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経済学専攻

指導教員　北野　重人

周　揚

博　士　論　文

Empirical studies on capital controls in advanced and emerging economies

（先進国・新興国における資本規制に関する実証研究）

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Empirical studies on capital controls in advanced and emerging economies

Yang ZHOU

November 22, 2022

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Abstract

Recently, the IMF admits that capital control policies can be a valid alternative policy tool for emerging economies to manage excessive capital flows under certain circumstances. Motivated by the desire to rational use of capital control for policymakers, this dissertation consists of a compilation of four papers devoted to unraveling the effectiveness of capital controls in advanced and emerging economies in three different themes: (i) the effects of capital controls on housing prices; (ii) the impact of China's capital controls; (iii) the effects of capital controls on capital flows.

In the second chapter, I study the effects of four types of granular capital control policies on housing prices using a large cross-country panel of 53 economies from 1995 to 2017. I find that the estimated effects of capital controls are distinct for different capital flow types and flow directions, but most capital control indices appear to reduce housing prices. Specifically, I find that capital controls have asymmetric effects on housing prices for AEs and EMs. The negative effects of capital controls on housing prices are mainly driven by pre-crisis subsample. This means that capital controls have been in effect several times before Global Financial Crisis. I also estimate the effects for boom and slump periods respectively and find that capital control policies are implemented in an acyclical way. Since there exists endogeneity for capital control on real estate transactions, I further use IPWRA method to rebalance capital control actions and find that IPWRA estimators can weaken the negative effects on housing prices, and the attenuation effects can be attributed to endogenous factors.

In the third chapter, I empirically assess the effects of China's capital controls on individual asset categories by using the smooth local projection method. Results show stark differences among individual asset categories. Capital controls on equity and financial credits affect the corresponding net inflows significantly, whereas

those on the other three asset categories (bonds, commercial credits, and direct investment) do not.

The fourth chapter investigates the marginal effects of different types of China's capital control indices on GDP growth distribution and the term structure of such distribution using quantile regressions with local projections and fitted skewed t-distribution. I find that: (i) there are heterogeneous effects of China's capital control policies on GDP growth distribution: the aggregated capital control indices are beneficial in reducing the downside risk of real GDP growth in the medium term whereas they are costly on the upswings of real GDP growth in the near-term; (ii) the marginal effects of capital control indices on GDP growth over quantiles show that the heterogeneous effects are stronger in the near-term than medium term; (iii) specifically, these heterogeneous effects are more evident in the short term for outflow control index and resident transaction control index; (iv) the granular capital control indices show broadly heterogeneous effects even if several of them are statistically insignificant.

This dissertation also investigates the effectiveness of capital controls on international capital flows using 81 economies' data including both advanced and emerging economies over 1995 to 2019 in Chapter 5. The analysis using total samples shows that although they are in expected directions, the impulse responses of capital controls are not statistically significant. Making various distinctions among samples (such as advanced and emerging economies, pre-and-post crisis periods, etc.), we still find that most results are not statistically significant. However, the canonical distinction between "gate" and "wall" economies reveals that the effectiveness of capital controls is relevant for the "wall" economies.

Contents

Chapter 1

Introduction

The International Monetary Fund (IMF) had previously opposed any policies that impede the free flow of capital, because the capital control liberalization has been generally believed to be beneficial to developing and emerging countries by realizing more efficient allocation of resources, achieving assets diversification, promoting financial development and enhancing welfare of whole society (Edison et al., 2004; Prasad et al., 2007). However, the recent outbreak of COVID-19 pandemic not only hit the worldwide health care system and threatened people's lives, but also led to historic portfolio outflows from emerging economies (IMF, 2020, ch.3). Large and volatile capital flows cause great concern for policymakers in emerging economies, and some of them are cautious about fully liberalizing their capital account and they had used capital control policies prevent capital flight and dampen the volatile capital flows. In addition, The IMF now admits that capital control policies can be a valid alternative policy tool for emerging economies to manage excessive capital flows under certain circumstances (IMF, 2022).

Motivated by the desire to rational use of capital control for policymakers, this dissertation consists of a compilation of four papers devoted to unraveling the effectiveness of capital controls in advanced and emerging economies in three different themes: (i) the effects of capital controls on housing prices; (ii) the impact of China's capital controls; (iii) the effects of capital controls on capital flows. As shown in Figure 1.0.1, the first theme contains Chapter 2. The second theme includes Chapter 3 and Chapter 4. The third theme covers Chapter 3 and Chapter 5. The highlights of each chapter are also remarked in Figure 1.0.1.

Documented by several empirical studies, I have known that capital flows can

affect housing market. As presented by Everaert (2020), while the local factors still explain most of the volatility of housing price, the global factors appear to influence the housing price after Global Financial Crisis (GFC). Therefore, it is necessary to manage the boom-bust cycle of housing market to avoid the "financial accelerator" mechanism of crisis. There are several policy tools in mitigating the volatility of housing prices, such as the monetary and macroprudential policies. Particularly, macroprudential policies are proved to be effective in lowering bank credit growth and housing price appreciations (see Akinci and Olmstead-Rumsey, 2018; Kuttner and Shim, 2016). Besides, policymakers have gradually realized that Capital Flow Management (CFM) can address the negative effects of volatile capital flows (Forbes et al., 2015). Compared with literature of monetary and macroprudential policies, however, there is very little empirical evidence on the effects of capital controls on housing prices. In Chapter 2, I empirically explore the effects of capital control polices (restrictions on direct investment; financial credit, commercial credit, and real estate transaction) on housing prices for a large cross-country panel of 53 economies from 1995 to 2017.

Since the decision to implement capital control policy is taken contingent on countries' economic conditions, in order to measure the effects correctly and precisely, I follow Richter et al. (2019) and propose that the capital control policy actions should be exogenous with regarding to current and lagged financial variables, such that it would be sufficient to calculate the average treatment effect (ATE) for restricted one and that of unrestricted. To verify if capital control policy actions are exogenous to housing prices, I check firstly the objectives of capital control by previous literature, and then use the balance condition test proposed by Jordà and Taylor (2016) confirm that the capital control on real estate transactions are endogenous (except capital controls on real estate inflow), while other capital control policies (except capital controls on financial credit inflow) are exogenous to housing prices.

After identifying the endogeneity of capital control variables, I calculate the impact of capital control using local projections method developed by Jordà (2005). I find that the estimated effects of capital controls are distinct for different capital flow types and flow directions, but most capital control indices appear to reduce housing prices. Specifically, I find that capital controls have asymmetric effects on

housing prices for advanced and emerging economies. The negative effects of capital controls on housing prices are mainly driven by pre-crisis subsample. This means that capital controls have been in effect several times before GFC. I also estimate the effects for boom and slump periods respectively and find that capital control policies are implemented in an acyclical way.

Since there exists endogenous problem for capital controls on real estate transaction, I address this issue using inverse probability weighted regression adjusted (IPWRA) estimator. As depicted by Jordà and Taylor (2016) , I first rebalance the sample of "implementing capital controls" (treatment group) and "not implementing capital controls" (control group) by putting more weight to the capital controls that are implemented as surprises and allocating lower weight on capital controls that are implemented endogenously. Then, I apply local projections to the rebalanced sample and obtain the IPWRA estimators. I find that this method can weaken the negative effects on housing prices, and the attenuation effects can be attributed to endogenous factors.

Chapter 3 empirically investigates the effects of China's capital controls on individual asset categories. Regarding capital controls specific to China, most previous studies examined the effectiveness of capital controls by evaluating if covered interest parity (CIP) holds or not (e.g., Ma and McCauley, 2008; Cappiello and Ferrucci, 2008; Otani et al., 2011; Cheung and Herrala, 2014). Although the approach using the CIP is useful for testing the effectiveness of capital controls as a whole, it is not useful for examining the specific effectiveness of implementing capital controls on individual asset categories. The CIP approach may have another problem because it is a *de facto* measurement of capital controls. As Quinn et al. (2011) argue, *de facto* measures are not perfectly related to a government's policy stance.

In this chapter, we use the dataset of Chen and Qian (2016), which quantifies the intensity of the changes in China's capital controls in various asset categories. Using the *de jure* measurement of capital controls, we analyze the effectiveness of capital controls on individual asset categories. To the best of our knowledge, this is the first study to distinguish individual asset categories and examine how corresponding capital controls affect capital flows in China. In addition, we use a smooth local projection (SLP) estimation methodology proposed by Barnichon and Brownlees (2019) to estimate the marginal effect of capital control policy actions.

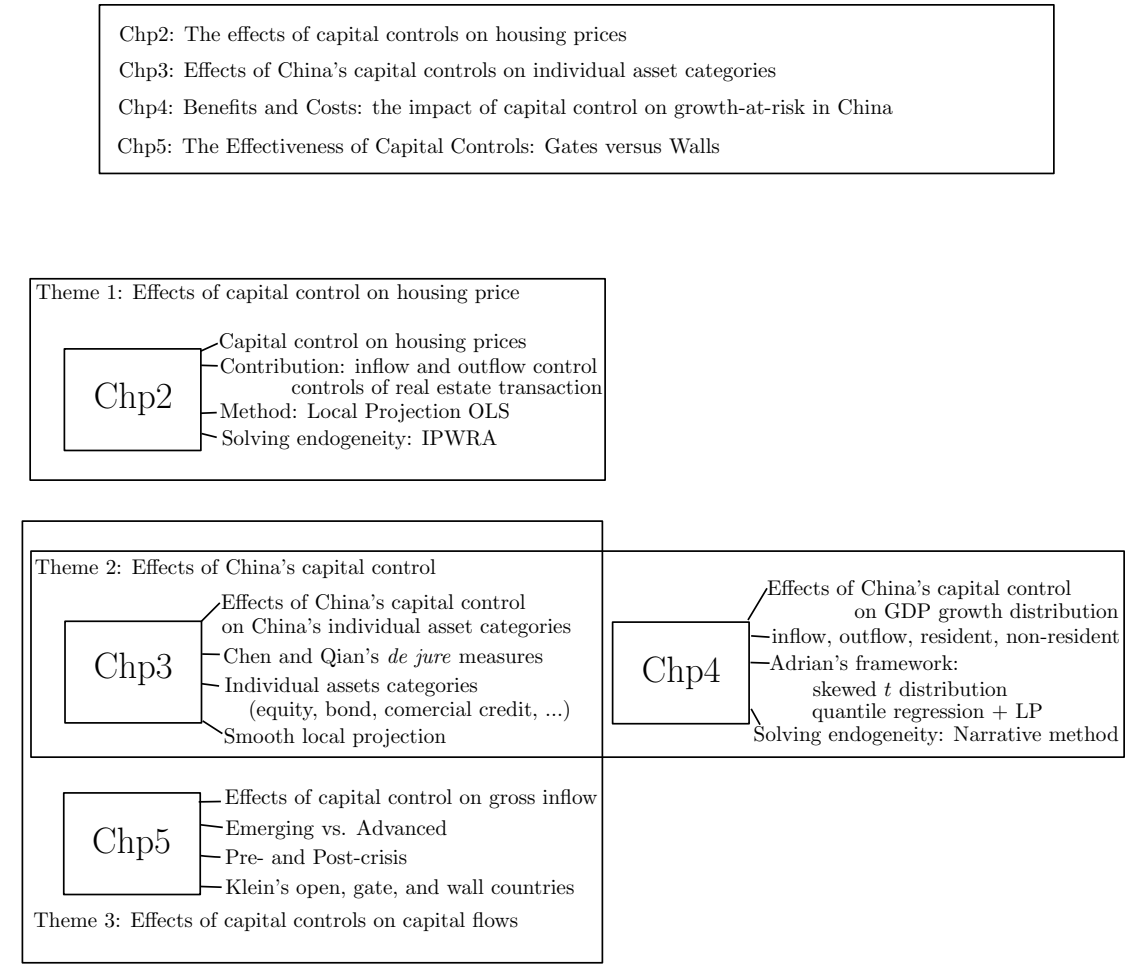

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Figure 1.0.1: The relationship among each chapter

This method inherits the characteristics of robustness to the misspecifications of local projection (LP) by Jordà (2005) and also addresses the large variability problem of the LP estimator by using B-spline smoothing. We find that there exist stark differences among individual asset categories. Our results indicate a significant influence of capital controls on net inflows in some asset categories (equity and financial credits) but not in the other asset categories (bonds, commercial credits, and direct investment).

A large literature has documented the impact of capital account liberalization on economic growth. Many studies believe that capital controls impair growth, while capital account openness indicates a positive effect on growth (Honig, 2008; McKenzie et al., 2001). However, there is considerable risk if one country with undeveloped and unregulated domestic financial market and a peg exchange rate regime quickly liberalizes its capital account transaction. Besides, nearly all of the existing literature focuses on the effects of capital control policies on conditional mean level of economic growth. If capital control policies effectively decrease systemic risk, one could forecast the benefits to be observed in the downside risk of GDP growth distribution. In Chapter 4, I study the marginal effects of China's capital control policies on GDP growth distribution and the term structures of such distribution. To this end, I use the framework extended by Adrian et al. (2019) calculate the quantile marginal effects of GDP growth forward to 15 months on different types of capital control indices and fit a skewed t-distribution to obtain the estimated distribution.

Building on the delicately compiled China's capital control indices by Chen and Qian (2016), I use a narrative approach to identify the causal relationship between capital control policies and GDP growth. The results show that there exist heterogeneous effects of aggregated capital control indices over the real GDP growth distribution. Specifically, the aggregated capital control indices are beneficial in reducing the downside risk of real GDP growth in the medium term whereas they are costly on the upswings of real GDP growth in the near-term. After I estimate the marginal effects of capital controls policies on real GDP growth over quantiles, the results show that the heterogeneous effects are stronger in the short term than medium term. Besides, the heterogeneous effects are more evident in the short term for outflow control index and resident transaction control index. The granular indices show broadly heterogeneous effects even if several of them are insignificant.

As for policymakers, in order to obtain benefits more rapidly after implementation, the capital control measures should be implemented in advance in accordance with the economic status.

In Chapter 5, we analyze the effectiveness of capital controls on international debt flows using 81 economies' data including both advanced and emerging economies over 1995 to 2019. We use a local projection estimation methodology proposed by Jordà (2005). We first use total samples including both advanced and emerging economies and examine the effectiveness of imposing capital controls on international debt flows. We further make various distinctions among samples.

The analysis using total samples shows that although they are in expected directions, the impulse responses of capital controls are not statistically significant. Making various distinctions among samples (such as advanced and emerging economies, pre-and-post crisis periods, etc.), we still find that most results are not statistically significant. Following the canonical distinction by Klein (2012), we finally distinguish between the "gate" and "wall" countries. Klein (2012) makes a key distinction between episodic controls that cover a narrow set of asset categories ("gate") and long-standing controls that cover a broad set of asset categories ("wall"). Our result shows that the effectiveness of capital controls is relevant for the "wall" economies (but not for the "gate" economies).

Our study deviates from the existing literature in that we examine the effectiveness of capital controls by using the canonical distinction, "gate" and "wall", originally proposed by Klein (2012). To the best of our knowledge, this chapter is the first to follow the canonical distinction between "gate" and "wall" economies and examine how the effectiveness of capital controls differs between the two groups.

Finally, Chapter 6 provides a summary of the conclusions from the aforementioned empirical chapters. Moreover, I show the limitations of each study and discuss potential future research in light of the findings of this dissertation.

Chapter 2

The effects of capital controls on housing prices

2.1 Introduction

The outbreak of COVID-19 pandemic not only hits the worldwide health care system and threatens people's lives, but also gives both demand and supply shock to global economic and spoils the stability of financial system. Responding to the economic consequence and policymakers' policy intentions, the cross border investors would change their global risk appetite and adjust the capital allocation and quickly rush to more safety markets. As measured by Batini (2020) and OECD (2020), about 103 billion USD were pulled from Emerging markets (EMs) between mid-January and mid-May 2020, and even 83 billion USD happened in March alone. This phenomenon calls "sudden stop" and has happened several times when country suffers from negative growth shocks. Batini (2020), OECD (2020) and ElFayoumi and Hengge (2021) show that the sudden stop in portfolio flows was of historically large magnitude during similar events in recent years, such as the 2008 GFC, the 2013 "Taper Tantrum", and 2015 Chinese stock market shock.

Documented by several empirical studies, I have known that capital flows can affect housing market.[1] As presented by Everaert (2020), while the local factors still

[1]As for the theoretical literature on capital flows and housing prices, Kim and Yang (2011) raise three channels: direct channel, liquidity channel (capital flows result in money supply and then boost asset prices), indirect channel (capital flows result in economic boom and then lead to increasing of asset price). Bruno and Shin (2014) use an exchange rate channel to explain the bank capital flows and financial stability. In addition, combined with collateralized borrowing

explain most of the volatility of housing price, the global factors appear to influence the housing price after GFC. Particularly, as I have depicted in the literature review in section 2.2, most researchers reach consensus towards the casual relationship between capital inflows and housing price appreciation. Although the capital inflows are welcomed in EMs for contributing to their economic development, they are also disputed by their amplification of economic cycles, increasing of financial system vulnerabilities, and deterioration of overall macroeconomic instability (Forbes and Warnock, 2012). In addition, housing price is also a critical factor in "financial accelerator" mechanism. Suffered by external shocks, the capital flight would tighten the financial conditions and then amplify the crisis by decreasing of collateral value and restricting further the borrowing capacity of households and firms (Kiyotaki and Moore, 1997; Bruno and Shin, 2014; Cesa-Bianchi et al., 2018).

There are several policy tools in mitigating the volatility of housing prices, such as the monetary and macroprudential policies. Particularly, macroprudential policies are proved to be effective in lowering bank credit growth and housing price appreciations (see Akinci and Olmstead-Rumsey, 2018; Kuttner and Shim, 2016). Besides, there are also measures to stabilize housing prices by indirectly affecting the global factor (i.e., capital flows), namely the capital control policies. Capital control policies are opposed and undesirable by IMF for a long time before 2011, whereas policymakers have gradually realized that capital flow management can address the negative effects of volatile capital flows (Forbes et al., 2015). Indeed, Everaert (2020) documents that five advanced economies (Australia, Canada, Hong Kong SAR, New Zealand, and Singapore) have restricted foreigners to invest in domestic real estate after 2011. China, India, Indonesia, and Switzerland even outright prohibit portfolio investment in real estate. Compared with the literature of monetary and macroprudential policies, however, there is very little empirical evidence on the effects of capital controls on housing prices.

In this paper, I explore the effects of capital control policies (restrictions on direct investment, hereafter "di"; financial credit, hereafter "fc"; commercial credit, hereafter "cc"; and real estate transaction, hereafter "re") on housing prices for a large cross-country panel of 53 economies from 1995 to 2017. Since the decision to implement capital control policy is taken contingent on countries' economic condi-

and international financial intermediation, Cesa-Bianchi et al. (2018) study the mechanism of international credit supply to the boom in asset prices.

tions, in order to measure the effects correctly and precisely, I follow Richter et al. (2019) and propose three rules that capital control policy actions should be satisfied: (i) the capital control policy actions should be exogenous with regarding to current and lagged financial variables, such that it would be sufficient to calculate the average treatment effect (ATE) for restricted one and that of unrestricted. (ii) the capital control policy actions should be uncorrelated with other shocks, such as the monetary policy, or macroprudential policy shocks. (iii) the capital control policy actions should not be anticipated. Similar to macroprudential policies, the unsystematic nature of capital controls means they are typically unexpected (Richter et al., 2019). The second rule can be addressed by including monetary policy and macroprudential policy variables in the regression equations. To verify if capital control policy actions are exogenous to housing prices, I check firstly the objectives of capital control by previous literature, and then use the balance condition test proposed by Jordà and Taylor (2016), and confirm that the capital control on real estate transactions are endogenous (except capital controls on real estate inflow), while other capital control policies (except capital controls on financial credit inflow) are exogenous to housing prices.

