开放之门：资本管制改革对投资者保护的促进作用

Opening the door: How capital control reforms are boosting investor protection

Wencong Li

Chang'an University, China

accwcl@chd.edu.cn

Dequan Jiang*

Shanghai University of Finance and Economics, China

jiang.dequan@sufe.edu.cn

Gary Tian

Macquarie University, Australian

gary.tian@mq.edu.au

Xingqiang Yin

Xi'an Jiaotong University, China

axqy829@xjtu.edu.cn

*Correspondence

Dequan Jiang, School of Accountancy / Institute of Accounting and Finance

Shanghai University of Finance and Economics

Email: jiang.dequan@mail.shufe.edu.cn

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Abstract: Unlike existing literature that emphasizes the role of foreign institutional participation in improving transparency and governance, this study introduces a distinct mechanism centered on the "exit threat" posed by foreign investors. Using a difference-in-differences research design, we show that firms subject to liberalization significantly reduce related-party transactions and achieve higher market valuations. Our findings suggest that foreign institutional investors enhance governance through their implicit threat of exit, particularly in firms with higher stock market liquidity, greater blockholder presence and shareholding, and stronger managerial wealth-performance sensitivity. Additionally, the positive effect of market liberalization on curbing tunneling is observed exclusively in financing-related transactions, with no significant impact on goods-and-services-related transactions. Finally, we demonstrate that controlling shareholders' expropriation increases during periods of stock market de-globalization, highlighting the critical role of financial openness in protecting minority shareholders.

Keywords: Stock market liberalization, Investor protection, Related party transaction, De-globalization

JEL Classification: G28; G30; G38

1. Introduction

In many jurisdictions, controlling shareholders are known to severely expropriate outside investors, a phenomenon extensively detailed by Shleifer and Vishny (1997). This issue has notably impeded the benefits of financial globalization that emerged post-World War II (Stulz, 2005). Concurrently, legal reforms aimed at bolstering minority shareholder protection often face staunch resistance from powerful local families and, occasionally, governments. As a result, La Porta et al. (2000b) suggest that functional convergence, such as the liberalization of capital markets, may be a more effective route to achieving global improvements in investor protection[1]. This is particularly relevant in emerging markets, where governance standards often lag behind those of developed countries. Although this theory was proposed over two decades ago, there has been limited research on how stock market liberalization affects the expropriation of minority shareholders.[2]

Prior research has documented several beneficial effects of capital-market liberalization, including improved price efficiency (Chen et al., 2022), enhanced private disclosures (Yoon, 2021), more accurate analyst forecasts (Chen et al., 2021), better investment efficiency (Peng et al., 2021), higher audit quality (Deng et al., 2021), and reduced insider sales and earnings manipulations (Liu et al., 2023; Gao et al., 2023). Yet, the impact of market liberalization on the behavior of controlling insiders toward minority shareholders in emerging markets remains complex and not fully understood. While a few studies have examined the influence of capital-market liberalization (CML) on controlling shareholders' tunneling in China, such as Yang et al. (2022) and Zhang et al. (2024), which emphasize improved information disclosure and strengthened governance as key mechanisms, these explanations may not fully capture the driving force of liberalization. In China's institutional setting, controlling shareholders hold substantially larger average stakes (34.7%) than institutional investors (8.8%), potentially limiting the direct governance impact of these investors.

We argue that the primary channel by which CML curbs tunneling activities is the implicit threat of exit by foreign institutional investors, who can “vote with their feet” by divesting in response to governance failures (Edmans et al., 2013; Firth et al., 2016; Hope et al., 2017; David et al., 2022), rather than improvements in transparency and governance per se.

On the other hand, the effect of market liberalization on investor protection in emerging markets is not straightforward and could be minimal or even negative. One concern is that global market access might offer controlling insiders more avenues to exploit minority shareholders, such as through cross-border mergers and acquisitions, profit transfers to foreign markets, or complex tax schemes to hide expropriation (Desai and Dharmapala, 2006; Desai et al., 2007; Bauer et al., 2020). Additionally, foreign investors entering a new market often face information asymmetry due to institutional and cultural differences, and lack of local knowledge (Zaheer, 1995; Filatotchev et al., 2007; Wong et al., 2020). In summary, while there are arguments for improved investor protection in emerging markets due to value creation, public scrutiny, and governance improvements with foreign institutional investors' entry and exit, there are also valid concerns that liberalization could enable further exploitation of minority shareholders by insiders and pose monitoring challenges for foreign investors. So, it is an empirical question that whether and how capital control reforms affect investor protection in China.

Utilizing China's gradual liberalization programs as a quasi-natural experiment, our study employs a staggered difference-in-differences (DiD) research design, we find that pilot firms undergoing liberalization show a substantial decrease in related party transactions (RPTs) of 9.71% (0.027/0.278 mean) from the pre- to post-liberalization period, compared to non-pilot firms that continued to operate under strict capital controls during the same period. To bolster our primary findings, we conducted various robustness tests and additional analyses to examine variations across the data. We first verified the parallel trends assumption essential to our difference-in-differences methodology, confirming no pre-existing disparities in related party transactions (RPTs) between pilot and non-pilot firms before the liberalization program began. To mitigate potential biases and differing characteristics between pilot and control groups, we employed various alternative Difference-in-Differences (DiD) estimation methods as suggested by Callaway and Sant'Anna (2021). Additionally, we used a propensity score-matched (PSM) sample, conducted an entropy balancing test, and applied an instrumental variable approach, focusing on stocks that either entered or exited stock indices. Our findings remained consistent across these tests, including when we used quarterly data for a finer temporal resolution, excluded data from 2020 to account for pandemic-related anomalies, employed different estimation models, rule out some concurrent confounding effects, and conducted a falsification test by excluding pilot firms from our difference-in-differences analysis.

However, it is important to note that not all related party transactions necessarily harm firm value (Khanna and Palepu, 1997, 2000), especially in emerging countries where capital markets may be less efficient in providing sufficient resources to firms. If RPTs help address resource shortages but are unexpectedly hindered by market liberalization, we would anticipate observing a larger marginal contribution of RPTs to firm performance in the pre-liberalization period and a smaller contribution thereafter (the resource supply hypothesis). Conversely, if RPTs reflect conflicts between controlling and minority shareholders, which are curbed by capital control reforms, we would expect a smaller marginal contribution of RPTs to firm performance before liberalization and a larger contribution afterward (the agency cost hypothesis). Our empirical results

lend support to the agency cost hypothesis, suggesting that financial globalization safeguards the wealth of minority shareholders by curbing resource diversions by controlling insiders.

Our study explores how lifting capital controls enhances investor protection. In our mechanism analysis, we find that the reduction in tunneling is primarily attributable to the implicit threat of foreign institutional investors' exit, a channel that proves more than three times as effective as direct governance interventions emphasized in previous research. This result highlights the pivotal role of the exit threat in linking financial liberalization to reductions in tunneling activities, rather than improvements in transparency alone.

Our cross-sectional tests further show that the benefits of financial liberalization are more pronounced in firms characterized by higher stock market liquidity, a larger number and equity share of blockholders, and stronger managerial wealth-performance sensitivity. These findings support the hypothesis that rapid liberalization induces firms to strengthen governance and curtail controlling insiders' rent-extracting behaviors in response to the potential exit of foreign institutional investors. Moreover, we find that the positive effect of market liberalization on curbing tunneling is confined to financing-related transactions, with no significant impact on goods-and-services-related transactions.

This research contributes to the literature in three important ways. First, while existing studies have emphasized the governance role of institutional investors through direct voting mechanisms ("voting by hand"; Aggarwal et al., 2011), such a mechanism may be less effective in contexts where controlling shareholders wield substantial influence and institutional investors hold relatively small stakes (Jiang and Kim, 2015; Jiang and Kim, 2020; Gao et al., 2023). By contrast, this study highlights the governance influence of foreign investors through the threat of exit ("voting with their feet"), which emerges as a more feasible and effective strategy for protecting minority interests. This perspective provides a novel governance mechanism that is particularly relevant for foreign investors with low shareholding ratios. Additionally, in response to potential limitations in Yang et al. (2022)—notably, a less comprehensive tunneling measure focused on other receivables[3] and potential endogeneity issues from relying mainly on industry and year effects—this research presents a more comprehensive theoretical framework, situates the analysis within a broader macroeconomic context of capital market liberalization, and employs more robust identification strategies and empirical tests. Overall, these efforts yield a more complete understanding of how market liberalization shapes controlling shareholders' tunneling behavior, offering a richer perspective on the interplay between financial globalization and corporate governance in China.

Secondly, our study enhances understanding of the factors that deter expropriation, addressing a gap in literature that has extensively focused on the private benefits of controlling shareholders (Zingales, 1994; La Porta et al., 2000a) but has not thoroughly explored how insider exploitation of minority shareholders can be mitigated. Although previous studies (La Porta et al., 2000b; Djankov et al., 2008) have highlighted the role of legal frameworks in this context, our research adds new insights by demonstrating the effectiveness of lifting capital controls in curbing such expropriation. Additionally, this result offers empirical evidence for La Porta et al.'s (2000b) claim that stock market liberalization can protect minority shareholders in contexts where other mechanisms might fall short.

Lastly, although the analysis focuses on China, the findings carry broad implications for policymakers elsewhere, highlighting the pervasive impact of financial globalization on corporate governance. This insight is particularly salient in the current context of increasing de-globalization

and protectionist tendencies, which stand in contrast to the successful financial globalization model exemplified by Vietnam (Summers, 2000; Eckardt et al., 2018). By demonstrating that financial integration can strengthen investor protection, this research offers valuable guidance for countries considering liberalization amidst shifts in the global market environment.

The remainder of this paper is organized as follows. Section 2 provides a summary of the institutional background concerning China's capital controls. Section 3 develops the testable prediction. Section 4 outlines our research design, details the sample selection process, and presents descriptive statistics. Section 5 presents the main results and robustness tests. Section 6 reports evidence from cross-sectional and additional analyses. Finally, Section 7 concludes the paper.

