Stock Market Liberalization and Corporate Cash Holdings: Evidence from China

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Abstract: We examine the impact of stock market liberalization on corporate cash holdings using the sequential enactment of Mainland-Hong Kong Stock Connect Program as quasi-natural experiments. We find that stock market liberalization is associated with significant reductions in cash holdings. This effect mainly appears among firms with small managerial ownership, high separation of ownership and control, severe financial constraints, and limited investment opportunities. Overall, our study offers original evidence about how stock market liberalization in emerging economies affects firms' liquidity management decisions.

Keywords:Stock market liberalization; Cash holdings; Mainland-Hong Kong Stock Connect; Quasi-natural experiment

I. Introduction

This paper investigates the real effect of liberalizing capital markets on cash accumulation by publicly traded firms in China. As a major concern of scholars, cash holdings support a company's survival, development, financial situation, and business strategy. Previous literature examines the roles of cash holdings as coping with uncertainty and seizing investment opportunities (Opler et al., 1999; Almeida et al., 2004; Bates, 2009; Mclean, 2011). Recent studies focus on the serious agency problems related to corporate cash holding; in other words, managers may hoard cash for self-serving reasons (Jensen, 1986; Dittmar and Mahrt-Smith, 2007; Harford et al., 2008). However, little is known about how stock market liberalization affects corporate cash holdings, especially in China—the world's second-largest economy—after it adopted policies to liberalize capital markets.

We examine China's staggered Mainland-Hong Kong Stock Connect programs (Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect). These programs lifted restrictions on foreign investors trading 568 stocks on the Shanghai Stock Exchange in November 17, 2014, and 881 stocks on the Shenzhen Stock Exchange in December 5, 2016. Liberalization attracted foreign investors to A-share markets. Under this circumstance, the following question arises: Will listed Chinese companies stash more cash for precautionary and speculative motives or slash cash holdings owing to improved corporate governance and eased financial constraints caused by foreign investors?

On the one hand, the Stock Connect Program provides a high-quality platform for foreign investors to enter Chinese capital markets. Multiple financing channels benefit companies by reducing financial constraints (Henry, 2000; Gupta and Yuan, 2009). Furthermore, foreign investors are thought to be more rational and participate in corporate governance by "voting with their hands" or "voting with their feet" (Bhagat et al., 2004; Edmans, 2009; Aggarwal et al., 2011). Under this circumstance, agency problems arising from opportunistic cash holding may be lessened. In other words, stock market liberalization may push firms to hold less cash. On the other hand, foreigners own a small percentage of A-shares, and the corporate governance effect of the Connect programs may be less than expected. Moreover, stock market liberalization may instill uncertainty and investment opportunities among firms (Bekaert and Harvey, 2000; Henry, 2000; Stiglitz, 2000; Bae et al., 2004; Mitton, 2006), prompting firms to hold more cash for precautionary and speculative reasons (Opler et al., 1999). In short, whether and how liberalization influences corporate cash holdings are empirically open questions.

Using Mainland-Hong Kong Stock Connect as sequential quasi-natural experiments, we address the aforementioned questions by sampling Chinese A-share listed companies from 2011 to 2017. According to Bertrand and Mullainathan (2003), our step-by-step experiment, provides clean treatment and control groups for examining causality between stock market liberalization and cash holdings. We find that liberalization is associated with

significantly reduced corporate cash holdings during the period studied. Results are robust to alternative measures for dependent variables, the independent variable, and a placebo test. In addition, results mainly arise in firms with low managerial ownership, high separation of ownership and control, severe financial constraints, and limited investment opportunities. In sum, our results reveal empirical effects of stock market liberalization on the real economy.

Our paper extends multiple streams of literature. It adds to the literature of stock market liberalization and foreign ownership by finding that liberalization can reduce corporate cash holdings. Although a growing literature examines stock market liberalization, few studies examine its effects on firm-specific behavior in China. Compared with settings in other studies, our sequential quasi-natural experiment eases endogeneity and provides causal evidence of foreign investors' impact on corporate cash holdings. Most studies examine firm-level or industry-level factors (Opler et al., 1999; Ozkan and Ozkan, 2004; Haushalter et al., 2007; Fresard, 2010; Gao et al., 2013; Fernandes and Gonenc, 2016). We show that stock market liberalization matters and extend a growing strand of research from the aspect of institutional environment (Love, 2003; Almeida et al., 2004; Dittmar et al., 2003; Guney et al., 2006).

Our results offer implications for policymakers. They verify the role Connect programs have played in companies at the micro level and support China's capital market liberalization strategies. We show it is beneficial to attract foreign investors to A-shares and therefore the importance of keeping policies concerning foreign investors transparent, stable, and predictable.

This paper proceeds as follows. Section II gives institutional background and reviews literature. Section III develops hypotheses. Section IV discusses our research design, sample, and data. Section V shows primary results and robustness checks. Section VI concludes.

II. Institutional Background, Literature Review

1. Institutional Background

Since the 1970s, stock markets in developed economies have been gradually opened. For example, the United States, Australia, and Japan have adopted different ways to promote capital market liberalization. As the largest developing economy and second-largest world economy, China is accelerating stock market liberalization.

China's stock market was established during the 1990s and was dominated by inexperienced retail investors. In 1991, China established a B-share market to allow foreign investors to trade and in 1993 began to allow some state-owned enterprises to issue H shares in Hong Kong. In 2002, qualified foreign institutional investors (QFII) were admitted to A-share markets.

Although China's stock market now is greatly developed, it needs further liberalization. Opening of the Shanghai-Hong Kong Stock Connect program in November 17, 2014, let Hong Kong and international investors trade 568 stocks in Shanghai under regulations. China exploited the program's success on December 5, 2016, by initiating the Shenzhen-Hong Kong Stock Connect program, releasing trading restrictions for foreign investors on 881 stocks in Shenzhen. Because Shenzhen-Hong Kong Stock Connect is the extension of Shanghai-Hong Kong Stock Connect, these two programs are summed as Mainland-Hong Kong Stock Connect. Connect programs implemented step-by-step have significant impacts on China's stock market liberalization, which have attracted millions of foreigners to A-shares.

Compared with previous stock market liberalization, there are fewer political interventions in Mainland-Hong Kong Stock Connect so transaction costs are lower. China's sequential liberalization via Connect programs has attracted individual and institutional investors from all over the world to A-shares. Their inestimable influence provides an ideal setting for our research topic.