After identifying the endogeneity of capital control variables, I calculate the impact of capital control using local projections method developed by Jordà (2005). Results show that most capital control indices I have analyzed in this paper appear to reduce real housing prices. The implementation of capital controls on direct investment inflow (hereafter, "dii") and outflow (hereafter, "dio") can reduce real housing price to some extent but the results are imprecisely estimated. Capital controls on financial credit inflow (hereafter, "fci") and outflow (hereafter, "fco"), and on commercial credit inflow (hereafter, "cci") and outflow (hereafter, "cco") can all reduce housing prices and the effects are significant in long-term for inflow restrictions, while the effects are immediately and statistically significant for restrictions on commercial credit outflow "cci" over all horizons.

I also estimate the impacts on real housing prices using capital control on real estate transactions with the loss of preciseness to some extent. Capital controls on real estate inflow (hereafter, "rei") can reduce real housing prices, but the effects are less precisely estimated. Capital controls on real estate outflow (purchase abroad by resident, hereafter "re_pabr") can reduce real housing prices during a short period,

but it would increase real housing prices in long-term. The reversal of coefficients can be related to the wresling between the negative effects of capital flight and the positive effects of preventing residents investing in foreign housing market. Capital controls on real estate outflow (sale locally by nonresident, hereafter "re_slbn") can reduce real housing price, and the coefficients are significant after 3 years.

I provide a series of robustness exercises and find that my specification are broadly robust when I substitute the control variables with alternative proxies, expand the prediction horizons to 10 years, and consider the correlation and sample issues of capital control indices. In addition, I estimate the effects in pre- and post-crisis subsamples, as well as in boom and slump periods respectively. Results suggest that the negative effects are mainly driven by pre-crisis subsample, and capital controls appear to be acyclical.

Since there exists endogenous problem for capital controls on real estate transaction ("re"), I address this issue using inverse probability weighted regression adjusted (IPWRA) estimator. As depicted by Jordà and Taylor (2016) , I first rebalance the sample of "implementing capital controls" (treatment group) and "not implementing capital controls" (control group) by putting more weight to the capital controls that are implemented as surprises and allocating lower weight on capital controls that are implemented endogenously. Then, I apply local projections to the rebalanced sample and obtain the IPWRA estimators. Results show that the negative effects for all capital controls on real estate transaction are weakened after using IPWRA estimators. The attenuation effects of the IPWRA estimators are stronger in long-term and thus I can attribute much of the long-term real housing price variation to endogeneous factors. In addition, as the house demand proxy variables, I also estimate the response of two credit variables ("bank credit" and "credit to households") to capital control on real estate transactions. The effects of capital control on real estate transaction inflow ("rei") and real estate transaction outflow ("re_slbn") can reduce the volume for both credits, but the effects of real estate transaction inflow ("rei") are relatively insignificant. However, the response to real estate transaction outflow ("re_pabr") is positive for all horizons. This may relate to the fact that preventing the domestic investors from investing in foreign housing market makes them have no choice but invest in the domestic housing market.

This chapter is structured as follows: section 2.2 reviews the empirical literature

related to capital flows, capital controls and housing prices. Section 2.3 describes the data and identification strategies used in the estimation. Section 2.4 presents the methodology and empirical results on the response of real housing prices to the implementation of capital controls on direct investment, financial credit, commercial credit, and real estate transaction. Section 2.5 presents a series of robustness exercises. In section 2.6, I further consider the endogeneity problem and estimate the response of financial variables to capital controls on real estate transaction by IPWRA method. Section 2.7 summarizes the main conclusions.

2.2 Literature Review

This paper relates to two strands of literature, the first relates to the impact of capital flow on housing prices, while the second associates with the effectiveness of capital control policies on capital flows, and financial cycles.

In the aftermath of GFC, much literature has focused on the impact of capital flows on asset prices, especially the housing prices. Most researchers reach a consensus on the relationship between the current account deficits (or capital inflows) and real housing price appreciation. Although these studies reach similar results, as pointed out by Cheung et al. (2017), different types of capital flows have different impact on assets pricing. For example, Aizenman and Jinjarak (2009), Gete-Sanchez (2015), Laibson and Mollerstrom (2010), Adam et al. (2012), and Sá et al. (2014) use current account (deficits) as the proxy variable of capital flow, while others prefer capital flows extracted from financial account or more specific indicator "global liquidity".[2] Chow and Xie (2016) and Feng et al. (2017) analyze only the impact of FDI for Singapore and China respectively. Feng et al. (2017) argue that hot money net inflow shock and FDI net inflow shock significantly increase housing prices, while FDI net inflow shock has no effect on stock prices. Kim and Yang (2011) analyze five Asian countries using only portfolio inflow, and they find although capital inflows contribute to asset price appreciation, they explain a small part of price fluctuations. In addition, Vega (2019), Kim and Yang (2009) analyze the impact of both FDI and

[2]As for the relationship between current account and capital flows, Borio and Disyatat (2015) point out that even if sometimes the terms "current account" and "capital flows" are used interchangeably, they believe that current account should be complemented by gross flows and gross positions in order to fully analyze financial stability risk, since in an environment of massive corss border flows, financial imbalance becomes more important source of macroeconomic dislocations.

portfolio investment. Vega (2019) finds that both FDI and portfolio flows contribute to higher housing prices, yet only portfolio flows have more persistent effects. Besides, Tillmann (2013), Olaberria et al. (2012), and Baba and Sevil (2020) use three types of capital flow: direct investment, portfolio investment, and other investment. Olaberria et al. (2012) find that debt related inflows are more associated with booms in assets prices.

As for the indicator of "global liquidity", Belke et al. (2010) define it as a broad monetary aggregate and they find that high money growth rates have coincided with a rise in asset prices, while stock prices do not present any positive response. Darius and Radde (2010) use the summation of U.S. monetary base and world international reverses as global liquidity and estimates a VAR model for G7, they find a similar result as Belke et al. (2010) which global liquidity had significant impacts on the buildup of housing prices, but its effects were limited on equity price. Using similar global liquidity indicator, however, Brana et al. (2012) estimate a Panel-VAR for 16 emerging countries, and they find that the relationship between global liquidity shocks and share prices or estate prices is weaker. Compared to the "official global liquidity" mentioned above, Cesa-Bianchi et al. (2015) and Romero et al. (2020) prefer the "private global liquidity" defined by Matsumoto (2011) which is related to the availability for risky assets such as real estate or equity. Both of them find that in emerging markets (or financially less developed countries), global liquidity shock has much stronger impact in explaining the historical dynamics of housing prices. As discussed by Romero et al. (2020), more developed countries have alternative investment opportunities such that housing prices are less sensitive to shocks from global liquidity. As a supplement for the discussion above, Sá et al. (2014) focus on the development of mortgage markets rather than overall financial development, and they find that the positive responses of capital inflow shocks on real housing prices are stronger in countries with developed mortgage markets, since households are highly indebted and they are more sensitive to changes of collateral value in advanced mortgage markets.

There still exist a few contributions reporting opposed conclusions. Kim and Yang (2009) find that capital inflow shocks lead to the stock price increasing in Korea, but the influence is limited in housing prices. Brana et al. (2012) find that the relationship between global liquidity and stock prices or housing prices is weaker

than GDP and CPI for emerging countries. Favilukis et al. (2012) find that in both boom and bust periods, capital flows have little explanatory power for residential real estate fluctuations.

Many studies have examined the effectiveness of capital control measures on stemming capital flows, but findings are mixed. Ahmed and Zlate (2014) and Landi and Schiavone (2021) admit the generally effectiveness of capital controls to discourage capital inflows. However, it should be noted further that the effects of capital controls vary across the types of capital controls, both assets categories, flows directions, and countries' income levels (Binici et al., 2010). Dell'Erba and Reinhardt (2015) find an opposite effect that controls on short-term debt flows would decrease the possibility of surges in banking debt flows whereas increase the possibility of surges in financial sector FDI. Beirne and Friedrich (2017) show that higher regulatory quality and higher credit-to-deposit ratio increase the effectiveness of capital control policies. Binici et al. (2010) find that both debt and equity controls can reduce outflows significantly, but the effects of inflows are weak, and only advanced countries can effectively implement outflow controls, whereas Bruno et al. (2017) argue that banking sector and bond market capital flow management policies policies are effective in reducing the banking inflow growth before 2007 and bond inflow before 2009, respectively.

There are also a few contributions comparing the effectiveness between macroprudential and capital control policies. Ostry et al. (2012) develop new indices of *de jure* measures for 51 emerging economies over the period of 1995 to 2008, and they find that both capital controls and FX-based prudential measures are related with lower portion of FX lending in domestic bank credit, and also for portfolio debt in external liabilities. Similarly, Osina (2021) agrees with the facts that both capital controls and macroprudential policies are effective in reducing the volume of cross-border bank flows, while macroprudential policies should be used as first priority since they can optimally manage capital flows without discriminating foreign investors. Conversely, Forbes et al. (2015) show that macroprudential policies can reduce significantly several types of financial fragility, while most capital flow managements have limited influence on their objectives, such as reducing capital inflows. Frost et al. (2020) also support that macroprudential policies may be more effective in responding to volatile capital inflows than capital controls, and they

show insignificant effects of capital controls on the quantity of capital inflows. Besides, Baba and Kokenyne (2011), and Forbes and Warnock (2012) both find the insignificance effect of capital controls on capital inflows. Baba and Kokenyne (2011) also find that outflow control liberalization could not dampen currency appreciation. Cerutti et al. (2014) find the dampening effects of capital control on cross-border bank claims, but to a lesser extent.

There are very few studies on how the implementing of capital control policies affect housing prices. Ohno and Shimizu (2015) analyze the impact on Asian housing market and highlight the relationship between housing price and financial market openness for 7 economies over 1998 to 2010. They find that housing prices rise more rapidly with more open financial markets. Banti and Phylaktis (2019) also study the impact of global liquidity on house prices for 48 countries between 2000Q1 to 2014Q4 using a PVAR framework. They find that in emerging markets, housing prices are affected positively and significantly by global liquidity only when capital controls on real estate transaction are looser.

This study complements the above discussions in two ways. First, as in Ohno and Shimizu (2015), they use a more general and aggregated index "KAOPEN" developed by Chinn and Ito (2008) that is not specific to restrictions on real estate transaction. Banti and Phylaktis (2019) use more granular indices of capital control developed by Fernández et al. (2016) on real estate transactions. I also study the effects of capital control policies on housing prices using Fernández et al. (2016)'s dataset. However, I analyze not only the effects of capital controls on inflows and outflows respectively, but also various types of capital control policies that may influence real housing prices. Besides, I estimate the impulse response using a more "misspecification robust" Local projection (LP) method. Second, I check the endogeneity of Fernández et al. (2016)'s dataset using econometric method. For further causal identification, I employ the "inverse probability weighted regression-adjusted (IPWRA) estimator" to analyze the response of financial variables to the endogenous capital control policies on real estate transaction.

2.3 Data and Identification Strategy

2.3.1 Data description

I estimate the model using unbalanced panel data with 53 economies (for 31 advanced economies and 22 emerging markets) and yearly basis from 1995 to 2017. Dependent variables contain housing price, and two types of bank credit: credit to private non-financial sector from banks (hereafter "bank credit"), and credit to households and NPISHs from all sectors (hereafter "credit to households"). Explanatory variables include the capital control measures on two types of credit (financial credit and commercial credit), direct investment, and real estate transactions. Control variables are monetary policy (central bank policy rate and short term interest rate), exchange rate (bilateral nominal exchange rate and real efficient exchange rate), macroeconomic fundamentals (GDP and CPI), macroprudential policy (i.e., LTV caps), capital flows (inflows and outflows of direct, portfolio, and other investment), cross border loans (cross border loans from BIS reporting banks and cross border loans from BIS banks to non-banks), and global liquidity (VIX and TED spread). Table A.0.1 presents the detailed information of source and full description of the data sample, and table 2.3.1 reports summary statistics for key variables used in this paper.

2.3.1.1 Dependent variables

According to Akinci and Olmstead-Rumsey (2018) and Richter et al. (2019), I choose housing price appreciation in section 2.4 and 2.6, bank credit growth, and households credit growth in section 2.6 as dependent variables since these variables are usually used as the objective of macroprudential policy. This chapter tests the effects of the implementing of capital control policies on the objectives of macroprudential policies. Besides, these variables are closely related with boom-bust financial cycle.

Housing price data

The housing price data used in this paper rely on Bank for International Settlements (BIS) residential property prices. The data series are annual basis (2010 as the base year for price index equal to 100), and have been adjusted to real housing prices by CPI. I collect data over 1995 to 2017 subject to the data availability. Housing

Table 2.3.1: Descriptive statistics

	Obs	Mean	Std. Dev	Min	Max
Real housing price growth	871	2.030	7.480	-50.456	29.954
Real housing price detrended	922	0.000	0.078	-0.324	0.369
Real bank credit growth	924	4.908	9.123	-95.900	34.188
Real bank credit detrended	966	0.000	0.090	-0.525	0.502
Real credit to households growth	846	6.552	11.298	-76.139	71.305
Real credit to households detrended	888	0.000	0.104	-0.744	0.487
Real GDP growth	1166	3.032	3.276	-15.550	22.923
CPI growth	1165	4.248	9.968	-4.581	244.960
Real cross border loan growth	1166	3.657	18.323	-85.492	85.603
Real cross border loan to nonbank growth	1166	4.559	18.146	-77.112	106.508
Direct investment (inflow) to GDP ratio	1159	6.121	24.709	-45.659	387.288
Portfolio investment (inflow) to GDP ratio	1156	3.103	10.760	-50.404	148.623
Other investment (inflow) to GDP ratio	1157	3.410	17.312	-80.408	256.809
Direct investment (outflow) to GDP ratio	1156	4.827	22.979	-83.988	331.705
Portfolio investment (outflow) to GDP ratio	1153	4.289	15.668	-74.253	195.876
Other investment (outflow) to GDP ratio	1158	2.924	14.123	-87.912	214.233
Policy rates	1076	5.150	8.727	-0.750	160.000
Short-term interest rates	1059	5.309	8.085	-0.819	98.395
Exchange rate growth	1166	2.696	13.725	-33.175	224.651
REER growth	1166	0.104	6.887	-79.095	35.569
VIX	1219	19.950	6.099	11.090	32.693
TED spread	1219	48.759	31.042	19.217	154.802

Notes: This table summarizes key variables with respect to their mean, standard deviation, minimum, and maximum. Real housing price growth, real bank credit growth, real credit to households growth, real GDP growth, CPI growth, real cross border loan growth, real cross border loan to nonbank growth, direct investment (inflow/outflow) to GDP ratio, portfolio investment (inflow/outflow) to GDP ratio, other investment (inflow/outflow) to GDP ratio, exchange rate growth, REER growth, and TED spread are expressed in growth rates in percentage terms. Policy rate and short term interest rate are expressed in percentage terms.

price data cover 51 countries, including 31 advanced economies and 20 emerging markets.[3]

Because of the short period and limited coverage of emerging markets, Cesa-Bianchi et al. (2015) extend existing indices by extrapolating with historical data, and increase the coverage for emerging markets. Banti and Phylaktis (2019) also supplement the BIS dataset with other sources for longer time series. However, as pointed out by Vega (2019), collecting data from different sources may generate comparability and compatibility problems since the data are usually compiled in different ways. Thus, I only employ the BIS dataset, which is more suitable for cross-country comparison.

Credit data

I also choose credit as the other dependent variables for measuring financial cycles. Besides, as noted by Vega (2019), since the not availability of housing demand variable such as residential investment for most of the emerging markets, I use credit data as the proxy variables for housing demand. In this paper, I use two types of credit data: "bank credit" and "credit to households". I employ these indicators from BIS Statistics for bank credit to the non-financial sector, and total credit to households. These data are in domestic currency, and adjusted to real term using CPI. The time period is from 1995 to 2017 for 42 economies.[4]

2.3.1.2 Explanatory variables

The capital control measures used in this chapter are compiled by Fernández et al. (2016) which are based on *de jure* measures from Schindler (2009).[5] Although there

[3]The 31 advanced economies are Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Hong Kong SAR, Ireland, Iceland, Israel, Italy, Japan, Korea, Latvia, Malta, Netherlands, Norway, New Zealand, Portugal, Singapore, Slovenia, Sweden, Switzerland, United Kingdom, and United States. The 20 emerging markets contain Bulgaria, Brazil, Chile, China, Colombia, Hungary, Indonesia, India, Morocco, Mexico, Malaysia, Peru, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, and United Arab Emirates.

[4]The 42 economies contain 26 AEs (Australia, Austria, Belgium, Canada, Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Hong Kong SAR, Ireland, Israel, Italy, Japan, Korea, Netherlands, Norway, New Zealand, Portugal, Singapore, Sweden, Switzerland, United Kingdom, United States) and 16 EMs (Argentina, Brazil, Chile, China, Colombia, Hungary, Indonesia, India, Mexico, Malaysia, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey).

[5]Schindler (2009)'s dataset has 91 economies from 1995 to 2005, and he also divides the capital control indices up into inflows and outflows for six different categories.

are datasets developed by Quinn (1997) or Chinn and Ito (2008) for broad coverage or longer time period, these datasets are broad indices of "capital account openness" instead of granular data which are not only divided up into inflows and outflows, but also disaggregated by different categories of assets.[6] Fernández et al. (2016)'s dataset is an desirable one which provides more granularity by distinguishing the direction and category of capital flows and it also covers 100 economies over 1995 to 2017. I choose 53 countries according to the availability of dependent variables.

To measure the effects of capital controls on housing prices, I choose four types of categories closely associated with them:

1. Capital controls on direct investment: this category contains direct investment control on inflows ("dii"), and direct investment control on outflows ("dio"). I choose this category since it relates with long lasting economic relation, and the empirical literature shows that FDI shocks have positive effects on housing prices or growth rate (see Vega, 2019; Feng et al., 2017; Chow and Xie, 2016; Kim and Yang, 2011). Thus, it is necessary to study the effects of direct investment capital controls on housing prices.

2. Capital controls on credit:

   (a) Capital controls on commercial credit: this contains capital control on commercial credit inflows ("cci"), and outflows ("cco"). Following the definition of Schindler (2009) and Fernández et al. (2016), commercial credits are directly related with international trade transactions or with the rendering of international service.

   (b) Capital controls on financial credit: this also includes capital control on inflows ("fci"), and on outflows ("fco"). Different from capital controls on commercial credit, this indicator contains credit other than commercial credit granted by residents (including banks) to non-residents or vice versa.

Cesa-Bianchi et al. (2015) focus on a particular component of capital flows, namely the cross border bank lending (to the domestic bank sector) to study

[6]The dataset of Quinn (1997) uses five point scale at the granular level to assess the intensity on capital flows, but his dataset does not distinguish capital controls on inflow or outflow. The latest dataset of Chinn and Ito (2008) contains data for 182 countries from 1970 to 2018, but this dataset does not contain any granular data on specific assets.

the impact of capital flows on housing prices. Inspired by them, I choose these two types of capital control policies on credit as proxy variables of capital controls on cross border bank lending.

3. Capital controls on real estate transactions: these series of indices are the most direct indicators related with housing prices. They contain three categories which can be written as

$$\text{re:}\begin{cases}\text{inflow:} & \text{rei} = \text{re\_plbn: real estate purchase locally by non-residents}\\ \text{outflow:} & \text{reo:}\begin{cases}\text{re\_pabr:} & \text{real estate purchase abroad by residents}\\ \text{re\_slbn:} & \text{real estate sale locally by non-residents}\end{cases}\end{cases}$$

As defined by Fernández et al. (2016), these indices only restrict the acquisition of real estate not associated with direct investment, namely, the investment of purely financial objectives in real estate or acquisition of real estate for personal use.