2. Institutional background of China's liberalization reforms

On April 10, 2014, the China Securities Regulatory Commission announced a significant development in the liberalization of China's capital market. Starting from November 17, 2014, investors in mainland China and Hong Kong were granted the direct ability to purchase and sell shares of selected firms publicly listed on the Shanghai Stock Exchange and the Hong Kong Stock Exchange. Under the Shanghai-Hong Kong Express program, Chinese public firms eligible for participation included those listed in the Shanghai Stock Exchange 180 Index and 380 Index, as well as firms cross-listed on the Hong Kong Stock Exchange. Two years later, a similar program was announced for the Shenzhen Stock Exchange and the Hong Kong Stock Exchange, which became effective on December 5, 2016. Firms eligible for participation in the Shenzhen-Hong Kong Express program encompassed those listed in the Shenzhen Stock Exchange Component Index and Small/Mid Cap Innovation Index, as well as firms cross-listed on the Hong Kong Stock Exchange. These liberalization reforms marked a significant shift in China's approach to capital controls, enabling both domestic and international investors to have direct access to selected Chinese firms listed on the stock exchanges.

The initial implementation of the Express programs allowed foreign investors to invest up to RMB10.5 billion (US$1.7 billion) per day in China's domestic market in 2014. Subsequently, this daily investment limit was increased to RMB52 billion (US$7.43 billion) in 2018. According to data from the China Stock Market and Accounting Research database, as of December 31, 2019, foreign investors had traded shares with a total value of US$2,729.77 billion through both Express programs. During this period, the total value of shares purchased amounted to US$1,435.83 billion, while the total value of shares sold reached US$1,293.94 billion. However, it is important to note that a single foreign investor is restricted from holding more than 10% of the shares of a Chinese public firm. Additionally, the total ownership of a firm by foreign investors cannot exceed 30%. These regulations are in place to ensure a balanced distribution of ownership and prevent excessive foreign control over Chinese companies.

3. Hypothesis development

Despite the perspectives offered by La Porta et al. (2000b), the effect of financial globalization on minority shareholder protection remains initially unclear. There is reason to expect a positive impact on investor protection. First, foreign investors can improve the information environment (Yang et al., 2022; Yoon, 2021; Zhang et al., 2024) and enhance corporate governance by exercising their voting rights, as demonstrated in studies by Aggarwal et al. (2011), Chen et al. (2021), Li et al. (2023), and Liu et al. (2023), particularly in situations where controlling shareholders diminish the value of the listed company. However, this approach may be less

effective in environments where controlling shareholders hold significant power and foreign institutional investors have minimal equity stakes[4], as indicated by research from Jiang et al. (2010), Jiang and Kim (2015, 2020), and Gao et al. (2023).

Given this context, the threat of exit—foreign investors "voting with their feet"—may serve as a more effective mechanism for curbing tunneling activities by controlling shareholders. Compared to their domestic counterparts, foreign investors from developed markets with robust investor protections typically possess richer experience, greater independence, and fewer local ties (Yoon, 2021). Theoretical models predict that outside blockholders, armed with private information, can reduce agency problems through the credible threat of exit, even without direct intervention in corporate operations (Admati and Pfleiderer, 2009; Edmans, 2009). Empirically, foreign institutional investors have been shown to enhance corporate governance in emerging markets through strategic voting (Edmans et al., 2013; Firth et al., 2016; Hope et al., 2017; David et al., 2022). In environments characterized by high expropriation risk, foreign investors can respond to liberalization by discounting the stock prices of newly accessible firms or by selling their stakes based on private information. Such actions exert downward pressure on stock prices, send negative signals to other market participants, and ultimately incentivize controlling shareholders to reduce resource misappropriation following market liberalization.

Conversely, the influence of market liberalization on curbing the misappropriation of resources by controlling shareholders might be limited or even counterproductive. Firstly, entry into the global market could provide controlling insiders with new avenues for wealth extraction from minority shareholders. Instead of distributing company profits to minority shareholders through dividends (La Porta et al., 2000a; Faccio et al., 2001), controlling shareholders might reallocate funds into less profitable cross-border mergers and acquisitions (M&As), transfer profits to international markets, or use intricate tax strategies to conceal their expropriation activities (Desai and Dharmapala, 2006; Desai et al., 2007; Bauer et al., 2020). Consequently, the expanded opportunities for diversion following market liberalization could encourage dominant insiders to pursue more aggressive measures against outside investors. Secondly, given that foreign investors' mean equity stakes in pilot firms are just 0.6% and they face substantial information asymmetry, it's unlikely they could effectively curb tunneling by controllers. With the limited quotas allocated to foreign investors and their small actual stakes, the external impacts of liberalization reform may be economically insignificant, leading to negligible effects on tunneling. In such an institutional context, institutional investors might not function as proactive overseers but could potentially collaborate with controlling shareholders instead (Firth et al., 2010). These observations imply that foreign investors might be less motivated or less effective in their monitoring roles due to these institutional challenges. Furthermore, foreign investors often confront information asymmetries when entering new markets, stemming from institutional disparities and a lack of local understanding and connections (Zaheer, 1995; Filatotchev et al., 2007; Wong et al., 2020).

Considering these contrasting forces at play, we formulate our hypothesis in the null form rather than making a directional prediction regarding the role of stock market liberalization in shaping investor protection:

H1: Stock market liberalization does not have a significant impact on investor protection.

4. Research design and sample selection

4.1 Measure of investor protection

While Jiang et al. (2010) focused on several metrics based on intercorporate loans to study tunneling, this method can be curtailed by strong rules and regulations[5]. Therefore, drawing on extensive prior research (e.g., Bae et al., 2002; Baek et al., 2006; Cheung et al., 2006; Jian and Wong, 2010; Jiang et al., 2010), we have decided to use a well-established measure for assessing the extent of expropriation and investor protection. Specifically, our approach involves examining the scale of a firm's related party transactions (RPTs) in relation to its total assets (Cheung et al., 2006; Jian and Wong, 2010)[6]. We recognize that transactions between a firm and its subsidiaries, parent companies, affiliated firms within the same business group, or executives' relatives often diverge from the arm's-length principle, resulting in substantial wealth losses for minority shareholders.

In our analysis, we employ the measure RPT_total_{it}, which represents the total amount of related party transactions for firm *i* in year *t*, divided by its total assets in the previous year t. Additionally, following the observations of Peng et al. (2011) regarding different motivations behind RPTs (i.e., tunneling and propping), we also construct other variables to discern the degree of expropriation. In line with Chen et al. (2018), the second measure, RPT_indadj_{it}, is defined to capture the difference between firm *i*'s RPT and the median RPT within the same industry classification and year *t*. Furthermore, acknowledging that certain types of RPTs such as cooperation projects, license agreements, R&D outcomes, and managerial compensation are likely driven by regular company operations and not indicative of tunneling, we exclude these transactions from RPT_total_{it} to formulate our third measure, RPT_explo_{it}. The final measure, RPT_abnor_{it}, is derived as the residual from a forecast model of RPTs, essentially the residual term of an OLS regression model that accounts for normal components of RPTs associated with industry classifications and firm characteristics (Jian and Wong, 2010). These measures collectively provide a comprehensive assessment of the extent of expropriation and serve as reliable indicators of investor protection in our analysis.

4.2 Measures of the treatment variable and control variables

In contrast to previous studies that solely consider the Shanghai-Hong Kong Connect Program as the treatment group (Li et al., 2023), our study incorporates the variable LIB_{it} as the primary explanatory variable in our model. LIB_{it} is defined as 1 for firm *i* in year *t* if it entered either the Shanghai-Hong Kong Connect or the Shenzhen-Hong Kong Connect program, and 0 otherwise. For example, if firm *i* participated in the Shanghai-Hong Kong Express program starting from November 17, 2014, LIB_{it} takes a value of 1 from 2014 onwards and 0 before that.

In line with the tunneling literature (Jian and Wong, 2010; Jiang et al., 2010; Chen et al., 2018), our analysis incorporates a vector of firm characteristics and governance factors that may influence the expropriation activities of controlling shareholders. Specifically, we consider common firm characteristics identified in previous studies as influencing expropriation. These include the size of the firm ($SIZE_{it}$, defined as the natural logarithm of the total market value of firm *i* in year *t*), profitability (ROA_{it}, calculated as net income divided by total assets of firm *i* in year *t*), leverage (LEV_{it}, total liabilities divided by total assets of firm *i* in year *t*), firm age (AGE_{it}, the number of years since firm *i* was established as of year *t*), and the market-to-book ratio (MB_{it}, market value divided by stockholders' equity of firm *i* in year *t*).

Additionally, we account for the ownership structure of the firm, recognizing that both large controlling shareholders and state ownership can lead to the expropriation of minority shareholders. This is controlled through the ownership of the firm's largest shareholder ($LARGE_{it}$, ownership of

the largest shareholder of firm *i* in year *t*) and state ownership (SOE_{it}, indicating whether firm *i* is a state-owned enterprise in year *t*). We also consider executive compensation ($EPAY_{it}$, the natural logarithm of the total compensation of the top three paid executives of firm *i* in year *t*) since underpaid managers might be more inclined to divert firm resources. Governance factors are also crucial, including board size ($BSIZE_{it}$, the natural logarithm of the number of board directors of firm *i* in year *t*) and board independence ($BIND_{it}$, the percentage of independent directors of firm *i* in year *t*), which are closely related to investor protection. Furthermore, external market participants such as auditors, institutional investors, short sellers, and financial analysts play a crucial role in monitoring controlling shareholders. Gao et al. (2023) found that market liberalization also serves a governance function by enhancing signaling and increasing public scrutiny. Thus, to isolate this mechanism effectively, we account for several variables: the size of audit firms ($BIG10_{it}$, indicating whether firm *i* is audited by a big 10 audit firm in year *t*), institutional ownership (IO_{it}), foreign institutional ownership (FIO_{it}), susceptibility to short-selling ($SHORT_{it}$), and analyst coverage ($COVERAGE_{it}$, the natural logarithm of (1 + the number of analysts following firm *i* in year *t*)). These variables collectively offer a comprehensive framework to assess the impact of various factors on the expropriation by controlling shareholders.