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2. Literature Review

Our study extends to two strands of literature: stock market liberalization and corporate cash holdings.

2.1 Stock Market Liberalization

In recent years, research into the economic consequences of capital market liberalization has received great attention from scholars that intent to examine the macro economy and micro characteristics of enterprises. Macroeconomic research mainly addresses market stability and economic growth. Micro studies mainly concern effects of capital market liberalization on corporate governance and value. We review the micro-level economic consequences of liberalization.

Bae et al. (2006) find that stock market liberalization can improve corporate governance externally. They show that after stock market liberalization, analysts pay more attention to the company, which alleviates information asymmetry between investors and companies and ultimately affects earnings management. Ghosh et al. (2008) use India's allowing foreigners to hold bank shares as the research setting, finding that when management know the entry of foreign capital, their behaviors accord more with the company's value to prevent mergers and acquisitions. Kim et al. (2016) find that foreign investors are independent, mature, and financially experienced. Their activities improve corporate governance and information asymmetry between investors and enterprises.

From the perspective of firms' business behaviors, Henry (2000) finds that stock market liberalization has increased firms' value by easing their financial constraints. Boubakri et al. (2013) find that post liberalization opportunistic managerial behavior has been suppressed and managers are willing to indulge risky innovations. Chen et al. (2014) find that foreign shareholdings increase sensitivity between investment and Q, associating stock market liberalization with improving companies' investment efficiency. Luong et al.

(2017) show that foreign institutional investors likely act as supervisors, improving corporate innovation and innovation output.

However, scholars have different attitudes toward stock market liberalization. Examining bid-ask spreads, Choi et al. (2013) find that foreign shareholders primarily seek to strengthen their advantages, not improve the information environment of capital markets. Wang et al. (2014) find that QFII holdings cannot significantly improve firms' long-term operating performance.

2.2 Corporate Cash holdings

A growing literature related to the macro environment, industry characteristics, and corporate characteristics discusses what affects corporate cash holdings.

As concerns the macro environment, Love (2000) finds that financial development can alleviate financial constraints and ultimately negatively affect corporate cash holdings. Using more than 11,000 data from 45 countries, Dittmar et al. (2003) find that companies in countries with poor shareholder protections hold more cash, and when shareholder protection is poor, the impact of investment opportunities and information asymmetry on cash holdings is less. Almedia et al. (2004) find that companies hold more cash during recessions to cope with uncertain future cash flow. Guney et al. (2006) find that companies hold more cash when creditor protections are strong, and less cash when shareholder protections are strong. Chen et al. (2014) find that companies hold less cash when the quality of local governments is higher, and the effects are more pronounced among private companies.

Among studies of industry factors, Kovenock and Phillips (1997) find that companies hold more cash when competition is fierce. Haushalter et al. (2007) find that interdependence of a company's investment opportunities with rivals influences corporate cash holdings significantly, and companies hold more cash when independence is high. Fresard (2010) finds firms hold more cash to gain advantage in competitive markets.

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Regarding firm characteristics, Ozkan and Ozkan (2004) find that firms' growth opportunities, cash flow, liquid assets, leverage, and bank debt substantially impact on corporate cash holdings. Subramanian et al. (2011) find that corporate organizational structure can affect cash holdings and that diversified companies hold less than centralized companies. Using China's split share structure reform as a setting, Megginson et al. (2014) find that cash holdings increase when state ownership declines. Liu et al. (2015) find that family firms with presiding control rights hold more cash primarily tunneled by controlling shareholders, which harms corporate value.

Several studies examine corporate governance and cash holdings. Ozkan and Ozkan (2004) find non-monotonic relations between managerial ownership and corporate cash holdings among UK firms, usnadi et al. (2011) find that board leadership structure and size have a positive impact on cash holdings but the relation between insider ownership and corporate cash holdings is non-linear. Gao et al. (2013) find that public firms with greater agency conflicts hold more cash and the agency problem affect managers' reaction to excess cash.

In summary, studies extensively catalogue factors that influence cash holdings, but few examine how stock market liberalization influences it, notably in China. Besides, whether liberalization enhances emerging markets like China remains controversial. Therefore, using Mainland-Hong Kong Stock Connect as a sequential experiment, we examine relations between stock market liberalization and corporate cash holdings.

III. Hypothesis Development

Liberalization is among the most important institutional policies in China's capital market. It affects both China's economic development and specific behavior of Chinese companies (Yoon, 2017), including corporate cash holdings. With implementation of the Mainland-Hong Kong Stock Connect, whether and how stock market liberalization influences corporate cash holdings has become a controversial topic.

Pecking order theory argues that stock market liberalization alleviates firms' financial constraints (Henry, 2000), thus having a negative impact on corporate cash holdings (Faulkender et al., 2006). It regards external finance as the first choice when Chinese firms need money due to scarcity of credit in Chinese capital markets. In fact, Chinese firms, especially private firms, face difficulties in financing from banks (Allen et al., 2005; Lu et al., 2012) and rely on equity financing. After liberalization, successively more foreign capital is entering A-share markets, extended access to external financing, reducing cost of equity, and increasing convenience in accessing funds from capital market (Gupta and Yuan, 2009). That is, corporate financing constraints ease considerably after liberalization.

In addition, attracting foreign investors may reduce information asymmetry between banks and enterprises. Foreign investors are usually more mature and sophisticated than local investors (Hartzell and Stark, 2003; Chen et al., 2013). Thus, foreign ownership can signal firms of high quality. Foreign ownership may raise a firm's reputation, save bank investigation costs, alleviate information asymmetry, and reduce debt financing costs. Therefore, eligible firms have greater access financing from capital markets after liberalization and need not hold extensive cash.

Principal-agent theory suggests that extensive cash holdings may indicate opportunistic behavior by management (Kalcheva and Lins, 2007; Denis and Sibilkov, 2010). Nevertheless, agent problems can be alleviated by foreign investors following stock market liberalization. In other words, management may maximize self-interest through inappropriate occupation of firms' assets, such cash (Jensen, 1986; Dittmar and Mahrt-Smith, 2007; Harford et al., 2008), but stock market liberalization enhances corporate governance (Bae et al., 2006; Bena et al., 2017) and motivates firms to hold less cash. Investors attracted by Mainland-Hong Kong Stock Connect are usually from developed capital markets and are thought to be more rational and independent with

longer-term horizons than domestic shareholders (Bena et al., 2017). If so, they have motive and ability to participate in corporate governance directly or indirectly. Foreign investors can take positions on boards of directors when they cross a percentage threshold for ownership (about 5% of outstanding shares) under Chinese Company Law. They can participate in governance by "voting with their hands" (Aggarwal et al., 2011), which may inhibit management from hoarding cash. Foreign investors also affect corporate governance and cash holdings by "voting with their feet" (Bhagat et al., 2004; Edmans, 2009; Aggarwal et al., 2011).

