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

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ABSTRACT: Leveraging the phased implementation of China's capital control reforms, where select firms gradually become investable to the international market, our difference-in-differences regression analyses reveal that these pilot firms significantly curtail the extent of related party transactions and augment their corporate market value following liberalization. We identify several potential mechanisms through which market liberalization may inhibit expropriation. Notably, pilot firms demonstrate considerable improvement in corporate governance and attract increased engagement from auditors, heightened interest from institutional investors, and expanded analyst coverage. Cross-sectional examinations indicate that the mitigating effect of stock market liberalization is especially pronounced among firms with severe agency problems and a higher proportion of Hong Kong investors' shareholding. However, expropriation by controlling shareholders reemerges during periods of stock market de-globalization. Collectively, our findings underscore the crucial role of financial globalization in bolstering investor protection.

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

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Leveraging the phased implementation of China's capital control reforms, where select firms gradually become investable to the international market, our difference-in-differences regression analyses reveal that these pilot firms significantly curtail the extent of related party transactions and augment their corporate market value following liberalization. We identify several potential mechanisms through which market liberalization may inhibit expropriation. Notably, pilot firms demonstrate considerable improvement in corporate governance and attract increased engagement from auditors, heightened interest from institutional investors, and expanded analyst coverage. Cross-sectional examinations indicate that the mitigating effect of stock market liberalization is especially pronounced among firms with severe agency problems and a higher proportion of Hong Kong investors' shareholding. However, expropriation by controlling shareholders reemerges during periods of stock market de-globalization. Collectively, our findings underscore the crucial role of financial globalization in bolstering investor protection.

1. Introduction

In numerous jurisdictions, controlling shareholders are known to expropriate outside investors severely, a situation that Shleifer and Vishny (1997) have exhaustively detailed. This problem has notably hindered the advantages of financial globalization that emerged post-World War II (Stulz, 2005). Simultaneously, legal reforms aimed at strengthening minority shareholder protection often meet with obstinate resistance from influential local families and, at times, even governments. Therefore, La Porta et al. (2000b) propose that functional convergence, such as the liberalization of capital markets, may provide a more viable path to global improvements in investor protection[1]. This is particularly relevant in emerging markets, where governance standards are often lower than in developed countries; hence, the benefits of enhancing corporate governance could potentially outweigh the costs of liberalization. Despite this proposition being mooted two decades ago, prior research has infrequently explored how stock market liberalization impacts the expropriation of minority shareholders. Our study addresses this research gap by offering a systematic analysis of the influence of lifting or maintaining a nation's capital controls on investor protection in its local market.[2]

Reflecting the underlying tension in the analysis, it is not clear beforehand how market liberalization would impact the incentives of controlling insiders to exploit their minority counterparts. On one hand, there are reasons to expect a positive influence of liberalization on investor protection. Firstly, market liberalization can create value for firms in emerging markets by reducing systematic risks, lowering equity financing costs, alleviating financial constraints, and stimulating a premium on stock revaluation (Bekaert and Harvey, 2000; Henry, 2000b; Chari and Henry, 2004; Gupta and Yuan, 2009). However, prior research has demonstrated that controlling shareholders in developing economies

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[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).

frequently exploit their control rights to extract personal benefits through the expropriation of outside investors (Shleifer and Vishny, 1997). Therefore, dominant shareholders in emerging markets who wish to benefit from financial globalization must reduce the level of expropriation to attract foreign investors. Secondly, the entry of foreign institutional investors may enhance corporate governance (Aggarwal et al., 2011). Given that expropriation is a central agency problem in emerging markets, the presence of foreign institutional investors can exert their influence either through voting or by withdrawing their investments after stock market liberalization. As a result, a decrease in resource diversion is expected when local firms embrace the global market.

On the other hand, the impact of market liberalization on investor protection may be minimal or even have an adverse effect. Firstly, gaining access to the global market may provide controlling insiders with more opportunities to exploit minority shareholders, such as through cross-border mergers and acquisitions, transferring profits to overseas markets, or employing complex tax arrangements to conceal their expropriation behavior (Desai and Dharmapala, 2006; Desai et al., 2007; Bauer et al., 2020). Secondly, foreign investors face information asymmetry when entering a new market due to institutional or cultural differences and the lack of local knowledge and relationships. This makes foreign investors less effective in monitoring attempts of rent extraction by local insiders or even makes them vulnerable to becoming new targets of expropriation. Overall, the impact of market liberalization on investor protection in emerging markets is uncertain, and it is subject to conflicting arguments. While there are reasons to expect improvements in investor protection due to value creation and enhanced corporate governance through the entry of foreign institutional investors, there are also concerns that liberalization may provide opportunities for controlling insiders to exploit minority shareholders further and that foreign investors may face challenges in effectively monitoring expropriation attempts.

There are two major obstacles that undermine the analysis of the role played by market liberalization in constraining expropriation. Firstly, the decision of a country to liberalize its stock market is endogenous, meaning that it is influenced by various factors. The government will only allow foreign investors into its market when the benefits outweigh the costs. For instance, if the investor protection mechanisms in the country are weak, the government may choose to liberalize its capital market only when it expects a substantial reduction in expropriation within its local firms. This concern

regarding the timing of market liberalization compromises the reliability of any conclusions drawn by associating liberalization with rent extractions in the post-liberalization period[3]. Secondly, market liberalization is often accompanied by concurrent policy changes and regulatory reforms, making it challenging to separate the effects of financial globalization from other confounding factors (Henry, 2000b)[4].

To enhance identification, we employ a quasi-natural experiment in China where selected firms were made accessible to the global market during different time periods. Specifically, commencing on November 17, 2014, mainland China and Hong Kong investors gained the ability to directly purchase and trade shares of certain publicly listed firms on the Shanghai Stock Exchange and the Hong Kong Stock Exchange (referred to as the Shanghai-Hong Kong Express). Subsequently, two years later, a similar program was implemented for the Shenzhen Stock Exchange and the Hong Kong Stock Exchange (known as the Shenzhen-Hong Kong Express), taking effect on December 5, 2016.

Consequently, in contrast to previous studies that rely on country-level data wherein governments strategically time market liberalization alongside concurrent regulatory reforms, our study capitalizes on firm-level panel data within a single country. This approach allows us to leverage a unique quasi-natural experiment in which the liberalization program is implemented at different times for different firms. By doing so, we can derive more robust causal inferences regarding the consequences of market liberalization. Firstly, the heterogeneous entry of firms into the liberalization programs across various time periods suggests that the government does not anticipate each imminent change in the expropriation risks faced by individual firms and subsequently decide to liberalize accordingly. This

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[3] Henry (2000a: 302) examines the impact of market liberalization on a country's private investment and acknowledges that "we cannot definitively establish that stock market liberalizations lead to investment booms, as there is a possibility of reverse causality." Bekaert and Harvey (2000: 601) express a similar concern and conclude that "we have treated liberalizations as exogenous events, while policymakers would likely choose to liberalize when it is most beneficial."

[4] Examining changes in market revaluation in the wake of a country's liberalization decision, Henry (2000b: 549) acknowledges that "the effects of stock market liberalization are substantially diminished by adding macroeconomic fundamentals to the right-hand side supports the argument in Section II that policymakers time market openings to coincide with good economic conditions."

addresses the timing concern that has hindered prior studies from drawing causal conclusions. Secondly, it is improbable that a singular policy change or regulatory reform coincides precisely with each firm's liberalization. This aspect is crucial in isolating the impact of financial global integration from other confounding factors.