4.3 Empirical model

Taking advantage of the staggered implementation of China's market liberalization programs, we evaluate the impact of capital control relaxation on RPTs using the following difference-in-differences regression:[7]

$$RPT_{it} = \gamma_i + \gamma_t + \gamma_1 LIB_{it} + \gamma_2 CONTROLS_{it} + \varepsilon_{it} \qquad (1)$$

RPT_{it} represents the measure of firm i's related party transactions in year *t*, as defined in Section 4.1. LIB_{it} captures the timing of firm i's liberalization in year *t*, as described in Section 4.2. A negative and statistically significant coefficient on LIB_{it} would indicate that market liberalization improves investor protection, while a positive and significant coefficient would suggest a deterioration in shareholder protection after firms gain access to the global market. The firm fixed effects, denoted by γ_i, control for unobserved, time-invariant characteristics that may affect RPTs across firms. γ_t represents year dummies that account for aggregate shocks and trends influencing investor protection over time. To address potential reverse causality issues with the control variables, we use their values from period *t*.

4.4 Sample and descriptive statistics

Our analysis covers the period from 2007 to 2020, as China's liberalization programs commenced on November 17, 2014. We chose this timeframe to ensure a comparable pre-liberalization and post-liberalization period. The data for our study is sourced from the China Stock Market and Accounting Research (CSMAR) database, which is analogous to the Wharton Research Data Services.

Panel A of Table 1 presents an overview of the sample selection process. Initially, we have 36,609 firm-year observations from the CSMAR database for the years 2007 to 2020. We exclude 1,106 observations related to firms in the finance and utility industries due to their distinct operations. Additionally, we eliminate 2,039 observations where firms faced delisting risk (special treatment), and 4,165 observations for firms listed on the Shanghai Stock Exchange after November 17, 2014, and the Shenzhen Stock Exchange after December 5, 2016. Furthermore, 2,526 observations are removed due to missing values for the regression variables. After applying

these criteria, our final sample comprises 26,417 firm-year observations, with 5,757 pilot firm-year observations and 20,660 non-pilot firm-year observations. Panel B of Table 1 displays the number of new pilot firms entering the liberalization program each year. In 2014 and 2016, we observe 422 and 1,036 pilot observations[8], respectively, corresponding to the first batches of the Shanghai-Hong Kong Express and the Shenzhen-Hong Kong Express programs in those years.

[Insert Table 1 here]

Table 2 provides summary statistics for all the variables defined in Section 4. The mean value for RPT_total_{it} is 0.278, indicating that, on average, related party transactions account for 27.8% of firms' total assets. This highlights the prevalence of intra-group transactions in emerging markets like China (Jian and Wong, 2010; Chen et al., 2018). The mean values for the other three measures, RPT_indadj_{it} (related party transactions adjusted by industrial median), RPT_explo_{it} (exploitative related party transactions), and *RPT_abnorit* (abnormal related party transactions), are 0.136, 0.274, and -0.004, respectively. The mean value for LIB_{it} is 0.218, suggesting that China's liberalization programs had an impact on 21.8% of the sample observations from 2007 to 2020. To mitigate the influence of outliers, we have winsorized all continuous variables at the 1st and 99th percentiles.

[Insert Table 2 here]

5. Main results

5.1 Baseline results

Table 3 showcases the core findings on the effects of financial liberalization on firms' related party transactions. The table is organized into four columns, each representing multivariate regression results for different measures of related party transactions (*RPT*). Across all four regressions, the coefficient for LIB_{it} is consistently negative and statistically significant at the 1% level, suggesting that pilot firms, having undergone financial liberalization, exhibit a reduction in the extent of their related party transactions compared to non-pilot firms, which continued to face stringent capital controls during the same timeframe. Column (1), highlighting the primary economic significance of our coefficient estimates, shows that the magnitude of related party transactions in pilot firms decreases by 9.71% (calculated as 0.027/0.278) during the post-liberalization period in comparison to non-pilot firms in the corresponding period.

In relation to the control variables in our analysis, $SIZE_{it}$ and LEV_{it} demonstrate significant positive coefficients. This suggests that in larger firms and those with higher leverage, controlling shareholders are more inclined to expropriate from minority shareholders. Conversely, firms with higher profitability (ROA_{it}) exhibit less tunneling by controlling shareholders. The positive coefficient observed for $LARGE_{it}$ is in line with expectations, indicating that greater voting rights held by controlling shareholders are associated with increased extraction of private benefits. On the other hand, the negative coefficient for $EPAY_{it}$ supports the notion that managers receiving lower compensation are more motivated to expropriate resources from outside investors. Moreover, both $BSIZE_{it}$ and $COVERAGE_{it}$ show a negative correlation with all four RPT measures. This implies that the presence of board directors and the coverage by analysts play a crucial role in internal and external monitoring, thus potentially reducing the occurrence of related party transactions.

[Insert Table 3 here]

5.2 Robust Testes

5.2.1 The parallel trends assumption

A fundamental premise of the difference-in-differences methodology is that, prior to the introduction of the treatment, both the treatment and control groups should exhibit parallel trends in the dependent variables, meaning there should be no expected effects (Roberts and Whited, 2013). To verify this crucial assumption in our study, we employ a dynamic model, following the approach outlined by She (2022). In this model, we do not include the dummy variable for *BEF1* in our regression[9]. This omission allows for a more direct comparison of the treatment effects relative to the period immediately before the initiation of the connected program. Instead, we incorporate several additional dummy variables: *BEF3, BEF2, EVENT, AFT1, AFT2*, and *AFT3*. Each of these variables is assigned a value of 1 for the respective years -3, -2, 0, +1, +2, and +3, with year 0 being the year in which firm *i* enters the liberalization program, and a value of 0 otherwise.[10] The integration of dummy variables from *BEF3* to *BEF2* is particularly important. It enables us to assess whether the trends in related party transactions (*RPTs*) between pilot firms and non-pilot firms were statistically similar during the three years leading up to the liberalization reform.[11] This approach helps us to ascertain the validity of the parallel trends assumption, a critical component for the credibility of our difference-in-differences analysis.

Figure 1 graphically depicts the examination of parallel trends, providing visual confirmation of the conditions necessary for our DiD analysis. The coefficients on *BEF2* and *BEF3* are statistically insignificant, suggesting that there are no perceptible differences in RPTs between pilot firms and non-pilot firms prior to the start of market liberalization. However, the coefficients on *EVENT*, *AFT1*, *AFT2*, and *AFT3* are significantly negative, indicating that pilot firms experience a reduction in the magnitude of their RPTs in the current year of liberalization and in the first, second, and third years after liberalization. This effect is enduring over time. These findings from the parallel trends analysis provide further support for the causal impact of market liberalization on reducing tunneling activities.

[Insert Figure 1 here]

5.2.2 Rule out selection bias

One potential concern that could undermine the reliability of our causal inference is the possibility of selection bias. Since all pilot firms are index firms, there may be inherent differences between these firms and non-index firms that could potentially influence our results. To address this concern, we have taken measures to control for observable factors known to affect related party transactions (*RPTs*), as well as accounting for unobservable firm and time fixed effects in our estimation. However, to further alleviate this concern and strengthen our findings, we employ two additional methods: propensity score matching and entropy balancing.

In our study, we employed a logistic model with a caliper width of 0.01 for the first stage of Propensity Score Matching (PSM). Each pilot firm was matched with a non-pilot firm (1:1 no replacement matching) based on propensity scores calculated from observable control variables in model (1): $SIZE_{it}$, ROA_{it}, LEV_{it}, AGE_{it}, MB_{it}, $LARGE_{it}$, SOE_{it}, $EPAY_{it}$, $BSIZE_{it}$, $BIND_{it}$, $BIG10_{it}$, IO_{it}, FI_{it}, $SHORT_{it}$, $COVERAGE_{it}$.[12] Post-matching, control variables were statistically similar between pilot and matched non-pilot firms[13], indicating successful covariate balance and reduced bias from observable differences. For analysis, we used a binary variable, LIB_{it} (1 for pilot firms, 0 for

matched non-pilot firms). Panel A of Table 4 shows LIB_{it}' s negative coefficient, supporting our initial finding that stock market liberalization restricts controlling shareholders' rent extraction.

We also applied entropy balancing, following Hainmueller (2012), using the same control variables for reweighting our control group to align with pilot firms. Entropy balancing adjusts unit weights to satisfy balance conditions based on sample moments. Panel C of Online Appendix Table A1 shows the balance test results, and Panel B of Table 4, using entropy balancing, mirrors the findings from the propensity score matching, further validating our conclusions.

While we utilized propensity score matching (PSM) and entropy balancing for sample matching, there remains a challenge in controlling the impact of time-varying unobservable variables, such as increased investor attention towards certain stocks. To strengthen our causal inference, we employed an instrumental variable regression analysis, using stocks entering and exiting the related index groups as instrumental variables. Specifically, the firms in the Shanghai-HK express program are those in the *Shanghai Stock Exchange Index 180 and 380*, which are re-constituted every June and December. For the Shenzhen-HK express program, the firms are part of the *Shenzhen Stock Exchange Component Index and Small/Mid Cap Innovation Index*, re-constituted every April and October. We hand-collected data on stocks entering and exiting each index from 2007-2020 as our initial sample, using *INDEX-IN* as the instrumental variable for *LIB*.

The regression results, presented in Panel C of Table 4, reveal a strong association between *INDEX-IN* and LIB^{IV} in column (1), satisfying the correlation criterion in the first-stage regression. Moreover, the coefficient for LIB^{IV} is negative and statistically significant at the 1% level. The absence of underidentification and overidentification problems, as indicated by the F-value and Sagin P-value, lends further support to our main finding: the magnitude of related party transactions for pilot firms decreased following financial liberalization.

5.2.3 The difference-in difference (DiD) results based on the removing pilot firms

We also explored the aspect of de-liberalization, using a difference-in-differences (DiD) approach, to understand its causal impact on tunneling. This involved focusing on pilot firms that were removed from the liberalization program. To accurately represent the timing of de-liberalization, we introduced a variable, $DE\text{-}LIB_{it}$, defined as 1 in the year following a firm's removal from the liberalization program, and 0 otherwise. For instance, if a firm was part of the Shanghai-Hong Kong Express program from November 17, 2014, and was removed on December 1, 2018, then $DE\text{-}LIB_{it}$ would be 1 from 2019 onwards and 0 for the years 2014 to 2017.