These four indicators are all 0-1 binary variables with 1 representing the implementing of such capital control restriction, and 0 for no such restriction. Fernández et al. (2016) also provide aggregated data which are calculated by the average of the inflow and outflow indicators. These aggregated indicators can be used as intensity measure to some extent, while I do not use them for estimation in this chapter. As argued by Binici et al. (2010), the aggregated measures may generate misleading and biased estimation of the effectiveness of capital control policy such that the policymakers are puzzled by which specific indicator is effective. Besides, the capital control categories I used for estimation are abstracted from portfolio flow categories, one of the reason is that the portfolio inflows usually target at short-term investment (i.e., hot money). As shown by Kim and Yang (2011), portfolio inflows can directly affect the demand for assets such as the stock transactions. The other reason is that there are a wide variety of capital control indicators on portfolio flows, such as capital control on money market, bonds, equities, derivatives. Thus, using portfolio controls are inevitable to use an aggregated indicator which may result in misleading results.

2.3.1.3 Control variables

I include several control variables – policy measures, capital flows, and global liquidity – as possible determinants of housing prices and credit growth.

Policy measures

I consider three types of policy measures: monetary policy rate, macroprudential policy, and exchange rate. As discussed in Richter et al. (2019), to address the correlation problem of capital control policy with other policies acting at the same time, I control for monetary policy, macroprudential policy, and exchange rate shocks in my specifications.

To measure monetary policy, I use two indicators: the central bank policy rate and short term interest rate. The central bank policy rate data are obtained from BIS statistics in annual basis, from 1995 to 2017.[7] As for the short term interest rate, I obtain from CEIC database in monthly basis over 1995M1 to 2007M12 and average the monthly data to annual basis.[8]

The macroprudential policy used here focuses on "domestically oriented macroprudential measures" categorized by Bruno et al. (2017), and I choose the typical instrument targeting at the housing market – the Loan to Value (LTV) caps for mortgage loans which is usually used to measure the demand side of housing credit in macroprudential literature (see Akinci and Olmstead-Rumsey, 2018; Bruno et al., 2017; Kuttner and Shim, 2016; Richter et al., 2019; Banti and Phylaktis, 2019). This indicator restricts the amount of the loan to a certain portion of collateral value. I obtain this index from the dataset of prudential instruments developed by Cerutti et al. (2017).[9]

With respect to exchange rate policies, I consider the bilateral nominal exchange rate and the real effective exchange rate (REER). The data of bilateral nominal exchange rate are obtained from Penn World Table (PWT) by Feenstra et al. (2015)

[7]For euro zone countries, they share the same policy rate started from 1999. However, for countries which are not covered in BIS policy rate dataset, we collect the data by ourselves. For example, we collect the policy rate for Bulgaria and Morocco from their central bank respectively, and then use exchange rate as the policy rate for Singapore, EBIOR rate for United Arab Emirates.

[8]The data of Peru, Brazil, and Chile are not included in this database, thus we use the average interbank rate (from Central Reserve Bank of Peru), short term interest rate (from FRED for Brazil), and 90 days interbank rate (from FRED for Chile), respectively.

[9]This dataset has been updated at 2018, thus it covers 53 countries used in this paper and the time horizons are extended from 2000 to 2017.

and the REER data are available for all 53 countries from the BIS effective exchange rate (EER) indices. As studied by Cesa-Bianchi et al. (2015), Bruno and Shin (2014), and Cesa-Bianchi et al. (2018), the exchange rates are included as control variables since the local currency appreciation would contribute to intensifying the boom by increasing the value of collateral, thus this mechanism provides a channel between exchange rate and financial stability.

Global liquidity and its driving force

As regards the capital flow data, we average the quarterly net acquisition of financial assets ("gross-net" outflows of domestic capital) and net incurrence of liabilities ("gross-net" inflows of foreign capital) for direct investment, portfolio investment, and other investment from IMF Balance of Payment and International Investment Position Statistics (BOP/IIP). Vega (2019) uses these broad indicators study the impact of capital flows on housing prices for emerging market.

Cesa-Bianchi et al. (2015), however, use a narrower indicator to gauge capital flows – the cross border bank loan, and they also refer to it as "global liquidity". Although Cesa-Bianchi et al. (2015) and Banti and Phylaktis (2019) reach a consensus that the definition of global liquidity means "the supply of global financing", they choose different measurement methods. Different from Cesa-Bianchi et al. (2015)'s quantity side measures, Banti and Phylaktis (2019) choose a price measures – the amount outstanding of repos in the US, UK, and Europe. In this chapter, I follow the measures of Cesa-Bianchi et al. (2015). These data are easily accessed from Joint External Debt Hub (JEDH) database. I choose two types of cross border loans: the cross border loans from BIS reporting banks and the cross border loans from BIS banks to non-banks.

As for the global driving force of global liquidity, I choose VIX and TED spread as in Cesa-Bianchi et al. (2015) and Banti and Phylaktis (2019). VIX index is the volatility of S&P 500 stock price which measures the willingness of banks to risk themselves at the global credit market. I obtain VIX index from Chicago Board Option Exchange (CBOE) and average it from 1995 to 2017. TED spread is the interest rate difference between 90 days interbank interest rate and government bond yields. This index is available at Federal Reserve Bank of St. Louis, and also be processed as VIX index.

Macroeconomic fundamentals

I choose GDP and CPI as the fundamentals variables. GDP are available from PWT database, specifically, the "rgdpna" series are real GDP series that can be used in cross country regressions (Feenstra et al., 2015). As for the CPI data, I employ the BIS consumer price index dataset and supplement it with the FRED, and the data in 2010 are adjusted to 100.

2.3.2 Identification of capital control policy shocks

As discussed in Kuvshinov and Zimmermann (2019), if I want to measure the causal effects of capital control on housing prices and other credit variables, I need to compare two counterfactual scenarios: one where the representative economies in our sample restricted and the other where it did not. Besides, following Richter et al. (2019), I also propose three criteria that should be fulfilled:

1. The capital control policy actions should be exogenous with regarding to current and lagged financial variables, such that it would be sufficient to calculate the average treatment effect (ATE) for restricted one and that of unrestricted.

2. The capital control policy actions should be uncorrelated with other shocks, such as the monetary policy, or macroprudential shocks. To solve this problem, I can add monetary policy, macroprudential policy as control variables in estimation process.

3. The capital control policy actions should not be anticipated.[10]

Before proceeding to the estimation part, I need to verify if capital control policy actions are exogenous to financial variables.

As the first step, I need to clarify the purposes or objectives for policymakers when they implement capital control policies. Because if the objectives of capital

[10]Policymaking is a forward-looking activity. Similar to monetary policy, policymakers may not only implement capital controls with response to lagged changes in economic variables, but also respond to anticipated future evolution of these (Pasricha, 2022). Monokroussos (2011) estimates a forward-looking, dynamic, discrete-choice monetary policy reaction function for U.S. using the "Greenbook forecasts" by the staff of Fed before each FOMC meeting. However, such forecasts are not available for emerging countries. Therefore, in this chapter, I have no choice but assume capital control actions are not be anticipated. In addition, similar to macroprudential policies, the unsystematic nature of capital controls means they are typically unexpected (Richter et al., 2019).

Table 2.3.2: Balance condition test: for all capital control policy variables

	rei	re_pabr	re_slbn	fci	fco	cci	cco	dii	dio
Real housing price detrended	0.00	-0.01	-0.01	-0.00	0.00	0.00	-0.01	-0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Real bank credit detrended	0.01	0.00	-0.01	-0.00	-0.00	0.00	-0.01**	0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Real credit to households detrended	0.00	0.00	-0.02	-0.00	0.00	-0.00	-0.02**	0.00	-0.01*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Real housing price smoothed growth, demeaned	-0.00	-0.01**	-0.01***	0.01***	0.00	0.01	0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Real bank credit smoothed growth, demeaned	0.01***	0.02***	0.03***	0.04***	0.02***	0.03***	0.03***	0.02***	0.03***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Real credit to households smoothed growth, demeaned	0.02***	0.02***	0.05***	0.05***	0.03***	0.04***	0.04***	0.03***	0.05***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)
Observations	1115	1114	1092	1115	1106	1115	1109	1115	1111

Notes: Each cell is the difference between treatment (implemented capital control) and control group (no such restriction) for interested financial variables (housing price, bank credit, and credit to households). The null hypothesis is the equality of means for each subpopulation. Standard errors in parentheses. *, **, and ***, indicate the significant at 10%, 5%, 1% levels respectively.

control contain financial variables, policymakers may implement policies according to the financial cycle. Magud et al. (2018) find that there are two prominent objectives for governments to impose capital controls: (i) reducing the volume of capital flow, (ii) reducing the exchange rate pressures. Thus, stabilizing housing prices and households credits may not become the primary objective for policymakers. In addition, Fernández et al. (2016) study whether governments systematically impose capital controls in a countercyclical fashion. These results show that policymakers do not change capital control over the business cycle.

Although related literature has clarified the objective of capital controls, as argued by Richter et al. (2019), policymakers may target financial objectives without stating them explicitly when implement capital control policies. Thus, I formally examined the relationship between capital control policies and financial variables using balance condition test proposed by Jordà and Taylor (2016). It should be noted that in the ideal randomized controlled trial, the probability density of treatment and control group should be the same. The simple way to test this condition is to compare the mean of those subpopulations and test their equality.

Table 2.3.2 reports the results of balance condition test. All capital control policy variables are considered and broken down by restriction on inflows and outflows.

Following the measures chosen by Richter et al. (2019), I compare real housing price, real bank credit, real credit to households in treatment and control group based on two types of measures. The first measure is the smoothed growth rates of these variables over the previous year, and they are also demeaned at country level. The second measure is the detrended level of such variables. The results indicate that capital controls on real estate transactions are indeed endogenous to financial variables. Particularly the restrictions on outflows (namely, "re_pabr" and "re_slbn") show significant different for overall financial variables. This is also true for capital control on financial credit inflow ("fci"). However, for other policy variables (e.g., "fco", "cci", "cco", "dii", and "dio"), they only show significant difference in credit variables, especially for capital control on commercial credit outflow ("cco"), strongly suggesting its endogeneity to credit variables.

In the next section, I will study the effect of capital control policies considering endogeneity problem. As the results presented above, capital control on real estate transactions ("re" related variables) are endogenous to real housing prices, other capital control policies will be considered as exogenous events.[11]

2.4 The effects of implementing capital control policies

In order to calculate the marginal effects of capital control policies, I use local projection (LP) estimator developed by Jordà (2005). As a preferable method than VARs, the impulse response can be calculated by a sequence of projections of the endogenous variables which are moved forward in time on its lags. Compared with VARs' extrapolating, these projections are local to forecast horizons and become more robust to misspecifications (Jordà, 2005).[12]

In particular, I characterize the impulse response of housing prices to capital

[11] Capital control on financial credit inflow ("fci") also appears endogenous to real housing prices, thus I also calculate the marginal effects using IPWRA method in section 2.4 for "fci".

[12] Plagborg-Møller and Wolf (2021) find that LP and VAR estimators are simply two dimension reduction techniques with common estimand but different finite-sample properties. In addition, linear VARs are as robust to nonlinearities as linear LPs.

control policies as

$$\tau(h) = E(HP_{t+h} - HP_t | CaCP_t = 1; \Omega_t) - E(HP_{t+h} - HP_t | CaCP_t = 0; \Omega_t) \quad (2.1)$$

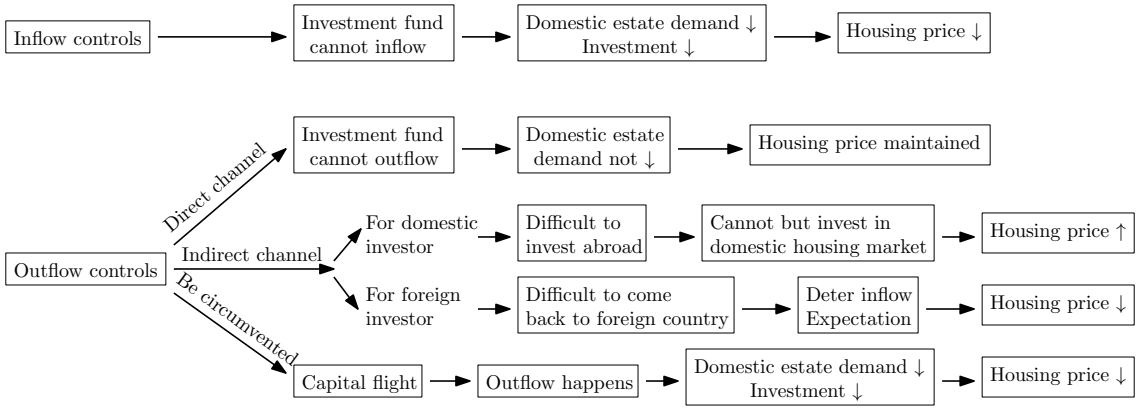
where $HP_{t+h} - HP_t$ denotes the conditional forecast cumulative change of housing prices from the period t when the capital control policies are implemented to a future h periods (years) later. $CaCP_t$ is the capital control index with $CaCP_t = 1$ for capital control policy implemented at period t, and 0 otherwise. Ω_t is the available information set at period t.

Since I estimate $\tau(h)$ using local projection method, the regression equation can be written as

$$\Delta_h HP_{i,t+h} = \alpha_i^h + \gamma_t^h + \beta^h CaCP_{i,t} + \sum_{k=0}^{1} \phi_k^h \Delta X_{i,t-k} + \beta_c^h HP_{i,t}^c + \varepsilon_{i,t+h}; \quad h = 1, ..., .5 \quad (2.2)$$

where $\Delta_h HP_{i,t+h} = HP_{i,t+h} - HP_{i,t}$, here $HP_{i,t}$ denotes the real housing price for country i in period t. α_i^h is the country dummies which are used to control for the country-specific growth. γ_t^h represents the time-fixed effects which are used to control the global trend of housing prices. $X_{i,t}$ denotes the control variables included up to one lags, and it contains real housing price growth, real GDP growth, CPI growth, direct investment (inflow or outflow) to GDP ratio, other investment (inflow or outflow) to GDP ratio, central bank policy rate, nominal bilateral exchange rate, VIX. $HP_{i,t}^c$ is the real housing price detrended, denoting the cyclical component of real housing price. It is calculated by deviation of log real housing price from an HP filtered trend estimated with the yearly smooth parameters $\lambda = 100$.

Before moving to the empirical results, I summarize the potential mechanism and the expected signs for the impulse response of the implementation of capital control indices on housing prices for inflow and outflow controls respectively in Figure 2.4.1. As for inflow controls, I assume it restricts the investment fund flowing into domestic estate markets. Thus, the investment and housing demand decline, resulting the decrease of housing prices. Unlike inflow controls, I allow the outflow controls to influence housing prices through two channels. The directly channel shows that outflow controls can limit directly the investment flowing out to foreign estate markets, and thus the domestic estate demand is not decreasing and the hous-



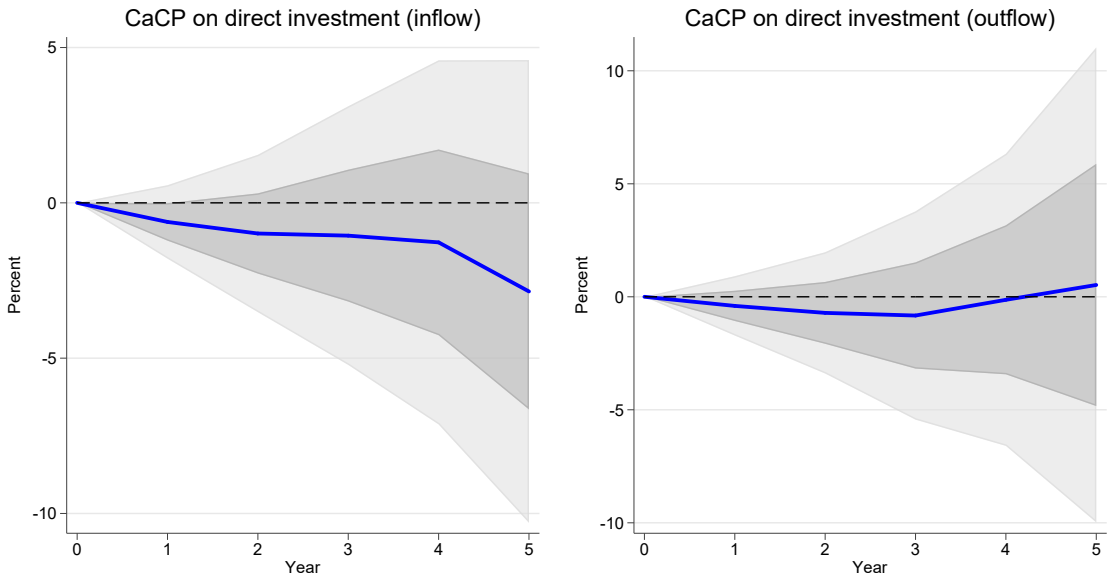
Source: made by author.

Figure 2.4.1: The potential mechanism from capital controls to housing prices

ing prices can be maintained. The indirect channel has two opposite mechanisms: (i) for domestic investors, they have difficulty investing abroad and thus cannot but invest in domestic housing market, leading to the increase of housing prices; (ii) for foreign investors, they also have trouble in bringing back their funds, and they are not willing to futher invest in countries that restrict their exit (Acosta-Henao et al., 2020), leading to a drop in housing prices. In addition, I also consider the results if outflow controls are circumvented. The capital flight may happen such that the domestic housing demand declines, resulting the decrease of housing prices.

2.4.1 The effects of capital control on direct investment

The results of estimating equation (2.2) using the capital control policies of direct investment ("dii" and "dio") are reported in Table 2.4.1 and Figure 2.4.2. The left and right panels depict the cumulative response of real housing price ($\times 100$) to the changing of capital control index (from 0 to 1, which means varying from no restriction to capital flows restricted) over the following 5 years respectively. The left panel of Figure 2.4.2 shows that the response of changing to capital control on direct investment inflow is 2.852% lower of real housing price after 5 years. However, this response is rather imprecisely estimated and not significant over 5 years as depicted by zero axis getting across the light gray area. This is in line with the results of Frost et al. (2020) who also find no significant effects of capital control policies on FDI inflows. As for the right panel of Figure 2.4.2, the data show the decline of housing prices to a smaller extent, and the impact is still less precisely estimated



Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing prices over 5 years following the changing in capital control of direct investment inflow and outflow from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure 2.4.2: Local Projection: Impact of capital controls of direct investment on real housing prices

for over 5 years. The results imply that capital control on "dio" does dampen the decline in house prices.

As pointed out by Richter et al. (2019), the capital control policies are usually implemented with other policy rules, such as monetary policy and macroprudential policies. To eliminate the potential estimation bias due to the fact that monetary policy may respond to the changing of capital controls on direct investment, I control the changing of central bank policy rate in equation (2.2) and then check the response of monetary policy rate to the implementing of capital control. I find that monetary policy rate is not significantly responding to capital controls on direct investment inflows and outflows. Besides monetary policy, not considering macroprudential policies could also bias the estimation results. Thus I control for macroprudential proxy variable – the borrower-oriented LTV caps.[13] The results are in line with our baseline findings that both inflow and outflow controls lower real housing prices, and the results are still insignificant for both of them.[14]

[13]The results of Figure 2.4.2 and Table 2.4.1 do not consider macroprudential variable since the data are only available from 2000 to 2017. This is also the case for other estimation results.

[14]The results that include LTV caps are available upon request for all these estimation results.