Moreover, there are two significant advantages of utilizing the Chinese setting in our study, in addition to the improved identification mentioned earlier. Firstly, China's distinct institutional background, characterized by its economic size and ability to safeguard its domestic market against exogenous shocks arising from international capital flows, provides a fertile testing ground for our research objectives. Since the dissolution of the Soviet Union in 1991, China has emerged as the largest developing economy worldwide. Unlike certain Latin American and Asian countries that experienced financial crises following market liberalization in the 1980s and 1990s, China boasts the largest foreign currency reserve globally, valued at US$3,053,100 million in October 2018, nearly triple the US$1,252,870 million held by Japan (International Monetary Fund, 2018). This substantial currency reserve enables China to mitigate financial volatility resulting from uncertainties in international capital, thus offering an opportune environment for assessing the true benefits of financial liberalization. Consequently, our study contributes new evidence that could not be derived from earlier investigations focusing on smaller developing nations from two decades ago.

Secondly, China, like many other countries, grapples with the central agency conflict arising from controlling shareholders extracting personal gains at the expense of outside investors (Shleifer and Vishny, 1997; La Porta et al., 2000b). Developing countries often exhibit lax institutional frameworks, leading to regulators and market intermediaries (e.g., auditors, analysts, and institutional investors) failing to effectively monitor managers and protect minority shareholders (Allen et al., 2005; Firth et al., 2013; Gu et al., 2013; Li et al., 2020). Therefore, by examining the impact of financial globalization on expropriation in China, our study can shed light on other countries with similar institutional infrastructures, providing insights on how to safeguard the fair interests of minority investors.

By capitalizing on the gradual implementation of China's liberalization programs, we adopt a rigorous staggered difference-in-differences (DID) research design that effectively controls for omitted variables through the inclusion of firm and year fixed effects estimations. Consistent with extensive

prior research (e.g., Cheung et al., 2006; Jian and Wong, 2010; Jiang et al., 2010), we utilize the magnitude of a firm's related party transactions (RPTs) as a measure of expropriation. Leveraging this framework, we demonstrate that pilot firms, which undergo liberalization, exhibit a significant reduction in the magnitude of RPTs by 12.23% (0.034/0.278 (mean)) from the pre-liberalization period to the post-period, in comparison to non-pilot firms that remain under stringent capital controls throughout the same timeframe.

To further strengthen our main findings, we undertake several robust tests to triangulate the results and perform additional analyses to explore cross-sectional variation in the data. Initially, we validate a crucial assumption of parallel trends that underlies the difference-in-differences methodology and find no discernible differences in RPTs between pilot firms and non-pilot firms before the commencement of the liberalization program. Additionally, to mitigate concerns regarding estimation bias or differences in characteristics between the pilot and control groups, we employ alternative estimation techniques as proposed in Callaway and Sant'Anna (2021). We replicate our tests using a propensity score-matched (PSM) sample and conduct an entropy balancing test. The baseline results remain consistent after conducting alternative analyses using quarterly level data, alternative estimation models, and employing a difference-in-difference approach by removing pilot firms and conducting a falsification test.

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.

We further delve into the mechanisms through which the removal of capital controls strengthens investor protection by employing path analyses. Drawing from prior research, Jiang et al. (2010) find a positive association between the extent of expropriation in China and auditors' likelihood of issuing unclean opinions, as well as a negative relationship with firms' institutional holdings. In our study, we uncover that, in the post-liberalization period, auditors dedicate significantly more effort to monitoring pilot firms. Additionally, previous studies suggest that boards and institutional investors play a crucial role in safeguarding the wealth of minority shareholders (Gillan, 2006; Lewellen and Lewellen, 2022). In line with this notion, our results demonstrate that pilot firms attract more institutional investors for site visits, experience notable improvements in corporate governance (e.g., board meetings and supervisors' meetings), and witness significant increases in analyst coverage. Our cross-sectional analysis reveals that the positive effect of financial liberalization is concentrated among firms with greater entry of Hong Kong investors and higher shareholdings, as well as higher foreign ownership. These findings align with expectations that firms undergoing faster liberalization exhibit better corporate governance practices and curtail the rent extraction behavior of controlling insiders. Furthermore, we find a more pronounced impact of market liberalization among firms with ownership structures that facilitate resource diversion, underscoring the manifestation of conflicts between controlling insiders and outside investors.

Our study makes two primary contributions to the existing literature. Firstly, since the 1980s, the International Monetary Fund and the World Bank have been advocating for capital market liberalization in various countries. However, ongoing debates persist regarding whether the risks associated with market openness outweigh the anticipated benefits. The severe financial crises experienced by Latin American and Asian countries following their liberalization reforms have cast doubts on the true benefits of financial globalization (Bhagwati, 1998a, 1998b; Rodrik, 1998; Stiglitz, 1999, 2000, 2002, 2004; Rodrik and Subramanian, 2009). This skepticism has been reflected in recent trends towards de-globalization and protectionism, as evidenced by events such as the U.S. withdrawal from the Paris Agreement and the U.K.'s exit from the European Union, along with trade disputes between nations. However, the recent economic development of Vietnam has been widely regarded as a successful example of financial globalization (Fischer, 1998; Summers, 2000; Eckardt et al., 2018). Given that

protecting the fair share of outside investors is fundamental to market integrity and development, our study contributes to the ongoing debate by providing new evidence suggesting that financial global integration enhances investor protection. In line with the public policy discourse, our findings have implications for countries considering liberalization reforms as well as those contemplating a retreat from globalization strategies. Our results suggest that while de-globalization may bring short-term benefits to domestic firms, governments should carefully assess the costs associated with potential weakened investor protection resulting from the withdrawal of foreign investors.

Secondly, our study contributes to the existing research on the determinants of expropriation. A substantial body of literature focuses on quantifying the private benefits enjoyed by controlling shareholders (e.g., Zingales, 1994, 1995; Dyck and Zingales, 2004) and highlights various ways in which these insiders divert a firm's resources that should rightfully be distributed to outside investors (La Porta et al., 2000a, La Porta et al., 2003; Faccio et al., 2001; Bae et al., 2002; Bertrand et al., 2002; Claessens et al., 2002; Baek et al., 2006; Cheung et al., 2006; Jian and Wong, 2010; Jiang et al., 2010). However, a fundamental question that remains relatively unexplored is how to deter insiders from diverting the wealth of minority shareholders, with limited evidence regarding the role of the law (La Porta et al., 2000b; Djankov et al., 2008; Atanasov et al., 2010). We contribute to this literature by providing evidence that the removal of capital controls imposed on local firms significantly restrains insiders from expropriating outside investors. Thus, we offer direct evidence supporting the proposition put forth by La Porta et al. (2000b) that stock market liberalization can serve as a potential means of protecting the wealth of minority shareholders when other internal market mechanisms prove inadequate. Moreover, while our research and findings are based on the Chinese market, they also hold implications and provide a reference for policymakers in other emerging market countries.

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. Section 6 reports evidence from cross-sectional and additional analyses. Finally, Section 7 concludes the paper.

2. Institutional background of China's liberalization reforms

In response to concerns regarding potential volatility associated with international capital flows, China had implemented stringent capital controls that prohibited foreign investors from holding equity stakes in domestic Chinese firms. However, the government gradually softened its stance as its foreign currency reserve increased significantly from US$286 billion in December 2002, when China joined the World Trade Organization (WTO), to US$3.993 trillion in June 2014 (China State Administration of Foreign Exchange, 2019). With such a substantial reserve, the government gained greater confidence in its ability to safeguard the domestic market against exogenous shocks arising from international capital shifts.

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

In countries with strong investor protection, such as the United Kingdom and the United States, agency problems primarily stem from conflicts between firm managers and a dispersed group of shareholders (Berle and Means, 1932; Jensen and Meckling, 1976). However, the prevalence of well-dispersed ownership is relatively uncommon in many countries, where large blockholders often hold controlling stakes in firms (La Porta et al., 1999)[5]. This ownership structure gives rise to a distinct type of agency conflict, whereby controlling shareholders extract private benefits at the expense of outside investors (Grossman and Hart, 1988; Harris and Raviv, 1988; Zingales, 1994). Extensive research has been dedicated to understanding the circumstances under which expropriation occurs and quantifying the private benefits derived from control.