The results, presented in Panel D of Table 4, show that $DE\text{-}LIB_{it}$ has a positive and significant entry. This finding strengthens our previous conclusions about the decline in shareholder protection when a stock market shifts from a state of liberalization to non-liberalization. It suggests that the removal from liberalization programs negatively impacts the mechanisms that protect shareholders, potentially leading to increased tunneling activities.

5.2.4 Alternative estimation methods

Besides, the authorities update the list of qualified firms in the connect program semi-annually, which allows for constructing the related party transactions at a more granular level. To enhance the data granularity, we construct the first tunneling measurement using ‘other receivables with related parties scaled by total assets’ (*ORECTA*) at a semi-annual frequency. While the value of other receivables can be found in quarterly reports, the details of intercompany loans to controlling shareholders and their affiliates are only reported in the notes of annual financial statements. To

address this, we calculate the ratio of intercorporate loans with related parties annually and assume that the four quarters in a fiscal year share the same ratio. Based on this assumption, we determine quarterly tunneling behavior by multiplying the quarterly other receivables by the annual related-party ratio scaled by quarterly total assets. The regression results in Panel E of Table 4, based on the quarterly data, also support our main findings.

In addition, recent econometric research suggests that staggered DiD designs may not provide valid estimates of causal effects. This is primarily due to the issue of treatment effect heterogeneity, which arises when treated units in different periods serve as comparison units for each other (Athey and Imbens, 2022; Baker et al., 2022). To address the treatment effect heterogeneity problem, researchers have developed estimation methodologies, such as the Counterfactual-based Stable Unit Treatment Value Weighting Estimator (CSDiD) proposed by Callaway and Sant'Anna (2021) and Sun and Abraham (2021). These methodologies ensure that firms receiving treatment are not compared to firms that have recently received treatment, and they carefully select control units to achieve covariate balance in the analysis. By using only never-treated or not-yet treated units as controls, consistent estimators for Average Treatment Effects (ATT) can be obtained.

In our study, we apply these alternative estimation techniques to alleviate the treatment effect heterogeneity issue. Panel F of Table 4 presents the estimated ATT for all groups across all periods. We also estimate the ATT by group means, which provides the ATT for each group or cohort across all periods, using observations that have never been treated or not yet treated as the control group (CSDID). Furthermore, we estimate the ATT by calendar period, which provides the ATT for each period across all groups or cohorts, using all cohorts that were not treated at a specific time as the control group. Our main results are robust to these alternative estimation techniques[14].

[Insert Table 4 here]

5.2.5 Rule out confounding effects

There were several concurrent events and reforms during our sample period that may have independently reduced related-party transactions. For instance, the mandatory Country-by-Country Reporting (CbCR) initiative under OECD Action 13 required multinational corporations to comply with new reporting standards from January 1, 2016 onward (Bai and Zheng, 2024), and the gradual implementation of the Golden Tax-III project between 2013 and 2016 (Ye et al., 2023) further strengthened tax oversight. These developments raise concerns that the observed effects could be confounded by external factors rather than driven solely by market liberalization.

To address these potential confounding influences, we incorporate two additional control variables: *Oversea*, a dummy variable equal to one if firm *i* reports foreign revenue in year *t* (and zero otherwise), and *GTIII*, a dummy variable equal to one if firm *i* is located in a city where Phase III of the Golden Tax Project was implemented (and zero otherwise). The regression results, presented in Panel G of Table 4, remain consistent with our main findings even after accounting for these concurrent reforms, further supporting the validity of our conclusions.

Besides, although we employ various approaches to address endogeneity and confounding effects concerns, it is still possible that the observed effect in our results is due to chance. To assess the likelihood of this alternative explanation, we conduct a falsification analysis. In this analysis, we randomly reassign the liberalization year of each firm and adjust the LIB_{it} variable accordingly. We repeat this randomization process 1,000 times and obtain 1,000 coefficients for

the LIB_{it} variable. These coefficients are then plotted in Figure 2, which shows a normal distribution centered around zero. This distribution is in stark contrast to the magnitude of the coefficients reported in Table 3 (coeffs. = -0.027). Furthermore, statistical analysis does not reject the hypothesis that the mean of these 1,000 coefficients is statistically different from zero (t-stats. = 0.137; p-value = 0.446). These findings reinforce our conclusions that the effect of stock market globalization on investor protection is more likely to be causal rather than random.

[Insert Figure 2 here]

5.2.6 Excluding the observations for 2020 because of the pandemic started

Additionally, we conducted a robustness check by excluding data from 2020, considering the disruptions caused by the pandemic. This exclusion did not alter our findings, as shown in Online Appendix Table A4.

6. Additional and cross-sectional analyses

6.1 Market liberalization, RPTs, and firm performance

It's important to recognize that related party transactions (*RPTs*) may not exclusively represent expropriation by major shareholders, as they can also include value-adding transactions within corporate groups. Previous studies have indicated that intragroup transactions are not necessarily illegal (Johnson et al., 2000) or harmful to shareholder value (Khanna and Palepu, 1997, 2000). This is especially relevant in developing countries with weak institutional infrastructure, which often limits the growth of their capital markets (La Porta et al., 1997). In such markets, characterized by inefficiency and a lack of resources for firm growth, RPTs within business groups can function as more effective internal markets, providing necessary resources to member firms and potentially enhancing firm value (La Porta et al., 2002). Given this backdrop, two contrasting hypotheses can be formed regarding the effects of market liberalization on RPTs and firm performance.

The resource supply hypothesis suggests that Related Party Transactions (*RPTs*) are a response to resource scarcity in markets with limited development, as highlighted by Khanna and Palepu (1997, 2000). Under this hypothesis, if RPTs are effectively supplying resources but become constrained after market liberalization, we would expect a more significant contribution of RPTs to firm performance before liberalization and a reduced contribution thereafter. This perspective sees RPTs as beneficial, filling gaps in inefficient markets. Conversely, the agency cost hypothesis, supported by studies like those of Jiang et al. (2010), Jian and Wong (2010), and Chen et al. (2018), views RPTs as manifestations of conflicts between controlling and minority shareholders. According to this hypothesis, RPTs are more about self-dealing and less about addressing market inefficiencies. Market liberalization, therefore, is seen as a mitigating factor for this agency problem. If this hypothesis holds true, we would expect an increase in the positive impact of RPTs on firm performance post-liberalization, reflecting a shift towards more beneficial and less exploitative use of these transactions.

To evaluate firm performance, we utilize Tobin's Q ($TOBINQ_{it}$) as a measure of the firm's future prospects based on investor valuation, and return on assets (ROA_{it}) as a proxy for actual firm performance. These are regressed against the interaction of the change in related party transactions ($DRPT_{it}$) and the liberalization variable (LIB_{it}). For this analysis, we construct dummy variables for RPTs, where $DRPT_{it}$ is set to 1 if RPTs are above the median value, and 0 otherwise. The results, displayed in Columns (1) to (8) of Table 5, reveal positive and significant interactions between $DRPT_{it}$ and LIB_{it}. This finding indicates that market liberalization helps curb the

expropriation activities of large shareholders, thereby enhancing the positive impact of intragroup transactions on market valuation and overall firm performance. In summary, the data presented in Table 5 leans towards supporting the agency cost hypothesis. It suggests that financial globalization acts as a protective mechanism for minority shareholders' wealth, limiting the diversion of resources by controlling insiders. This implies that the reduction in related party transactions post-liberalization is likely reflective of decreased opportunities for self-dealing by major shareholders, rather than a decrease in beneficial intragroup resource transfers.

[Insert Table 5 here]

6.2 Results of mechanism analyses

Our previous analysis highlights the role of financial globalization in curbing rent extraction by controlling shareholders. To deepen this understanding, this section examines how capital account reforms enhance minority shareholder protection. While prior studies focus on improved information disclosure and strengthened governance structures (Chen et al., 2021; Gao et al., 2023; Li et al., 2023; Yang et al., 2022; Yoon, 2021; Zhang et al., 2024), this study emphasizes the mechanisms related to the exit threat. Specifically, we document the implicit threat of exit by foreign institutional investors—an effective “vote by feet” strategy—that significantly reduces related-party transactions (RPTs). Additionally, we highlight the reinforced monitoring conditions under which foreign investors leverage their exit threats to improve corporate governance. By delineating these two pathways, this analysis offers a more nuanced understanding of how capital account reforms mitigate tunneling and enhance investor protection.

Table 6 details the outcomes of our mechanism analysis, focusing initially on the direct corporate governance impact attributed to foreign institutional investors. Across all columns, the coefficient on the interaction $LIB_{it} \times LIBSHRATE_{it}$ among all columns in Table 6 reveals a significantly negative impact on tunneling activities (Coefficient = -0.008). This suggests that foreign institutional investors play a significant role in strengthening investor protection following market liberalization, as documented in previous literature (Yang et al., 2022; Zhang et al., 2024). Moreover, we delve into the exit threat channel, drawing on studies that underscore the crucial role of foreign institutional investors in improving corporate governance within emerging markets through "voting by feet," as opposed to traditional voting methods (Edmans et al., 2013; Firth et al., 2016; Hope et al., 2017; David et al., 2022). In line with the concept of exit threats, we use *EXIT* (assigned a value of 1 when the foreign shareholding due to the liberalization program of the pilot firms in the current year is below the shareholding in the preceding year) as a measure to capture this "voting by feet" dynamic. This approach helps quantify the influence of potential investor withdrawals on corporate behavior, particularly in reducing undesirable practices like tunneling by controlling shareholders.

The coefficient on the interaction $LIB_{it} \times EXIT_{it}$ among all columns in Table 6 are significantly negative and exceeds the direct influence of shareholding on tunnelling ($LIB_{it} \times LIBSHRATE_{it}$) by over threefold. An F-test confirms a significant difference between the two coefficients on $LIB_{it} \times LIBSHRATE_{it}$ and $LIB_{it} \times EXIT_{it}$. These results highlight the effectiveness of exit-driven oversight as a mechanism for enhancing investor protection after market liberalization. This suggests that a reduction in program shareholding acts as an active form of investor participation in the market, serving as an indirect form of corporate governance through the strategy of voting by feet.