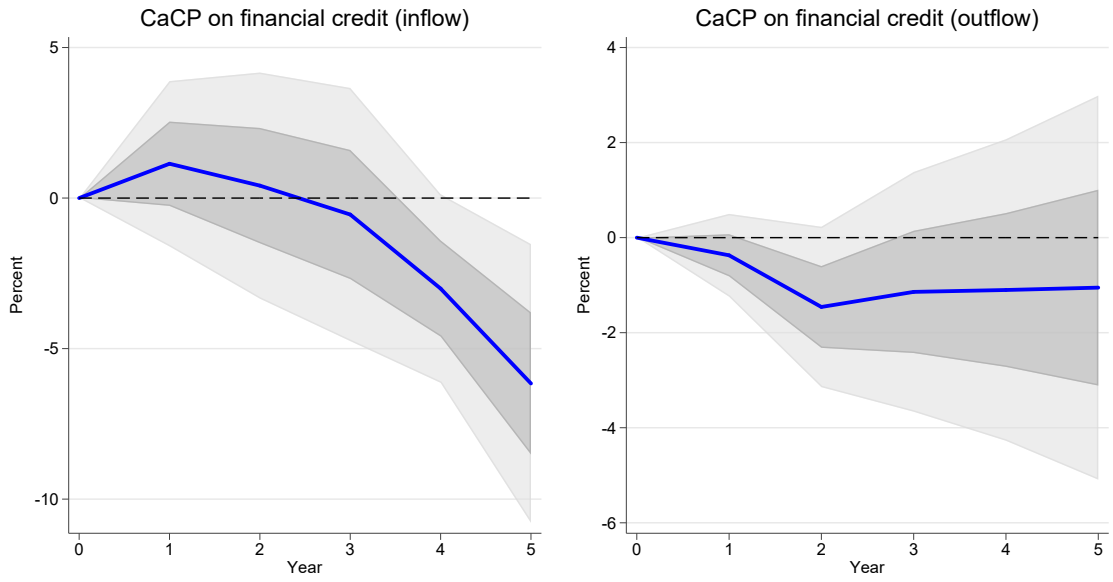
Table 2.4.1: Local projection: Impact of capital controls of direct investment on real housing prices

Dep. Var.: 100 × log (real housing price)					
	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$
CACP. direct investment (inflow)	-0.615	-0.987	-1.056	-1.272	-2.852
	(0.603)	(1.292)	(2.123)	(2.989)	(3.800)
Observations	672	623	574	525	476
CACP. direct investment (outflow)	-0.402	-0.712	-0.828	-0.133	0.524
	(0.669)	(1.368)	(2.351)	(3.297)	(5.360)
Observations	668	619	570	521	472

Notes: Clustered (by country) standard errors in parentheses. Regression equations contain country fixed effects and time fixed effects. Other control variables include real housing price detrended, the growth rate and one lag growth of real housing price, real GDP, CPI, direct investment (inflow or outflow) to GDP ratio, central bank policy rate, bilateral nominal exchange rate, and VIX. *, **, and ***, indicate the significant at 10%, 5%, 1% levels respectively.

2.4.2 The effects of capital control on financial credit

In this section, I change the explanatory variables to capital controls on financial credit inflow ("fci") and outflow ("fco") and then estimate the marginal effects using baseline equation (2.2). The results are presented in Table 2.4.2 and Figure 2.4.3. The left and right panels depict the cumulative response of real housing prices ($\times 100$) to the changing of capital control inflow and outflow index over the following 5 years respectively. The left panel of Figure 2.4.2 shows that the response of real housing prices to the changing of capital control "fci" is higher than zero for the first 2 years, and then crosses the zero line with a negative influence on real housing prices after period 3 and at last is 6.158% lower real housing price at period 5. The marginal effects are significant after a long time adjustment for 4 years. These results are consistent with the findings by Dell'Erba and Reinhardt (2015) and Bruno et al. (2017) who find that banking sector CFMs are effective in decreasing the banking inflows. Thus, the financial credit are prevented from flowing into the domestic housing market, and the housing prices are also depreciated. In section 2.3.2, I have found that capital control on financial credit "fci" also appears endogenous to real housing prices, thus I also provide the results of IPWRA estimator for comparison without describing its mechanism here. The results are presented in Figure A.0.1 in appendix. I find that the negative effects are also significant in long term though



Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing prices over 5 years following the changing in capital control of financial credit inflow and outflow from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure 2.4.3: Local Projection: Impact of capital controls of financial credit on real housing prices

they are weakened and even change to positive for period 2 to 4.

In the right panel, the response of real housing price after capital control on "fco" has a weak negative effects after 1 year, and in the second year, the response reaches the trough at -1.459%. Then the negative effects fade out gradually until period 5. These results are almost imprecisely estimated except period 2 after capital control "fco" is taken. Capital control on "fco" also stems the decreasing of housing prices. Since the financial credit is mainly bank loans, the general effectiveness of capital controls on financial credit is broadly consistent with an interpretation that banking sector is one of the most supervised sectors by government compared to the other asset market participants (Kitano and Zhou, 2022).

As I have done in the last section, I have added central bank policy rate in the baseline model, and then I test that monetary policy is not significantly responding to both capital controls "fci" and "fco". As for macroprudential policy, I also control the LTV caps in the baseline specification and find that the effects of capital control on "fci" and "fco" are both marginally weaker.

Table 2.4.2: Local projection: Impact of capital controls of financial credit on real housing prices

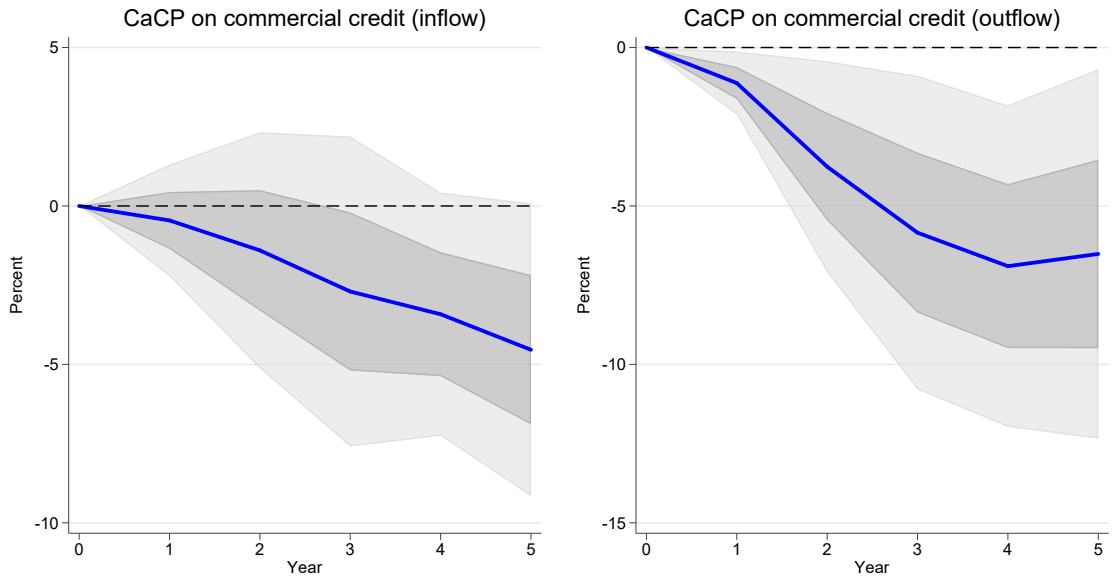
Dep. Var.: 100 × log (real housing price)					
	$h = 1$	$h = 2$	$h = 3$	$h = 4$	$h = 5$
CACP. financial credit (inflow)	1.140	0.414	-0.547	-3.005*	-6.158**
	(1.401)	(1.916)	(2.145)	(1.598)	(2.361)
Observations	543	504	465	426	387
CACP. financial credit (outflow)	-0.372	-1.459*	-1.141	-1.102	-1.052
	(0.444)	(0.861)	(1.286)	(1.618)	(2.061)
Observations	540	501	462	423	384

Notes: Clustered (by country) standard errors in parentheses. Regression equations contain country fixed effects. Other control variables include real housing price detrended, the growth rate and one lag growth of real housing price, real bank credit, real credit to households, real GDP, CPI, other investment (inflow or outflow) to GDP ratio, central bank policy rate, bilateral nominal exchange rate, and VIX. *, **, and ***, indicate the significant at 10%, 5%, 1% levels respectively.

2.4.3 The effects of capital control on commercial credit

In this section, I consider the effect of other type of capital control on credit – commercial credit – on real housing price. Thus, I estimate equation (2.2) using capital control on commercial credit inflow ("cci") and outflow ("cco"). The results are visualized in Figure 2.4.4 and Table 2.4.3. The left panel of Figure 2.4.4 shows that the response of changing to capital control "cci" lowers real housing price in the first year, and then gradually decreases to -3.147% in year 4 and -4.539% in year 5. Similar to the effects of capital control on financial credit ("fci"), the marginal effects of "cci" are also less pronounced in period 1 to 3, but statistically different from 0 after 4 years. As for the right panel of Figure 2.4.4, I find that the response is 1.121% lower real housing price after 1 year, then plummets suddenly to -6.900% after 4 years, and recovers to -6.515% in year 5. The coefficients are significant for all horizons, which means capital control "cco" cannot effectively prevent housing prices from decreasing.

The drop of housing prices could be reasonably explained using the following two reasons. On the one hand, when new policy is implemented, there also exists the likelihood of capital flight which are detrimental to real housing prices. As emphasized by Kitano and Zhou (2022), for capital controls on commercial credit, trade misinvoicing (i.e., under- and over-invoicing exports and imports) is a main



Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing price over 5 years following the changing in capital control of commercial credit inflow and outflow from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure 2.4.4: Local Projection: Impact of capital controls of commercial credit on real housing prices

channel of capital flight for emerging countries. On the other hand, as pointed out by Acosta-Henao et al. (2020), restrictions on outflow may also deter inflows since investors are not willing to invest in countries that restrict their exit. These two effects are in the same directions and superimposed on each other, resulting the significant decline of housing prices.

As for the possibility of monetary policy reacting to capital control actions, I have added central bank policy rate in the baseline model, but I also test the response of central bank policy rate to the capital control actions and find no evidence on policy rates responding to capital control actions. As for macroprudential policy, I also control the LTV caps in the baseline model and the results are consistent with our finding above. The response to capital control on "cci" is weaker in year 1 to 3 but stronger in year 4 and 5, while the response to capital control on "cco" is weaker for all horizons.

Table 2.4.3: Local projection: Impact of capital controls of commercial credit on real housing prices

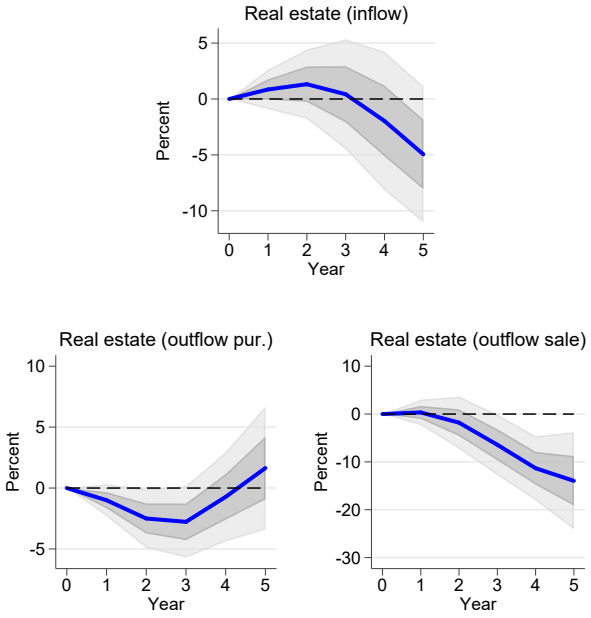
Dep. Var.: 100 × log (real housing price)					
	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$
CACP. commercial credit (inflow)	-0.457	-1.401	-2.699	-3.417*	-4.539*
	(0.898)	(1.901)	(2.496)	(1.957)	(2.357)
Observations	543	504	465	426	387
CACP. commercial credit (outflow)	-1.121**	-3.761**	-5.843**	-6.900**	-6.515**
	(0.509)	(1.697)	(2.525)	(2.589)	(2.975)
Observations	540	501	462	423	384

Notes: Clustered (by country) standard errors in parentheses. Regression equations contain country fixed effects. Other control variables include real housing price detrended, the growth rate and one lag growth of real housing price, real bank credit, real credit to households, real GDP, CPI, other investment (inflow or outflow) to GDP ratio, central bank policy rate, bilateral nominal exchange rate, and VIX. *, **, and ***, indicate the significant at 10%, 5%, 1% levels respectively.

2.4.4 The effects of capital control on real estate transactions

In this section, I estimate the impact on real housing prices using capital control on real estate transactions. As I have discussed in Section 2.3.2, even if indices of capital control on real estate transactions are endogenous to real housing prices, for comparison with other capital control policies in the same pattern, I also consider capital control on "re" here with the loss of preciseness to some extent. Indeed, I will further discuss the endogeneity problem in section 2.6 and use a method to deal with it.

Figure 2.4.5 and Table 2.4.4 depict the response of real housing prices after changing capital control on real estate transactions inflow ("rei") and outflow ("re_pabr" and "re_slbn"). The upper panel shows that the negative response of changing to capital control "rei" is indistinct from the first to third year, but at fourth year, it decreases sharply and then turns to 4.949% lower of real housing prices at period 5. Although the effects of capital control on "rei" are negative, the coefficients cannot be distinguished from 0. The lower-left panel displays the results of capital control on purchase abroad by residents "re_pabr". I find that the response keeps decreasing from year 1 to 3 and then recovers from fourth years and turns to positive after 5 years. Capital control on "re_pabr" prevents residents from investing in abroad housing market. If this policy is effective, the housing prices wound not



Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing price over 5 years following the changing in capital control of real estate transaction inflow (purchase locally by nonresident) and outflow (purchase abroad by resident, and sale locally by nonresident) from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure 2.4.5: Local Projection: Impact of capital control of real estate transactions on real housing prices

decrease. However, the negative effects suggest there may exists capital flight after implementing such policy immediately. Then the negative effects fade out in long-term. It may relates to the facts that investors who have no method to transfer their money abroad illicitly cannot but invest in domestic housing market with lower return. This supports the domestic housing market instead. As for the lower-right panel, the negative response is 6.419% lower of real housing prices in the third year, and drops to -13.960% after 5 years. The coefficients are both statistically and economically significant after 3 years. These results are in line with the finding by Banti and Phylaktis (2019) who also show that restrictions on foreign investors significantly dampen the investment willings (expectations) and thus lower the capital flow into domestic housing market.

As for the possibility of monetary policy reacting to capital control actions, I test the response of central bank policy rate to the capital control actions and find that the coefficients of capital control on "rei" and "re_pabr" are both insignificant,

Table 2.4.4: Local projection: Impact of capital control of real estate transactions on real housing prices

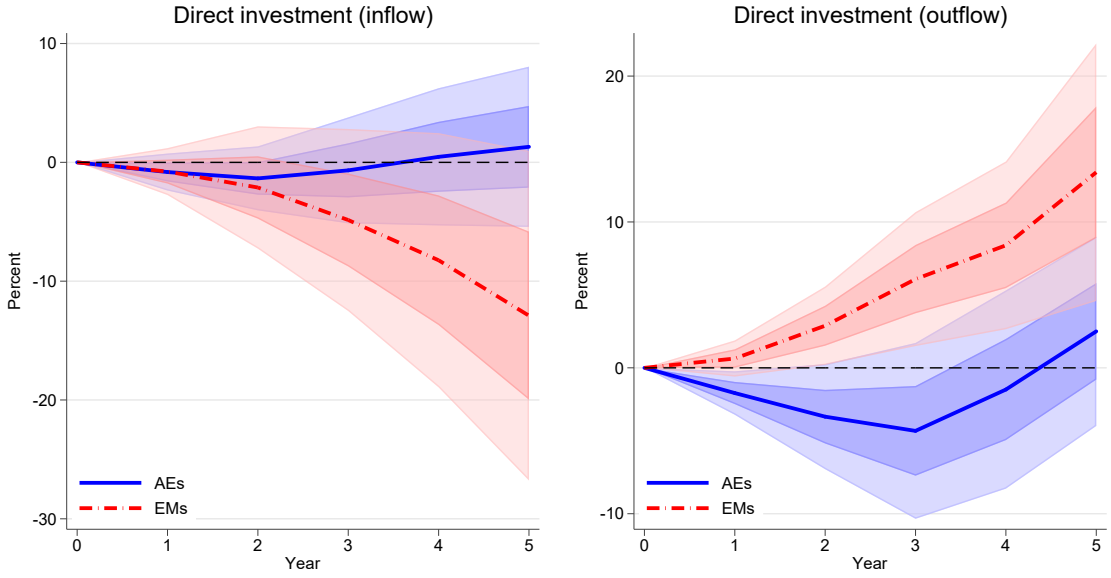
Dep. Var.: 100 × log (real housing price)					
	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$
CACP. real estate (inflow)	0.851	1.321	0.425	-1.965	-4.949
	(0.897)	(1.578)	(2.506)	(3.156)	(3.107)
Observations	667	617	567	517	467
CACP. real estate (out. pur.)	-0.998	-2.499**	-2.774*	-0.726	1.640
	(0.661)	(1.227)	(1.497)	(1.865)	(2.571)
Observations	671	621	571	521	471
CACP. real estate (out. sale.)	0.336	-1.799	-6.419*	-11.325***	-13.960***
	(1.345)	(2.771)	(3.229)	(3.418)	(5.171)
Observations	663	613	563	513	463

Notes: Clustered (by country) standard errors in parentheses. Regression equations contain country fixed effects. Other control variables include real housing price detrended, the growth rate and one lag growth of real housing price, real GDP, CPI, portfolio investment (inflow or outflow) to GDP ratio, other investment (inflow or outflow) to GDP ratio, central bank policy rate, bilateral nominal exchange rate, and VIX. *, **, ***, indicate the significant at 10%, 5%, 1% levels respectively.

whereas the coefficients of "re_slbn" are significant at 5% level. Thus, I add central bank policy rate in the baseline model. As for macroprudential policy, I also control the LTV caps and find that the negative response is weaker for capital controls on "rei", "re_pabr", and "re_slbn".

2.4.5 Emerging markets and Advanced economies

There is a stereotype that most of the EMs still manage their capital account but most of the AEs have welcomed capital account librelization. Nevertheless, threre are also 18 of 42 AEs implementing capital controls episodically (Fernández et al., 2016; Klein, 2012). Indeed, previous literature shows that the effects of capital controls are different for AEs and EMs. Binici et al. (2010) find that capital controls are more effective in AEs than in EMs, and they attribute it to the institutional ability to enforce controls. Beirne and Friedrich (2017) suggest that higher regulatory quality and a higher credit-to-deposit rate increase the effectiveness of macroprudential policies in managing cross-border bank flows. Banti and Phylaktis (2019) find that AEs can use macroprudential policies to shield their housing markets from



Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing prices for Advanced economies and Emerging markets respectively over 5 years following capital control policies implemented on direct investment.

