	289.76
Liabilities	billions		
Total Liabilities	2717.37	3501.73	4086.96
Including:			
Inter-bank borrowings	90.62	98.52	91.66
Deposits	2423.12	3234.02	3743.39
Equity	billions		
Total shareholders' Equity	452.97	570.90	673.43
Profitability	billions、%		
Total Profit	69.65	75.78	79.56
Net Profit	53.62	58.41	61.99
ROA	1.69%	1.58%	1.39%
ROE	11.84%	10.96%	9.83%
Other ratio	billions、%		
NPL	0.11%	0.05%	0.03%
capital adequacy ratio	21.22%	21.19%	21.25%
LLP	1215.88%	2763.30%	3303.79%
Liquidity ratio	62.34%	71.87%	64.79%
Inter-bank borrowings to equity	21.79%	22.04%	28.40%
Investment to total asset	6.58%	49.82%	30.24%

Figure 2 – The classic structure of a business group affiliated with a finance company after 2000

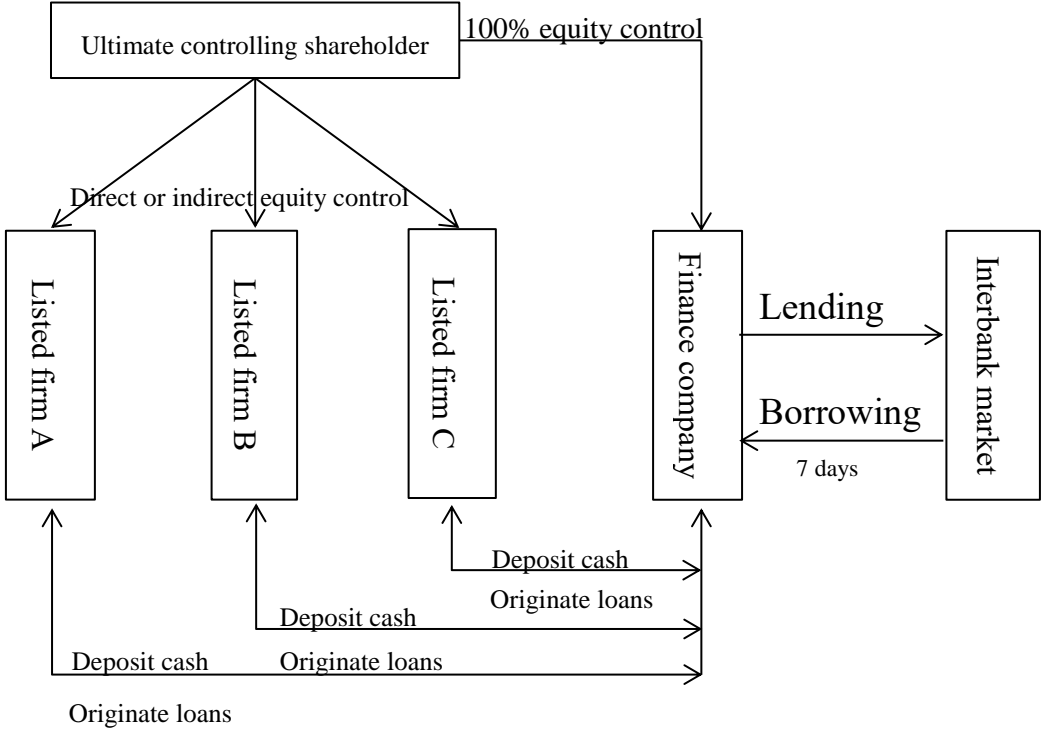


Figure 3 – Trend of firms' cash ratio before and after access to FC

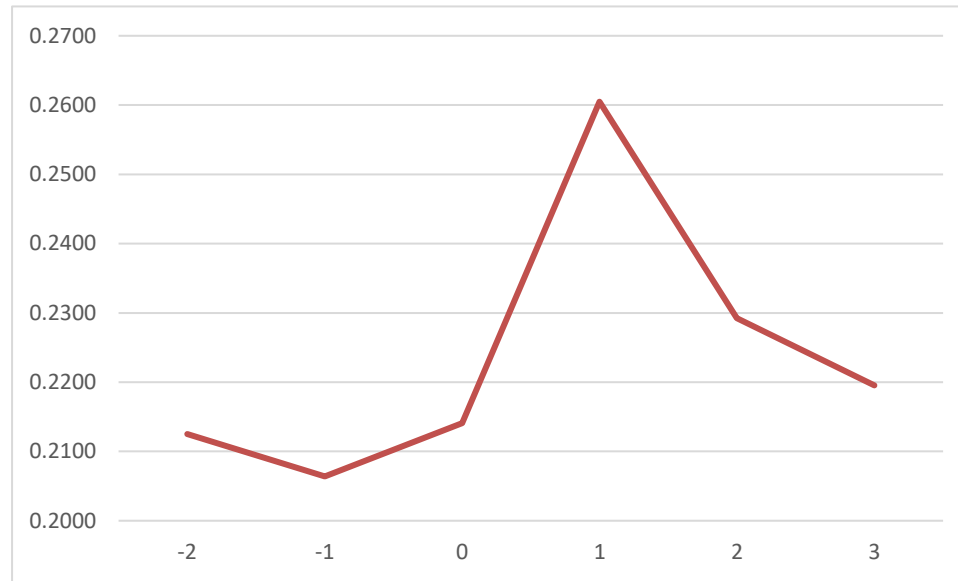


Table 1 – Summary Statistics

Panel A in this table presents the number of FCs and the size and number of public firms that are affiliated with FCs from 1998 to 2014. Panel B shows the size and number of all public firms listed in Shanghai and Shenzhen stock exchanges. Our sample consists of 21,584 firm-year observations representing 1,830 unique firms, among which 468 firms were associated with 180 FCs during 1998 to 2014. There are 196 FCs by the year of 2014, among which 16 FCs were either affiliated with business groups that do not have listed subsidiaries or owned by foreign business groups such as Hitachi, Panasonic and GE. These 16 FCs are not included in our sample.