[Insert Table 6 here]

In order to test the theoretical predictions supporting our exit-driven interpretation, we conduct a series of additional analyses to corroborate our primary findings and examine cross-sectional variations. These additional tests enable us to gain a more nuanced understanding of the role that market globalization plays in safeguarding minority shareholder interests.

Building on the theoretical foundations (Admati and Pfleiderer, 2009; Edmans, 2009), we posit that outside blockholders' credible threat of exit, based on private information, can mitigate agency problems and improve corporate governance, even in the absence of direct intervention. This mechanism is particularly relevant in emerging markets, where strategic voting and shareholder mobility can exert considerable influence (Edmans et al., 2013; Firth et al., 2016; Hope et al., 2017; David et al., 2022). Furthermore, prior research documents several factors that enhance the effectiveness of exit-based governance. For example, higher stock market liquidity (Edmans et al., 2013), increased numbers of blockholders, a greater number of blocks held by these blockholders, and stronger managerial wealth-performance sensitivity (Edmans et al., 2019) all amplify the disciplining potential of the exit threat.

Based on these insights, we expect a more pronounced impact of market liberalization on related-party transactions (RPTs) in firms characterized by higher stock market liquidity, a larger number of blockholders, greater equity stakes held by these blockholders, and higher managerial wealth-performance sensitivity.

Following Admati and Pfleiderer (2009), Edmans (2009), and Edmans et al. (2013), we define $HIlliq_{it-1}$ as an indicator variable equal to one if the stock market liquidity of firm *i* in year *t–1* is above the industry median, and zero otherwise. HBN_{it-1} equals one if the number of blockholders (defined as shareholders holding at least 5% of firm shares) exceeds the annual industry median, and zero otherwise. HBR_{it-1} equals one if the number of equity blocks held by blockholders is above the annual industry median, and zero otherwise. Finally, $HWPS_{it-1}$ equals one if the CEO's wealth-performance sensitivity—measured as the dollar change in CEO wealth for a 100 percentage point change in the stock price, scaled by annual pay—exceeds the annual industry median, and zero otherwise.

Consistent with our conjectures, Table 7 shows that the interactions between LIB_{it} and these indicators of strengthened exit threat governance ($HIlliq_{it-1}$, HBN_{it-1}, HBR_{it-1}, $HWPS_{it-1}$) are significantly negative. These results indicate that the impact of capital market liberalization on reducing controlling shareholders' related-party transactions is more pronounced in firms with stronger exit-based governance features. In other words, these findings underscore the effectiveness of the exit threat mechanism as a means of enhancing investor protection in the wake of market liberalization. The reduction in controlling shareholders' stakes can be interpreted as an active form of investor engagement—an indirect, yet powerful, governance channel effected through the strategic use of "voting with their feet.

[Insert Table 7 here]

6.3 The embezzlement of funds through equity pledge for controller beyond RPT

While our study uses related party transactions (RPT) as a measure for protecting minority investors, it's important to consider other potential exploitative behaviors by controlling shareholders, such as the embezzlement of funds through equity pledge—a practice that has become increasingly prevalent in China, as noted in recent studies by Guo et al. (2023) and Li et al. (2023). The impact of capital market opening on these alternative expropriation channels is a

crucial aspect to investigate. A key question is whether listed companies, while reducing RPTs, might shift to more covert methods of exploiting minority shareholders. Exploring these possibilities is vital for a comprehensive understanding of the effects of capital market liberalization on corporate governance. To address this, we follow the methodology of Guo et al. (2023) and Li et al. (2023) and use equity pledges as an indicator of controlling shareholders' fund embezzlement. We define $PLEDGDUM_{it}$ as a dummy variable that equals one when controlling shareholders pledge their equities in the current year, and zero otherwise. $PLEDGRATE_{it}$ measures the ratio of equity pledges by controlling shareholders to the total shares outstanding in the capital market. Table 8 presents the results of this analysis. Following capital market liberalization, we observe a significant reduction in both the tendency and extent of equity pledges by controlling shareholders. This finding suggests that capital market liberalization may serve as an effective governance mechanism, not only reducing RPTs but also other forms of shareholder exploitation, such as equity pledge abuses.

[Insert Table 8 here]

6.4 Types of related–party transactions

Controlling shareholders can undermine minority shareholder interests through various types of related-party transactions (*RPTs*). Examining the heterogeneity of these transactions helps clarify how capital market liberalization curbs opportunistic behavior. Following Zhang et al. (2024), we decompose RPTs into financing-related (*FINRPT*)—including financial transactions, mortgages, and guarantees—and goods-and-services-related (*GSRPT*)—including sales of goods and provision of services.

As shown in Table 9, capital market liberalization is negatively and significantly associated with *FINRPT*, suggesting that large-scale financing transactions are more likely to be exploited for resource diversion. In contrast, liberalization's effect on *GSRPT* is negative but statistically insignificant, indicating that these transactions may function as substitutes under existing institutional gaps rather than direct tunneling channels. Overall, integrating pilot firms into global capital markets strengthens external governance pressures, particularly against financing-related tunneling, thereby enhancing minority shareholder protection.

[Insert Table 9 here]

7. Conclusions

In this research, we investigate the influence that stock market liberalization exerts on the incentives of local firms' controlling insiders to disenfranchise minority shareholders. This remains an empirical question as there exist opposing forces. On one hand, controlling insiders, keen on harvesting the benefits of financial globalization, may harbor stronger incentives to attract foreign investors by allotting more corporate resources to outside investors. Conversely, intragroup transactions do not necessarily depreciate firm value, and gaining access to global markets may endow insiders with additional means to siphon off private benefits to the detriment of minority shareholders.

Leveraging a quasi-natural experimental setting in China, where local firms progressively undergo liberalization, we manage to more effectively control for the endogeneity issues that previous research struggles to confront robustly. Employing a staggered difference-in-differences design, we ascertain that pilot firms considerably curtail the extent of their related party transactions from the pre-liberalization period to the post-liberalization period, relative to non-pilot

firms over the same duration. And exit threat of foreign institutional investors plays a significant role in reducing the related-party transactions from controller, especially financing-related transactions.

This paper sheds light on how financial globalization impacts the investor protection in the liberalizing country. The unique attributes of China, such as its economic magnitude and the prevailing agency conflicts between controlling insiders and outside investors, render the implications of this study highly pertinent to the debate on whether the costs of dismantling a country's capital controls surpass its potential benefits. Our findings also proffer policy implications to the governments of other nations that are either undergoing liberalizations or appraising the prospects of doing so.

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Appendix A. Variable Definitions

Variable	Definition
RPT_total_{it}	Total amount of related party transactions divided by total assets of firm *i* in previous year *t*.
RPT_indadj_{it}	The difference between RPT and the median RPT in the same year and in the same industry classification for firm *i* in year *t*.
RPT_explo_{it}	The ratio of exploitative related party transactions (excluding some types of related party transaction from the total annual related party transactions) to total assets of firm *i* in year *t*.
RPT_abnor_{it}	The residual of the forecast related party transaction model. See Jian and Wong's (2010) study.
$FINRPT_{it}$	*T*otal amount of financing-related party transactions (including financial transactions, mortgages, and guarantees) divided by total assets of firm *i* in previous year *t*.
$GSRPT_{it}$	*T*otal amount of related party transactions involving goods and services. (including sell goods, and provision of services), scaled by total assets of firm *i* in previous year *t*.
LIB_{it}	= 1 for the year *t* when firm *i* belongs to the liberalization program, and 0 otherwise.
$SIZE_{it}$	Natural logarithm of total market value of firm *i* in year *t.*
ROA_{it}	Return on assets of firm *i* in year *t.*
LEV_{it}	Total liabilities divided by total assets of firm *i* in year *t.*
AGE_{it}	Number of years that firm *i* has been establishing up until in year *t*.
SOE_{it}	= 1 if firm *i* is a state-owned-enterprise in year *t*, and 0 otherwise.
MB_{it}	Market value divided by book value of firm *i* in year *t.*
$LARGE_{it-1}$	Ownership of the largest shareholder of firm *i* in year *t-1.*
$BIG10_{it}$	= 1 if firm *i* is audited by a big 10 audit firm in year *t*, and 0 otherwise.
$BSIZE_{it}$	Natural logarithm of the number of board directors of firm *i* in year *t.*
$BIND_{it}$	Percentage of independent director of firm *i* in year *t.*
$EPAY_{it}$	Natural logarithm of total compensation of the highest three paid executives of firm *i* in year *t.*
IO_{it}	Institutional ownership of firm *i* in year *t.*
FIO_{it}	Hong-Kong ownership of firm i in year *t*.
$SHORT_{it}$	= 1 if firm *i* is subject to short-selling in year *t*, and 0 otherwise.
$COVERAGE_{it}$	Natural logarithm of (1 + the number of analysts following firm *i* in year *t*).
$LIBSHRATE_{it}$	Ownership of the Hong Kong investors in firm *i* in year *t*.

$TOBINQ_{it}$	The sum of the firm's market value of equity plus the book value of its debt divided by the firm's total assets in firm *i* in year *t*.
$LIBSHRATE_{it}$	The ownership percentage of Hong Kong investors in firm *i* in year *t*
$EXIT_{it}$	= 1 when the foreign shareholding due to the liberalization program of the pilot firms *i* in the current year *t* is below the shareholding in the preceding year..
$PLEDGDUM_{it}$	= 1 if controlling shareholders pledge their equities in year *t*, and 0 otherwise
$PLEDGRATE_{it}$	The proportion of equity pledges by controlling shareholders to the shares outstanding in capital market in firm *i* in year *t*.

Figure 1 Parallel trend check

Figure 1 exhibits a direct long-term lasting effect of liberalization on tunneling. Following She (2022), the dummy for *BEF1* is omitted in the regression so that the treatment effects are relative to the period immediately prior to the start of the program, and we estimate a dynamic model which specifies *BEF3*, *BEF2*, *EVENT*, *AFT1*, *AFT2* and *AFT3* equals 1 for years -3, -2, 0, +1, +2 and +3, respectively, where year 0 is the year that firm i joins the liberalization program, and 0 otherwise.