As noted, foreign investors generally have extensive experiences in developed capital markets. For instance, they have an advantage of gathering and analyzing firm-specific information due to their analytical capabilities (Grinblatt and Keloharju, 2000; Hartzell and Stark, 2003; Li et al., 2011; Maffett, 2012; Chen et al., 2013; Kim et al., 2006), which may curtail managers' opportunistic behaviors, including cash hoarding. They are likely to sell firms' stocks upon discovering managerial misconduct, thus restraining managers from holding large cash holdings based on self-interest. At the same time, implementation of Connect strengthens external supervision and the legal environment of A-share markets, which may pressure A-listed firms to reduce inefficient cash hoarding.

Considering the above, we propose the following:

H1a: Stock market liberalization decreases corporate cash holdings.

Firms hold cash for transactions, precaution, and speculation (Opler et al., 1999). That is, cash facilitates daily transactions at lower transaction costs (Opler et al., 1999), situates firms to face risk and uncertainty (Almeida et al., 2004; Mclean, 2011), and enables them to seize investment opportunities (Ozkan and Ozkan, 2004; Bates et al., 2009). Stock market liberalization brings uncertainty (Stiglitz, 2000; Bae et al., 2004) and investment opportunities (Bekaert and Harvey, 2000; Henry, 2000; Mitton, 2006) for A-share listed firms, which may incentivize them to retain cash.

However, there is doubt whether foreign investors are sophisticated and

value-oriented. Choi et al. (2013) find that foreign investors are more eager to strengthen their informational superiority than improve informational environments of local capital markets, behavior that exacerbates information asymmetry. Even if foreign ownership enhances governance, the percentage of foreign shareholdings in A-share market is small and their controlling power is relatively limited. Therefore, the beneficial effects of liberalization on corporate governance and alleviating constraints may not exist. Considering these arguments, we propose an alternative hypothesis.

H1b: Stock market liberalization increases corporate cash holdings.

Ambiguous claims about stock market liberalization and corporate cash holdings magnify the tension of this empirical question.

IV. Research Design

1. Measurement of Cash holdings

Following Opler et al. (1999) and Dittmar et al. (2003), we use two continuous variables to measure corporate cash holdings. The first (*Cashholding*1) is calculated using formula (1). The variable *cash* is cash and cash equivalents on the cash flow statement. *Asset* is total balance sheet assets at fiscal yearend. The second measure of cash holdings (*Cashholding*2) is the natural log of *cash/(cash-mf-tfa)*. The difference between (1) and (2) is the denominator. Formula (2) uses *mf*, (money market funds), and *tfa* (transactional financial assets). We consider *mf* and *tfa* because the scope of monetary funds, which include restricted cash or special monetary equivalents, exceeds cash and equivalents and the purpose of acquiring transactional financial assets is mainly to redeem or sell. Therefore, we cannot ignore these highly liquid assets.

$$Cashholding1 = \ln[cash/(asset - cash)]$$
(1)

$$Cashholding2 = \ln[cash/(asset - mf - tfa)]$$
(2)There

might be systematic and routin3e differences in magnitudes of cash holdings among industries, so we adjust *Cashholding1* and *Cashholding2* by the median cash holdings of

a sampled firm's industry and create two other variables *Cashholding1_adj* and *Cashholding2_adj*.

2. Model Specification

Drawing on the method for sequential quasi-natural experiments in Bertrand and Mullainathan (2003), we construct a difference-in-differences model with firm and year fixed effects as follows:

$$\begin{aligned} Cashholding &= \beta_0 + \beta_1 Treat + \beta_2 Size + \beta_3 Lev + \beta_4 Age + \beta_5 MB + \beta_6 CF \\ &+ \beta_7 Capex + \beta_8 Wacp + \beta_9 Debtstr + \beta_{10} Soe + firm. F.E \\ &+ year. F.E + \varepsilon \end{aligned}$$
(3)

Dependent variable *Cashholding* measures the level of corporate cash holdings (Section 1). Explanatory variable *Treat* takes 1 when a firm is listed on the Shanghai-Hong Kong Stock Connect (SHSC1) program or Shenzhen-Hong Kong Stock Connect (SHSC2) program and 0 otherwise. The former (latter) was implemented on November 17, 2014 (December 5, 2016); therefore *Treat* takes 1 for companies in SHSC1 post-2014 and for in SHSC2 after 2016. *Treat* is set to 0 for other companies and years. Therefore, its coefficient (β_1) is a difference-in-differences statistic. When it is significantly below (above) 0, it indicates stock market liberalization could reduce (enlarge) cash holdings per Hypothesis 1a (Hypothesis 1b).

We also control for several firm-level characteristics that may affect cash holdings (Ozkan and Ozkan, 2004). They include firm size, leverage ratio, years listed, market-to-book ratio, operating cash flow, capital investment, working capital, liquidity risk, and the nature of the ultimate controlling shareholder. Definitions of variables are in the Appendix.

3. Sample Construction

Our initial sample is all Chinese A-share listed companies from 2011 to 2017. We exclude financial companies and companies that IPOed after 2014. We also exclude cross-listed companies and companies removed from the list of eligible firms later or

newly added to the list. We further exclude ST companies and those that did not report sufficient information for empirical tests. Our final sample contains 11,557 firm-year observations. The list of eligible securities, i.e., those affected by the program, is from the website of Hong Kong Exchanges and Clearing Market (<u>https://www.hkex.com.hk</u>); all other data are from China Stock Market and Accounting Research. All continuous variables are Winsorized at 1% and 99% to mitigate effects of outliers.