year	Panel A: Number of firms					Panel B: Total asset			
	No. of FC	No. of listed firms with FC	No. of listed firms without FC	No. of all listed firms	% of No. of listed firms with FC as total No. of all listed firms	Total asset of listed firm with FC (in billions)	Total asset of listed firms without FC (in billions)	Total asset of listed firms (in billions)	% of total asset of listed firms with FC as total asset of all listed firms
	(1)	(2)	(3)	(4)	(6) = (2) / (4)	(7)	(8)	(9)	(10) = (7) / (9)
1998	40	48	647	695	6.91%	168.76	812.53	981.28	17.20%
1999	40	63	813	876	7.19%	251.35	1132.23	1383.58	18.17%
2000	43	80	941	1021	7.84%	320.47	1506.21	1826.68	17.54%
2001	45	90	976	1066	8.44%	770.73	1724.15	2494.88	30.89%
2002	50	98	1019	1117	8.77%	826.94	2146.65	2973.59	27.81%
2003	51	108	1052	1160	9.31%	991.82	2488.94	3480.77	28.49%
2004	57	130	1094	1224	10.62%	1291.34	2822.15	4113.48	31.39%
2005	59	132	1091	1223	10.79%	1586.80	3003.01	4589.81	34.57%
2006	64	148	1119	1267	11.68%	2174.53	3546.22	5720.76	38.01%
2007	73	182	1132	1314	13.85%	4268.90	5002.84	9271.73	46.04%
2008	81	208	1137	1345	15.46%	5115.37	6002.64	11118.01	46.01%
2009	90	234	1149	1383	16.92%	6778.61	7421.62	14200.23	47.74%
2010	104	259	1239	1498	17.29%	8734.09	8922.04	17656.13	49.47%
2011	125	297	1262	1559	19.05%	11071.33	10573.01	21644.35	51.15%
2012	149	349	1242	1591	21.94%	13673.15	10987.25	24660.40	55.45%
2013	175	399	1204	1603	24.89%	16554.14	11141.87	27696.01	59.77%
2014	196	429	1213	1642	26.13%	19647.71	11494.11	31141.82	63.09%

Table 2 – Definition of variables

This table provides definition for all variables used in this paper during the period of 1998 to 2014. Cash, Δ cash and Excash are dependent variables which are the interest of this paper. The rest of variables are control variables used in regressions in this paper.

Variable	Definition
Cash	Cash and cash equivalents scaled by noncash total assets
Δcash	Net change in cash and cash equivalents, scaled by noncash total assets
Excash	Industry-adjust cash. Difference between individual firm's cash level and average cash in the same industry, scaled by noncash total assets
Equity financing	Cash proceeds from equity issuance, scaled by noncash total assets
ROA	Net profit scaled by noncash total assets
ROE	Net profit scaled by total shareholders' equity
Tobin Q	Market value of equity plus book value of total liabilities, scaled by book value of total assets
Market to book	Market value of equity to book value of equity
Leverage	Ratio of total liabilities to total noncash assets
Finance expense	Ratio of finance expense to total noncash assets
CAPEX on fixed assets	Capital expenditures scaled by noncash total assets
CAPEX on investment	Equity investments and debt investments, scaled by noncash total assets
Log (total asset)	Logarithm of total asset
AGE	The number of years since the firm's incorporation
IPO	The number of years since the firm was listed on the exchange
Net working capital	Difference between current noncash assets and current liabilities, scaled by noncash total assets
Ownership	Indicator variable that equals one if controlling shareholders is a government agency
Control right	Total shares as a percentage of total shares outstanding held by controlling shareholders
Payout ratio	Dividend payments scaled by earnings
Dividend	Indicator variable that equals one if firm i paid cash dividends in year t

Table 3 – Summary statistics

This table presents descriptive statistics for all variables used in this study during the period of 1998 to 2014. Cash, Δ cash and Excash are dependent variables which are the interest of this paper. The rest of variables are control variables used in regressions in this paper. All variables are calculated for each firm-year.