However, despite the abundant evidence demonstrating the existence and magnitude of private benefits of control, the exploration of mechanisms to better protect minority shareholders has been relatively limited in existing research. Only limited evidence exists regarding the role that legal systems play in this regard (La Porta et al., 2000b; Djankov et al., 2008; Atanasov et al., 2010). This scarcity of research is not surprising, as controlling shareholders from influential local families often hold a substantial portion of a country's wealth (Claessens et al., 2000), granting them significant influence to resist reforms that may negatively impact their ability to divert firm resources[6]. Furthermore, in

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[5] Studies that investigate corporate ownership structure in Asia and Europe include the following works: Claessens et al. (2000), Johnson et al. (2000), Faccio et al. (2001), Claessens et al. (2002), and Faccio and Lang (2002).

[6] La Porta et al. (2000b: 21) state that "what the reformers see as protection of investors, the founding families call expropriation of entrepreneurs. No wonder, then, that in all countries from Latin America to Asia to Europe, the families have opposed legal reform."

emerging markets, not only do dominant insiders pose a risk of expropriation, but the state itself can also engage in expropriatory practices, a phenomenon referred to as "the agency problem of state ruler discretion" by Stulz (2005). Consequently, La Porta et al. (2000b) emphasize that legal reforms progress slowly, if at all, in most countries. As an alternative, they propose that a more practical approach to enhancing investor protection is through functional convergence, such as the liberalization of local capital markets. This suggests that enabling market liberalization may offer a more feasible avenue for improving investor protection, considering the obstacles posed by influential insiders and the slow pace of legal reforms in many countries.

Despite the proposition put forth by La Porta et al. (2000b), the impact of financial globalization on the protection of minority shareholders is not clear ex ante. There are arguments in favor of a positive impact on investor protection for two main reasons. Firstly, market liberalization is expected to benefit local investors by facilitating risk sharing with foreign investors (Stapleton and Subrahmanyam, 1977; Errunza and Losq, 1985). This, in turn, can lead to a reduction in firms' systematic risks (Chari and Henry, 2004) and lower equity financing costs (Bekaert and Harvey, 2000). Additionally, the removal of capital controls opens up the potential for cash inflows from international markets, alleviating firms' financial constraints (Gupta and Yuan, 2009). As a result, liberalized firms may experience a stock revaluation premium (Henry, 2000b), reduced leverage, increased investment, and improved accounting performance (Henry, 2000a; Mitton, 2006).

Furthermore, foreign investors, particularly those from countries with strong institutional frameworks governing investor protection, are likely to be aware of the expropriation risks associated with investing in emerging markets. In order to protect their stock prices from discounting during the liberalization process and lower their financing costs, dominant insiders may need to send credible signals (Wong, 2014; Fang et al., 2017) and offer more shares to outside investors who are eager to attract foreign investment and reap the benefits of financial globalization.

Secondly, foreign investors, particularly those from developed economies with stronger investor protection, tend to be more independent and have fewer local connections. Previous research has shown

that foreign institutional investors play a crucial role in enhancing corporate governance practices in emerging economies (Aggarwal et al., 2011). Given that expropriation is a central agency problem in developing markets, it is expected that foreign investors will engage in stricter monitoring once local firms become investible in the global market. This heightened monitoring is likely to result in a decline in resource diversion by controlling shareholders in the post-liberalization period.

On the contrary, the impact of market liberalization on restraining resource diversion by controlling shareholders may be minimal or even have the opposite effect. Firstly, gaining access to the global market may provide controlling insiders with additional opportunities to extract wealth from minority shareholders. Instead of distributing firms' profits to minority shareholders through dividends (La Porta et al., 2000a; Faccio et al., 2001), controlling shareholders may divert the funds towards value-decreasing cross-border mergers and acquisitions (M&As), transferring profits to overseas markets, or employing complex tax arrangements to obscure their extraction attempts (Desai and Dharmapala, 2006; Desai et al., 2007; Bauer et al., 2020). As a result, these newly available means of diversion resulting from market liberalization may incentivize dominant insiders to engage in more aggressive actions to expropriate outside investors.

Secondly, foreign investors often encounter information asymmetry when entering a new market due to institutional differences and a lack of local knowledge and relationships (Zaheer, 1995; Filatotchev et al., 2007). Wong et al. (2020) have documented that foreign analysts, while possessing superior technical capabilities, face significant institutional barriers in incorporating political information into their forecasts in China. Furthermore, institutional investors may not necessarily act as active monitors but instead collaborate with controlling shareholders (Firth et al., 2010; Song et al., 2020). These findings suggest that foreign investors may be less inclined to take an active role in monitoring or may have limited effectiveness in their monitoring efforts due to institutional challenges.

Moreover, political uncertainty typically exerts a negative impact on firm value (Fan et al., 2008). In contexts characterized by higher political uncertainty and risks, controlling shareholders may have minimal incentives to prioritize long-term returns, potentially making foreign investors themselves vulnerable to expropriation. For instance, Xu et al. (2016) uncovered that firms resort to hiding their

cash by transferring it to related entities through related party transactions during periods of heightened political uncertainty.

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

Building 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 adopt a well-established measure to capture the extent of expropriation and investor protection. Specifically, we utilize the magnitude of a firm's related party transactions (RPTs) relative to its total assets (Cheung et al., 2006; Jian and Wong, 2010). This approach recognizes that transactions between a firm and its subsidiaries, parent companies, affiliated firms within the same business group, or executives' relatives often deviate from the arm's-length principle, resulting in significant wealth loss for minority shareholders. In our analysis, we employ four measures of RPTs to examine the degree of expropriation: (1) RPT_total_{it}: This measure represents the total amount of related party transactions for firm i in year t, divided by its total assets in the previous year t. (2) RPT_indadj_{it}: This measure captures the difference between firm i's RPT and the median RPT within the same industry classification and year t. (3) RPT_explo_{it}: This measure focuses on the ratio of exploitative related party transactions (excluding certain types of related party transactions) to firm i's total assets in year $t-1$. (4) RPT_abnor_{it}: This measure is obtained as the residual from the forecast model of related party transactions, as proposed in Jian and Wong's (2010) study. These measures provide a comprehensive evaluation 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., 2020), our study incorporates the variable LIB_{it-1} (i.e., LIB_{it} lagged by one year) as the primary explanatory variable in our model. LIB_{it-1} is defined as 1 for firm i in year $t-1$ 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-1} takes a value of 1 from 2015 onwards and 0 before that[7].

For the control variables, we follow extant literature by including common firm characteristics that affect the expropriation, such as size ($SIZE_{it}$ = natural logarithm of total market value of firm i in year t), profitability (ROA_{it} = net income divided 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 that firm i has established in year t), and the market-to-book ratio (MB_{it} = market value divided by stockholders' equity of firm i in year t). Moreover, given that both the large controlling shareholders and the states (La Porta et al., 1999; Stulz, 2005) may expropriate minority shareholders, we control for the ownership of the firm's largest shareholder ($LARGE_{it}$ = ownership of the largest shareholder of firm i in year t) and the state ownership (SOE_{it} = 1 if firm i is a state-owned-enterprise in year t and 0 otherwise). We also control for the compensation of top executives since under-paid managers may have stronger incentives to divert firm resources ($EPAY_{it}$ = natural logarithm of total compensation of the highest three paid executives of firm i in year t). Further, since corporate governance strength is closely related to investor protection (La Porta et al., 2000b), we control for board size ($BSIZE_{it}$ = natural logarithm of the number of board directors of firm i in year t), and board independence ($BIND_{it}$ = percentage of independent directors of firm i in year t). Finally, in addition to the internal governance mechanisms, outside market participants, such as auditors, institutional investors, short sellers, and financial analysts, also play an integral role in monitoring controlling shareholders to act in the best interests of outside investors. Accordingly, we control for $BIG10_{it}$ (= 1 if firm i is audited by a big 10 audit firm in year t, and 0 otherwise), IO_{it} (= institutional ownership of firm i in year t), $FI_{i,t}$ (=foreign institutional ownership of

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[7] We code LIB_{it-1} as 0 for the year that firm i first enters the liberalization program. Our results remain qualitatively unchanged if we code LIB_{it-1} as 1 for the first year that firm i become liberalized.

firm *i* in year *t*), *SHORT*$_{it}$ (= 1 if firm *i* is subject to short-selling in year *t*, and 0 otherwise), and *COVERAGE*$_{it}$ (= natural logarithm of (1 + the number of analysts following firm *i* in year *t*)).