V. Empirical Results

1. Descriptive Statistics

Table 1 presents summary statistics of main variables. Means and medians of *Cashholding1* (*Cashholding2*) are -1.88 (-1.85) and -1.91 (-1.89), respectively, indicating most A-share listed firms hold high cash holdings. Maximum values of *Cashholding1* and *Cashholding2* are 0.70 and 0.71, respectively. Their minimum value is -4.58, which means different firms exhibit significant differences in cash holdings. The mean of *Treat* (0.13) indicates 13% of all observations involve eligible firms. The mean for *Age* (2.22) shows that firms on average had been listed for 8.21 years. Summary results of other controls broadly accord with previous studies (e.g.,, Opler et al., 1999; Subramaniam et al., 2011).

<Table 1>

Table 2 shows that the correlation between *Cashholding*1 and *Treat* is significant and negative, as is that between *Cashholding*2 and *Treat*. Thus, we could preliminarily understand about the effect of liberalization on cash holdings.

<Table 2>

2. Baseline Regression Results

We explore Hypothesis 1a and Hypothesis 1b by estimating the difference-in-differences model in Eq. (3). Column (1) in Table 3 shows results when the dependent variable is *Cashholding1*. The coefficient for *Treat* (β_1) is -0.054 with a t-value

of -2.39, which is significant at 5%. Column (2) displays *Cashholding1_adj* as the dependent variable, and again the coefficient for *Treat* is significant and negative at 5%. When the dependent variable is *Cashholding2*, β_1 is -0.056 with a t-value of -2.49 (Column (3)).

Relations between *Cashholding2_adj* and *Treat* remain significant and negative after adjusting *Cashholding2* by industry medians. These results support Hypothesis H1a, indicating liberalization inhibits cash-holding. Our results are significant economically as well as statistically. *Ceteris paribus*, corporate cash holdings would decline 5.4% (5.6%) as measured by *Cashholding1* (*Cashholding2*) when firms turn eligible in SHSC1 or SHSC2.

In addition, it is worthy to note that firm size relates significantly and positively to cash holdings. Large companies hold more cash. The leverage ratio is significant and negative, implying that firms with more liabilities hold less cash. The negative and significant coefficient for *Age* suggests that the briefer the time a company's shares are listed, the less cash they hold. *Soe* relates negatively to cash holdings. Stated-owned enterprises are less likely than private firms to keep large cash holdings.

<Table 3>

The difference-in-differences model is the core of our research design. Therefore, its assumption of parallel trends warrants scrutiny. That is, whether our treatment and control groups exhibit similar trends in cash-holding before liberalization. To test this assumption we investigate the dynamics of cash holdings and effects of Connect over time. We introduce five event-year indicator variables: *Before2*, *Before1*, *Before0*, *After1*, *After2*, where *Beforej* (*Afterj*) equals 1 for eligible firms' observations j years before (after) implementation of Connect. *Beforej* (*Afterj*) equals 0 in all other cases. We replace *Treat* with these five variables and rerun regressions using Eq. (3). If the coefficient for *Beforej* is not significant, we could conclude there is no pre-liberalization difference in cash holdings between the treatment and control samples: i.e., the assumption of a parallel

trend holds. If Connect induced lower cash holdings during the period studied, coefficients for *After* indicators should be negative.

Table 4 reports empirical results for dynamics of cash holdings. Coefficients for *Before2* and *Before1* are small and not significant at the conventional threshold. All coefficients for *Before0* are positive but statistically indistinguishable from zero, perhaps because it takes time for Connect to make a difference. As expected, coefficients for *After1* and *After2* are negative at 10% or better. These results show that eligible and non-eligible firms exhibit similar cash-holding behavior before implementation of SHSC1 and SHSC2. Thereafter cash holdings for eligible firms drop significantly.

<Table 4>

3. Cross-sectional Analysis

To address corporate governance and business environments we examine the effect of managerial ownership, separation between ownership and control, financial constraints, and investment opportunities on the relation between liberalization and cash holdings.

Kusnadi (2011), Ozkan and Ozkan (2004), and Chen et al. (2012) prove that corporate governance affects cash holdings. As openness escalated, more foreigners participated in China's A-share market. Generally, they are regarded as rational and experienced in mature financial markets and can improve corporate governance directly by voting with their hands (Aggarwal et al., 2011) or indirectly by voting with their feet (Bhagat et al., 2004; Edmans, 2009; Aggarwal et al., 2011). On the one hand, firms with higher-quality governance usually face diminished principal-agent problems because managements are earnestly supervised and are less likely to squander cash—i.e., they hold less cash originally. Therefore, the influence of liberalization might be limited. On the other hand, poorly governed firms suffer greater agency problems (e.g., duty consumption), and Connect might exert stronger influence on cash holdings.

Two indicators measure governance: managerial ownership and separation between

ownership and control. Previous studies find somewhat fewer agent problems when managements hold shares; thus more managerial ownership or lesser separation between ownership and control usually represents a lower level of the interest inconsistency. We group the sample into high (*Dmanho* = 1) and low management shareholding (*Dmanho* = 0) or high-level (*Dsep* = 1) and low-level separation (*Dsep* = 0) based on industry medians. The effects of liberalization on cash holdings should appear mainly among the low management shareholding group or the high-level separation group. In Table 5 Panel A, the coefficient for *Treat* is significantly negative only when *Dmanho* equals 0, a finding that aligns with our expectations about the influence of management shareholding. In Panel B, *Treat* relates significantly and negatively to cash holdings only when degree of separation is high. These results reveal that liberalization affected corporate governance with regard to holding cash.

<Table 5 >

Business environments also affect cash holdings (Love, 2000; Guney et al., 2006; Dittmar et al., 2003). We use financial constraints and investment opportunities to measure the operational determinants. Theoretically, liberalization provides firms new financing channels (Gupta and Yuan, 2009), and severally financially constrained firms may pay more attention to investors and markets when they seek equity financing (Yoon, 2017). That gives reason to believe Connect exerts more serious influence over finally constrained firms. Elevated cash holdings at firms with fewer investment opportunities may indicate opportunistic behavior by management (Denis and Sibilkov, 2010).

Under stock market liberalization, firms have motive to reduce cash holdings to avoid negative impacts from foreign investors and equities markets (Yoon, 2017). We divide our sample into firms with high (Dfc = 1) and low financial constraints and firms with high (Dio = 1) and limited investment opportunities (Dio = 0). We observe significant and negative results for the coefficient of *Treat* only when Dfc equals 1 or *Dio* equals 0. Detailed regression results are in Table 6. Hence, the business environment can affect the relation

between liberalization and cash holdings.