Panel A: All variables summary statistics from 1998 to 2014

variable	N	mean	sd	5%	25%	50%	74%	95%
Cash	21581	0.2293	0.252	0.0221	0.0809	0.1497	0.2748	0.7405
Δcash	21547	0.0319	0.1576	-0.1464	-0.031	0.0065	0.0568	0.2836
Excash	21581	-0.0114	0.2471	-0.2453	-0.1509	-0.0784	0.0399	0.4809
Equity financing	16205	0.0672	0.1847	0	0	0.0008	0.0152	0.4352
ROA	21581	0.0409	0.0846	-0.0963	0.0131	0.0395	0.075	0.1624
ROE	21582	0.0529	0.2047	-0.1822	0.0267	0.0692	0.1156	0.2332
Tobin Q	21386	2.3202	1.4014	1.0132	1.3859	1.8957	2.7705	5.0723
Market to book	21384	3.5971	3.315	0.9297	1.8118	2.7744	4.3231	8.8975
Log (total asset)	21584	21.5862	1.2467	19.8184	20.7163	21.4427	22.2758	23.9466
Leverage	21581	0.598	0.2614	0.2105	0.4226	0.5842	0.7441	1.0018
Finance expense	21579	0.0129	0.0146	-0.0077	0.0033	0.0115	0.0207	0.0377
CAPEX on fixed assets	21495	0.0711	0.0713	0.0015	0.0179	0.0491	0.1006	0.2208
CAPEX on investment	18576	0.0504	0.1183	0	0	0.007	0.0428	0.2431
AGE	20934	12.1322	5.7847	3	8	12	16	22
IPO	20934	8.1153	5.3612	0	4	8	12	18
Net working capital	21581	-0.0513	0.2703	-0.4925	-0.1955	-0.0366	0.1237	0.358
Ownership	21584	0.7182	0.4499	0	0	1	1	1
Control right	21584	0.407	0.1646	0.1637	0.2752	0.3952	0.5309	0.697
Payout ratio	20901	0.2398	0.3235	0	0	0.1316	0.3726	0.8329
Dividend	20901	0.5721	0.4948	0	0	1	1	1

(

Continued)

Table 3 – Summary statistics (Continued)

Penal B: Summary Statistics of cash holdings by year								
year	N	mean	sd	5%	25%	50%	75%	95%
1998	695	0.1418	0.1571	0.0118	0.0485	0.0955	0.1843	0.4281
1999	876	0.1694	0.1788	0.0127	0.059	0.1177	0.2149	0.5084
2000	1021	0.2386	0.2719	0.0143	0.0762	0.1478	0.2797	0.8268
2001	1066	0.2507	0.2503	0.0204	0.0932	0.1684	0.3166	0.7812
2002	1117	0.2309	0.2377	0.0213	0.086	0.1583	0.2942	0.6897
2003	1160	0.2218	0.2248	0.0251	0.0856	0.151	0.2743	0.6648
2004	1224	0.213	0.2284	0.0204	0.0776	0.144	0.2658	0.6393
2005	1223	0.19	0.207	0.0173	0.0657	0.1295	0.2338	0.586
2006	1267	0.19	0.2113	0.0124	0.0669	0.13	0.2329	0.5741
2007	1314	0.2054	0.2181	0.0164	0.0739	0.1387	0.2537	0.6242
2008	1344	0.2076	0.2218	0.0199	0.078	0.1429	0.2578	0.6043
2009	1383	0.2614	0.2837	0.027	0.0924	0.1719	0.3082	0.9022
2010	1496	0.31	0.3453	0.032	0.1	0.187	0.3624	1.2198
2011	1559	0.2838	0.3091	0.0327	0.097	0.1764	0.3284	0.9977
2012	1591	0.2632	0.2811	0.0331	0.0924	0.166	0.3109	0.9086
2013	1603	0.2235	0.2283	0.0312	0.0882	0.151	0.2712	0.6577
2014	1642	0.2119	0.2209	0.0324	0.083	0.1412	0.2511	0.6571

Table 4 – Baseline regression

This table reports panel regression results of the impact of the presence of FC on firm cash holdings in the sample period 1998 to 2014. The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable Δ **cash** is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. **Before^k (after^k)** indicates the k years before (after) the year when the firm has access to FCs. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Cash		Δ cash		Excash	
FC	0.0249** (2.35)		0.0170*** (3.31)		0.0281*** (2.66)	
Log (total asset)	-0.0411*** (-6.80)	-0.0413*** (-6.31)	-0.0129*** (-4.15)	-0.0117*** (-3.30)	-0.0391*** (-6.55)	-0.0394*** (-6.09)
Market to book	-0.0025** (-2.42)	-0.0022** (-2.10)	-0.0008 (-1.38)	-0.0005 (-0.87)	-0.0023** (-2.33)	-0.0022** (-2.12)
Leverage	0.3978*** (15.97)	0.3799*** (14.53)	0.2334*** (16.86)	0.2375*** (15.47)	0.3936*** (15.86)	0.3765*** (14.40)
Operating cashflow	0.4507*** (17.93)	0.4315*** (16.47)	0.4645*** (23.26)	0.4609*** (22.02)	0.4484*** (18.06)	0.4276*** (16.43)
CAPEX on fixed assets	0.0526 (1.58)	0.0607* (1.73)	-0.1535*** (-5.88)	-0.1468*** (-5.19)	0.0397 (1.20)	0.0492 (1.41)
CAPEX on investment	0.0872*** (3.24)	0.0779*** (2.74)	-0.0875*** (-5.11)	-0.0927*** (-5.07)	0.0821*** (3.14)	0.0731*** (2.66)
AGE	-0.0003 (-0.35)	0.0001 (0.13)	-0.0039*** (-6.74)	-0.0037*** (-5.80)	-0.0074*** (-8.25)	-0.0070*** (-7.31)
Net working capital	-0.0210 (-1.01)	-0.0018 (-0.08)	0.0604*** (5.27)	0.0709*** (5.58)	-0.0208 (-1.00)	-0.0018 (-0.08)
SOE	-0.0214* (-1.68)	-0.0134 (-1.06)	-0.0094 (-1.49)	-0.0091 (-1.43)	-0.0244** (-2.00)	-0.0174 (-1.42)
Finance expense	-5.9800*** (-18.09)	-5.6262*** (-16.31)	-0.8697*** (-4.98)	-0.7127*** (-3.69)	-5.9735*** (-18.22)	-5.6076*** (-16.46)
Control right	-0.0001	-0.0001	-0.0001	-0.0001	-0.0002	-0.0002