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:[8]

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

RPT$_{it}$ represents the measure of firm i's related party transactions in year *t*, as defined in Section 4.1. *LIB*$_{it-1}$ captures the lagged timing of firm i's liberalization in year *t*, as described in Section 4.2. A negative and statistically significant coefficient on *LIB*$_{it-1}$ 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.

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

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[8] 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).

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 768 pilot firms (5,757 firm-year observations) and 1,781 non-pilot firms (20,660 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 619 pilot observations[9], respectively, corresponding to the first batches of the Shanghai-Hong Kong Express and the Shenzhen-Hong Kong Express programs in those years.

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[10]. 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_abnor_{it} (abnormal related party transactions), are 0.136, 0.274, and -0.004, respectively. The mean value for LIB_{it-1} is 0.180, suggesting that China's liberalization programs had an impact on 18% 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.

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[9] 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.

[10] Jiang et al. (2010) primarily examine a specific form of expropriation in China, namely, intercorporate loans taken by controlling shareholders from the firms they manage. During the period from 1996 to 2004, these loans accounted for approximately 8.1% of firms' total assets. Due to the detrimental effects of such expropriation on market integrity, investor confidence, and the wealth of minority shareholders, the Chinese government implemented a complete ban on intercorporate loans by the end of 2006. In contrast to focusing on a specific form of expropriation, our study adopts a broader approach by considering all types of inter-group transactions to measure the extent of a firm's tunneling problem. Our variable RPT_total_{it} exhibits similar summary statistics to those reported in the existing literature, such as the study by Chen et al. (2018).

5. Main results

5.1 Baseline results

Table 3 presents the main results regarding the impact of financial liberalization on firms' related party transactions. Columns (1) to (4) display the multivariate regression results using four different measures of related party transactions (RPT). In all four regressions, the coefficient for LIB_{it-1} is negative and statistically significant at the 1% level. This indicates that pilot firms, after experiencing financial liberalization, reduce the magnitude of their related party transactions compared to non-pilot firms that remain under strict capital controls during the same period[11]. In Column (1), which reflects the primary economic significance of our coefficient estimates, the magnitude of related party transactions in pilot firms decreases by 12.23% (0.034/0.278) during the post-liberalization period compared to non-pilot firms in the same period.

Regarding the control variables, $SIZE_{it}$, ROA_{it}, and LEV_{it} show significant positive coefficients, indicating that controlling shareholders of larger firms, more profitable firms, and firms with higher leverage tend to expropriate minority shareholders to a greater extent. The positive coefficient for $LARGE_{it}$ aligns with expectations, suggesting that higher voting rights enable controlling shareholders to extract more private benefits. The negative coefficient for $EPAY_{it}$ is consistent with the idea that managers with lower compensation have stronger incentives to expropriate outside investors. Additionally, $COVERAGE_{it}$ exhibits a negative association with all four RPT measures, implying that analysts play a role in external monitoring, constraining insiders from expropriating outsiders.

5.2 Robust Testes

5.2.1 The parallel trends assumption

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[11] Although controlling for observable characteristics enhances the reliability of estimating the causal effect of interest (e.g., Angrist and Pischke, 2009; Roberts and Whited, 2013), the coefficient of LIB_{it-1} remains significantly negative even when we estimate the regression without control variables in Columns (1) to (4). Importantly, the magnitude of the LIB_{it-1} coefficient remains unchanged when the controls are removed, suggesting that the assignment of firms to China's liberalization programs is reasonably exogenous and not correlated with observable internal and external factors.

A key assumption underlying the difference-in-differences design is that the treatment and control groups follow similar trends in the dependent variables before the treatment is implemented (Roberts and Whited, 2013; Atanasov and Black, 2019). To assess the validity of this assumption in our study, we adopt a dynamic model following He and Wang (2017), and She (2022). In this model, we exclude the dummy variable for BEF1 in the regression, allowing us to compare the treatment effects relative to the period immediately preceding the start of the connected program. We introduce additional dummy variables, *BEF3*, *BEF2*, *EVENT*, *AFT1*, *AFT2*, and *AFT3*, which take a value of 1 for years -3, -2, 0, +1, +2, and +3, respectively, with year 0 representing the year when firm i joins the liberalization program (and 0 otherwise)[12]. The inclusion of *BEF3* to *BEF2* enables us to examine whether the differences in related party transactions (RPTs) between pilot firms and non-pilot firms remain statistically parallel during the three years leading up to the liberalization reform[13].

In Panel A of Table 4, we examine the dynamics of RPTs before and after the initiation of market liberalization. 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[14]. These findings from the parallel trends analysis provide further support for the causal impact of

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[12] 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.

[13] Apart from examining whether there is a pre-determined trend, the dynamic model also helps alleviate endogeneity threats (Bertrand and Mullainathan, 2003; Amiram et al., 2017).

[14] Further analysis reveals that the magnitudes of *AFT3* and *AFT2* are significantly larger than those of *EVENT* and *AFT1*, which strengthens the robustness of our inferences drawn from the difference-in-differences analysis. This suggests that the impact of market liberalization on related party transactions (RPTs) becomes more pronounced in the third and second years after the liberalization, compared to the immediate post-liberalization period (*EVENT*) and the first year after the liberalization (*AFT1*). Moreover, the magnitudes of *AFT3* and *AFT2* are statistically indistinguishable from each other, indicating that the effect of market liberalization on RPTs is not a one-time, temporary shock but rather a persistent and enduring phenomenon over time.

market liberalization on reducing tunneling activities. Figure 1 visually illustrates the direct and long-lasting effect of liberalization on tunneling.

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 the propensity score matching test reported in Panel B of Table 4, we match each pilot firm with a non-pilot firm based on their propensity scores, which are derived from observable control variables. The results indicate that after matching, the control variables become statistically indistinguishable between the pilot firms and their matched non-pilot firms. This suggests that our matching procedure successfully achieves covariate balance between the treatment and control groups, mitigating the potential bias caused by differences in observable characteristics. After ensuring the quality of the matching, we proceed to examine the reliability of our main results using the matched sample. In this analysis, we define a binary variable, LIB_{it-1}, as 1 for pilot firms and 0 for matched non-pilot firms. In Panel B of Table 4, we find that LIB_{it-1} has a negative coefficient, reinforcing the conclusions drawn from the full sample analysis, which indicate that stock market liberalization effectively curbs the rent extraction behavior of controlling shareholders. In addition to propensity score matching, we also apply the entropy balancing method, an entropy maximization approach, to further validate our findings. Panel C of Table 4 presents the results obtained through entropy balancing, which yield similar conclusions to those obtained from propensity score matching.