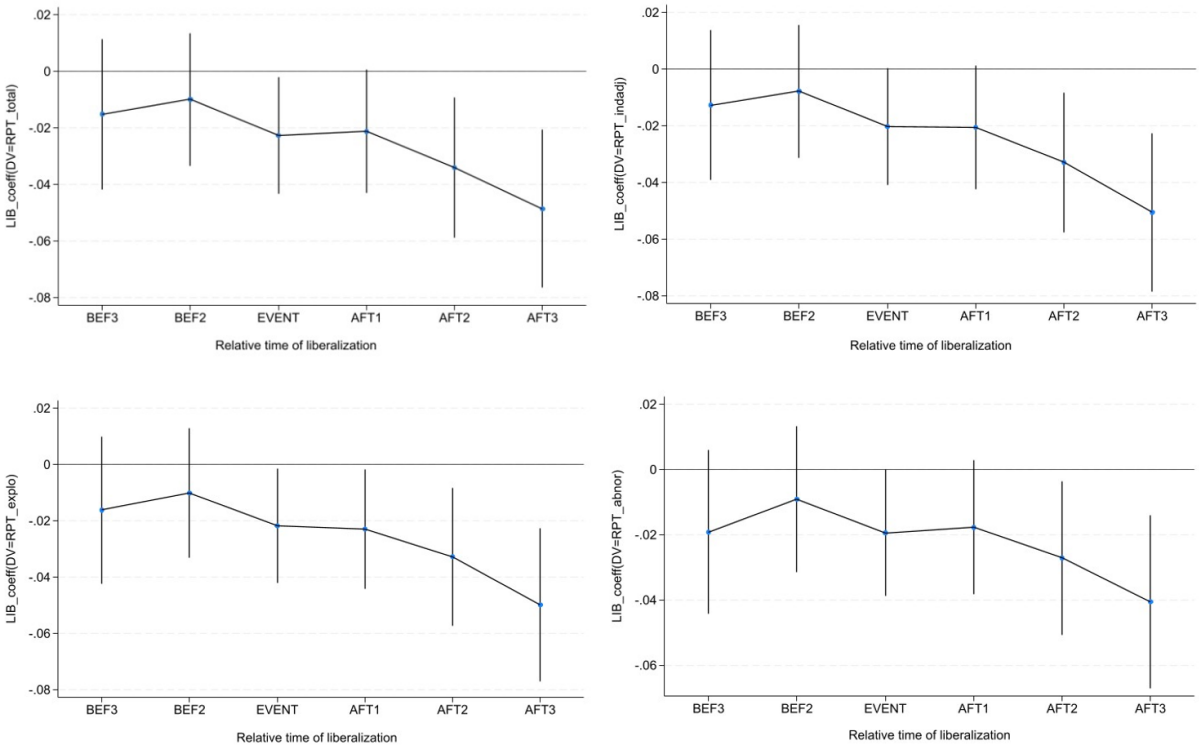
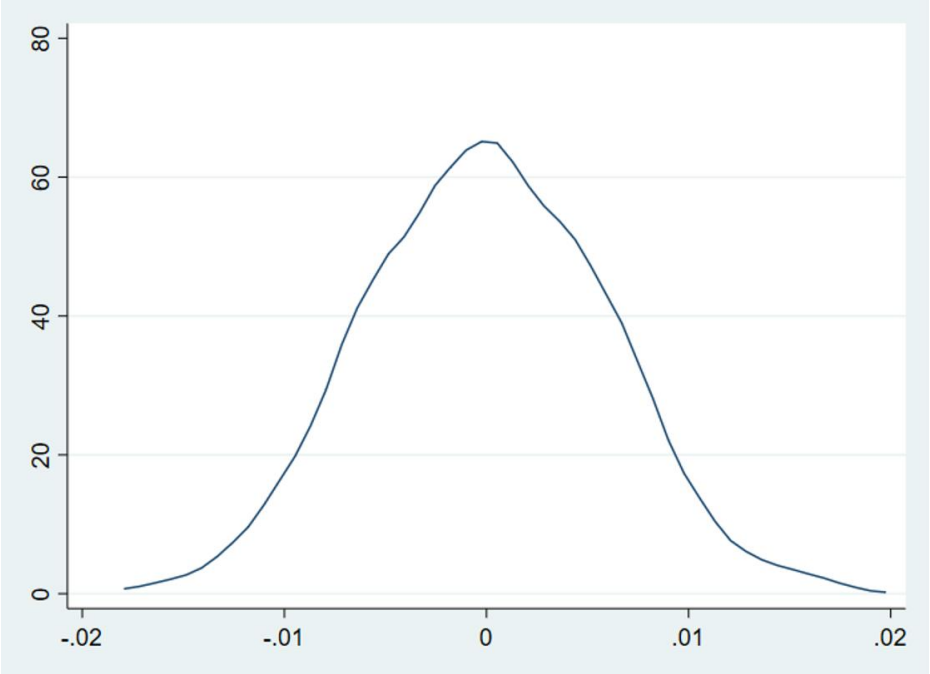


Figure 2 Falsification test

We randomly re-assign the liberalization year for each firm in our sample and re-code the LIB_{it} variable accordingly. We repeat this process 1,000 times and therefore obtain 1,000 coefficients of LIB_{it}. The graph below plots the distribution of the 1,000 coefficients of the LIB_{it} variable, which is normally distributed around zero. This is in sharp contrast with the coefficients estimates reported in Table 3. In addition, statistical analysis cannot reject the hypothesis that the mean is different from zero. Thus, we conclude that the effect of stock market liberalization is more causal, rather than random.



H0: Mean = 0

T-statistics = 0.137

P-value = 0.446

Table 1 Sample selection and yearly distribution

Panel A reports the sample selection process and Panel B presents the number of firms that join the liberalization program each year.

Total number of firm-year observations since 2007-2020	36,609
Delete:	
Obs. of firms in the finance and utility industries	1,106
Obs. of firms faced with delist risk (special treatment)	2,039
Obs. of firms listed in SSE after date 17, Nov,2014 and of firms listed in SZSE after date 5, Dec, 2016.	4,165
Obs. due to missing values	2,526
Firm-year observations of the semi-final sample	26,417
Firm-year obs. (number) of pilot firms	5,757
Firm-year obs. (number) of non-pilot firms	20,660

Panel B: Sample distribution – number of firms that enter the liberalization program each year.

Year	*NON-PILOT*		*PILOT*		Observations
	Frequency	%	Frequency	%	
2007	1,061	100.00%	0	0.00%	1,061
2008	1,199	100.00%	0	0.00%	1,199
2009	1,251	100.00%	0	0.00%	1,251
2010	1,377	100.00%	0	0.00%	1,377
2011	1,666	100.00%	0	0.00%	1,666
2012	1,805	100.00%	0	0.00%	1,805
2013	1,891	100.00%	0	0.00%	1,891
2014	1,527	76.66%	422	21.18%	1,992
2015	1,799	79.43%	417	18.41%	2,265
2016	1,316	54.72%	1,036	43.08%	2,405
2017	1,333	54.99%	1,038	42.82%	2,424
2018	1,479	59.78%	942	38.08%	2,474
2019	1,533	61.69%	899	36.18%	2,485
2020	1,423	57.43%	1,003	40.48%	2,478
Total	20,660	77.17%	5,757	21.50%	26,417

Table 2 Summary statistics of main variables

Variables	Obs.	Mean	S.D.	Min.	P25	Median	P75	Max.
RPT_total_{it}	26,417	0.278	0.437	0.000	0.029	0.137	0.342	3.033
RPT_indadj_{it}	26,417	0.136	0.432	-0.223	-0.087	0.000	0.195	2.859
RPT_explo_{it}	26,417	0.274	0.430	0.000	0.027	0.135	0.340	2.949
RPT_abnor_{it}	26,417	-0.004	0.400	-0.470	-0.208	-0.092	0.057	2.430
LIB_{it}	26,417	0.218	0.413	0.000	0.000	0.000	0.000	1.000
$SIZE_{it}$	26,417	22.514	0.980	20.548	21.817	22.412	23.090	25.487
ROA_{it}	26,417	0.036	0.065	-0.329	0.013	0.036	0.065	0.208
LEV_{it}	26,417	0.453	0.212	0.055	0.286	0.449	0.611	0.994
AGE_{it}	26,417	2.787	0.368	1.609	2.565	2.833	3.045	3.466
SOE_{it}	26,417	0.457	0.498	0.000	0.000	0.000	1.000	1.000
MB_{it}	26,417	1.484	0.458	0.872	1.160	1.401	1.667	3.181
$LARGE_{it}$	26,417	0.352	0.150	0.085	0.233	0.334	0.456	0.749
$BIG10_{it}$	26,417	0.575	0.494	0.000	0.000	1.000	1.000	1.000
$BSIZE_{it}$	26,417	2.153	0.201	1.609	2.079	2.197	2.197	2.708
$BIND_{it}$	26,417	0.372	0.054	0.300	0.333	0.333	0.417	0.571
$EPAY_{it}$	26,417	14.202	0.762	12.209	13.731	14.207	14.666	16.290
IO_{it}	26,417	0.093	0.122	0.000	0.010	0.045	0.128	0.592
FIO_{it}	26,417	0.001	0.005	0.000	0.000	0.000	0.000	0.034
$SHORT_{it}$	26,417	0.251	0.434	0.000	0.000	0.000	1.000	1.000
$COVERAGE_{it}$	26,417	2.522	1.815	0.000	0.000	2.773	4.043	5.659

The sample consists of 26,417 firm-year observations from 2007-2020. We winsorize all the continuous variables at the 1st and 99th percentiles to mitigate the impact of outliers.