	(-0.24)	(-0.28)	(-0.99)	(-0.63)	(-0.56)	(-0.52)
Dividend	0.0346***	0.0343***	0.0269***	0.0304***	0.0332***	0.0333***
	(8.94)	(8.10)	(9.12)	(9.23)	(8.50)	(7.79)
before⁵		0.0181		0.0030		0.0163
		(1.16)		(0.23)		(1.05)
before⁴		0.0258		0.0186		0.0253
		(1.64)		(1.40)		(1.63)
before³		0.0128		0.0088		0.0135
		(0.99)		(0.73)		(1.04)
before²		0.0108		-0.0018		0.0111
		(0.87)		(-0.15)		(0.88)
before¹		-0.0005		-0.0083		0.0001
		(-0.05)		(-0.77)		(0.01)
after¹		0.0454***		0.0525***		0.0471***
		(4.23)		(4.03)		(4.40)
after²		0.0288***		0.0019		0.0313***
		(2.72)		(0.19)		(2.92)
after³		0.0130		-0.0016		0.0140
		(1.13)		(-0.16)		(1.21)
after⁴		0.0050		-0.0028		0.0072
		(0.39)		(-0.26)		(0.56)
after⁵		0.0180		0.0152		0.0206
		(1.26)		(1.38)		(1.45)
Constant	0.9040***	0.8986***	0.2142***	0.1769**	0.7548***	0.7521***
	(7.47)	(6.84)	(3.50)	(2.55)	(6.33)	(5.81)
Year fixed effect	yes	yes	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes	yes	yes
N	17805	15679	17803	15677	17805	15679
adj. R-sq	0.2368	0.2159	0.1482	0.1464	0.2357	0.2110

Table 5 – 2007 exogenous shock

This table reports panel regression results of the impact of 2007 *Anti-tunneling Guidance* as an exogenous shock on firms' cash holdings by using a difference-in-difference-in-differences approach. The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable **Δcash** is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. We only considered firms with constant access to FCs throughout the whole sample period, or no access at all throughout. **Post2007** is the time dummy which is equal to 1 for period between 2008 to 2011 and 0 for period between 2004 to 2007. **SME** is an indicator which equals to 1 for firms listed in SME board and 0 for otherwise. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)
	Cash	Δcash	Excash
FC*post2007	-0.0065 (-0.66)	-0.0114 (-1.35)	-0.0084 (-0.83)
SME*post2007	-0.0993*** (-3.74)	-0.0429** (-1.99)	-0.1050*** (-3.91)
FC*SME*post2007	-0.1664** (-2.17)	-0.2201** (-2.23)	-0.1585** (-2.13)
Log (total asset)	-0.0097 (-1.08)	0.0134* (1.86)	-0.0069 (-0.78)
Market to book	-0.0013 (-1.24)	0.0002 (0.29)	-0.0013 (-1.25)
Leverage	0.3428*** (10.09)	0.2274*** (9.31)	0.3396*** (10.02)
Operating cashflow	0.3458*** (10.99)	0.4249*** (11.74)	0.3309*** (10.95)
CAPEX on fixed assets	-0.0852* (-1.91)	-0.2311*** (-5.35)	-0.0974** (-2.18)
CAPEX on investment	0.0854** (2.23)	-0.1230*** (-3.78)	0.0741** (1.96)
AGE	-0.0035** (-2.10)	-0.0088*** (-5.76)	-0.0146*** (-8.67)
Net working capital	-0.0526* (-1.91)	0.0429** (2.13)	-0.0488* (-1.77)
SOE	-0.0239* (-1.94)	-0.0086 (-0.93)	-0.0280** (-2.25)
Finance expense	-4.3638*** (-10.79)	0.3721 (1.12)	-4.2813*** (-10.57)
Control right	-0.0003 (-0.73)	-0.0001 (-0.49)	-0.0002 (-0.55)
Dividend	0.0263*** (5.17)	0.0260*** (4.91)	0.0265*** (5.20)
Constant	0.3500** (2.04)	-0.3040** (-2.24)	0.1768 (1.04)
Year fixed effect	yes	yes	yes
Firm fixed effect	yes	yes	yes
N	7722	7722	7722
adj. R-sq	0.2329	0.1875	0.2744

Table 6 – Entering interbank market and Cash holdings

This table reports the effect of allowing FCs to participate in interbank activities in 2000 on firms' cash holdings during the sample period of 1998 to 2014. The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable **Δcash** is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. We only considered firms with constant access to FCs throughout the whole sample period, or no access at all throughout. **Post2000** is the time dummy which is equal to 1 in the period after 2000 and 0 otherwise. **Year^k** is an indicator that equals to 1 if the year equals to k and 0 otherwise. **Controls** include all control variables in baseline regression. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Cash		Δcash		Excash	
FC*post2000	0.0441*** (2.84)		0.0671*** (3.81)		0.0440*** (2.80)	
FC*year¹⁹⁹⁸		-0.0008 (-0.04)		0.0320 (0.97)		-0.0006 (-0.03)
FC*year¹⁹⁹⁹		0.0230 (1.30)		0.0396 (1.48)		0.0224 (1.24)
FC*year²⁰⁰¹		0.0191 (1.12)		0.0772*** (3.07)		0.0192 (1.12)
FC*year²⁰⁰²		0.0573** (2.46)		0.1006*** (3.52)		0.0575** (2.47)
FC*year²⁰⁰³		0.0832*** (2.94)		0.0802*** (2.77)		0.0817*** (2.86)
Constant	1.3752*** (3.00)	1.3998*** (3.05)	0.7724** (2.29)	0.7717** (2.29)	1.3198*** (2.92)	1.3437*** (2.97)
Controls	yes	yes	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes	yes	yes
N	3141	3141	3139	3139	3141	3141
adj. R-sq	0.2186	0.2197	0.2054	0.2051	0.2117	0.2128