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

We also examine the de-liberalization aspect by employing a difference-in-differences (DID) approach based on the removal of pilot firms, which further reinforces the causal impact of market liberalization on tunneling. To capture the timing of de-liberalization, we introduce a variable called $DE\text{-}LIB_{it}$, which is defined as 1 in year t after firm i is removed from the liberalization program, and 0 otherwise. For example, if a firm joined the Shanghai-Hong Kong Express program on November 17, 2014 and was removed from the program on December 1, 2018, $DE\text{-}LIB_{it}$ would be 1 from 2018 onward, and 0 from 2014 to 2017. In Panel D of Table 4, we find that $DE\text{-}LIB_{it}$ enters positively and significantly, which reinforces our previous conclusions regarding a deteriorated shareholder protection when the stock market transitions from liberalization to non-liberalization.

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, even under random assignment of treatment. 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). To address the treatment effect heterogeneity problem, researchers have developed estimation methodologies, such as those 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. 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 proposed by Callaway and Sant'Anna (2021).

5.2.5 Falsification analysis

Although we employ various approaches to address endogeneity 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-1} variable accordingly. We repeat this randomization process 1,000 times and obtain 1,000 coefficients for the LIB_{it-1} variable. These coefficients are then plotted in Figure 1, 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. = -0.034). 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.

6. Additional and cross-sectional analyses

6.1. Market liberalization, RPTs, and firm performance

Intragroup transactions are not necessarily illegal (Johnson et al., 2000) or detrimental to shareholder value (Khanna and Palepu, 1997, 2000). Weak institutional infrastructures in developing

countries limit the development of their capital markets (La Porta et al., 1997). Inefficient markets struggle to provide sufficient resources for firm growth, resulting in decreased firm value (La Porta et al., 2002). However, business groups in emerging markets may serve as more efficient internal markets by supplying resources to group members through intragroup transactions (RPTs). Given this context, two competing hypotheses emerge regarding the impact of market liberalization on RPTs and firm performance.

The resource supply hypothesis posits that if RPTs help address the resource shortage and are unexpectedly constrained after market liberalization, we would expect a larger marginal contribution of RPTs to firm performance in the pre-liberalization period and a smaller marginal contribution afterward. On the other hand, the agency cost hypothesis suggests that RPTs reflect conflicts between controlling and minority shareholders, and market liberalization mitigates this agency problem. In this case, we anticipate an increase in the marginal contribution of RPTs to firm performance from the pre-reform period to the post-period.

To measure firm performance, we employ Tobin's Q ($TOBINQ_{it}$) and regress it on the interaction between RPTs (RPT_{it}) and LIB_{it-1}. We create dummy variables for RPTs, setting $DRPT_{it}$ to 1 if RPTs exceed the median value, and 0 otherwise. The results in Cols. (1) to (8) of Table 5 demonstrate positive and significant interactions between $DRPT_{it}$ and LIB_{it-1}. This suggests that market liberalization deters the expropriation of large shareholders, leading to improved marginal contributions of intragroup transactions to firm performance. Overall, the findings of Table 5 support the agency cost hypothesis, indicating that financial globalization protects the wealth of minority shareholders by constraining resource diversion by controlling insiders.

6.2. Results of path analysis using a structural equation model approach

The preceding analysis highlights the role of financial globalization in reducing the rent extraction of controlling shareholders. In this section, we further investigate the mechanisms through which capital account reform enhances the protection of minority shareholders' fair interests. Drawing on previous research, we propose several potential channels that may explain the observed decrease in RPTs: (i) foreign investors' corporate site visits and analyst following, (ii) auditing, and (iii) corporate governance.

To explore the underlying mechanism behind the negative impact of financial globalization on tunneling, we employ a path analysis using the structural equation modeling (SEM) approach to empirically test each mechanism.

Firstly, institutional investors and analyst following are known to play a crucial role in monitoring managers' actions (Bushee, 1998; Chen et al., 2007), thereby incentivizing them to act in the best interests of shareholders. In the path analysis, we estimate an SEM to examine the direct and indirect effects of financial globalization (LIB_{it}) on RPT_total_{it}. We consider $FSITEV_{it}$ (number of foreign investors' corporate site visits) and $COVERAGE_{it}$ (natural logarithm of (1 + the number of analysts following firm i in year t)) as mediating variables. Columns (1) to (2) of Table 6 reveal a positive correlation between financial globalization and both foreign investors' site visits ($FSITEV_{it}$) and analyst coverage ($COVERAGE_{it}$). Moreover, these variables demonstrate a negative impact on tunneling, aligning with the expectation that site visits by foreign institutional investors and analyst following are two potential channels that enhance firms' incentives to protect the wealth of their minority shareholders following stock market liberalization.

Secondly, Kohlbeck and Mayhew (2017) find that RPTs are more likely to lead to subsequent accounting restatements, and auditors take this risk into account by charging higher audit fees or issuing modified audit opinions (Fang et al., 2018). Similarly, Fang et al. (2017) demonstrate that Chinese public firms within business groups are more inclined to engage larger audit firms to signal their commitment to resolving agency problems. Based on this, we anticipate that audit firm reputation and auditor effort following market liberalization will contribute to the reduction of intragroup transactions. Columns (3) and (4) of Table 6 reveal a positive correlation between audit fees ($LNFEE$ = natural logarithm of audit fees paid by firm i in year t) and audit firm reputation ($BIG4$ = 1 if firm i employs a top four audit firm) with capital account reforms, while demonstrating a negative impact on tunneling. Thus, the findings in Columns (3) and (4) of Table 6 suggest that the accessibility of clients to global markets motivates auditors to exert greater effort in ensuring the accuracy of financial statements, thereby deterring controlling shareholders' attempts to engage in accounting-related diversion.

Finally, in Columns (5) and (6) of Table 6, we observe a positive correlation between corporate governance indicators ($BMEET_{it}$ = number of board meetings and $SMEET_{it}$ = number of supervisory

board meetings) and liberalization reform, accompanied by a negative impact on tunneling. This implies that monitoring by corporate boards likely serves as a plausible channel for enhancing investor protection in the post-liberalization period.

Taken together, the indirect effects of liberalization on tunneling via foreign investors' corporate site visits and analyst following, auditing, and corporate governance account for (-0.0003 - 0.002 - 0.001 - 0.001 - 0.004 - 0.001) / (-0.034) × 100% = 27.35% of the total effect.

6.3. The positive effect of stock liberalization complements with the foreign Shareholding

Prior literature consistently demonstrates that foreign investors play a more active monitoring role compared to local institutions, who may feel compelled to be loyal to management and controlling shareholders. Numerous studies have found that foreign ownership has a positive impact on firm performance. In countries with weak shareholder protection, foreign institutional investors strive to improve corporate governance (Aggarwal et al., 2011). Importantly, previous research also highlights that foreign investors can effectively restrain the tunneling behavior of controlling shareholders. For instance, Berkman et al. (2010) find that the expropriation problem by controlling shareholders is less severe in Chinese firms with foreign owners (B-shares), as foreign investors bring greater sophistication to the governance process. Huang and Zhu (2015) argue that foreign institutional investors can curb controlling shareholders' tunneling behavior by being less susceptible to political pressure and engaging in arms-length negotiations during non-tradable share reform. Moreover, Anderson et al. (2019) demonstrate that foreign strategic investors provide monitoring protection by controlling excessive borrowing and reducing tunneling through intercorporate loans.

In this section, we delve into whether the positive impact of capital market liberalization is similar to or fundamentally different from the role played by foreign ownership. To investigate this, we include interactions between LIB_{it-1} and $FIDUM_{it-1}$ (a high foreign ownership dummy that equals one if the foreign ownership of firm i in year $t-1$ is above the median level, and zero otherwise) or FI_{it-1} (ownership of foreign shareholders of firm i in year $t-1$). Table 7 presents the results, showing a negative and significant coefficient on the interactions between LIB_{it-1} and FI_{it-1}. This suggests that market

liberalization has a complementary effect, whereby foreign investors can contribute to deterring expropriation by large shareholders.