Figure 2.4.6: Local Projection: Impact of capital controls of direct investment on real housing price – comparison of Advanced economies (AEs) and Emerging market (EMs)

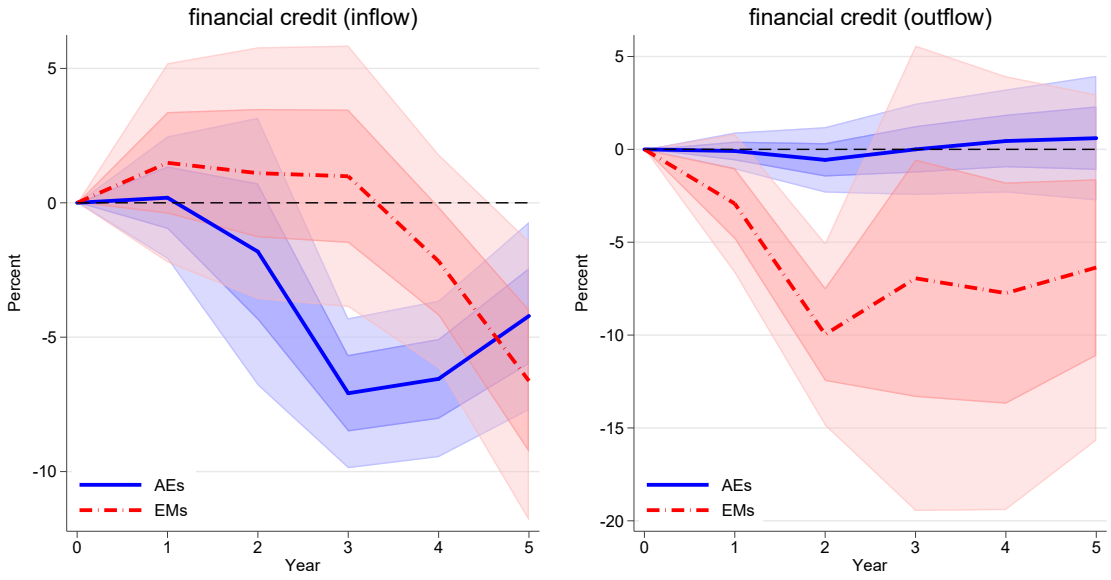
global shocks, but not effective for EMs. However, EMs can adopt foreign currency macroprudential policies and capital controls on real estate transactions to limit the liquidity impact on housing prices. To explore if the impact of capital control on real housing prices depends on the economic development degree, I deal with this issue using the baseline specification with additional AEs or EMs dummy variables. The specification takes the following form:

$$\Delta_h HP_{i,t+h} = \alpha_i^h + \gamma_t^h + \beta_1^h CaCP_{i,t} + \beta_2^h CaCP_{i,t} \times EMD_{i,t} + \sum_{k=0}^{1} \phi_k^h \Delta X_{i,t-k} + \beta_c^h HP_{i,t}^c + \varepsilon_{i,t+h}; \quad h = 1, ..., .5 \quad (2.3)$$

where EMD_{it} is the dummy variables for EMs. Thus, the maginal effects

$$\partial \Delta_h HP_{i,t+h} / \partial CaCP_{i,t} = \beta_1^h + \beta_2^h EMD_{i,t}.$$

The category standard of AEs and EMs is based on "WEO Groups and Aggregates Information" whereby I divide the sample into 31 AEs and 22 EMs.

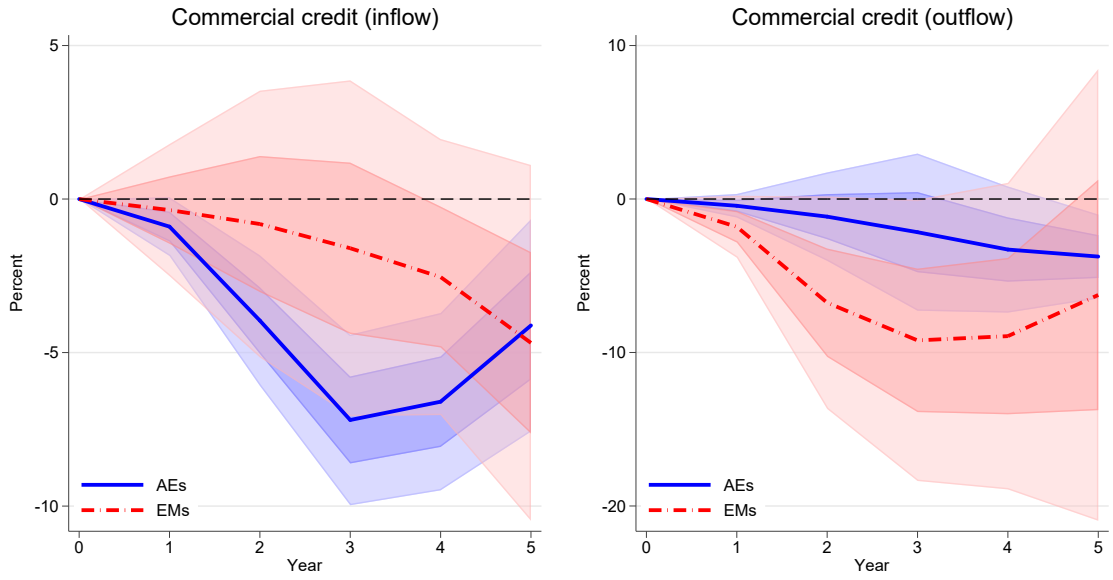


Note: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing prices for Advanced economies and Emerging markets respectively over 5 years following capital control policies implemented on financial credit.

Figure 2.4.7: Local Projection: Impact of capital controls of financial credit on real housing prices – comparison of Advanced economies (AEs) and Emerging market (EMs)

Figure 2.4.6 shows the response of real housing prices to capital controls on direct investment ("di"), where blue solid lines show the result for AEs and red dash lines for EMs. For capital controls on inflows ("dii", left panel), the response of AEs is insignificant at all horizons and thus the negative response to the capital controls on "dii" is exclusively driven by EMs. However, there are fully opposite results for the response on direct investment outflows ("dio", right panel). The results for EMs are positive and significant for most horizons, while for AEs, the effects are negative and only statistically different from zero in first two periods. There are entirely divergence and highly heterogeneous responses for AEs and EMs. These results suggest that capital control on "dio" effectively prevents the slump of housing prices (even raise the housing prices) for EMs, while for AEs, it first decreases real housing prices in short-run and then prevents the slump of housing prices in long-term.

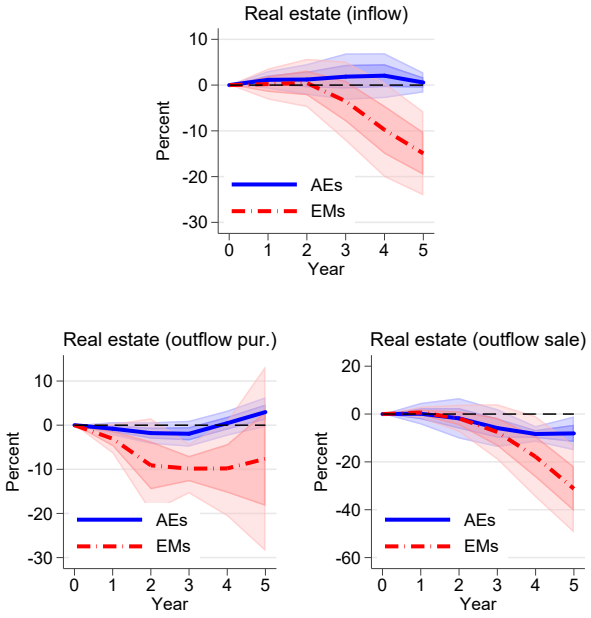
Figure 2.4.7 and 2.4.8 report the results for capital controls on financial credit ("fc") and commercial credit ("cc") respectively. In the left panel of Figure 2.4.7, I find that the negative effects are immediate for AEs and the impacts are persistent in long-term, while the effects for EMs are not statistically different from 0 over



Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing prices for Advanced economies and Emerging markets respectively over 5 years following a capital control policies implemented on commercial credit.

Figure 2.4.8: Local Projection: Impact of capital controls of commercial credit on real housing prices – comparison of Advanced economies (AEs) and Emerging market (EMs)

3 years and only become negative and significant in long-term. As for the right panel of Figure 2.4.7, however, the impacts of capital control on "fco" cannot be distinguished from 0 for AEs. Thus the negative response is nearly driven by EMs in short-term. The shape and trend are similar for capital control on "cc". In the left panel of Figure 2.4.8, we find that the negative effects are significant and persistent for AEs, while the negative effects for EMs are weak and less precisely estimated. As for the right panel, the negative effects are significant for EMs unitl period 4. In period 5, the negative effects are significant for AEs. Thus, for capital control on credit indices, I find that credit inflow restrictions depreciate the housing prices for AEs and credit outflow restrictions dampen the decline of housing prices. These results are in line with the facts that capital control policies are more effective in high-income (and higher regulatory quality) countries documented by Binici et al. (2010), and Beirne and Friedrich (2017). Landi and Schiavone (2021) also find that capital controls on other investment mainly affect inflow in AEs. Taken together, the credit inflow control policy restricts the inflows to AEs and thus decreases the house prices, and the credit outflow control policy prevents the outflows from AEs



Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for Advanced economies and Emerging markets respectively over 5 years following a capital control policy implemented on real estate transaction.

Figure 2.4.9: Local Projection: Impact of capital control of real estate transaction on real housing price – comparison of Advanced economies (AEs) and Emerging market (EMs)

and avoids the slump of housing prices.

As showed in Figure 2.4.9, for three capital control policies on real estate transaction "rei", "re_pabr", and "re_slbn", the negative response of EMs is stronger than AEs, and the effects for AEs are muted and almost insignificant for most horizons. Thus, I believe that "rei" restrict inflows and reduce housing prices for EMs, "re_pabr" and "re_slbn" prevent outflows and the slump of housing prices for AEs.

Overall, capital controls have heterogeneous effects for AEs and EMs on housing prices, respectively. As for EMs, capital controls on "dii" and "rei" can reduce housing prices, and capital controls on "dio" also prevents the slump of housing prices. However, for AEs, capital control on "cci" and "fci" can reduce housing prices, and capital controls on "cco", "fco", "re_pabr", and "re_slbn" can prevent the slump of housing prices.

2.5 Robustness and sensitivity analysis

In addition to the baseline model, I also perform several robustness checks in order to test the validity of the local projection method.

2.5.1 Alternative proxy variables

I substitute for variables in the baseline model using alternative proxies. Specifically, I use Ted spread as an alternative variable for VIX which represents the exogenous global liquidity. Besides, I use short term interest rate as the alternative for central bank policy rate, and real effective exchange rate instead of bilateral nominal exchange rate. The results (available upon request) show that no matter what variables (original variables or alternative variables) I use, the effects of real housing prices are comparable for all capital control indices used in this chapter.

2.5.2 Longer prediction horizons

Inspired by Richter et al. (2019), I investigate whether the results are maintained for a long (10 years) time horizons. The results in Figure A.0.2, A.0.3, A.0.4, and A.0.5 are response of real housing prices to capital control on direct investment ("dii" and "dio"), financial credit ("fci" and "fco"), commercial credit ("cci" and "cco"), and real estate transaction ("rei", "re_pabr", and "re_slbn") extending to 10 years horizon respectively. The results in Figure A.0.2 show that the response of real housing prices keeps insignificant after 5 years for the left panel. For the right panel, even if the response becomes negative from period 6, the impact is also limited. The results in the left panel of Figure A.0.3 show the negative response holds after 5 years, and also holds for the right panel, despite both effects are insignificant. As for Figure A.0.4, the results show a consistent negative response after year 5 to year 9 for the left panel. For the right panel the negative response lasts for 10 years even if the results cannot be distinguished from 0 after 6 years. As for the results in Figure A.0.5, I find that the effects of capital control on "rei" (top) and "re_slbn" (bottom right) are broadly consistent after 5 years. The results of capital control on "re_pabr" (bottom left) become positive after 5 years, and become significant after 7 years. Overall, these results are broadly consistent with those obtained in Section 2.4.1 to 2.4.4 using short prediction horizons of capital control indices.

2.5.3 The sample of capital control indices

Acosta-Henao et al. (2020) identify that capital controls are "sticky" since changes do not occur frequently and even if they are changed, they will keep this new policy for a long time. Thus, the dataset I use contains several economies always restricting or librelizing their capital account for the whole sample horizons. The most representative index is capital control on "re_slbn", for 37 economies always restricting or librelizing this account, only 14 economies usually changing their policy actions.[15] I estimate the baseline specification using these 14 economies only. The results (available upon request) are comparable with the results using full samples.

I also consider the correlation problem among capital control indices. Fernández et al. (2016) find that policymakers usually pair controls across different asset categories or between inflows and outflows. They show that "di" (37%) and "re" (30%) have the lowest correlation between inflow and outflow controls. Besides, there are lowest correlations between "re" and other categories. Nevertheless, I consider the following regression equations (2.4) to (2.6) and estimate the marginal effects for each capital control index:

$$\Delta_h HP_{i,t+h} = \alpha_i^h + \gamma_t^h + \sum_{j=\{dii,cci,fci,rei\}} \beta_j^h CaCP_{i,t}^j + + \sum_{k=0}^{1} \phi_k^h \Delta X_{i,t-k} + \beta_c^h HP_{i,t}^c + \varepsilon_{i,t+h}; \tag{2.4}$$

$$\Delta_h HP_{i,t+h} = \alpha_i^h + \gamma_t^h + \sum_{j=\{dio,cco,fco,re\_pabr,re\_slbn\}} \beta_j^h CaCP_{i,t}^j + \sum_{k=0}^{1} \phi_k^h \Delta X_{i,t-k} + \beta_c^h HP_{i,t}^c + \varepsilon_{i,t+h}; \tag{2.5}$$

$$\Delta_h HP_{i,t+h} = \alpha_i^h + \gamma_t^h + \beta_{in}^h CaCP_{i,t}^{in} + \beta_{out}^h CaCP_{i,t}^{out} + \sum_{k=0}^{1} \phi_k^h \Delta X_{i,t-k} + \beta_c^h HP_{i,t}^c + \varepsilon_{i,t+h}; \tag{2.6}$$

The estimation results (available upon request) show that my findings are robust even I consider inflow and outflow, as well as other capital indices simultaneously.

Following Richter et al. (2019), I also study whether results are not driven by a single country. I choose countries based on Klein (2012) which categorizes country as three types: "Open", "Gate", and "Wall" country. He defines the "Gate country"

[15] The 14 economies are Australia, Austria, Cyprus, Iceland, Korea, Malta, Bulgaria, Chile, Colombia, Morocco, Poland, Romania, Russia, and Thailand.

as a country use capital controls episodically. Thus, I choose the representative "Gate countries" to test if one country can dominate the estimation results. I first eliminate the "Gate countries" one by one from the baseline model and then estimate the results for all capital controls indices.[16] Results (available upon request) show that even if I drop these countries one by one, the estimated results are still consistent to the full samples.

2.5.4 Pre-crisis v.s. Post-crisis

We have known that the macroprudential policies are rarely used before GFC in 2009 (Forbes et al., 2015 and Richter et al., 2019). Thus, I have incentive to test if the effects of capital control policies on real housing prices are also the case. I address this issue by using pre-crisis (blue solid lines) and post-crisis (red dash lines) dummy variables. The results of capital control on direct investment ("di") show in Figure A.0.6. Both for inflow and outflow controls, and both for pre- and post-crisis subsamples, the results show no visible change compared with the baseline model. Thus, there is no significant different between pre- and post-crisis subsample after the capital controls on "di" are implemented.

As for capital controls on financial credit ("fc"), the different responses for pre- and post-crisis are displayed in Figure A.0.7. In the left panel, the response to capital control on "fci" is broadly negative for the pre-crisis subsample. For the right panel, pre- and post-crisis subsamples both dampen the decreasing of housing prices which are very similar to the full sample results. The impacts of capital control on commercial credit ("cc") before and after crisis are depicted in Figure A.0.8. The left panel shows that the negative response is entirely driven by pre-crisis subsample. The right panel shows that both pre- and post-crisis subsamples fail to effectively curb the decline in housing prices, and the negative effects are robust to baseline results.

Figure A.0.9 reports the impact of capital control on real estate transactions ("re") before and after crisis. As for the inflow controls in the top panel, both subsamples are the driving force for the negative result though they are all insignificant. For capital control on "re_pabr" in bottom-left, I find that the post-crisis subsample

[16] The representative "Gate countries" are Argentina, Chile, Cyprus, Czech Republic, Hungary, Iceland, Korea, Romania, and Russia.

can dampen the decrease of housing prices, while pre-crisis sample shows negative effects for housing prices which are consistent with baseline results. As for capital control on "re_slbn" in bottom-right, both subsamples are statistically significant after 3 years which are in line with the baseline estimates.

Abovel all, no matter before or after crisis, the results of capital controls on direct investment ("di") and real estate transaction ("re") are consistent with the baseline model. As for capital controls on financial credit ("fc") and commercial credit ("cc"), the negative effects of inflow controls on real housing prices are mainly driven by pre-2007 subsample. These results are in line with the description of Blanchard et al. (2013) and Ostry et al. (2012) that capital controls have been used several times before crisis.

2.5.5 Boom v.s. Slump

The theoretical literature shows that a countercyclical capital control policy is desirable since it can enhance financial stability (Bianchi, 2011; Korinek, 2018). Thus, in this chapter, I also test if the capital controls on inflow and outflow are implemented in a countercyclical manner. I address this issue by using boom (real GDP above its trend) and slump (real GDP below its trend) dummy variables. The results of capital control on "di" are depicted in Figure A.0.10, where blue solid lines denote the boom periods, and red dash lines are slump periods. Both left and right panel show that the impacts of capital controls are weak and in line with the baseline results. Thus, it is likely that no matter if business cycle is in boom or slump period, "di" inflow restriction has weak and insignificant negative effects and outflow restriction dampens the decrease of housing prices.

I also test the responses in boom and slump subsamples for capital controls on "fc". Results show in the left and right panels of Figure A.0.11 that the negative response is driven by boom periods in long-run for capital controls on "fci", while capital control on "fco" can prevent housing prices from declining for both boom and slump periods. Thus, in boom periods, policymakers have used capital controls prevent the inflow and decrease the real housing prices. The inflow controls are implemented in a countercyclical manner to some extent. In addition, I report the results of capital control on "cc" in Figure A.0.12. The results show that the negative response of real housing prices to capital control on "cci" is entirely driven

by subsample in slump period. Capital control on "cco" cannot deter housing prices from decreasing and its negative response is significantly driven by both boom and slump periods. Thus, there are no evident cyclical properties of capital controls on "fc".

As for the results for capital controls on "re" in Figure A.0.13, we find that no matter what type of subsample we use, the responses are consistent with the results for full sample. In other words, policymakers use capital controls on "re" in the same pattern for both boom and slump periods. Overall, these results are broadly in line with Fernández et al. (2016)'s conclusion that capital controls are remarkably acyclical.

2.6 Endogeneity problem revisiting

As discussed by Richter et al. (2019), policymakers may target financial objectives without stating them explicitly when implement capital control policies.[17] Besides, the decision to implement capital control policy is taken contingent on such countries' economic conditions. In other words, Countries which implement capital control policies are often responding to changes in variables that policies are intended to affects (Forbes et al., 2015). This result would lead to "selection bias" problem which means the randomization can not be achieved. Thus, if capital control on real estate transactions are endogenous to housing prices or other credit variables, the estimation result may be biased.[18]

To address the endogeneity problem, I employ *inverse probability weighted regression adjusted (IPWRA) estimator* developed by Jordà and Taylor (2016). With regard to the selection bias problem, this method can rebalance the sample of "implementing capital control" (treatment group) and "not implementing capital control" (control group) by putting more weight to the capital controls that are implemented

[17] In fact, Fratzscher (2012) shows that capital controls are used to dampen the overheating of domestic economy, in the form of high credit growth. Forbes et al. (2015) emphasize that the purpose of CFM includes reducing specific measure of financial fragility. Pasricha (2022) finds that capital control may be used to underpin financial stability. Thus, even if policymakers do not break down the "financial stability" to dampen housing prices appreciation, the housing prices become an index that may affect the decision of policymakers.