Table 3 How capital market liberation affect controllings' tunnling

	(1)	(2)	(3)	(4)
	RPT_total_{it}	RPT_indadj_{it}	RPT_explo_{it}	RPT_abnor_{it}
LIB_{it}	-0.027***	-0.028***	-0.027***	-0.025***
	(-3.16)	(-3.20)	(-3.12)	(-3.12)
$SIZE_{it}$	0.068***	0.067***	0.066***	0.075***
	(6.78)	(6.63)	(6.70)	(8.08)
ROA_{it}	-0.207***	-0.219***	-0.195**	-0.195***
	(-2.66)	(-2.82)	(-2.56)	(-2.66)
LEV_{it}	0.235***	0.220***	0.240***	-0.117***
	(6.53)	(6.11)	(6.76)	(-3.43)
AGE_{it}	-0.093*	-0.069	-0.089*	-0.169***
	(-1.85)	(-1.37)	(-1.79)	(-3.53)
SOE_{it}	-0.004	-0.003	-0.001	-0.010
	(-0.25)	(-0.23)	(-0.09)	(-0.70)
MB_{it}	-0.006	0.003	-0.007	-0.016
	(-0.40)	(0.20)	(-0.43)	(-1.04)
$LARGE_{it}$	0.183**	0.195**	0.172**	0.414***
	(2.38)	(2.56)	(2.28)	(5.79)
$BIG10_{it}$	-0.009	-0.009	-0.006	-0.007
	(-0.99)	(-1.03)	(-0.70)	(-0.90)
$BSIZE_{it}$	-0.083**	-0.085**	-0.078*	-0.066*
	(-2.01)	(-2.09)	(-1.95)	(-1.71)
$BIND_{it}$	-0.130	-0.134	-0.110	0.008
	(-1.12)	(-1.17)	(-0.98)	(0.08)
$EPAY_{it}$	-0.056***	-0.055***	-0.054***	-0.052***
	(-5.95)	(-5.84)	(-5.83)	(-5.86)
IO_{it}	0.037	0.044	0.038	0.022
	(1.07)	(1.26)	(1.12)	(0.67)
FIO_{it}	-0.024	-0.044	-0.015	-0.114
	(-0.05)	(-0.08)	(-0.03)	(-0.23)
$SHORT_{it}$	-0.009	-0.009	-0.006	-0.004
	(-0.86)	(-0.84)	(-0.64)	(-0.46)

$COVERAGE_{it}$	-0.015***	-0.016***	-0.015***	-0.014***
	(-5.78)	(-6.07)	(-5.85)	(-5.50)
$CONSTANT_{it}$	0.090	-0.089	0.057	-0.027
	(0.29)	(-0.29)	(0.19)	(-0.09)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	26,417	26,417	26,417	26,417
R-square	0.026	0.027	0.026	0.024

This table reports the effects of stock market liberalization on the magnitude of firms' related party transactions. *RPT* are a buttery of investor protection measurements, LIB_{it} takes a value of one for the year *t* when firm *i* belongs to the liberalization program, and 0 otherwise. Please find Appendix A for the variables' definitions. The sample consists of 26,417 firm-year observations from 2007 to 2020. We use OLS regressions and control for firm and year fixed effects. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Table 4 Robust Tests

Panel A: Propensity score matching

	(1)	(2)	(3)	(4)
	RPT_total$_{it}$	*RPT_indadj*$_{it}$	*RPT_explo*$_{it}$	*RPT_abnor*$_{it}$
LIB$_{it}$	-0.021**	-0.019**	-0.022**	-0.022**
	(-2.11)	(-1.97)	(-1.98)	(-2.09)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	7,794	7,794	7,794	7,794
R-square	0.015	0.015	0.015	0.026

Panel B: Results based on the entropy balancing

	(1)	(2)	(3)	(4)
	RPT_total$_{it}$	*RPT_indadj*$_{it}$	*RPT_explo*$_{it}$	*RPT_abnor*$_{it}$
LIB$_{it}$	-0.032***	-0.033***	-0.031***	-0.029***
	(-3.07)	(-3.12)	(-2.98)	(-2.87)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	23,229	23,229	23,229	23,229
R-square	0.028	0.029	0.028	0.026

Panel C: Instrumental variable regression

	(1)	(2)	(3)	(4)	(5)
	First-stage	*Second-stage*			
	LIB^{IV}	*RPT_total*$_{it}$	*RPT_indadj*$_{it}$	*RPT_explo*$_{it}$	*RPT_abnor*$_{it}$
INDEX-IN	0.279***				
	(17.92)				
LIB^{IV}		-0.348***	-0.331***	-0.341***	-0.348***
		(-2.83)	(-2.76)	(-2.83)	(-2.83)
F-value	36.39				

Sargin (P-value)		0.188	0.168	0.156	0.204
Controls	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2,098	2,098	2,098	2,098	2,098
R-square	0.447	0.050	0.021	0.022	0.023

Panel D: The difference-in difference results based on the removing pilot firms

	(1)	(2)	(3)	(4)
	RPT_total$_{it}$	*RPT_indadj*$_{it}$	*RPT_explo*$_{it}$	*RPT_abnor*$_{it}$
DE-LIB$_{it}$	0.024*	0.027**	0.023*	0.021*
	(1.91)	(2.18)	(1.89)	(1.78)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	7,460	7,460	7,460	7,460
R-square	0.022	0.023	0.023	0.017

Panel E: Regression results based on the quarterly data

	(1)	(2)
LIB$_{it}$	-0.278***	-0.094*
	(-5.02)	(-1.69)
Controls	No	Yes
Firm FE	Yes	Yes
Quarter FE	Yes	Yes
Observations	105,668	105,668
R-square	0.007	0.036

Panel F: Alternative regression model proposed by Callaway and Sant'Anna (2021)

RPT_total$_{it}$	(1)	(2)
	Coefficient	*Z-value*
Average treatment effect on treated		

ATT	-0.082***	-3.76
ATT by group		
GAverage	-0.091***	-3.98
G2014	-0.074***	-2.91
G2015	-0.388**	-2.18
G2016	-0.058**	-2.01
G2017	-0.163***	-3.14
G2018	-0.087	-1.53
G2019	-0.166***	-3.08
G2020	-0.132*	-1.88
ATT by calendar period		
GAverage	-0.069***	-3.77
G2014	-0.001	-0.04
G2015	-0.069***	-2.65
G2016	-0.076***	-3.13
G2017	-0.040*	-1.76
G2018	-0.026	-1.03
G2019	-0.118***	-3.12
G2020	-0.155***	-2.82

Panel G: Regression results to mitigating confounding effects

	(1)	(2)	(3)	(4)
	RPT_total_{it}	RPT_indadj_{it}	RPT_explo_{it}	RPT_abnor_{it}
LIB_{it}	-0.024***	-0.024***	-0.024***	-0.018***
	(-3.25)	(-3.29)	(-3.31)	(-2.63)
Oversea	0.003	0.009	0.003	0.001
	(0.33)	(1.01)	(0.31)	(0.06)
GTIII	-0.032**	-0.029**	-0.033***	-0.029**
	(-2.47)	(-2.25)	(-2.59)	(-2.35)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	26,417	26,417	26,417	26,417

R-square	0.026	0.027	0.026	0.020

Panel A presents the results on the propensity score matching. We match each pilot firm with a non-pilot firm in the nearest by using all control variables used in model (1). LIB_{it} =1 for the pilot firms in year *t* and 0 for the matched non-pilot firms.

Panel B presents the results based on the entropy balancing.

Panel C presents the results by using stocks entering each index (*INDEX-IN*) as the instrumental variable of the liberalization (*LIB*).

Panel D reports the difference-in difference results based on the removing pilot firms. $DE\text{-}LIB_{it}$ is defined as 1 in next year *t* after firm *i* being removed from the liberalization program, and 0 otherwise.

Panel E reports the results based on the quarterly data analyses.

Panel F presents the results of alternative regression models that estimation techniques proposed in Callaway and Sant'Anna (2020).

Panel G reports the results of ruling out some confounding effects. The sample consists of 26,417 firm-year observations from 2007 to 2020. We use OLS regressions and control for firm and year fixed effects. We include the same control variables as in Table 3 but do not tabulate them for the sake of brevity. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Table 5 Stock market liberalization, expropriation, and firm performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	TOBINQ$_{it}$				*ROA$_{it}$*			
DRPT_total$_{it}$	-0.280***				-0.002**			
	(-8.20)				(-2.29)			
LIB$_{it}$	-0.024	-0.024	-0.024	-0.023	0.010***	0.012***	0.010***	0.012***
	(-1.10)	(-1.10)	(-1.10)	(-1.05)	(6.21)	(7.46)	(6.17)	(8.21)
LIB$_{it}$×DRPT_total$_{it}$	0.105*				0.008***			
	(1.93)				(3.44)			
DRPT_indadj$_{it}$		-0.283***				-0.002**		
		(-8.25)				(-2.25)		
LIB$_{it}$×DRPT_indadj$_{it}$		0.097*				0.007***		
		(1.76)				(3.04)		
DRPT_explo$_{it}$			-0.294***					
			(-8.38)				-0.003**	
LIB$_{it}$×DRPT_explo$_{it}$			0.117**				(-2.27)	
			(2.08)				0.009***	
DRPT_abnor$_{it}$				-0.305***			(3.46)	0.001
				(-8.52)				(1.18)
LIB$_{it}$×DRPT_abnor$_{it}$				0.122**				0.007***
				(2.09)				(2.77)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,437	23,437	23,437	23,437	23,571	23,571	23,571	23,121
R-square	0.265	0.265	0.265	0.266	0.067	0.066	0.067	0.066

This table reports the incremental effects of market liberalization on the relationship between related party transactions and firm performance. The dependent variable is Tobin's Q (*TOBINQ$_{it}$, Market value / book value*) and actual firm performance (*ROA$_{it}$, return on total assets*). We use OLS regressions and control for firm and year fixed effects. We include the same control variables as in Table 3 but do not tabulate them for the sake of brevity. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Table 6 Mechanism analyses of direct and indirect effects

	(1)	(2)	(3)	(4)
	RPT_total_{it}	RPT_indadj_{it}	RPT_explo_{it}	RPT_abnor_{it}
LIB_{it}	-0.052***	-0.052***	-0.052***	-0.047***
	(-3.67)	(-3.68)	(-3.73)	(-3.55)
$LIB_{it} \times LIBSHRATE_{it}$	-0.008**	-0.008**	-0.008**	-0.008***
	(-2.55)	(-2.38)	(-2.53)	(-2.72)
$LIB_{it} \times EXIT_{it}$	-0.036***	-0.037***	-0.032***	-0.029***
	(-3.15)	(-3.27)	(-2.90)	(-2.63)
F-test (P-value)	0.013	0.008	0.027	0.058
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	11,596	11,596	11,596	11,596
R-square	0.028	0.028	0.028	0.031