<Table 6 >

4. Robustness

We check the reliability and validity of our results through robustness tests.

First, we employ alternative measures of cash holdings. Following Opler et al. (1999), we define *Cashholding3* and *Cashholding4*. The former is the natural log of the monetary fund scaled by total corporate assets. The latter is the natural log of cash and cash equivalents scaled by total assets. To assure consistency with our previous research design, we adjust values of these variables by industry medians and derive *Cashholding3_adj* and *Cashholding4_adj*. Regression results in Table 7 resemble those in Table 3.

<Table 7 >

Our main analysis regards the year before implementation of SHSC1 and SHSC2 as the year preceding Connect. However, SHSC2 launched in December 2016 after the state council had approved Shenzhen-Hong Kong Stock Connect in August, leaving firms sufficient time to alter cash-holding behavior. Thus, for firms eligible for SHSC2, we adjust the value of *Treat* to 1 for years after 2015 and rerun Model (3). Similar results appear in Table 8.

<Table 8 >

To avoid selection bias by excluding companies removed from the list of eligible firms or added later, we add those observations back and run regressions based on Model (3). Table 9 shows we obtain consistent results.

<Table 9 >

Finally, a placebo test examines whether our results arise from intrinsic differences

between treatment and control groups. Specifically, we assume Shanghai-Hong Kong Stock Connect was implemented in 2011—three years before the fact—and that Shenzhen-Hong Kong Stock Connect started in 2013. After extrapolation, our new sample interval becomes 2008 to 2014. If results are similar to Table 4, intrinsic differences between groups matter, and we cannot ignore them. If the coefficient for *Treat* is not significant, we could conclude that intrinsic differences have little effect on our main results. The insignificant coefficient for *Treat* indicates our results are robust (Table 10).

<Table 10 >

VI. Conclusion

Using the Mainland-Hong Kong Stock Connect (Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect) as a sequential quasi-natural experiment, we examined whether stock market liberalization influenced corporate cash holdings based on Chinese A-share listed firms spanning 2011–2017. The main conclusions are as follows.

We find significant and robust evidence that liberalization is associated with lower cash holdings during the period studied. Compared with non-eligible firms, there is a sharp drop in cash holdings among eligible firms after Connect. That effect appears mainly among firms with low managerial ownership, higher separation of ownership and control, severe financial constraints, and few investment opportunities. In sum, corporate governance and business environment critically affect the role of stock market liberalization on corporate cash holdings.

Our study bears important theoretical and practical implications. Theoretically, it enriches the literature on liberalizing of domestic stock markets, supplements international research into foreign ownership, and provides unique evidence about corporate cash holdings from China. Unlike mature capital markets, Chinese listed companies face a poor macro and micro information environment. Therefore, this study provides unique and powerful evidence for developing economies. As a practical application, the Chinese government contemplated extending capital market liberalization since the Third Plenary Session of the 18th Central Committee. Therefore, our findings correspond to the central government's efforts and provide evidence for subsequent liberalization. Our conclusions show it is beneficial to attract foreign investors to A-share markets, so it is important that policies governing foreign investors be transparent, stable, and predictable, which demonstrate the realistic significance of the 19th National Congress of the Communist Party of China in further opening capital markets.

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Appendix

Variable Definitions

Variables	Definitions
Dependent variables:	
Cashholding1	Ln [<i>cash/(asset-cash</i>)], where <i>cash</i> is defined as firm's total cash and cash equivalents, <i>asset</i> is defined as firm's total asset at the end of fiscal year.
Cashholding2	Ln [<i>cash</i> /(<i>asset-mf-tfa</i>)], where <i>cash</i> and <i>asset</i> is defined as above, <i>mf</i> and <i>tfa</i> is defined as the amount of firm's monetary fund and transactional financial assets, respectively.
Cashholding1_adj	Adjusted Cashholding1 based on the median of the industry.
Cashholding2_adj	Adjusted Cashholding2 based on the median of the industry.
Key explanatory variable:	
Treat	Dummy variable: 1 if the firm is eligible in the Shanghai-Hong Kong Stock Connect program or Shenzhen-Hong Kong Stock Connect program and 0 otherwise.
Control variables:	
Size	The natural logarithm of firm's total assets.
Lev	The firm's total liabilities scaled by firm's total assets.

Age	The natural logarithm of firm's listed years plus 1.							
MB	Market to book ratio.							
CF	Operating cash flow scaled by firm's total assets excluding cash and cash equivalents.							
Сарех	Capital investment scaled by firm's total assets excluding cash and cash equivalents.							
Wacp	Working capital scaled by firm's total assets.							
Debtstr	Current liabilities scaled by firm's total liabilities.							
Soe	Dummy variable: 1 if the firm is state-owned, and 0 otherwise.							

Variables	Ν	Mean	Median	Max	Min	Std
Cashholding1	11557	-1.880	-1.910	0.700	-4.580	1.020
Cashholding1_adj	11557	0.000	0.000	13.160	-8.370	1.020
Cashholding2	11557	-1.850	-1.890	0.710	-4.580	1.020
Cashholding2_adj	11557	0.000	0.000	13.100	-8.440	1.020
Treat	11557	0.130	0.000	1.000	0.000	0.330
Size	11557	22.100	21.950	25.680	19.370	1.250
Lev	11557	0.440	0.430	0.940	0.050	0.220
Age	11557	2.220	2.400	3.220	0.000	0.750
MB	11557	3.550	2.780	10.140	1.060	2.370
CF	11557	0.050	0.050	0.380	-0.230	0.100
Capex	11557	0.070	0.050	0.350	-0.140	0.080
Wacp	11557	0.030	0.040	0.490	-0.580	0.210
Debtstr	11557	0.820	0.880	1.000	0.260	0.180
Soe	11557	0.400	0.000	1.000	0.000	0.490

Table 1 Summary Statistics

This table reports summary statistics of the main variables in this paper based on a sample of firms listed in Mainland-Hong Kong Stock Connect programs in China's A-share market from 2011 to 2017. Definitions of variables are in the Appendix.