Table 7 – Cross-sectional analysis: Control right

This table reports the variation of control right in the effects of the presence of finance companies on cash holdings during the sample period of 1998 to 2014. The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable **Δcash** is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. **Control Right** refers to shares held by controlling shareholders as a percentage of total shares outstanding. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1) Cash	(2) Δcash	(3) Excash
FC	0.0612** (2.56)	0.0218** (2.06)	0.0653*** (2.77)
FC*Control right	-0.0012** (-2.34)	-0.0003 (-1.40)	-0.0012** (-2.41)
Log (total asset)	-0.0405*** (-6.74)	-0.0126*** (-4.05)	-0.0386*** (-6.49)
Market to book	-0.0025** (-2.42)	-0.0008 (-1.36)	-0.0023** (-2.32)
Leverage	0.3970*** (16.00)	0.2332*** (16.82)	0.3928*** (15.88)
Operating cashflow	0.4495*** (17.92)	0.4639*** (23.22)	0.4472*** (18.05)
CAPEX on fixed assets	0.0517 (1.54)	-0.1534*** (-5.87)	0.0388 (1.17)
CAPEX on investment	0.0867*** (3.23)	-0.0879*** (-5.14)	0.0816*** (3.12)
AGE	-0.0001 (-0.15)	-0.0038*** (-6.58)	-0.0072*** (-8.04)
Net working capital	-0.0214 (-1.03)	0.0602*** (5.26)	-0.0211 (-1.02)
SOE	-0.0207 (-1.64)	-0.0090 (-1.42)	-0.0238* (-1.96)
Finance expense	-5.9575*** (-18.08)	-0.8610*** (-4.93)	-5.9509*** (-18.21)
Control right	0.0001 (0.31)	-0.0001 (-0.66)	0.0000 (0.01)
Dividend	0.0344*** (8.89)	0.0268*** (9.11)	0.0331*** (8.46)
Constant	0.8853*** (7.40)	0.2056*** (3.36)	0.7361*** (6.24)
Year fixed effect	yes	yes	yes
Firm fixed effect	yes	yes	yes
N	17805	17803	17805
adj. R-sq	0.2368	0.1479	0.2357

Table 8 – Cash–cashflow sensitivity–components of cash flows

This table reports the results of the effects of the presence of finance companies on cash-to-cash-flow sensitivity during the sample period of 1998 to 2014. We decompose cash flows into three components: net cash generated from operational activities, net cash generated from investment activities and net cash generated from financing activities, in order to investigate the attribution of the net change in cash. Penal A reports the results of cash-cashflow sensitivity-components of cash flows. In Penal B, we conduct a subsample analysis where we partition firms by whether the controlling shareholders hold above sample-mean shares. The dependent variable Δcash is net change in cash ratio scaled by noncash total assets. **Financing cash flow** refers to the cash flow from financing activities. **Operating cash flow** refers to the cash flow from operating activities. **Investing cash flow** refers to the cash flow from investment activities. **Controls** include all control variables mentioned in specification (6). All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	Penal A			Penal B					
	(1) Δcash	(2) Δcash	(3) Δcash	Control right above mean			Control right below mean		
	(4) Δcash	(5) Δcash	(6) Δcash	(7) Δcash	(8) Δcash	(9) Δcash			
FC	-0.0069 (-1.55)	-0.0026 (-0.49)	-0.0073 (-1.29)	-0.0195*** (-2.97)	-0.0128 (-1.57)	-0.0150 (-1.60)	-0.0000 (-0.00)	-0.0073 (-1.00)	-0.0125 (-1.62)
Financing cash flow	0.4655*** (25.20)			0.5767*** (23.61)			0.5501*** (23.89)		
FC*Financing cash flow	0.0095*** (11.49)			-0.0393 (-0.85)			0.0088*** (11.81)		
Operating cash flow		0.4670*** (25.66)			0.5008*** (14.12)			0.4847*** (17.28)	
FC*Operating cash flow		0.0837 (1.34)			0.1046 (1.10)			0.1321 (1.42)	
Investing cash flow			0.5477*** (25.94)			0.5096*** (12.80)			0.5158*** (17.47)
FC*Investing cash flow			-0.0290 (-0.62)			0.0168 (0.20)			-0.0737 (-1.43)
Constant	0.3999*** (7.45)	0.2193*** (4.26)	0.1325** (2.56)	0.1761** (2.41)	-0.2909*** (-4.40)	-0.3096*** (-4.16)	0.4037*** (4.63)	-0.0046 (-0.05)	-0.2214*** (-2.50)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes	yes	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	16855	16881	16881	7599	7609	7609	9239	9255	9255
adj. R-sq	0.2520	0.2025	0.1823	0.3231	0.2309	0.1659	0.2836	0.1532	0.1280