6.4. Cross-sectional analysis

In examining the associations between market liberalization and investor protection through various facets, we conduct numerous additional analyses to corroborate our primary findings and to scrutinize cross-sectional variations in the data. This aids us in gaining a deeper understanding of the role that market globalization plays in safeguarding the interests of minority shareholders.

We triangulate the core findings by inspecting cross-sectional variations in the data. Firstly, as investor protection is notably stronger in Hong Kong than in mainland China (Allen et al., 2005), we anticipate that investors from Hong Kong could enhance the effect of liberalization[15]. In accordance with this conjecture[16], Panel A of Table 8 displays a significantly negative effect of $LIBSHRDUM_{it-1}$ (this equals 1 when there are investors from Hong Kong among the shareholders of firm i in year t-1, and 0 otherwise). Likewise, Panel B of Table 8 shows a significantly negative effect of $LIBSHRATE_{it-1}$ (ownership of the Hong Kong investors in firm i in year t-1), suggesting that market liberalization heightens investor protection to a more significant degree for Hong Kong investors. These investors may be more inclined to collaborate with other foreign investors to oversee the rent extraction behaviors of insiders.

The dominant agency issue in the majority of countries stems from controlling shareholders who deplete corporate resources intended for distribution to minority shareholders. Consequently, we anticipate a more substantial impact of market liberalization on related-party transactions (RPTs) for firms whose controlling shareholders possess larger equity stakes, fortifying their capacity to defraud minority shareholders. Analogously, we expect a more pronounced effect of liberalization for firms with

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[15] The research sample is from 2015 to 2020, as this data was only disclosed after the stock market liberalization.

[16] We also construct a variable $LIBSHR10DUM_{it-1}$ (= 1 there are investors from Hong Kong in top ten shareholders of firm *i* in year *t-1*, and 0 otherwise) and related results are also consistent with our main findings.

a more substantial divergence between controlling shareholders' control rights and cash flow rights. Such disparity supplies managers with stronger incentives to exploit outside investors.

In accordance with this conjecture, we present in Panels C and D of Table 8 significantly negative interactions between LIB_{it-1} and both $LARGE_{it-1}$ (indicating ownership of the largest shareholder of firm i in year $t-1$), and SEP_{it-1} (equalling 1 if controlling shareholders' control rights differ from their cash flow rights for firm i in year $t-1$, and 0 otherwise). These findings imply that pilot firms with more severe agency problems inherent in their ownership structures decrease the extent of their RPTs more significantly in the aftermath of financial globalization.

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.

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 $t-1$.
RPT_abnor_{it}	The residual of the forecast related party transaction model. See Jian and Wong's (2010) study.
LIB_{it-1}	= 1 for the year $t-1$ 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
$LARGE_{it}$	Ownership of the largest shareholder of firm i in year t.
$BIG10_{it}$	= 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.
FI_{it}	Foreign institutional 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).

Table 1 Sample selection and 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 (768)
Firm-year obs. (number) of non-pilot firms	21,016 (1,781)

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

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-1}	26,417	0.180	0.384	0.000	0.000	0.000	0.000	1.000
$SIZE_{it}$	26,417	22.546	0.993	20.548	21.840	22.433	23.132	25.487
ROA_{it}	26,417	0.033	0.067	-0.329	0.012	0.033	0.062	0.208
LEV_{it}	26,417	0.460	0.210	0.055	0.298	0.458	0.616	0.994
AGE_{it}	26,417	2.834	0.354	1.609	2.639	2.890	3.091	3.466
SOE_{it}	26,417	0.468	0.499	0.000	0.000	0.000	1.000	1.000
MB_{it}	26,417	1.502	0.488	0.872	1.160	1.403	1.691	3.181
$LARGE_{it}$	26,417	0.347	0.150	0.085	0.229	0.328	0.451	0.749
$BIG10_{it}$	26,417	0.576	0.494	0.000	0.000	1.000	1.000	1.000
$BSIZE_{it}$	26,417	2.151	0.201	1.609	2.079	2.197	2.197	2.708
$BIND_{it}$	26,417	0.373	0.054	0.300	0.333	0.333	0.429	0.571
$EPAY_{it}$	26,417	14.266	0.770	12.209	13.790	14.272	14.733	16.290
IO_{it}	26,417	0.088	0.118	0.000	0.008	0.041	0.120	0.592
FI_{it}	26,417	0.001	0.005	0.000	0.000	0.000	0.000	0.034
$SHORT_{it}$	26,417	0.288	0.453	0.000	0.000	0.000	1.000	1.000
$COVERAGE_{it}$	26,417	2.459	1.849	0.000	0.000	2.708	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 Baseline Results

	(1) RPT_total$_{it}$	(2) RPT_indadj$_{it}$	(3) RPT_explo$_{it}$	(4) RPT_abnor$_{it}$
LIB$_{it-1}$	-0.034***	-0.035***	-0.033***	-0.030***
	(-3.68)	(-3.85)	(-3.72)	(-3.48)
SIZE$_{it}$	0.050***	0.050***	0.048***	0.058***
	(4.82)	(4.72)	(4.70)	(5.82)
ROA$_{it}$	0.461***	0.451***	0.451***	0.307***
	(7.97)	(7.80)	(7.93)	(5.52)
LEV$_{it}$	0.510***	0.493***	0.509***	-0.038
	(13.97)	(13.53)	(14.12)	(-1.08)
AGE$_{it}$	-0.051	-0.024	-0.048	-0.126**
	(-0.96)	(-0.46)	(-0.92)	(-2.51)
SOE$_{it}$	-0.016	-0.017	-0.015	-0.040***
	(-1.36)	(-1.47)	(-1.33)	(-3.49)
MB$_{it}$	-0.011	-0.004	-0.011	-0.029**
	(-0.81)	(-0.28)	(-0.82)	(-2.22)
LARGE$_{it}$	0.222***	0.210***	0.220***	-0.101
	(3.12)	(2.96)	(3.15)	(-1.49)
BIG10$_{it}$	-0.002	-0.002	0.000	-0.002
	(-0.19)	(-0.22)	(-0.02)	(-0.20)
BSIZE$_{it}$	-0.105***	-0.106***	-0.100**	-0.069*
	(-2.63)	(-2.66)	(-2.54)	(-1.82)
BIND$_{it}$	-0.292**	-0.290**	-0.279**	-0.038
	(-2.54)	(-2.53)	(-2.48)	(-0.35)
EPAY$_{it}$	-0.036***	-0.035***	-0.034***	-0.033***
	(-3.83)	(-3.71)	(-3.66)	(-3.58)
IO$_{it}$	0.061	0.064	0.063	0.016
	(1.46)	(1.54)	(1.51)	(0.40)
FI$_{it}$	0.494	0.504	0.469	0.423
	(0.82)	(0.84)	(0.79)	(0.74)
SHORT$_{it}$	-0.037***	-0.037***	-0.034***	-0.031***
	(-3.63)	(-3.65)	(-3.44)	(-3.19)
COVERAGE$_{it}$	-0.011***	-0.012***	-0.011***	-0.010***
	(-4.25)	(-4.54)	(-4.08)	(-4.09)
CONSTANT$_{it}$	-0.169	-0.421	-0.178	-0.293
	(-0.57)	(-1.42)	(-0.61)	(-1.04)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	26,417	26,417	26,417	26,417
R-square	0.040	0.039	0.041	0.014

This table reports the effects of stock market liberalization on the magnitude of firms' related party transactions. *RPT* are a buttery of investor protection measurement, *LIB$_{it-1}$* takes a value of one for the year *t-1* 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 Test