Table 2 Correlation Matrix

Variables	Cashholding1	Cashholding1_adj	Cashholding2	Cashholding2_adj	Treat	Size	Lev	Age	MB	CF	Capex	Wacp	Debtstr	Soe
Cashholding1	1.000													
Cashholding1_adj	0.950***	1.000												
Cashholding2	0.997***	0.945***	1.000											
Cashholding2_adj	0.929***	0.979***	0.931***	1.000										
Treat	-0.048***	0.008	-0.050***	0.010	1.000									
Size	-0.204***	-0.122***	-0.204***	-0.109***	0.360***	1.000								
Lev	-0.439***	-0.402***	-0.437***	-0.392***	0.065***	0.456***	1.000							
Age	-0.319***	-0.222***	-0.325***	-0.215***	0.209***	0.352***	0.428***	1.000						
MB	0.042***	0.043***	0.044***	0.046***	-0.080***	-0.406***	-0.041***	0.036***	1.000					
CF	0.265***	0.274***	0.263***	0.268***	0.028***	0.031***	-0.207***	-0.016*	0.044***	1.000				
Capex	0.158***	0.110***	0.155***	0.101***	-0.054***	-0.049***	-0.198***	-0.384***	-0.066***	0.185***	1.000			
Wacp	0.150***	0.138***	0.139***	0.123***	-0.015	-0.193***	-0.542***	-0.270***	-0.010	-0.117***	-0.067***	1.000		
Debtstr	0.205***	0.131***	0.213***	0.130***	-0.102***	-0.331***	-0.214***	-0.212***	0.160***	0.044***	-0.068***	0.019**	1.000	
Soe	-0.097***	-0.058***	-0.102***	-0.057***	0.057***	0.333***	0.317***	0.459***	-0.190***	-0.002	-0.151***	-0.276***	-0.193***	1.000

This table reports Pearson correlations for main variables based on the sample of firms listed on Mainland-Hong Kong Stock Connect programs in China's A-share market from 2011 to 2017. Definitions of variables are in the Appendix.

	(1)	(2)	(3)	(4)
	Cashholding1	Cashholding1_adj	Cashholding2	Cashholding2_adj
Treat	-0.054**	-0.048**	-0.056**	-0.048**
	(-2.39)	(-2.11)	(-2.49)	(-2.13)
Size	0.121***	0.135***	0.128***	0.144***
	(7.43)	(8.29)	(8.00)	(8.93)
Lev	-3.204***	-3.174***	-3.252***	-3.213***
	(-42.32)	(-41.84)	(-43.44)	(-42.78)
Age	-0.949***	-0.813***	-0.992***	-0.845***
	(-32.72)	(-27.96)	(-34.57)	(-29.35)
MB	0.025***	0.030***	0.026***	0.031***
	(6.17)	(7.41)	(6.42)	(7.68)
CF	1.170***	1.119***	1.144***	1.090***
	(15.76)	(15.05)	(15.60)	(14.81)
Capex	-0.518***	-0.510***	-0.608***	-0.597***
	(-5.38)	(-5.30)	(-6.39)	(-6.26)
Wacp	-1.864***	-1.846***	-1.983***	-1.957***
	(-27.93)	(-27.60)	(-30.06)	(-29.57)
Debtstr	-0.800***	-0.757***	-0.808***	-0.760***
	(-14.40)	(-13.59)	(-14.70)	(-13.78)
Soe	-0.099*	-0.107**	-0.114**	-0.118**
	(-1.95)	(-2.10)	(-2.27)	(-2.35)
Constant	-0.453	0.498	-0.471	0.366

Table 3 Stock Market Liberalization and Corporate Cash holdings: Main Results

	(-1.26)	(1.38)	(-1.33)	(1.03)
Firm.F.E.	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES
Ν	11557	11557	11557	11557
R ² _a	0.71	0.68	0.72	0.68
F	386.471***	254.498***	409.734***	267.495***

This table reports results of the main regressions of stock market liberalization on corporate cash holdings. Dependent variables are proxies for cash holdings. The key explanatory variable is *Treat*, a proxy for stock market liberalization. Definitions of variables are in the Appendix. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	Cashholding1	Cashholding1_adj	Cashholding2	Cashholding2_adj
Before2	-0.000	0.013	0.003	0.016
	(-0.01)	(0.63)	(0.17)	(0.80)
Before1	-0.031	-0.014	-0.032	-0.015
	(-1.12)	(-0.51)	(-1.17)	(-0.56)
Before0	0.045	0.054	0.041	0.050
	(1.35)	(1.61)	(1.22)	(1.51)
After1	-0.065**	-0.046	-0.066**	-0.045
	(-2.31)	(-1.64)	(-2.37)	(-1.61)
After2	-0.077**	-0.072**	-0.077**	-0.072**
	(-2.22)	(-2.05)	(-2.22)	(-2.07)
Size	0.123***	0.136***	0.131***	0.145***
	(7.50)	(8.26)	(8.07)	(8.91)
Lev	-3.207***	-3.176***	-3.255***	-3.215***
	(-42.34)	(-41.85)	(-43.46)	(-42.80)
Age	-0.947***	-0.814***	-0.990***	-0.846***
	(-32.22)	(-27.62)	(-34.06)	(-29.02)
MB	0.026***	0.030***	0.026***	0.031***
	(6.24)	(7.42)	(6.48)	(7.68)
CF	1.168***	1.118***	1.142***	1.089***
	(15.73)	(15.03)	(15.56)	(14.79)
Capex	-0.519***	-0.510***	-0.608***	-0.596***

Table 4 Stock Market Liberalization and Corporate Cash holdings: Results of Dynamics

	(-5.39)	(-5.29)	(-6.39)	(-6.24)
Wacp	-1.864***	-1.847***	-1.984***	-1.958***
	(-27.93)	(-27.61)	(-30.06)	(-29.58)
Debtstr	-0.801***	-0.758***	-0.809***	-0.761***
	(-14.41)	(-13.61)	(-14.72)	(-13.79)
Soe	-0.099*	-0.106**	-0.114**	-0.118**
	(-1.95)	(-2.09)	(-2.26)	(-2.34)
Constant	-0.504	0.478	-0.526	0.345
	(-1.39)	(1.32)	(-1.47)	(0.96)
Firm.F.E.	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES
Ν	11557	11557	11557	11557
R ² _a	0.71	0.68	0.72	0.68
F	309.366***	203.777***	327.965***	214.180***