[18] For example, Ostry et al. (2012), Beirne and Friedrich (2017), Landi and Schiavone (2021) show that if countries tend to tighten controls when the volume of capital flows is high, the OLS estimates should be upward biased. Ahmed and Zlate (2014) also show the endogeneity would bias coefficients being positive.

as surprise and allocating lower weight on capital controls that are implemented endogenously. Then, I use local projections to the rebalanced sample and obtain the IPWRA estimators. There are several studies addressing the endogeneity problem using this method, and I study the effects of capital control on real estate transactions to real housing prices and other credit variables.[19]

The IPWRA estimators are calculated in two steps. In the first step, I model the implementing of capital control by estimating a propensity score (or probability) for each observation using a probit model:

$$\hat{P}\left(CaCP_{i,t}=1\right)=\Phi\left(\alpha_i+\hat{\beta}Z^p_{i,t-1}+\hat{\gamma}_1\widetilde{Z}^p_{i,t-1}+\hat{\gamma}_2\widetilde{Z}^p_{i,t-2}\right), \tag{2.7}$$

where $\hat{P}\left(CaCP_{i,t}=1\right)=\hat{p}_{i,t}$ is the predicted capital control probability for countries i at period t. $Z^p_{i,t}$ and $\widetilde{Z}^p_{i,t}$ are both predictor variables which $Z^p_{i,t}$ with as much one lag, and $\widetilde{Z}^p_{i,t}$ with two lags. $\Phi\left(\cdot\right)$ is the cumulative standard normal distribution function. The first step rebalances the sample by giving the weights, namely the inverse propensity scores $1/\hat{p}_{i,t}$ for the treatment group $(CaCP_{i,t}=1)$ and $1/\left(1-\hat{p}_{i,t}\right)$ for control group $(CaCP_{i,t}=0)$. In the second step, I estimate the response of real housing prices and other credit variables using weighted least squares (WLS) given by the inverse propensity scores. The IPWRA baseline regression equation can be written as

$$\Delta_h FA_{i,t+h}=\alpha^h_i+\gamma^h_t+\beta^h CaCP_{i,t}+\sum_{k=0}^{1}\phi^h_k\Delta Z^c_{i,t-k}+\beta^h_c FA^c_{i,t}+\varepsilon_{i,t+h};\quad h=1,...,.5 \tag{2.8}$$

where $FA_{i,t}$ is the financial variables: real housing prices, real bank credit, and real credit to households. $FA^c_{i,t}$ corresponds to the detrended variable. $Z^c_{i,t}$ denotes the control variables. As discussed by Kuvshinov and Zimmermann (2019) and Jordà and Taylor (2016), I use a richer set of predictor Z^p in step 1 than control variables Z^c in step 2. The predictors in step 1 should contain all variables that help forecast the implementing of capital control policies, and the control variables in the second

[19] Jordà and Taylor (2016) analyze the response of macroeconomic aggregates to the fiscal austerity (endogeneity: the trigger of fiscal austerity depends on the macroeconomic condition), Kuvshinov and Zimmermann (2019) document the impact of sovereign default to GDP (the measure of default cost). The occurrence of sovereign default is also endogenous to the macroeconomic condition. Richter et al. (2019) study the effect of macroprudential policy to financial variables. The using of macroprudential policies also depends on the financial cycle.

step should both consider the predictability and the explanatory ability of financial variables.

Then, the average treatment effect (ATE), namely the average difference in potential results of "implementing capital control" and "not implementing capital control" across the sample, can be calculated by:

$$ATE_h\left(CaCP_{i,t}\right) = \frac{1}{n_{cacp=1}} \sum_i \sum_t \frac{\Delta\widehat{FA}_{i,t+h} \cdot CaCP_{i,t}}{\hat{p}_{i,t}} - \frac{1}{n_{cacp=0}} \sum_i \sum_t \frac{\Delta\widehat{FA}_{i,t+h} \cdot (1 - CaCP_{i,t})}{1 - \hat{p}_{i,t}}, \quad (2.9)$$

where $\Delta\widehat{FA}_{i,t+h}$ is the prediction obtained by estimating equation (2.8), and $n_{cacp=1} = \sum_t CaCP_{i,t}$ and $n_{cacp=0} = \sum_t (1 - CaCP_{i,t})$ are the numbers of observations in treatment and control group respectively.

2.6.1 Diagnostic test

Before calculating the IPWRA estimator, I first check the validity of this method. Forbes et al. (2015) show that two tests should be satisfied: the overlap test and balance condition test. Jordà and Taylor (2016) report three diagnostic test (balance condition test, omitted variables test, and predicable test) to assure the existence of endogeneity.

I have done a balance condition test previously in Table 2.3.2 mainly for dependent variables. Here I will extend to control variables. The results are showed in Table 2.6.1 for several macroeconomic control variables used in equation (2.2). The results show that for most of control variables, the null hypotheses are rejected, which means the capital control on real estate transaction "rei", "re_pabr", and "re_plbn" are endogenous to some extent. Then I check if the dependent and control variables can predict the implementation of capital controls. To address this issue, I test if the capital control policies that will be implemented at year $t+1$, can be predicted with dependent and control variables at year t using a pooled probit estimator. I will estimate the response of real housing prices and credit variables in the next section, thus I do this test for different explanatory variables. Table 2.6.2 shows the pooled probit estimator for real housing prices, credit variables and other

Table 2.6.1: Balance condition test: for control variables

	rei	re_pabr	re_slbn
Real GDP detrended	0.00	-0.00	-0.00**
	(0.00)	(0.00)	(0.00)
Real GDP growth	0.01***	0.01***	0.02***
	(0.00)	(0.00)	(0.00)
CPI detrended	-0.00	0.01*	0.01**
	(0.00)	(0.00)	(0.01)
CPI growth	0.02***	0.02***	0.04***
	(0.01)	(0.01)	(0.01)
Real cross border loan growth	0.03**	-0.04***	-0.01
	(0.01)	(0.01)	(0.01)
Real cross border loan to nonbank growth	0.03***	-0.03***	-0.00
	(0.01)	(0.01)	(0.01)
REER growth	0.01**	-0.00	0.00
	(0.00)	(0.00)	(0.01)
Policy rates	1.17**	1.92***	4.34***
	(0.55)	(0.46)	(0.57)
Short-term interest rates	0.31	1.54***	2.85***
	(0.51)	(0.53)	(0.67)
Direct investment (inflow) to GDP ratio	0.03**		
	(0.01)		
Portfolio investment (inflow) to GDP ratio	0.00		
	(0.01)		
Other investment (inflow) to GDP ratio	0.02		
	(0.01)		
VIX	-0.30	0.22	0.29
	(0.36)	(0.37)	(0.46)
Direct investment (outflow) to GDP ratio		-0.02	0.00
		(0.01)	(0.02)
Portfolio investment (outflow) to GDP ratio		-0.05***	0.03***
		(0.01)	(0.01)
Other investment (outflow) to GDP ratio		-0.03***	0.00
		(0.01)	(0.01)
Observations	1218	1216	1193

Notes: Each column describes the mean difference between treatment and control group. Standard errors are in parentheses. *, **, *** indicate significant at 10%, 5%, 1% levels respectively.

Table 2.6.2: Pooled probit estimation of credit variables: prediction of capital control variables

	rei	re_pabr	re_slbn
Real housing price	0.698***	0.455***	0.156***
	(0.088)	(0.088)	(0.054)
Real bank credit	-0.117**	0.178***	0.075***
	(0.053)	(0.049)	(0.028)
Real credit to households	0.071	-0.194***	-0.062**
	(0.054)	(0.049)	(0.028)
Real GDP detrended	-4.888***	-1.349	-0.916
	(1.029)	(0.969)	(0.582)
Real GDP growth	5.033***	2.873***	2.288***
	(0.809)	(0.723)	(0.434)
CPI detrended	-1.454	1.001	0.090
	(1.190)	(0.988)	(0.470)
CPI growth	1.946	-0.403	0.703
	(1.218)	(1.091)	(0.598)
Real cross border loan growth	0.026	0.063	-0.240**
	(0.190)	(0.172)	(0.108)
Real cross border loan to nonbank growth	0.134	-0.113	0.263***
	(0.170)	(0.153)	(0.102)
REER growth	0.075	-0.616*	-0.000
	(0.372)	(0.332)	(0.184)
Policy rates	0.012	0.006	0.001
	(0.009)	(0.008)	(0.004)
Direct investment (inflow) to GDP ratio	-0.481**		
	(0.226)		
Portfolio investment (inflow) to GDP ratio	0.001		
	(0.217)		
Other investment (inflow) to GDP ratio	-0.030		
	(0.160)		
VIX	0.004	0.002	0.004**
	(0.003)	(0.003)	(0.002)
Direct investment (outflow) to GDP ratio		-0.223	-0.420*
		(0.242)	(0.225)
Portfolio investment (outflow) to GDP ratio		-0.952***	-0.065
		(0.349)	(0.148)
Other investment (outflow) to GDP ratio		-0.262	0.225*
		(0.194)	(0.135)
Observations	619	619	610
Model AUC	0.728	0.713	0.874
s.e.	0.0194	0.0212	0.0254

Notes: The first row denotes the probit model of capital control treatment variables "rei", "re_pabr", and "re_slbn" at $t+1$ period respectively. The first column is the predictive variables used in these regressions. Standard errors are in parentheses. *, **, *** indicate significant at 10%, 5%, 1% levels respectively.

predicting variables. In the second row, I find that the coefficients of real housing prices are positive and statistically different from zero for all three types of capital control indices. These results mean that policymakers appear to implement capital control on real estate transactions when real housing prices increases.

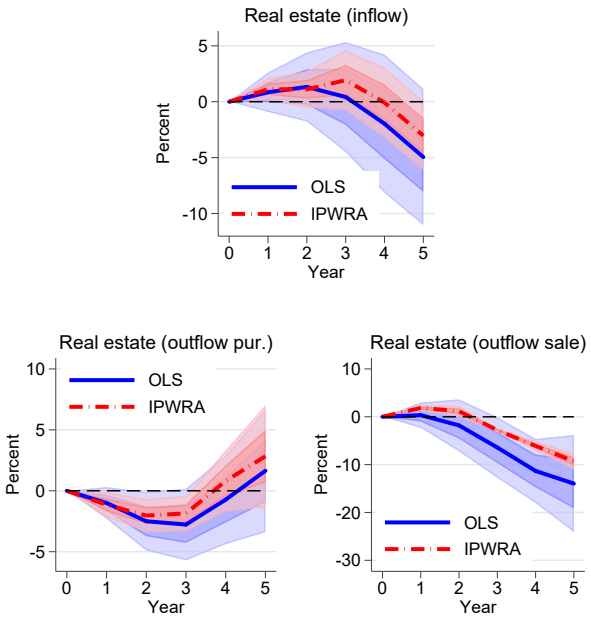
Besides, I find that when real bank credit is high, there is also an increase in the probability of implementing capital control on outflow "re_pabr" and "re_slbn", while the likelihood of implementing capital control on inflow decreases. These counter-intuitive results also happen to real credit to households, where the increase in real bank credit to households can reduce the likelihood of implementing capital control on outflow "re_pabr" and "re_slbn". Compared with housing prices, the prediction effects of credit are economically weaker. These may attribute to the fact that credit variables are not perfect substitution for the housing demand. Nevertheless, I find that real GDP growth is also the significant predictor for all three types of capital controls.

Following Jordà and Taylor (2016), Richter et al. (2019), and Kuvshinov and Zimmermann (2019), I further confirm the predictive ability using AUC statistic. In other words, this statistic measures whether such probit model can correctly categorize observations into "restriction" or "no restriction". When AUC is equal to 0.5, it means this model has no classification ability. If AUC is equal to 1, it means a perfect classification. In Table 2.6.2, all AUCs are larger than 0.71, even 0.87 for "re_slbn". Thus, these AUCs are all significantly larger than 0.5.

I also provide the overlap test and the results are depicted in Figure A.0.14. The dependent variables for the probit model are the forward variable of capital controls on "rei", "re_pabr", and "re_slbn". This test provides the empirical kernel density functions of predicted probabilities calculated by probit model of propensity score and then compares the propensity score. The red dash lines show the estimated probability of implementing capital control and the blue solid lines denote no such restriction. As explained by Jordà and Taylor (2016), the ideal empirical distribution of propensity score should be uniform and identical for treatment and control groups. In addition, they admit that the distribution of treatment should peak at 1 and be zero elsewhere, while for control group, the distribution should peak at 0 and be zero elsewhere. The results in sub-figures in Figure A.0.14 are consistent with these features and show substantial region of overlaps. Thus I believe that the inverse

propensity score method identifies successfully the ATE of capital control policies.

2.6.2 The effects on housing price



Notes: Y-axes denotes 100×log (real housing price). The explanatory variables for sub-figure are "rei", "re_pabr", "re_slbn", respectively. The blue and red lines denote the coefficients of cumulative response of real housing price estimated by OLS and IPWRA local projection respectively over 5 years.

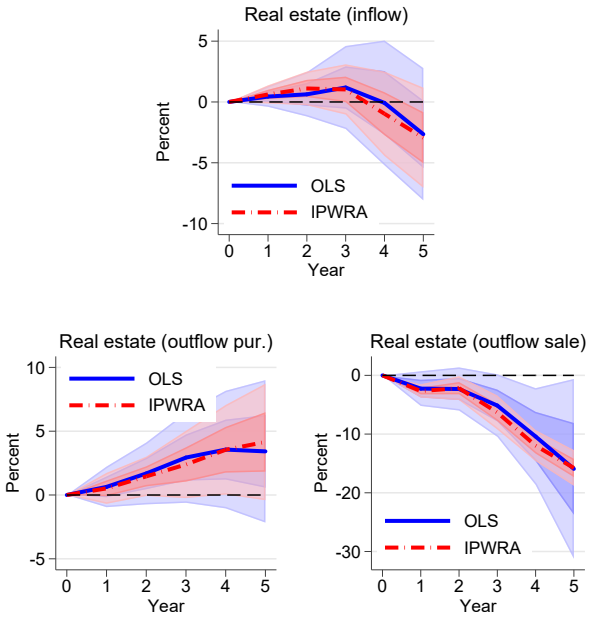
Figure 2.6.1: Local Projection: Impact of capital control of real estate transactions on real housing prices by IPWRA estimation

In this section, I will further study the response of real housing prices to capital control on real estate transactions using IPWRA estimators. Figure 2.6.1 presents the results of IPWRA estimators and I also report the OLS results for comparison. I find that the negative effects for all capital control policy variables are weakened after using IPWRA estimators and the significance is still maintained. For example, the negative response of capital control on "rei" is -4.949% after five years for conditional OLS, while for IPWRA estimators, the negative response changes to -4.090% of real housing prices, roughly four fifth the size of the conditional OLS. Besides, I find that the attenuation effects of the IPWRA estimators are stronger in long-term, since the gaps between conditional OLS and IPWRA estimators are widening as period goes by. Consistent with Kuvshinov and Zimmermann (2019), I can attribute much of

the long-term real housing prices variation to endogenous factors. In addition, the confidence bands of IPWRA estimates are narrower than OLS results, especially for capital control on "re_slbn" which presents less uncertainty.

2.6.3 The effects on credit variables

In addition to the impact of capital controls on real housing prices, I also analyze the impact of these policies on credit variables (bank credit and credit to households) since the credit variables can be used to measure the housing demand. Figure 2.6.2 presents the results for real bank credit. The response to capital control on

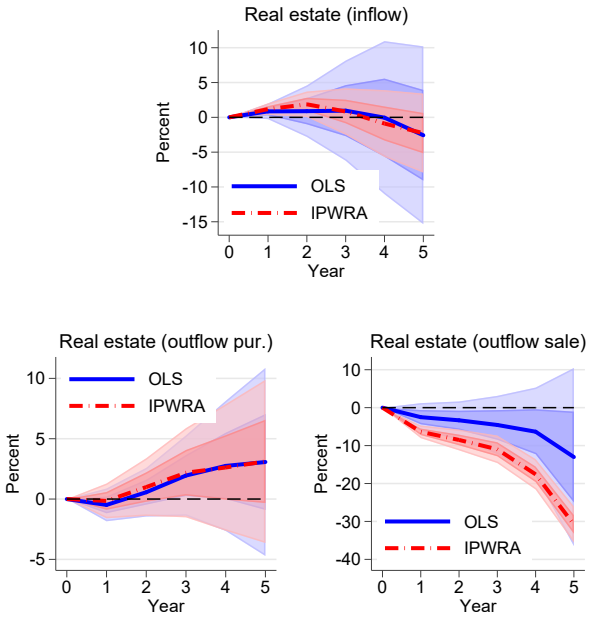


Notes: Y-axes denotes 100×log (real bank credit). The explanatory variables for sub-figure are "rei", "re_pabr", "re_slbn", respectively. The blue and red lines denote the coefficients of cumulative response of real bank credit to non-financial sector estimated by OLS and IPWRA local projection respectively over 5 years.

Figure 2.6.2: Local Projection: Impact of capital control of real estate transactions on real bank credit to non-financial sector by IPWRA estimation

real estate transaction "rei" seems to be indistinct after implemented for 2 years, but after 3 years, the negative response starts to be obvious, though the effects are insignificant. Besides, the negative effects of IPWRA estimator are marginally stronger than OLS one for almost all horizons, and the IPWRA results also have narrower confidence bands.

The response to capital control on real estate outflow "re_pabr" is positive immediately after implemented and keeps positive over all horizons. The coefficients of IPWRA are lower than OLS results and also statistically distinguished from 0. The response is different from the one for real housing prices (see Figure 2.6.1) that the response of real housing prices decreases initially and then changes to positive after 4 years. This may relate to the fact that preventing the domestic investors from investing in foreign housing market makes them have no choice but invest in the local housing market. The rising of credit predicts the future increasing of real housing prices. As for capital control on real estate outflow "re_slbn", the negative effects of real bank credit are strong both for OLS and IPWRA estimators, and IPWRA results have stronger effects than OLS. In addition, the confidence bands are narrower for IPWRA, resulting the significant coefficients for all periods.



Note: Y-axes denotes 100×log (real credit to households). The explanatory variables for subfigure are "rei", "re_pabr", "re_slbn", respectively. The blue and red lines denote the coefficients of cumulative response of real credit to households and NPISHs estimated by OLS and IPWRA local projection respectively over 5 years.

Figure 2.6.3: Local Projection: Impact of capital control of real estate transactions on real credit to households and NPISHs by IPWRA estimation

Similarly, the results for real credit to households are reported in Figure 2.6.3. Compared with the results for real bank credit, I find that the response to capital control on real estate inflow "rei" is indistinct and insignificant for all periods and for

both estimators. The response to capital control on real estate outflow "re_pabr" is similar to the response of real bank credit (see Figure 2.6.2, lower left), while the response is indistinct over all periods and both estimators are insignificant. The response to capital control on real estate outflow "re_slbn" shows negative effects for OLS estimators but the coefficients are not significant. After I rebalance the sample by IPWRA method, the negative response is significant and larger than its OLS counterpart.

2.7 Conclusion

In this chapter, I study the effects of capital control polices on real housing prices. My analysis complements the existing literature by using a more granular index of capital control dataset compiled by Fernández et al. (2016) that allow me to study whether capital controls on specific asset types and flow directions are effective in decreasing or dampening the decrease of real housing prices. For this purpose, I estimate the marginal effects of four types of inflow and outflow capital control indices (including restrictions for direct investment "di", financial credit "fc", commercial credit "cc", and real estate transaction "re") on real housing prices respectively using a large cross-country panel of 53 economies from 1995 to 2017. The model is estimated using a more "misspecification robust" local projection method and I also check the endogeneity of Fernández et al. (2016)'s dataset using econometric method.