Table 9 – Cash–cashflow sensitivity – components of financing cash flows

This table reports the results of the effects of the presence of finance companies on cash-to-cash-flow sensitivity during the sample period of 1998 to 2014. We further decompose financing cash flows into three components: net cash generated from equity financing, net cash generated from debt financing and net cash borrowed from banks, in order to investigate the attribution of the net change in cash. Penal A reports the results of cash-cashflow sensitivity-components of financing cash flows. In Penal B, we conduct a subsample analysis where we partition firms by whether the controlling shareholders hold above sample-mean shares. The dependent variable Δcash is net change in cash ratio scaled by noncash total assets. **Equity financing** refers to the cash flow from equity financing. **Debt financing** refers to the cash flow from debt financing. **Borrowing** refers to the cash borrowed from banks. **Controls** include all control variables mentioned in specification (6). All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	Penal A			Penal B					
	(1)	(2)	(3)	Control right above mean			Control right below mean		
	Δcash	Δcash	Δcash	(4)	(5)	(6)	(7)	(8)	(9)
				Δcash	Δcash	Δcash	Δcash	Δcash	Δcash
FC	0.0012 (0.27)	-0.0018 (-0.29)	-0.0060 (-0.94)	-0.0117* (-1.68)	-0.0086 (-0.95)	-0.0111 (-1.22)	-0.0019 (-0.33)	0.0007 (0.08)	-0.0176* (-1.65)
Equity financing	0.6719*** (32.53)			0.6761*** (19.18)			0.6693*** (26.67)		
FC*Equity financing	0.0024*** (2.77)			-0.0353 (-0.58)			0.0050*** (6.10)		
Debt financing		0.2347*** (5.05)			0.3128*** (4.35)			0.3219*** (4.52)	
FC*Debt financing		-0.0448 (-0.58)			-0.0066 (-0.07)			-0.1083 (-0.70)	
Borrowing			0.0341*** (4.66)			0.0407*** (3.69)			0.0551*** (5.02)
FC*Borrowing			0.0033 (0.24)			-0.0146 (-0.96)			0.0265 (0.86)
Constant	0.5547*** (8.96)	0.3406*** (3.08)	0.2933*** (5.40)	-0.0540 (-0.61)	-0.4211*** (-2.58)	-0.1492** (-2.08)	0.3011*** (3.03)	0.0596 (0.31)	0.0359 (0.38)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes	yes	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	13856	9769	16468	6000	4018	7381	7847	5750	9081
adj. R-sq	0.3198	0.0632	0.0759	0.2847	0.0744	0.0845	0.2907	0.0322	0.0358

Table 10 – Rate-sensitivity analysis: coefficients matrix for interaction terms

This table reports the results of the relationship between interbank market rate and firms cash policies during the sample period of 1998 to 2014. We only report the coefficients matrix for interaction terms to save space. Panel A reports the coefficients of interest rate spread on all three cash proxies. **Spread** is calculated as Shibor rate minus demand risk-free rate. Penal B reports the coefficients of Shibor rates on all three cash proxies. We consider all **Shibor rates** with eight maturities: overnight (O/N), 1-week(1W), 2-week(2W), 1-month(1M), 3-month(3M), 6-month(6M), 9-month(9M) and 1-year(1Y). Penal C reports the coefficients of risk-free rate on all three cash proxies. We consider **Risk-free rates** with three maturities: 3-month(3M), 6-month(6M) and 1-year(1Y). The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable Δcash is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. We control the same variables as in baseline regression. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	Penal A: Spread	Penal B: Shibor rate								Penal C: Risk-free rate		
Dependents	FC*spread	FC*O/N	FC*1W	FC*2W	FC*1M	FC*3M	FC*6M	FC*9M	FC*1Y	FC*3M	FC*6M	FC*1Y
Cash	0.0162*** (2.74)	0.0151*** (2.66)	0.0134*** (2.84)	0.0124*** (2.96)	0.0105*** (2.92)	0.0102*** (2.95)	0.0105*** (2.83)	0.0111*** (2.88)	0.0118*** (2.90)	0.0122* (1.79)	0.0083 (1.32)	0.0051 (0.85)
Δcash	0.0094** (2.18)	0.0092** (2.02)	0.0075** (2.01)	0.0062* (1.87)	0.0046 (1.61)	0.0039 (1.35)	0.0046 (1.44)	0.0051 (1.56)	0.0056 (1.64)	0.0107 (1.46)	0.0089 (1.27)	0.0073 (1.09)
Excash	0.0173*** (2.95)	0.0162*** (2.88)	0.0145*** (3.11)	0.0135*** (3.26)	0.0115*** (3.19)	0.0115*** (3.33)	0.0119*** (3.23)	0.0126*** (3.29)	0.0134*** (3.32)	0.0145** (2.15)	0.0105* (1.69)	0.0072 (1.21)