Panel A: Parallel trends assumption

	(1) RPT_total_{it}	(2) RPT_indadj_{it}	(3) RPT_explo_{it}	(4) RPT_abnor_{it}
BEF3	-0.017	-0.014	-0.019	-0.020
	(-1.27)	(-1.03)	(-1.41)	(-1.55)
BEF2	-0.020	-0.017	-0.020	-0.020
	(-1.63)	(-1.43)	(-1.58)	(-1.61)
EVENT	-0.036***	-0.033***	-0.035***	-0.032***
	(-3.35)	(-3.15)	(-3.31)	(-3.18)
AFT1	-0.036***	-0.035***	-0.037***	-0.032***
	(-3.21)	(-3.19)	(-3.38)	(-3.04)
AFT2	-0.050***	-0.049***	-0.048***	-0.045***
	(-3.86)	(-3.84)	(-3.76)	(-3.66)
AFT3	-0.065***	-0.068***	-0.066***	-0.062***
	(-4.49)	(-4.69)	(-4.63)	(-4.48)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	26,417	26,417	26,417	26,417
R-square	0.041	0.040	0.041	0.015

Panel B: Propensity score matching

	(1) RPT_total_{it}	(2) RPT_indadj_{it}	(3) RPT_explo_{it}	(4) RPT_abnor_{it}
LIB_{it-1}	-0.024**	-0.023**	-0.025**	-0.021**
	(-2.23)	(-2.11)	(-2.36)	(-1.99)
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	0.021	0.021	0.022	0.023

Panel C: Results based on the entropy balancing

	(1) RPT_total_{it}	(2) RPT_indadj_{it}	(3) RPT_explo_{it}	(4) RPT_abnor_{it}
LIB_{it-1}	-0.051***	-0.050***	-0.051***	-0.046***
	(-2.95)	(-2.88)	(-2.98)	(-2.69)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	24,714	24,714	24,714	24,714
R-square	0.109	0.096	0.111	0.030

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

	(1) RPT_total_{it}	(2) RPT_indadj_{it}	(3) RPT_explo_{it}	(4) RPT_abnor_{it}
$DE\text{-}LIB_{it}$	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-1}	-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 of sensitive test

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 A of This table reports the results on the parallel trends assumption. *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.

Panel B presents the results on the propensity score matching. We match each pilot firm with a non-pilot firm in the nearest re-constitution month immediately before a pilot firm is selected into the Express programs. LIB_{it-1} =1 for the pilot firms in year *t-1* and 0 for the matched non-pilot firms.

Panel C presents the results based on the entropy balancing.

Panel D reports the difference-in difference results based on the removing pilot firms. $DE\text{-}LIB_{it}$ is defined as 1 in 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). 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

$TOBINQ_{it}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$DRPT\_total_{it}$	-0.264***	-0.285***						
	(-9.39)	(-8.44)						
LIB_{it-1}		-0.023		-0.023		-0.023		-0.022
		(-1.06)		(-1.05)		(-1.05)		(-1.00)
$LIB_{it-1} \times DRPT\_total_{it}$		0.110**						
		(2.03)						
$DRPT\_indadj_{it}$			-0.269***	-0.289***				
			(-9.51)	(-8.49)				
$LIB_{it-1} \times DRPT\_indadj_{it}$				0.102*				
				(1.86)				
$DRPT\_explo_{it}$					-0.275***	-0.299***		
					(-9.57)	(-8.62)		
$LIB_{it-1} \times DRPT\_explo_{it}$						0.122**		
						(2.18)		
$DRPT\_abnor_{it}$							-0.284***	-0.309***
							(-9.63)	(-8.72)
$LIB_{it-1} \times DRPT\_abnor_{it}$								0.127**
								(2.17)
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	23,772	23,772	23,772	23,772	23,772	23,772	23,772	23,772
R-square	0.264	0.264	0.264	0.265	0.264	0.265	0.264	0.265

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 ($TOBINQ_{it}$). 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 Path analyses

PATH=	(1) FSITEV$_{it}$	(2) ANA$_{it}$	(3) LNFEE$_{it}$	(4) BIG4$_{it}$	(5) SMEET$_{it}$	(6) BMEET$_{it}$
Direct effect						
ρ (LIB$_{it-1}$, RPT_total$_{it}$)	-0.024***	-0.026***	-0.022***	-0.024***	-0.024***	-0.024***
	(-3.04)	(-3.28)	(-2.75)	(-3.04)	(-3.04)	(-3.04)
Mediated path						
I. ρ (LIB$_{it-1}$, PATH$_{it}$)	0.020***	0.126***	0.114***	0.016***	0.174***	0.215***
	(2.63)	(5.05)	(11.94)	(3.75)	(5.62)	(3.13)
II. ρ (PATH$_{it}$, RPT_total$_{it}$)	-0.015**	-0.015***	-0.011**	-0.058***	-0.022***	-0.004***
	(-2.43)	(-7.72)	(-2.18)	(-5.10)	(-4.21)	(-5.00)
Indirect effect (I*II)	-0.0003**	-0.002***	-0.001**	-0.001***	-0.004***	-0.001***
	(-2.25)	(-4.22)	(-2.14)	(-3.02)	(-5.22)	(-2.65)
Observations	26,417	26,417	26,417	26,417	26,417	26,417

This table reports several possible channels (e.g., institutional ownership, auditing, and corporate governance) through which market liberalization curbs related party transactions exploiting the path analyses. Cols. (1) and (2) report the results on foreign investors' site visit (*FSITEV$_{it}$*) and analyst coverage (*COVERAGE$_{it}$*). Cols. (3) to (4) report the results on audit fees (*FEE$_{it}$*) and auditor reputation (*BIG4$_{it}$*). Cols. (5) to (6) report the results on corporate governance variables (*BMEET$_{it}$* and *SMEET$_{it}$*) 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 t-statistics are reported in parentheses. ***, **, * indicate significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Table 7 The positive effect of stock liberalization complements with the foreign shareholding

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	RPT_total_{it}	RPT_indadj_{it}	RPT_explo_{it}	RPT_abnor_{it}	RPT_total_{it}	RPT_indadj_{it}	RPT_explo_{it}	RPT_abnor_{it}
LIB_{it-1}	-0.038***	-0.040***	-0.037***	-0.033***	-0.039***	-0.040***	-0.038***	-0.034***
	(-4.85)	(-5.09)	(-4.88)	(-4.43)	(-5.01)	(-5.24)	(-5.03)	(-4.62)
$FIDUM_{it-1}$	0.011	0.011	0.009	0.011				
	(1.17)	(1.22)	(1.02)	(1.27)				
$LIB_{it-1} \times FIDUM_{it-1}$	-0.032*	-0.031*	-0.03	-0.034*				
	(-1.73)	(-1.66)	(-1.63)	(-1.91)				
FI_{it-1}					0.858	0.866	0.813	0.794
					(1.60)	(1.61)	(1.55)	(1.54)
$LIB_{it-1} \times FI_{it-1}$					-1.833*	-1.827*	-1.726*	-1.842*
					(-1.75)	(-1.75)	(-1.69)	(-1.84)
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	0.039	0.038	0.040	0.014	0.039	0.038	0.040	0.014

This table presents the positive effect of stock liberalization different from the foreign Shareholding. $FIDUM_{it}$ take value of one if firm i have a foreign investor in year t, FI_{it} denotes the ownership of foreign shareholder of firm i in 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.