This table reports empirical results concerning the dynamics of cash holdings. Dependent variables are proxies for cash holdings. We introduce five event-year indicator variables: Before2, Before1, Before0, After1, After2, where Beforej (Afterj) equals 1 for eligible firms' observations j years before (after) implementation of Connect, and Beforej (Afterj) equals 0 otherwise. Definitions of all variables are in the Appendix. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

-	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cashholding1	Cashholding1	Cashholding1_adj	Cashholding1_adj	Cashholding2	Cashholding2	Cashholding2_adj	Cashholding2_adj
Panel A Ma	nagement Share	holding						
	Dmanho = 1	Dmanho = 0	Dmanho = 1	Dmanho = 0	Dmanho = 1	Dmanho = 0	Dmanho = 1	Dmanho = 0
Treat	-0.044	-0.081***	-0.048	-0.066**	-0.045	-0.083***	-0.050	-0.065**
	(-1.26)	(-2.72)	(-1.36)	(-2.24)	(-1.32)	(-2.82)	(-1.44)	(-2.20)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Firm.F.E.	YES	YES	YES	YES	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES	YES	YES	YES	YES
Ν	5523	6034	5523	6034	5523	6034	5523	6034
R²_a	0.73	0.69	0.68	0.68	0.74	0.70	0.68	0.68
F	265.228***	127.933***	139.512***	124.272***	283.854***	134.296***	145.842***	132.169***
Panel B Sep	paration between	Ownership and	Control					
	Dsep = 1	Dsep = 0	Dsep = 1	Dsep = 0	Dsep = 1	Dsep = 0	Dsep = 1	Dsep = 0

Treat	-0.071**	-0.033	-0.058*	-0.032	-0.074**	-0.033	-0.059*	-0.031
	(-2.03)	(-1.11)	(-1.65)	(-1.09)	(-2.15)	(-1.13)	(-1.72)	(-1.06)
Controls	YES							
Firm.F.E.	YES							
Year.F.E.	YES							
Ν	5047	6510	5047	6510	5047	6510	5047	6510
R²_a	0.69	0.73	0.67	0.68	0.70	0.74	0.67	0.69
F	162.571***	229.337***	123.061***	134.427***	171.066***	244.349***	129.742***	140.667***

This table reports the effect of stock market liberalization on the relation between corporate governance and corporate cash holdings. Dependent variables are proxies for cash holdings. The key explanatory variable is *Treat*, the proxy for liberalization. Definitions of all variables are in the Appendix. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cashholding1	Cashholding1	Cashholding1_adj	Cashholding1_adj	Cashholding2	Cashholding2	Cashholding2_adj	Cashholding2_adj
Panel A Fina	ancial Constraint	s						
	Dfc = 1	Dfc = 0	Dfc = 1	Dfc = 0	Dfc = 1	Dfc = 0	Dfc = 1	Dfc = 0
Treat	-0.071**	-0.043	-0.070**	-0.034	-0.072**	-0.046	-0.070**	-0.035
	(-2.14)	(-1.41)	(-2.10)	(-1.11)	(-2.19)	(-1.53)	(-2.10)	(-1.18)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Firm.F.E.	YES	YES	YES	YES	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES	YES	YES	YES	YES
Ν	5740	5817	5740	5817	5740	5817	5740	5817
R ² _a	0.69	0.74	0.65	0.70	0.69	0.74	0.65	0.71
F	222.087***	172.287***	137.083***	126.799***	231.294***	185.907***	140.812***	136.113***
Panel B Inve	estment Opportu	nities						
	Dio = 1	Dio = 0	Dio = 1	Dio = 0	Dio = 1	Dio = 0	Dio = 1	Dio = 0

Treat	-0.051	-0.059**	-0.043	-0.055**	-0.050	-0.061**	-0.040	-0.056**
	(-1.38)	(-2.14)	(-1.15)	(-1.99)	(-1.37)	(-2.21)	(-1.09)	(-2.02)
Controls	YES							
Firm.F.E.	YES							
Year.F.E.	YES							
Ν	5572	5985	5572	5985	5572	5985	5572	5985
R ² _a	0.69	0.71	0.66	0.68	0.70	0.72	0.66	0.68
F	215.220***	168.118***	145.576***	105.965***	233.519***	172.697***	155.834***	108.981***

This table reports effects of the business environment on relations between stock market liberalization and corporate cash holdings. Dependent variables are proxies for cash holdings. The key explanatory variable is *Treat*, the proxy for liberalization. Definitions of variables are in the Appendix. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	Cashholding3	Cashholding3_adj	Cashholding4	Cashholding4_adj
Treat	-0.052***	-0.045**	-0.047**	-0.043**
	(-2.99)	(-2.56)	(-2.44)	(-2.20)
Size	0.138***	0.154***	0.109***	0.119***
	(10.93)	(12.21)	(7.76)	(8.49)
Lev	-2.331***	-2.301***	-2.610***	-2.583***
	(-39.67)	(-39.09)	(-39.94)	(-39.49)
Age	-0.738***	-0.615***	-0.686***	-0.569***
	(-32.79)	(-27.24)	(-27.40)	(-22.69)
MB	0.020***	0.025***	0.023***	0.027***
	(6.47)	(7.92)	(6.52)	(7.72)
CF	0.769***	0.711***	0.869***	0.813***
	(13.35)	(12.33)	(13.57)	(12.68)
Capex	-0.519***	-0.500***	-0.324***	-0.319***
	(-6.95)	(-6.69)	(-3.91)	(-3.84)
Wacp	-1.640***	-1.597***	-1.423***	-1.404***
	(-31.66)	(-30.78)	(-24.71)	(-24.34)
Debtstr	-0.507***	-0.458***	-0.634***	-0.593***
	(-11.74)	(-10.60)	(-13.22)	(-12.34)
Soe	-0.112***	-0.112***	-0.089**	-0.100**
	(-2.85)	(-2.83)	(-2.04)	(-2.27)
Constant	-1.944***	-0.964***	-1.350***	-0.081

 Table 7 Robustness Test: Using Alternative Measures of Corporate Cash holdings.