Table 11 – Alternative explanation – FC encourages capital efficiency

This table reports the variation of ownership in the effects of the presence of finance companies on cash holdings during the sample period of 1998 to 2014. The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable **Δcash** is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. **Ownership** is the indicator variable that equals 1 if controlling shareholders is a government agency and 0 for otherwise. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)
	Cash	Δcash	Excash
FC	0.0484* (1.75)	0.0072 (0.58)	0.0489* (1.82)
FC*ownership	-0.0423 (-1.49)	0.0010 (0.08)	-0.0393 (-1.42)
Log (total asset)	-0.0408*** (-6.74)	-0.0127*** (-4.06)	-0.0388*** (-6.48)
Market to book	-0.0024** (-2.41)	-0.0008 (-1.36)	-0.0023** (-2.31)
Leverage	0.3975*** (15.98)	0.2334*** (16.83)	0.3934*** (15.87)
Operating cashflow	0.4489*** (17.83)	0.4640*** (23.23)	0.4467*** (17.95)
CAPEX on fixed assets	0.0531 (1.59)	-0.1530*** (-5.86)	0.0402 (1.21)
CAPEX on investment	0.0858*** (3.19)	-0.0878*** (-5.13)	0.0808*** (3.09)
AGE	-0.0001 (-0.16)	-0.0038*** (-6.60)	-0.0072*** (-8.05)
Net working capital	-0.0214 (-1.03)	0.0602*** (5.25)	-0.0211 (-1.02)
SOE	-0.0172 (-1.37)	-0.0090 (-1.41)	-0.0205* (-1.69)
Finance expense	-5.9746*** (-18.07)	-0.8652*** (-4.95)	-5.9682*** (-18.20)
Control right	-0.0001 (-0.26)	-0.0001 (-0.99)	-0.0002 (-0.58)
Dividend	0.0345*** (8.92)	0.0269*** (9.13)	0.0332*** (8.49)
Constant	0.8948*** (7.40)	0.2082*** (3.40)	0.7457*** (6.26)
Year fixed effect	yes	yes	yes
Firm fixed effect	yes	yes	yes
N	17805	17803	17805
adj. R-sq	0.2365	0.1478	0.2353

Table 12 – Alternative explanation – FC addresses managerial agency problem

This table reports the variation of bank-dependence in the effects of the presence of finance companies on cash holdings during the sample period of 1998 to 2014. The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable **Δcash** is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. **Dependence** is average borrowings from banks in pre-access to FC years scaled by noncash total assets. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)
	Cash	Δcash	Excash
FC	0.0150 (0.55)	0.0007 (0.07)	0.0134 (0.50)
FC*dependence	-0.0183 (-0.20)	0.0251 (0.80)	-0.0010 (-0.01)
Log (total asset)	-0.0402*** (-6.47)	-0.0123*** (-3.81)	-0.0381*** (-6.22)
Market to book	-0.0025** (-2.38)	-0.0008 (-1.39)	-0.0024** (-2.31)
Leverage	0.3853*** (15.19)	0.2301*** (16.07)	0.3805*** (15.03)
Operating cashflow	0.4461*** (16.96)	0.4531*** (22.13)	0.4435*** (17.08)
CAPEX on fixed assets	0.0471 (1.36)	-0.1606*** (-5.97)	0.0344 (1.00)
CAPEX on investment	0.0792*** (2.84)	-0.0913*** (-5.24)	0.0741*** (2.73)
AGE	0.0001 (0.08)	-0.0038*** (-6.36)	-0.0070*** (-7.46)
Net working capital	-0.0171 (-0.80)	0.0616*** (5.29)	-0.0175 (-0.82)
SOE	-0.0207 (-1.59)	-0.0106* (-1.68)	-0.0230* (-1.85)
Finance expense	-5.8757*** (-17.60)	-0.8788*** (-4.79)	-5.8737*** (-17.72)
Control right	-0.0000 (-0.08)	-0.0001 (-0.85)	-0.0001 (-0.44)
Dividend	0.0332*** (8.21)	0.0269*** (8.79)	0.0323*** (7.92)
Constant	0.8848*** (7.15)	0.2053*** (3.26)	0.7344*** (6.03)
Year fixed effect	yes	yes	yes
Firm fixed effect	yes	yes	yes
N	16580	16578	16580
adj. R-sq	0.2243	0.1439	0.2229

Table 13 – Performance

This table reports the accounting profitability and investments after firms gain access to FCs during the sample period of 1998 to 2014. The dependent variables are **ROA** (Net profit scaled by noncash total assets) in Colum (1), **ROE** (Net profit scaled by total shareholders' equity) in Colum (2). **CAPEX on fixed assets** (Capital expenditures scaled by noncash total assets) in Colum (3) and **CAPEX on investment** (Equity investments and debt investments, scaled by noncash total assets) in Colum (4). **FC** is an indicator variable which equals to one if a firm has affiliated with a FC. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1) ROA	(2) ROE	(3) CAPEX on fixed assets	(4) CAPEX on investment
FC	-0.0102*** (-2.98)	-0.0221*** (-2.81)	-0.0000 (-0.01)	-0.0119* (-1.80)
Log (total asset)	0.0126*** (6.93)	-0.0168*** (-3.43)	0.0035*** (2.65)	-0.0108*** (-3.92)
Market to book	0.0008* (1.89)	-0.0230*** (-14.59)	0.0004** (1.96)	-0.0002 (-0.43)
Leverage	-0.1356*** (-21.24)	-0.0455*** (-3.26)	-0.0213*** (-5.72)	-0.0572*** (-6.85)
Δcash	0.1230*** (30.01)	0.0964*** (12.62)	-0.0033 (-0.93)	-0.0290*** (-3.95)
Constant	-0.1414*** (-3.80)	0.5254*** (5.24)	0.0237 (0.85)	0.3300*** (5.75)
Year fixed effect	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes
N	21250	21250	21199	18291
adj. R-sq	0.1822	0.1082	0.0507	0.0578