This table reports two possible channels (e.g., exit threat and direct governance) through which market liberalization curbs related party transactions exploiting the path analyses. $LIBSHRATE_{it}$ indicating the ownership percentage of Hong Kong investors in firm *i* in year *t* due to the liberalization program of the pilot firms. $EXIT_{it}$ is taking a value of 1 when the foreign shareholding due to the liberalization program of the pilot firms in the current year is below the shareholding in the preceding year. The sample consists of 11,596 firm-year observations from 2015 to 2020 due to the Hong-Kong shareholding data can only be obtained from year 2018, and we drop the pilot firms that have joined liberalization program before 2018 for conducting a standard difference-in-differences analysis. And we use OLS regressions and control for firm and year fixed effects. We include the same control variables as in Table 3 but do not tabulate them for the sake of brevity. Standard errors are clustered at the firm level and z-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Table 7 Cross-sectional analysis based on the exit threat argument

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	*RPT_*	*RPT_*	*RPT_*	*RPT_*	*RPT_*	*RPT_*	*RPT_*	*RPT_*
	$indadj_{it}$	$abnor_{it}$	$indadj_{it}$	$abnor_{it}$	$indadj_{it}$	$abnor_{it}$	$indadj_{it}$	$abnor_{it}$
LIB_{it}	-0.023**	-0.021**	-0.021**	-0.018**	-0.016	-0.013	-0.02***	-0.02**
	(-2.57)	(-2.52)	(-2.26)	(-2.11)	(-1.52)	(-1.25)	(-2.63)	(-2.53)
$HIlliq_{it-1}$	0.028***	0.020***						
	(3.65)	(2.79)						
$LIB_{it}×HIlliq_{it-1}$	-0.023**	-0.020*						
	(-1.99)	(-1.77)						
HBN_{it-1}			-0.002	-0.005				
			(-0.40)	(-0.97)				
$LIB_{it}×HBN_{it-1}$			-0.011**	-0.012**				
			(-2.00)	(-2.18)				
HBR_{it-1}					-0.139***	-0.090**		
					(-2.92)	(-1.99)		
$LIB_{it}×HBR_{it-1}$					-0.085*	-0.099**		
					(-1.93)	(-2.37)		
$HWPS_{it-1}$							-0.010	-0.010
							(-1.53)	(-1.57)
$LIB_{it}×HWPS_{it-1}$							-0.017*	-0.015*
							(-1.84)	(-1.74)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,417	26,417	26,417	26,417	26,417	26,417	26,417	26,417
R-square	0.027	0.024	0.027	0.024	0.025	0.021	0.027	0.024

This table reports the result of further analyses based on the exit threat argument. $HIlliq_{it-1}$ is a dummy variable that equals one if the stock market liquidity of firm *i* in year *t-1* is higher than year-industry median value, and 0 otherwise. HBN_{it-1} takes a value of one if number of blockholders (Shareholding of firm *i* in year *t* is more than 5%) of firm *i* in year *t-1* more than it's annual industry median, and 0 otherwise. Similarity, HBR_{it-1} takes a value of one if number of blocks held by blockholders of firm *i* in year *t-1* more than it's annual industry median, and 0 otherwise. $HWPS_{it-1}$ equals to one if the dollar change in the CEO's wealth for a 100 percentage point change in the stock price, scaled by annual pay of CEO worked in firm *i* in year *t-1* exceeds the value of year-industry median. The sample consists

of 26,417 firm-year observations from 2007 to 2020. We use OLS regressions and control for firm and year fixed effects. We include the same control variables as in Table 3 but do not tabulate them for the sake of brevity. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Table 8 The embezzlement of funds for controller beyond RPT

	(1)	(2)
	$PLEDGDUM_{it}$	$PLEDGRATE_{it}$
LIB_{it}	-0.032***	-0.030***
	(-2.98)	(-4.90)
Controls	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	23,229	23,229
R-square	0.080	0.072

This table presents the positive governance effect of stock liberalization on equity pledge. $PLEDGDUM_{it}$ take value of one if firm *i* has an equity pledge from controlling shareholder in year *t*, $PLEDGRATE_{it}$ denotes the ratio of equity pledge of firm *i* in year *t*. The sample consists of 23,229 firm-year observations from 2007 to 2020. We use OLS regressions and control for firm and year fixed effects. We include the same control variables as in Table 3 but do not tabulate them for the sake of brevity. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Table 9 The different types of related–party transactions

	(1)	(2)
	$FINRPT_{it}$	$GSRPT_{it}$
LIB_{it}	-0.024***	-0.002
	(-4.03)	(-0.49)
Controls	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	26,417	26,417
R-square	0.073	0.029

This table presents the heterogeneity governance effect of stock liberalization on different types of related–party transactions. $FINRPT_{it}$ denotes total amount of financing-related party transactions (including financial transactions, mortgages, and guarantees) divided by total assets of firm *i* in previous year *t*. $GSRPT_{it}$ denotes total amount of related party transactions involving goods and services. (including sell goods, and provision of services), scaled by total assets of firm *i* in previous year *t*. The sample consists of 26,417 firm-year observations from 2007 to 2020. We use OLS regressions and control for firm and year fixed effects. We include the same control variables as in Table 3 but do not tabulate them for the sake of brevity. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

[1] La Porta et al. (2000b) elucidate the concept of functional convergence as a set of decentralized, market-based modifications. These alterations do not necessitate legal reform per se, yet they facilitate the inclusion of more firms and assets under the ambit of effective legal protection for investors.

[2] Expropriation, as defined in the context of corporate governance, refers to the misappropriation of firm resources by controlling shareholders, often to the detriment of minority shareholders. This behavior is also known as "self-dealing" (Djankov et al., 2008) or "tunneling" (Johnson et al., 2000).

[3] In November 2005, the State Council of China issued a directive aimed at improving the quality of listed companies, focusing on controlling shareholders. This directive mandated personal penalties for top management if specific payments were unresolved by the end of 2006. Following this, in an unprecedented joint announcement by eight government ministries on November 7, 2006, it was declared that top management would face removal and disciplinary action if they failed to meet the December 31, 2006 deadline. By this date, while 399 listed companies resolved their outstanding related party transactions (OREC) totalling 39 billion RMB, 17 companies failed to do so, leading to the arrest of top executives in ten of these companies. This marked a significant milestone in China's securities market regulation, demonstrating a strong stance on corporate governance.

[4] Our data show that foreign investors in China's Express program hold, on average, only 0.6% of shares in pilot firms, suggesting even smaller individual holdings.

[5] On November 1, 2005, the State Council, representing the China Securities Regulatory Commission (CSRC), issued a directive titled 'On Improving the Quality of Listed Companies.' This directive recognized the poor condition of listed companies and set forth a comprehensive series of reforms aimed at controlling shareholders. It stated that top management of controlling shareholders or collaborating firms would face personal punishment if overdue

related entity credits (ORECs) were not settled by the end of 2006. Following up on this, on November 7, 2006, eight government ministries jointly announced that the senior management of controlling entities would be removed from their positions and subjected to disciplinary action if the December 31, 2006, deadline was not met. By this deadline, 399 listed companies successfully cleared OREC balances amounting to 39 billion RMB. However, 17 listed companies, with OREC balances totaling 9.2 billion RMB, failed to resolve their loans. In ten of these 17 companies, top officials from the controlling or collaborating entities were arrested. This marked a significant and remarkable moment in the history of securities market regulation. Besides, the results are not significant when we replace *RPT* with *OREC,* which presents in Online Appendix Table A3.

[6] As existing studies predominantly view related-party transactions (RPTs) as a proxy for tunneling (Cheung et al., 2006; Jian and Wong, 2010; Peng et al., 2011; Chen et al., 2018), we adopt this approach in our analysis. However, we do not assume that all RPTs inherently constitute tunneling activities.

[7] The staggered implementation of China's liberalization programs at different times enables us to specify a firm and year fixed effects model, which reflects a general case of the standard difference-in-differences empirical strategy (Bertrand and Mullainathan, 2003; Bertrand et al., 2004; Roberts and Whited, 2013).

[8] In 2014, there were 422 observations for the Shanghai-Hong Kong Express program. However, in subsequent years, the number dropped to 417 due to the exclusion of 5 firms from the program in 2015 and 2016.

[9] The SSE-Hong Kong Connect was officially launched on November 17, 2014, following a pivotal announcement by the China Securities Regulatory Commission on April 10, 2014, which signified a move toward the liberalization of China's capital market. To address potential pre-trend effects, we set the year before the launch (t-1) as the benchmark period and adjusted our control variables to account for a one-year lag. This approach aims to eliminate bias due to any anticipated impacts before the actual start of the Connect, thus enabling a more precise evaluation of its influence. It is crucial to consider that failing to account for expected anticipatory effects could skew the primary results, reducing the observable treatment effect within our experimental group.

[10] For example, suppose that firm *i* joined the Shanghai-Hong Kong Express program on November 17, 2014, *BEF3*, *BEF2*, *EVENT*, *AFT1*, *AFT2*, and *AFT3* are coded as 1 for 2011, 2012, 2014, 2015, 2016 and 2017, respectively.

[11] In addition to evaluating pre-existing trends, our dynamic model is designed to address potential endogeneity issues, as highlighted by Bertrand and Mullainathan (2003) and Amiram et al. (2017).

[12] Additionally, we matched each treatment firm with a control firm in the closest re-constitution month right before the treatment firm was included in the Express programs. This matching was based on the criteria used for the constitution of each index. The alternative results from this Propensity Score Matching (PSM) approach remain consistent with our initial findings. For detailed information on this, please refer to Online Appendix Table A2.

[13] For brevity, the first-stage logistic model and the balance test of Propensity Score Matching (PSM) are not included in the main text. For more detailed information on these aspects, please refer to Panel A and Panel B of Online Appendix Table A1.

[14] The results hold consistent when using the Stacked Difference-in-Differences (SDiD) method introduced by Cengiz et al. (2019). These findings are not tabulated for the sake of brevity.