	(-6.98)	(-3.46)	(-4.36)	(-0.26)
Firm.F.E.	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES
Ν	11557	11557	11557	11557
R ² _a	0.69	0.65	0.69	0.65
F	332.862***	225.465***	310.374***	203.362***

This table reports the results of robustness tests of the impact of stock market liberalization on corporate cash holdings. Here we use alternative measures of cash holdings. The key explanatory variable is *Treat*, the proxy for stock market liberalization. Definitions of variables are in the Appendix. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	Cashholding1	Cashholding1_adj	Cashholding2	Cashholding2_adj
Treat	-0.066***	-0.050**	-0.070***	-0.052**
	(-3.11)	(-2.37)	(-3.37)	(-2.48)
Size	0.125***	0.138***	0.133***	0.147***
	(7.63)	(8.40)	(8.22)	(9.06)
Lev	-3.203***	-3.174***	-3.250***	-3.213***
	(-42.31)	(-41.85)	(-43.43)	(-42.79)
Age	-0.947***	-0.810***	-0.990***	-0.842***
	(-32.77)	(-27.97)	(-34.62)	(-29.37)
MB	0.025***	0.030***	0.025***	0.031***
	(5.99)	(7.29)	(6.22)	(7.55)
CF	1.169***	1.118***	1.143***	1.089***
	(15.75)	(15.04)	(15.58)	(14.80)
Capex	-0.518***	-0.510***	-0.609***	-0.597***
	(-5.39)	(-5.30)	(-6.40)	(-6.26)
Wacp	-1.865***	-1.847***	-1.985***	-1.958***
	(-27.95)	(-27.61)	(-30.08)	(-29.58)
Debtstr	-0.801***	-0.758***	-0.809***	-0.761***
	(-14.42)	(-13.61)	(-14.73)	(-13.80)
Soe	-0.097*	-0.105**	-0.112**	-0.117**
	(-1.91)	(-2.07)	(-2.23)	(-2.32)
Constant	-0.541	0.436	-0.566	0.300

 Table 8 Robustness Rest: Re-identify the Policy Time.

	(-1.50)	(1.20)	(-1.59)	(0.84)
Firm.F.E.	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES
Ν	11557	11557	11557	11557
R ² _a	0.71	0.68	0.72	0.68
F	386.871***	254.601***	410.266***	267.640***

This table reports the results of robustness tests of the impact of stock market liberalization on corporate cash holdings. Dependent variables are proxies for cash holdings. Here, we re-identify the policy period. For SHSC2-eligible firms we adjust the value of Treat as 1 if the year is after 2015 and rerun the model. Definitions of variables are in the Appendix. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	Cashholding1	Cashholding1_adj	Cashholding2	Cashholding2_adj
Treat	-0.041**	-0.036*	-0.044**	-0.036*
	(-1.97)	(-1.70)	(-2.09)	(-1.73)
Size	0.132***	0.149***	0.139***	0.158***
	(9.36)	(10.56)	(9.96)	(11.32)
Lev	-3.082***	-3.067***	-3.120***	-3.106***
	(-45.88)	(-45.58)	(-46.96)	(-46.63)
Age	-0.941***	-0.811***	-0.980***	-0.845***
	(-36.16)	(-31.12)	(-38.11)	(-32.75)
MB	0.026***	0.031***	0.026***	0.032***
	(6.77)	(8.15)	(6.96)	(8.38)
CF	1.213***	1.157***	1.188***	1.124***
	(18.25)	(17.38)	(18.07)	(17.06)
Capex	-0.451***	-0.464***	-0.539***	-0.552***
	(-5.17)	(-5.30)	(-6.24)	(-6.37)
Wacp	-1.831***	-1.814***	-1.935***	-1.917***
	(-30.70)	(-30.35)	(-32.79)	(-32.39)
Debtstr	-0.689***	-0.660***	-0.695***	-0.666***
	(-13.97)	(-13.35)	(-14.25)	(-13.60)
Soe	-0.112**	-0.101**	-0.122***	-0.110**
	(-2.48)	(-2.24)	(-2.75)	(-2.47)
Constant	-0.836***	0.093	-0.846***	-0.019

Table 9 Robustness Test: Adjusting the Sample Range

	(-2.69)	(0.30)	(-2.76)	(-0.06)
Firm.F.E.	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES
Ν	14434	14434	14434	14434
R ² _a	0.70	0.67	0.71	0.67
F	452.818***	305.238***	477.995***	321.563***

This table reports on robustness tests of the impact of stock market liberalization on corporate cash holdings. Dependent variables are proxies for cash holdings. The key explanatory variable is *Treat*, the proxy for liberalization. We adjust the sample range by adding back observations removed from the list of eligible firms later or newly added to the list. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	Cashholding1	Cashholding1_adj	Cashholding2	Cashholding2_adj
Treat	-0.009	0.014	-0.011	0.007
	(-0.39)	(0.60)	(-0.49)	(0.31)
Size	0.090***	0.095***	0.110***	0.117***
	(4.76)	(4.97)	(5.90)	(6.20)
Lev	-2.981***	-2.807***	-3.056***	-2.872***
	(-33.84)	(-31.61)	(-35.21)	(-32.77)
Age	-0.855***	-0.823***	-0.884***	-0.850***
	(-34.75)	(-33.17)	(-36.43)	(-34.70)
MB	0.023***	0.019***	0.025***	0.021***
	(4.70)	(3.98)	(5.17)	(4.45)
CF	1.067***	1.077***	1.038***	1.055***
	(15.20)	(15.22)	(15.01)	(15.11)
Capex	-0.322***	-0.334***	-0.428***	-0.427***
	(-3.15)	(-3.24)	(-4.25)	(-4.20)
Wacp	-1.474***	-1.419***	-1.616***	-1.549***
	(-18.75)	(-17.90)	(-20.86)	(-19.80)
Debtstr	-0.843***	-0.804***	-0.876***	-0.832***
	(-13.08)	(-12.37)	(-13.79)	(-12.98)
Soe	0.022	0.017	0.016	0.018
	(0.46)	(0.36)	(0.34)	(0.37)
Constant	-0.478	1.206***	-0.766*	0.838**

Table 10 Robustness Test: Placebo Test

	(-1.16)	(2.89)	(-1.88)	(2.04)
Firm.F.E.	YES	YES	YES	YES
Year.F.E.	YES	YES	YES	YES
Ν	10743	10743	10743	10743
R ² _a	0.76	0.72	0.77	0.73
F	363.851***	247.092***	386.536***	264.396***

This table reports results of the placebo test. We assume Stock Connect started three years before the actual year. Dependent variables are proxies for corporate cash holdings. The key explanatory variable is *Treat*, the proxy for stock market liberalization. Definitions of variables are in the Appendix. All regressions include firm and year fixed effects. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.