Table 14 – Cross-sectional analysis: cash–firm value

This table shows the panel regression results of the market value of cash holdings using Fama and MacBeth (1973) approach. The dependent variable **TobinQ** is the proxy for market value of firm calculated as sum of market value of equity plus book value of liabilities. **ROA** refers to net profit scaled by noncash total assets. **NA** is the total assets mins cash holdings. **R&D** is the R&D expenses and we set it equal to zero if missing. **I&D** is the sum of interest expenses and dividends. The suffix **lag** represents a change in variable X from time t-1 to t ($X_t - X_{t-1}$). The suffix **lead** represents a change in variable X from time t to t+1 ($X_{t+1} - X_t$). All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)
	Tobin Q	Tobin Q	Tobin Q
FC	-0.0788 (-0.90)	0.0809 (0.97)	-0.1383 (-1.58)
cash_lag	1.8740*** (17.89)		
FC*cash_lag	-0.6466*** (-3.00)		
Cash		2.7121*** (21.80)	
FC*Cash		-0.8673*** (-2.92)	
Excash			2.6673*** (21.83)
FC* Excash			-0.7230** (-2.54)
Cash_lead	0.1748* (1.73)		
ROA	5.3485*** (10.84)	4.2111*** (8.96)	4.2702*** (9.07)
ROA_lag	-0.4220*** (-2.79)	-0.2569* (-1.70)	-0.2572* (-1.69)
ROA_lead	3.5403*** (14.17)	3.3553*** (14.01)	3.3695*** (14.01)
NA_lag	-0.0327** (-2.53)	-0.0384*** (-3.26)	-0.0404*** (-3.40)
NA_lead	0.7602*** (18.21)	0.6306*** (15.69)	0.6391*** (15.82)
R&D	6.3594 (0.78)	11.5183 (1.36)	10.3823 (1.24)
R&D_lag	-13.0565* (-1.74)	-17.8025** (-2.35)	-18.0695** (-2.40)
R&D_lead	9.0783 (1.31)	8.7590 (1.37)	8.3074 (1.30)
I&D	7.2871*** (4.82)	1.8147 (1.25)	1.6872 (1.16)
I&D_lag	0.2355 (0.42)	0.6894 (1.32)	0.7155 (1.35)
I&D_lead	2.4328*** (3.18)	1.2131 (1.61)	1.2091 (1.60)
Tobin Q_lead	-0.2898*** (-15.33)	-0.2566*** (-14.85)	-0.2593*** (-14.96)
Constant	2.5192*** (13.58)	2.4715*** (14.10)	2.8664*** (16.51)
Year fixed effect	yes	yes	yes
Firm fixed effect	yes	yes	yes
N	19504	19506	19506
adj. R-sq	0.4457	0.4919	0.4901

Table 15 – Cash holdings and M&A

This table reports the results of changes in controlling shareholders in the effect the presence of finance companies on cash holdings during the sample period of 1998 to 2014. We consider firms that gain access to FCs through acquisition only due to changes of their controlling shareholders. We employ an alternative M&A sample that consists of 373 acquisitions. Of these, the targets firms of 63 acquisitions were consolidated into business groups with existing FCs. The dependent variable **Cash** is cash and cash equivalents scaled by noncash total assets. The dependent variable **Δcash** is net change in cash ratio scaled by noncash total assets. The dependent variable **Excash** is difference between individual firm's cash level and average cash in the same industry scaled by noncash total assets. **FCMA** equals 1 if the target firms were acquired by business groups with FCs, and otherwise 0. **Post MA** represents the period after acquisition. All other variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% level. In all columns, firm-fixed and year-fixed effects are further controlled. The standard errors are clustered at the firm level and are shown in parentheses, *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

	(1) Cash	(2) Δcash	(3) Excash
FCMA*post MA	0.0582* (1.77)	0.0208** (2.05)	0.0686** (2.04)
Log (total asset)	-0.0258* (-1.95)	-0.0047 (-0.71)	-0.0288* (-1.89)
Market to book	-0.0000 (-0.03)	-0.0003 (-0.52)	-0.0001 (-0.05)
Leverage	0.1972*** (3.99)	0.1239*** (4.27)	0.2174*** (3.60)
Operating cashflow	0.3754*** (7.81)	0.4422*** (10.50)	0.3864*** (6.81)
CAPEX on fixed assets	0.1037 (1.44)	-0.1791*** (-3.17)	0.0367 (0.47)
CAPEX on investment	0.0599 (1.21)	-0.0716** (-2.26)	0.0638 (1.48)
AGE	0.0036* (1.92)	-0.0021* (-1.71)	-0.0125*** (-5.17)
Net working capital	-0.0904** (-2.27)	0.0139 (0.77)	-0.0983** (-2.12)
SOE	-0.0291 (-1.46)	-0.0106 (-1.34)	-0.0480** (-2.31)
Finance expense	-5.1972*** (-8.67)	-1.2947*** (-4.54)	-5.7145*** (-8.31)
Control right	0.0002 (0.38)	0.0001 (0.51)	-0.0001 (-0.11)
Dividend	0.0325*** (3.77)	0.0227*** (3.63)	0.0254** (2.57)
Constant	0.6106** (2.36)	0.0747 (0.61)	0.6574** (2.17)
Year fixed effect	yes	yes	yes
Firm fixed effect	yes	yes	yes
N	3364	3364	3364
adj. R-sq	0.2414	0.1690	0.2083



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