Results show that most capital control indices I analyzed in this chapter appear to reduce real housing prices even if some of them tend to be insignificant and marginal. Besides, I find that capital controls have asymmetric effects on housing prices for AEs and EMs. After employing a series of robustness test, results show that the negative effects of capital controls on housing prices are mainly driven by pre-crisis subsample, which means the capital controls have been used several times before GFC. I also estimate the effects for boom and slump periods respectively and find that capital control policies are implemented in an acyclical way.

There exists endogenous problem in capital controls on real estate transaction "re", and I address this issue using IPWRA estimator because such method can achieve the random allocation of capital control treatment. I find that the negative

response for all capital controls on "re" are weakened after using IPWRA estimators. The attenuation effects of the IPWRA estimators are stronger in the long-term and thus can be attributed much of the long-term real housing prices variation to endogenous factors. Then, I also estimate the response of credit variables to capital control on real estate transactions "re" to study the effects on housing demand. I find that the results of credit to households are similar to bank credit. The effects of capital control on real estate inflow "rei" and outflow "re_slbn" can reduce the volume of both credits, but the effects of "rei" are relatively insignificant. However, the response to "re_pabr" is positive for all horizons. This may relate to the fact that preventing the domestic investors from investing in foreign housing market makes them have no choice but invest in the local housing market.

Chapter 3

Effects of China's capital controls on individual asset categories

3.1 Introduction

After the 2008 global financial crisis, emerging economies struggled with unprecedented capital inflows due to the unconventional monetary policies of advanced countries. In response to massive capital inflows, some emerging economies (e.g., Brazil, Indonesia, Taiwan, and Thailand) have deployed capital controls. More policymakers and researchers, including the IMF, have begun to recognize that capital controls can be an appropriate policy tool under certain circumstances, despite the primary principle of financial liberalization. This background stimulates research to analyze the effectiveness of capital controls.[1] However, the literature using cross-country data provides mixed results. While some studies suggest that capital controls affect capital inflows (e.g., Ostry et al., 2012; Ahmed and Zlate, 2014; Landi and Schiavone, 2021), other empirical studies suggest limited effectiveness of capital controls on capital inflows (e.g., Forbes and Warnock, 2012; Forbes et al., 2015; Frost et al., 2020).[2]

Regarding capital controls specific to China, most previous studies examined the effectiveness of capital controls by evaluating if covered interest parity (CIP) holds or not (e.g., Ma and McCauley, 2008; Cappiello and Ferrucci, 2008; Otani

[1] Regarding theoretical studies, many of them suggest that capital controls are a potentially useful policy tool. See, for example, the literature review in Kitano and Takaku (2018) and Kitano and Takaku (2020).

[2] Regarding the literature on capital outflows, see for example Gkillas et al. (2016).

et al., 2011; Cheung and Herrala, 2014).[3][4] Although the approach using the CIP is useful for testing the effectiveness of capital controls as a whole, it is not useful for examining the specific effectiveness of implementing capital controls on individual asset categories. The CIP approach may have another problem because it is a *de facto* measurement of capital controls. As Quinn et al. (2011) argue, *de facto* measures are not perfectly related to a government's policy stance.

In this study, we use the dataset of Chen and Qian (2016), which quantifies the intensity of the changes in China's capital controls in various asset categories. Using the *de jure* measurement of capital controls, we analyze the effectiveness of capital controls on individual asset categories. To the best of our knowledge, this is the first study to distinguish individual asset categories and examine how corresponding capital controls affect capital flows in China. In addition, we use a smooth local projection (SLP) estimation methodology proposed by Barnichon and Brownlees (2019) to estimate the marginal effect of capital control policy actions.[5] This method inherits the characteristics of robustness to the misspecification of local projection (LP) by Jordà (2005) and also addresses the large variability problem of the LP estimator by using B-spline smoothing.

We find that there exist stark differences among individual asset categories. Our results indicate a significant influence of capital controls on net inflows in some asset categories (equity and financial credits) but not in the other asset categories (bonds, commercial credits, and direct investment).

3.2 Data

We use index data constructed by Chen and Qian (2016) to measure the changes in China's capital controls. Compared to the other capital-control indices (e.g., Chinn and Ito, 2006; Schindler, 2009; Quinn et al., 2011; Klein, 2012; Fernández et al., 2016), Chen and Qian (2016)'s index indicates more frequent changes in China's

[3]In economies with open capital account and efficient financial markets, the CIP should hold so that the difference between forward rate and spot rate is equal to the interest rate differential between home and foreign currencies. If there are deviations from the CIP, it implies that there may be arbitrage opportunities due to capital controls.

[4]An exception is Fu and Cao (2020) that examined the effect of capital controls on trade by using *de jure* data from Fernández et al. (2016).

[5]More recent studies employ this method (e.g., Franta and Gambacorta, 2020; Funashima, 2021).

capital controls. Chen and Qian (2016)'s dataset properly captures the variation in China's capital controls by extracting detailed information from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and some supplementary material from other sources. They add 1 if capital control tightens and subtract 1 if it loosens. Their dataset covers 1999–2018.[6] We use the subcategories of equities (eq), bonds (bo), commercial credits (cc), financial credits (fc), and direct investment (di). More specifically, "eq," "bo," "cc," "fc," and "di" indicate controls on shares or other securities of a participating nature, bonds or other debt securities, commercial credits (trade credits), financial credits (mainly bank loans), and direct investment, respectively.[7]

For the subcategories of "eq" and "bo", there exist four types of controls that affect corresponding net inflows.[8] As for transactions by nonresidents, "eq_plbn" signifies controls on "purchase locally by nonresidents", which implies that an increase in "eq_plbn" is expected to reduce net inflow of equity. In contrast, "eq_silbn" signifies controls on "sale or issue locally by nonresidents", which implies that an increase in "eq_silbn" is expected to increase net inflow of equity. As for transactions by residents, "eq_pabr" signifies controls on "purchase abroad by residents," which implies that an increase in "eq_pabr" is expected to increase net inflow of equity. In contrast, "eq_siabr" signifies controls on "sale or issue abroad by residents," which implies that an increase in "eq_siabr" is expected to reduce net inflow of equity. In terms of bonds, "bo_plbn", "bo_silbn", "bo_pabr", and "bo_siabr" correspond to "eq_plbn", "eq_silbn", "eq_pabr", and "eq_siabr", respectively. Therefore, "bo_plbn", "bo_silbn", "bo_pabr", and "bo_siabr" are expected to affect net inflow of bonds in a similar way as "eq_plbn", "eq_silbn", "eq_pabr", and "eq_siabr" affect net inflow of equity.

For the subcategory of commercial credits ("cc"), "cci" signifies controls on transactions by nonresidents, which implies that an increase in "cci" is expected to reduce net inflow of commercial credits. In contrast, "cco" signifies controls on transactions by residents, which implies that an increase in "cco" is expected to increase net inflow of commercial credits. Similarly, "fci" and "fco" signify controls on transactions

[6] Their original coverage was from 1999 to 2012. They updated the data to 2018, which are available on their websites.

[7] We converted the original monthly data of Chen and Qian (2016) into quarterly data.

[8] Net inflows are defined as net purchases locally by nonresidents minus net purchases abroad by residents.

	nonresidents		residents	
eq	eq_plbn	−	eq_pabr	+
	eq_silbn	+	eq_siabr	−
bo	bo_plbn	−	bo_pabr	+
	bo_silbn	+	bo_siabr	−
cc	cci	−	cco	+
fc	fci	−	fco	+
di	dii	−	dio	+

Table 3.2.1: Expected signs for impulse responses of capital controls on net inflows

for financial credits, and "dii" and "dio" signify controls on transactions for direct investment.

Table 3.2.1 summarizes the expected signs for the impulse responses of an increase in capital control indices on net inflows in the individual asset categories, which is implied by the above argument. We will use Table 3.2.1 to check if the empirical results are in line with our expectation in Section 3.3.

We obtain the corresponding quarterly flow data of liabilities and assets from the CEIC database, and calculate the net inflows corresponding to "eq," "bo," "cc," "fc," and "di."[9] We use China's central bank policy rate (in real terms), US central bank policy rate (in real terms), China's (real) GDP growth rate, CPI inflation rate, and growth rate of real effective exchange rate as control variables in Section 3.3. We obtain real values by deflating nominal values with CPI inflation. The US central bank policy rate and CPI are taken from the IMF database. The China's GDP and CPI are taken from the China Time Series by Chang et al. (2016). The China's central bank policy and effective exchange rates are taken from the BIS database. All the data used in our analysis are quarterly. The sample periods are from 1999:Q2 to 2018:Q4.

[9]More specifically, we use "equity," "debt securities," "trade credit," "loan," and "direct investment" in CEIC China data. The original source of the CEIC China data is the Balance of Payments Department of the State Administration of Foreign Exchange.

3.3 Empirical specification

We study the path of each type of net inflows conditional on the implementation of corresponding capital controls and macroeconomic control variables. In this context, we consider the following set of h-periods ahead of predictive regressions:

$$NIF_{t+h} = \alpha^h + \beta^h CC_t + \sum_{i=0}^{p} \gamma_i^h \boldsymbol{w}_{t-i} + u_{t+h}^h, \tag{3.1}$$

where $h = 1, \cdots, 12$ and $p = 4$. The term NIF_{t+h} denotes the h-periods ahead conditional forecast of net inflow to GDP ratio, which is the response variable of interest. The term CC_t represents the corresponding index of capital controls. For example, when NIF is the net inflow of equity, CC denotes the four types of capital controls on equity ("eq_plbn", "eq_silbn", "eq_pabr", and "eq_siabr"). The term CC_t is defined such that policy-tightening is associated with an increase in CC_t. Therefore, β^h denotes the marginal effects of tightening capital controls on the net inflow to GDP ratio h periods ahead. The 6×1 vector $\boldsymbol{w}_{t-i}$ contains control variables: the current and lag values of net inflow to GDP ratio, the US's central bank policy rate (in real terms), China's central bank policy rate (in real terms), China's (real) GDP growth rate, China's CPI inflation rate, and China's growth rate of real effective exchange rate with i-period lags.[10] The maximum lag period p is set to 4 quarters. The term u_{t+h}^h denotes the prediction error where var $\left(u_{t+h}^h\right) = \sigma_h^2$.

We estimate the marginal effect of capital controls using smooth local projections, a method proposed by Barnichon and Brownlees (2019) that extends the local projections of Jordà (2005). Local projection estimators tend to suffer from large variability. Smooth local projections based on B-spline smoothing provide smoother impulse responses, balancing the trade-off between estimator variability and bias.[11]

3.4 Results

Figure 3.4.1 displays impulse responses of equity net inflow to tightening related control indices. The shaded area presents a 90% confidence interval. Comparing

[10] Olea et al. (2021) show that lag-augmented local projections with normal critical values are asymptotically valid uniformly over both statinary and non-statinary data.

[11] Following Barnichon and Brownlees (2019), we choose a smoothing parameter via cross-validation.

the impulse responses in Figure 3.4.1 to their corresponding signs in Table 3.2.1, you see that the impulse responses to tightening "eq_plbn", "eq_silbn", "eq_pabr", and "eq_siabr" are in expected directions. Tightening "eq_plbn" reduces equity net inflow to GDP ratio by 0.05 % in the sixth quarter. Tightening "eq_silbn" increases equity net inflow to GDP ratio by 0.07% in the first quarter. Tightening "eq_pabr" increases equity net inflow to GDP ratio by 0.04 % in the fourth quarter. Tightening "eq_siabr" reduces equity net inflow to GDP ratio by 0.08 % in the first quarter. In summary, our analysis finds that capital controls related to equities are effective in controlling the volume of equity flows in China.

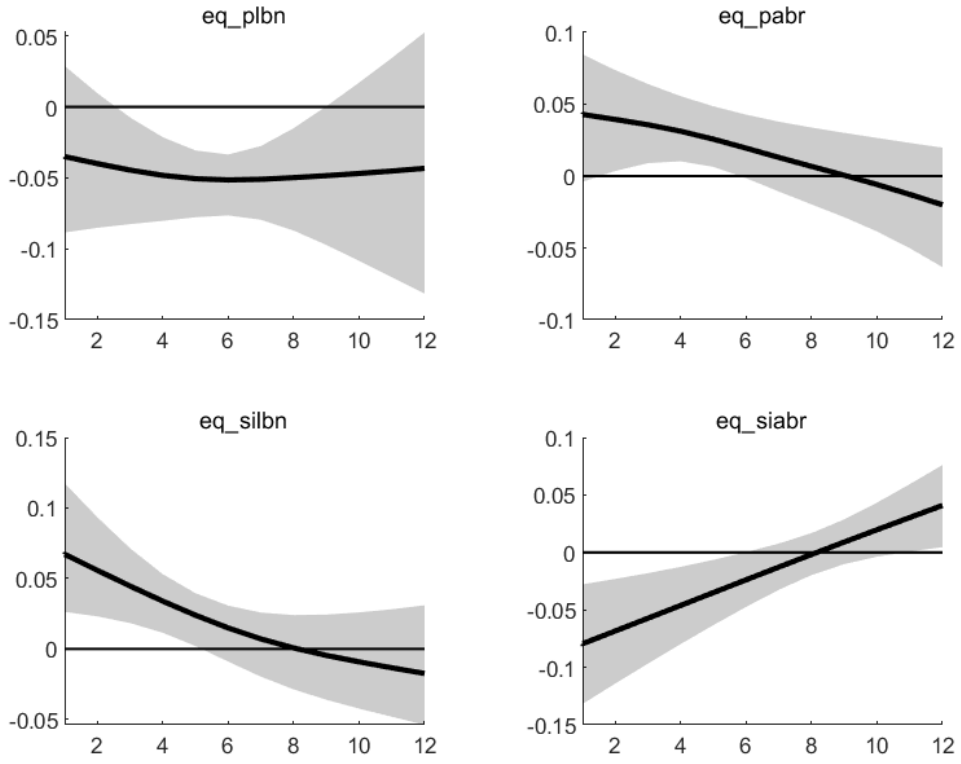


Figure 3.4.1: Responses of equity net inflow to tightening equity capital controls. Note: The y-axis indicates the change in GDP ratio (%). The shaded area denotes a 90% confidence interval.

Figure 3.4.2 displays impulse responses of bond net inflow to tightening related control indices. Comparing the impulse responses in Figure 3.4.2 to their corresponding signs in Table 3.2.1, you see that the results are ambiguous. The panel of

"bo_plbn" shows that tightening "bo_plbn" reduces bond net inflow in the expected direction, but slightly only in the first quarter. The panel of "bo_silbn" shows that changing "bo_silbn" does not affect bond net inflow significantly. The panel of "bo_pabr" shows that tightening "bo_pabr" affects bond outflows after the tenth quarter, but in the opposite direction to the expected. The panel of "bo_siabr" shows a mixed result: until the eighth quarter, the response is in the opposite direction to expected, but after the tenth quarter, it is in the expected direction. To summarize on bond markets, we cannot find evidence that capital controls related to bond markets are effective in controlling bond flows in China.

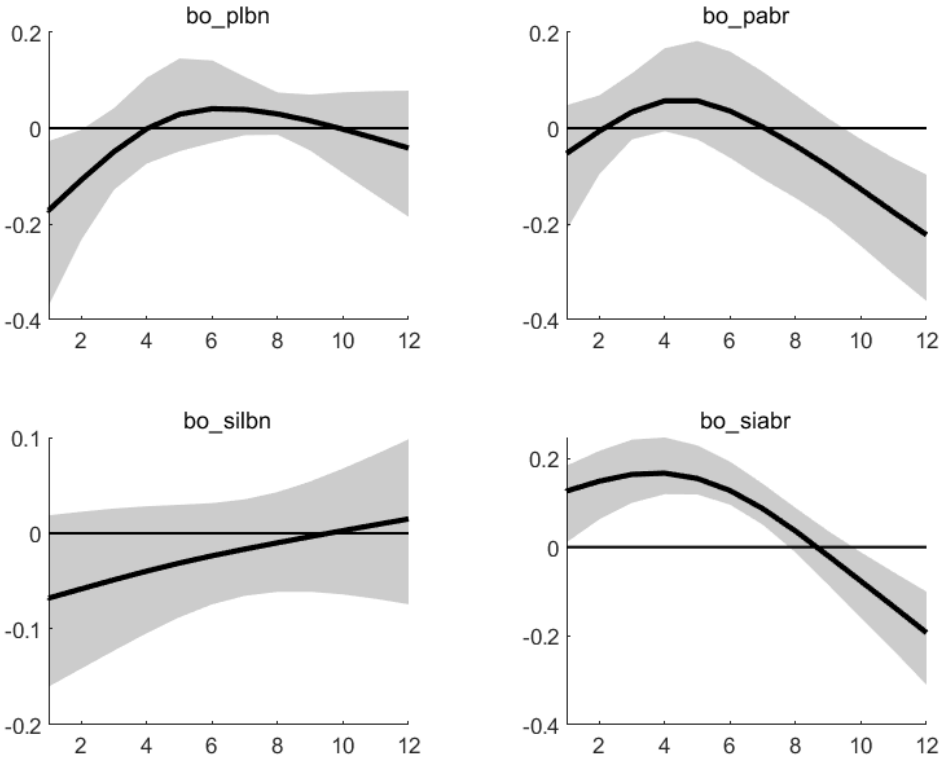


Figure 3.4.2: Responses of bond net inflow to tightening bond capital controls. Note: The y-axis indicates the change in GDP ratio (%). The shaded area denotes a 90% confidence interval.

Figure 3.4.3 displays impulse responses of commercial-credit, financial-credit, and direct-investment flows to tightening the related control indices. The upper panels of Figure 3.4.3 show that neither "cci" nor "cco" influence commercial-credit

net inflows. The middle panels of Figure 3.4.3 show that the impulse responses of "fci" and "fco" are in the expected directions (shown in Table 3.2.1). Tightening "fci" reduces financial-credit net inflows to GDP ratio by 0.47% in the sixth quarter.[12] Tightening "fco" increases financial-credit net inflows to GDP ratio by 0.28% in the first quarter. The left lower panel of Figure 3.4.3 shows a mixed result. Until the third quarter, the response of direct-investment net inflows to "dii" is in the expected direction, but in the period from the sixth to eleventh quarters the direction of response is opposite to expected. The lower right panel of Figure 3.4.3 shows that "dio" does not influence direct-investment net inflows. To summarize on these three assets, capital controls on financial credit are effective in controlling the financial credit flows in China. However, we cannot find any evidence that capital controls related to commercial credit and direct investment are effective in controlling the corresponding flows.

[12] As for "fci," the impulse response by local projections is displayed rather than the smoothed one, since the former is more evident than the latter.