Table 8 Cross-sectional analysis

Panel A: Hong Kong investor

	RPT_total_{it}	RPT_indadj_{it}	RPT_explo_{it}	RPT_abnor_{it}
$LIBSHDUM_{it-1}$	-0.061***	-0.061***	-0.059***	-0.056***
	(-4.20)	(-4.20)	(-4.14)	(-4.07)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	11,727	11,727	11,727	11,727
R-square	0.038	0.039	0.039	0.021

Panel B: Hong Kong investor

LIB_{it-1}	-0.059***	-0.058***	-0.058***	-0.052***
	(-4.11)	(-4.09)	(-4.14)	(-3.85)
$LIB_{it-1} \times LIBSHRATE_{it-1}$	-0.034**	-0.033**	-0.035**	-0.032**
	(-2.09)	(-2.05)	(-2.19)	(-2.02)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	11,727	11,727	11,727	11,727
R-square	0.040	0.040	0.041	0.021

Panel C: Ownership of the largest shareholder

LIB_{it-1}	-0.025**	-0.026**	-0.026**	-0.020*
	(-2.19)	(-2.30)	(-2.29)	(-1.82)
$LARGE_{it-1}$	0.035***	0.035***	0.033***	-0.012
	(2.72)	(2.71)	(2.64)	(-0.95)
$LIB_{it-1} \times LARGE_{it-1}$	-0.036**	-0.035**	-0.033**	-0.034**
	(-2.39)	(-2.36)	(-2.23)	(-2.39)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	26,417	26,417	26,417	26,417
R-square	0.038	0.037	0.039	0.014

Panel D: Separation of ownership from control

LIB_{it-1}	-0.013	0.003	-0.013	-0.011
	(-0.65)	(0.14)	(-0.67)	(-0.57)
SEP_{it-1}	0.018	0.038***	0.016	0.018
	(1.36)	(2.87)	(1.27)	(1.46)
$LIB_{it-1} \times SEP_{it-1}$	-0.034*	-0.053***	-0.032	-0.031
	(-1.69)	(-2.61)	(-1.63)	(-1.63)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	26,417	26,417	26,417	26,417
R-square	0.039	0.039	0.040	0.014

This table reports the further analyses. $LIBSHRDUM_{it-1}$, is equal to 1 if there are investors from Hong Kong in shareholders of firm i in year $t-1$, and 0 otherwise., $LIBSHRATE_{it-1}$ denotes the ownership of the Hong Kong investors shareholder of firm i in year $t-1$. $LARGE_{it-1}$ is the ownership of the largest shareholder of firm i in year $t-1$, and SEP_{it-1} takes a value of one if controlling shareholders' control rights differ from their cashflow rights of firm i in year $t-1$, and 0 otherwise. The sample of Panels A and B consists of 11,727 firm-year observations from 2015 to 2020. The sample of Panels C and D consists of 26,417 firm-year observations from 2007 to 2020.

Figure 1 Parallel trend check

Figure 1 exhibits a direct long-term lasting effect of liberalization on tunneling. following He and Wang (2017), and 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.
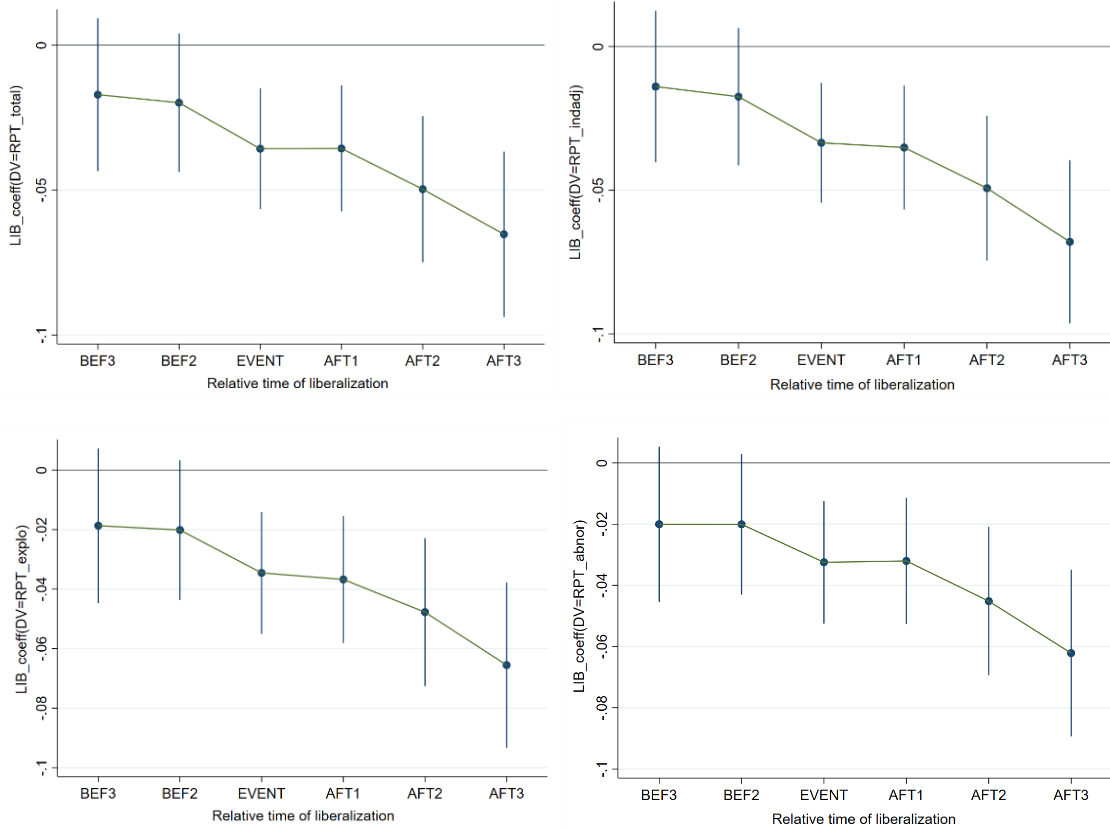
Figure 2 Falsification test

We randomly re-assign the liberalization year for each firm in our sample and re-code the LIB_{it-1} variable accordingly. We repeat this process 1,000 times and therefore obtain 1,000 coefficients of LIB_{it-1}. The graph below plots the distribution of the 1,000 coefficients of the LIB_{it-1} 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.
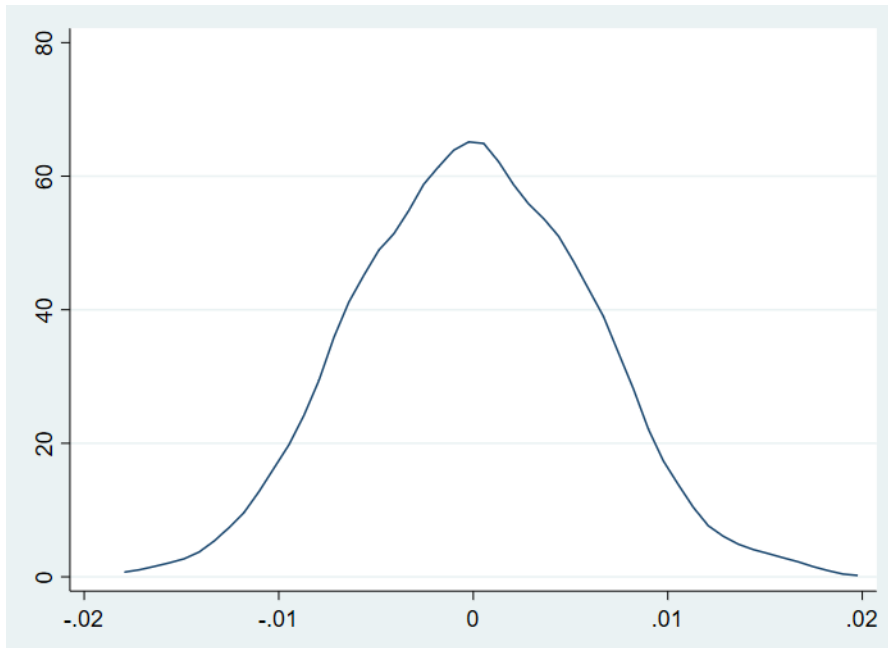
H0: Mean = 0
T-statistics = 0.137
P-value = 0.446