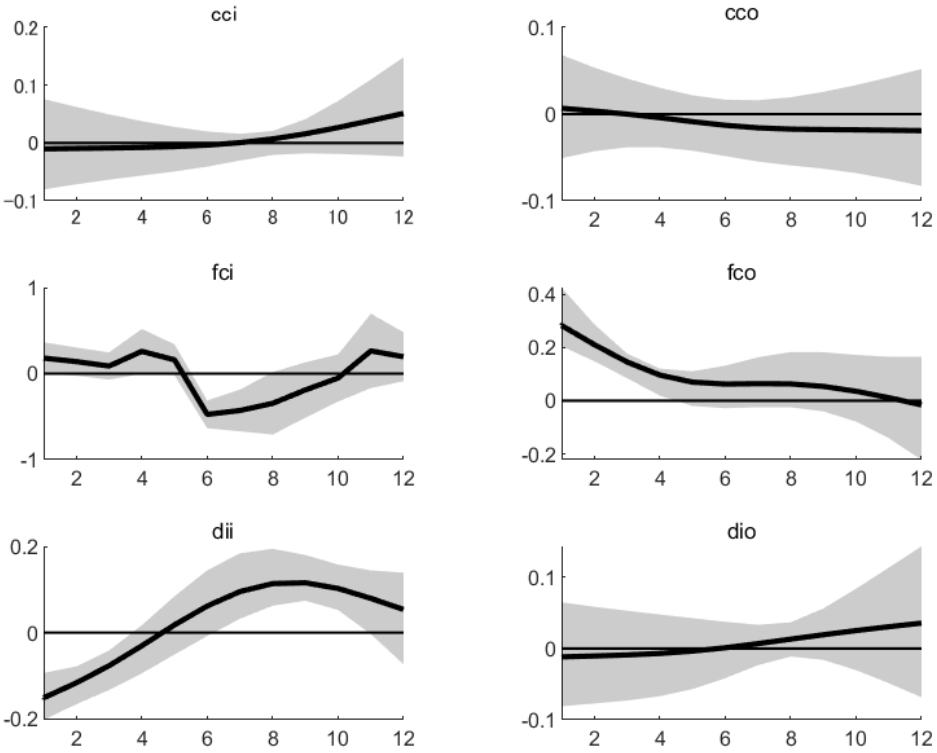


Figure 3.4.3: Responses of commercial-credit, financial-credit, and direct-investment net inflows to tightening corresponding controls. Note: The y-axis indicates the change in GDP ratio (%). The shaded area denotes a 90% confidence interval.

3.5 Conclusions

Using the elaborate dataset of Chen and Qian (2016) and the local projection method, we explored the impact of capital controls on corresponding flows in individual asset categories in China. To the best of our knowledge, this study is the first to distinguish individual asset categories and examine how changes in corresponding capital controls affect net inflows of individual asset categories in China. Our results reveal stark differences among the individual asset categories. Capital controls on equity (shares or other securities of a participating nature) and financial credits (mainly bank loans) affect the corresponding capital net inflows, whereas those on the other asset categories (bonds, commercial credits, and direct investment) do not.

Although this is beyond the scope of this study, further analysis is needed to explain the stark differences among individual asset markets. Some preliminary inferences are still possible. The government can control financial credits (mainly bank loans) more effectively, potentially because the banking sector is one of the most regulated sectors and the government can supervise banks more directly compared to the other asset market players. In contrast, it is widely perceived that trade misinvoicing (i.e., under- and over-invoicing exports and imports) is a main channel of capital flight in China (Cheung and Qian, 2010; Cheung et al., 2016). The prevalence of capital flight through trade misinvoicing in China is consistent with our result that capital controls on commercial credits (trade credits) are ineffective. From this perspective, further analysis on individual asset categories in connection with capital flight would be fruitful. This should be examined in future research.

It would be interesting to separate the sample period into two intervals (e.g., before and after the global financial crisis) and examine whether the effectiveness of capital controls differs between them. Although it is beyond the scope of this study due to the small sample size problem, it would be possible if we extend this study to cross-country analysis. We leave this for future research.

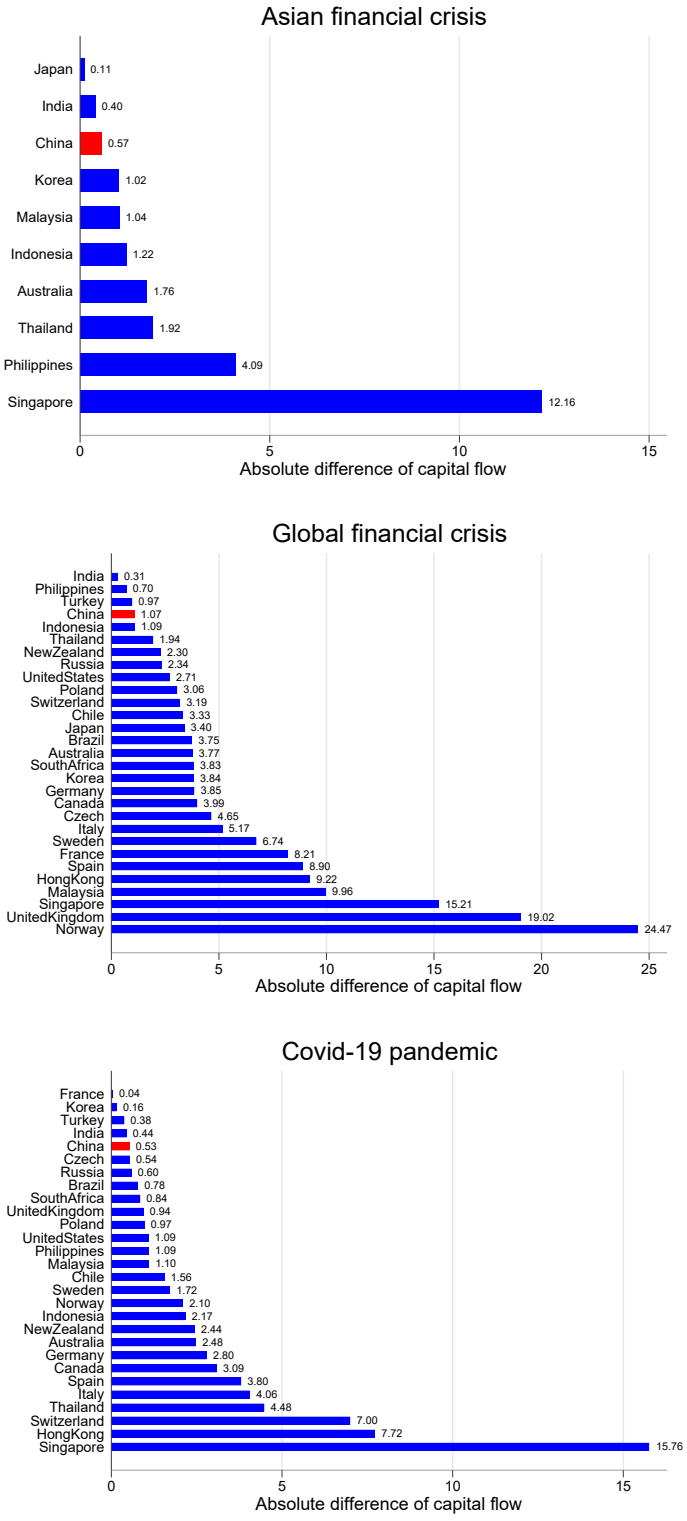
Chapter 4

Benefits and costs: the impact of capital control on growth-at-risk in China

4.1 Introduction

The capital control liberalization has been generally believed to be beneficial to developing and emerging countries by realizing more efficient allocation of resources, achieving assets diversification, promoting financial development and enhancing welfare of whole society (Edison et al., 2004; Prasad et al., 2007). Several previous empirical studies also support the positive effects of liberalization on economic growth (Chortareas et al., 2015; Klein and Olivei, 2008; Kose et al., 2011; Quinn and Toyoda, 2008). In other words, capital control would stem growth and lead to higher implementation cost. However, if there is a downside risk in one country, with an underdeveloped domestic financial market and banking system as well as a fully liberalized capital account, such country would suffer from capital flight which would depreciate the domestic currency and trigger further outflows, leading to a totally recession.

Since worrying about such phenomenon happens in China, policymakers are cautious about fully liberalizing their capital account and they intend to use capital control policies prevent capital flight and dampen the volatile capital flows. As pointed out by Cheung et al. (2016), Habermeier et al. (2017), Miao et al. (2020),



Notes: The top figure is the averaged one year absolute differences of capital flows to GDP ratio between Asian financial crisis (AFC) in 1997 and 1998 and the year before crisis in 1996 and 1997. The mid figure is the averaged one year abosolute differences of capital flows to GDP ratio between Global financial crisis (GFC) in 2008 and 2009 and the year before crisis in 2007 and 2008. The bottom figure is the one year abosolute differences of capital flows to GDP ratio between COVID-19 pandemic in 2020 and the year before in 2019.
Source: IMF Balance of Payments and International Investment Position statistics (BOP/IIP)

Figure 4.1.1: Absolute differences of capital flows to GDP ratio

and Yu (2009), a largely closed capital account prevents China from exposing to capital flight, and protects it from external financial volatility. Figure 4.1.1 plots the the absolute difference of capital flows to GDP ratio between crisis years and the year before crisis. The top figure is the average absolute difference of capital flows to GDP ratio between Asian financial crisis (AFC) in 1997 and 1998 and the year before crisis in 1996 and 1997. The mid figure is the average absolute difference of capital flows to GDP ratio between Global financial crisis (GFC) in 2008 and 2009 and the year before crisis in 2007 and 2008. The bottom figure is the absolute difference of capital flows to GDP ratio between COVID-19 pandemic in 2020 and the year before in 2019. Compared to the year before crisis, China's absolute difference of capital flows to GDP ratio does not show any severe fluctuations, only 0.57 %, 1.07%, and 0.53% for AFC, GFC, and COVID-19 pandemic respectively. Besides, China's absolute difference of capital flows to GDP ratio is also small relative to other major economies ranked 3 of 10 in AFC, 4 of 29 in GFC, and 5 of 28 in COVID-19 pandemic.[1] Although these results cannot conclude that the volatile capital outflow during crisis could have been significantly reduced by the actively using of capital controls, countries with pervasive controls or use capital control episodically show lower absolute difference of capital flows to GDP ratio. In fact, there are several studies have documented the effectiveness of capital control in dampening the capital flows (Ahmed and Zlate, 2014; Dell'Erba and Reinhardt, 2015; Landi and Schiavone, 2021; Ostry et al., 2012). Besides, Eichengreen and Leblang (2003) find that capital controls have positive effects on economic growth in periods of financial instability. Thus, these positive effects have been associated with the benefits of capital control policies.

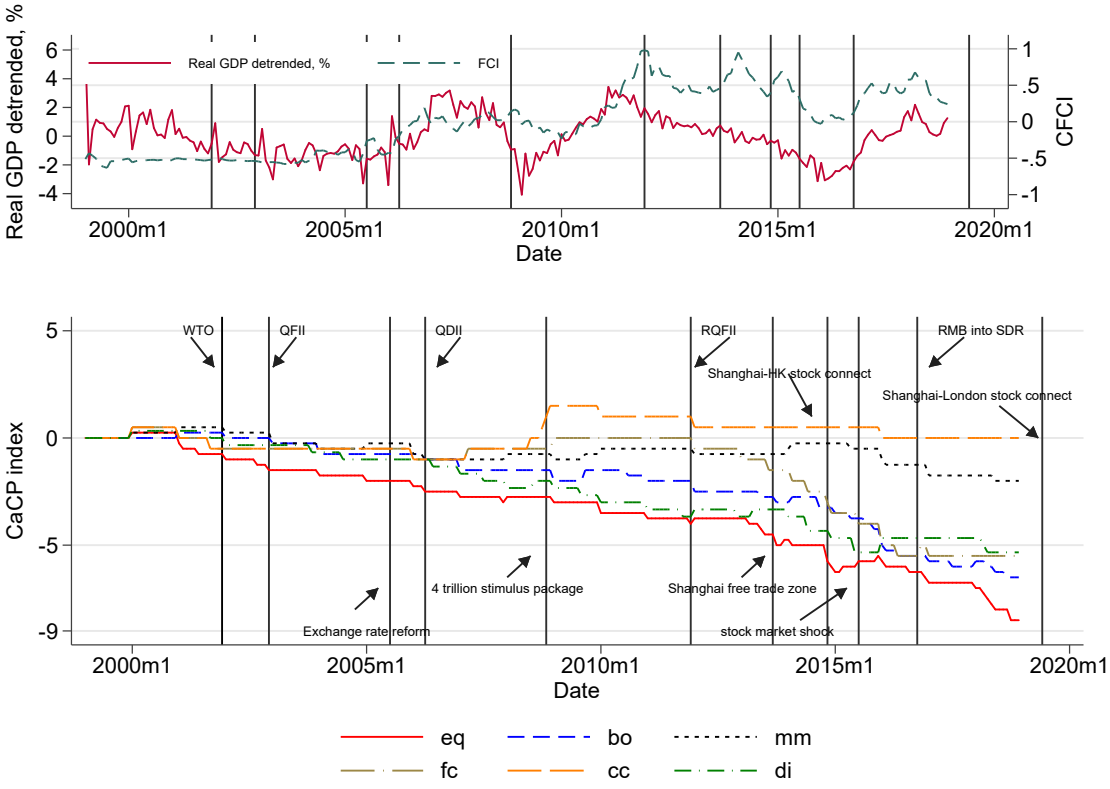
However, nearly all of the existing literature focuses on the effects of capital control policies on conditional mean level of economic growth. If capital control policies effectively decrease systemic risk, one could forecast the benefits to be observed in the downside risk of GDP growth distribution. Besides, the policymakers are more interested in what type of policy stance can mitigate the possibility of recessions and strengthen the resilience of financial system. In this regard, Bekaert et al. (2006) find that countries with more open capital accounts experience a greater reduction in the ratio of consumption growth volatility to GDP growth volatility. In other words,

[1]For Asian financial crisis, we only plot the economies in Asia and pacific areas.

the capital control policies can reduce relatively the volatility of GDP growth, which means capital control policies would affect the shape of GDP growth distribution.

Motivated by these findings, I study the marginal effects of China's capital control policies on GDP growth distribution and the term structures of such distribution. To this end, I use the framework extended by Adrian et al. (2019) calculate the quantile marginal effects of GDP growth forward to 15 months on different types of capital control indices and fit a skewed t-distribution to obtain the estimated distribution. Building on the delicately compiled China's capital control indices by Chen and Qian (2016), I use a narrative approach to identify the causal relationship between capital control policies and GDP growth. Results show that there exist heterogeneous effects of aggregated capital control indices over the real GDP growth distribution. Specifically, the aggregated capital control indices are beneficial in reducing the downside risk of real GDP growth in the medium term whereas they are costly on the upswings of real GDP growth in the near-term. After I estimate the marginal effects of capital controls policies on real GDP growth over quantiles, the results show that the heterogeneous effects are stronger in the short term than medium term. Besides, the heterogeneous effects are more evident in the short term for outflow control index and resident transaction control index. The granular indices show broadly heterogeneous effects even if several of them are insignificant. As for policymakers, in order to obtain benefits more rapidly after implementation, the capital control measures should be implemented in advance in accordance with the economic status.

The rest of the chapter is structured as follows. In next section, I introduce the capital control implementation history in China. In section 4.3, I present main studies related with this paper. In section 4.4, I describe the data and method on how to identify the causal relationship between capital control indices and economic growth. Section 4.5 describes the methodology I used to estimate the marginal effects. Section 4.6 presents the empirical results of the marginal effects of GDP growth to the capital control indices. Section 4.7 presents some robustness exercises. Section 4.8 concludes.



Sources: "China Economy Time Series" by Chang et al. (2016); China's Financial Condition Index by Author (see section 4.4.1); China's capital control dataset from Chen and Qian (2016).

Figure 4.2.1: Capital control indices, detrended GDP (%) and China's Financial Condition Index

4.2 Capital control implementation in China

As pointed out by Craig et al. (2013), McCowage (2019), and Miao et al. (2020), China has liberalized its capital account in a gradual and sequenced way in order to avoid capital flow fluctuations. There are also several characteristics with respect to China's capital account liberalization. First, policymakers prefer to liberalize direct investment prior to portfolio investment. Second, policymakers prefer to liberalize capital inflows prior to capital outflows and the liberalization of outflows is usually related with the easing of appreciation pressure from "hot money" and over accumulation of reserves. Third, policymakers prefer long term flows to volatile short term flows. Fourth, policymakers prefer domestic/foreign official investors to other types investors such as individual investors. Fifth, policymakers usually implement policies in some experimental (or piloting) region and restrict the scale and degree. In Figure 4.2.1, I plot the control intensity of six types of granular capital control indices and the relationship between China's Financial Condition Index (CFCI, right axis) and the real GDP detrended (left axis), and I also mark the critical events related with the changing of China's capital account. In other words, all these events are consistent with the features I have mentioned above.

Being afraid of the volatile inflow of foreign direct investment, China built special economic zone for piloting in 1979 and then welcomed inflow from Hong Kong and Taiwan initially. In 1992, the FDI inflows came from more developed economies such as American, Europe, and Japan. In 1994, the People's Bank of China (PBoC) abolished the dual-tracked exchange rate and changed to market based managed floating exchange rate regime. In 1996, the current account were fully convertible, but the Asian financial crisis burst in 1997, resulting the delay of fully openness of capital account. These events are not recorded in figure 4.2.1. After joining the World Trade Organization (WTO) in December 2001, China began to further ease the capital controls on portfolio investment. In December 2002, China started the "Qualified Foreign Institutional Investors (QFII) program" which the approved foreign institutional investors can invest in restricted quota at Chinese financial market. In July 2005, since the RMB appreciation pressure built up, the PBoC abandoned pegging RMB to dollar such that China achieved truly managed floating exchange rate. In April 2006, China introduced "Qualified Domestic Institutional Investors (QDII) program" such that domestic investors can invest in overseas financial mar-

kets. This outflow liberalization measure is used to ease the appreciation pressure from "hot money inflows" and to encourage the domestic firms to "go abroad".[2]

The 2008 GFC shocked the world economy and in order to recover from such crisis, China implemented the "4 trillion RMB stimulus package". Besides, China also eased the capital inflow controls and attracted the foreign investment. Based on QFII, China continued to raise the "RMB Qualified Foreign Institutional Investors (RQFII) program" in December 2011, which the approved institutional investors can invest in Chinese financial market using RMB without official caps on RQFII quotas. In September 2013, Shanghai Free Trade Zone was established such that (foreign) companies in this zone can achieve cross-border using of RMB except for the "negative list". Besides, in November 2014, China created a new channel for cross-border equity investment for Chinese retail investors and Hong Kong SAR investors, which called "Shanghai–Hong Kong Stock Connect".

Nevertheless, there is a crisis accompanied by the accelerated liberalization process. The domestic factors of the rising labor cost, the overvalued expectation on RMB, and the willing of unwinding carry trade inflows, plus the the global factors of "Taper Tantrum" from U.S. in 2013 generated a sudden stop and then RMB depreciation expectations encouraged capital flight, resulting a severe stock market slump (Chan, 2017; Miao et al., 2020). Thus, the policymakers tightened the capital outflows in 2015 and 2016 which lead to the skepticism of China's determination on capital account liberalization (Miao et al., 2020). In October 2016, RMB was included in IMF's Special Drawing Rights (SDR) which better facilitated trade and investment with foreign partners. Meanwhile, after recovered from the stock market crisis, China continued to relax the capital account by expanding the quotas of QFII, QDII, and RQFII, and in June 2019, the "Shanghai–London Stock Connect" was launched such that global investors can benefit from China's financial market through London, and Chinese investors can also access to London Stock Exchange directly.

As depicted by figure 4.2.1, all these marked programs are related with the loose of capital controls and the crises are with the urgent tightening of capital outflows. For example, in 2008, before the "4-trillion RMB stimulus package" the index of

[2]Similar scenario also happened in 2013, when China was also tortured by "hot money" and over accumulation of reserves, China also relaxed outflow controls and more firms were encouraged to invest abroad for answering the "Belt and Road Initiative".

trade credit ("cc" in orange dash line), bank loans ("fc" in camel dash dot line), and direct investment ("di" in green dash dot line) increase which means the tightening of such controls. This is also happened in 2015 that the policymaker tightened the security investments ("eq" in red solid line) and direct investment ("di").

4.3 Literature Review

A large literature has documented the effectiveness of capital control in dampening the capital flows, but the results are mixed. Ahmed and Zlate (2014), Bruno et al. (2017), and Ostry et al. (2012) find that the capital control policies are generally effective in reducing the bank, bond, and portfolio inflows. Baba and Kokenyne (2011) also admit the decreasing in inflows and lengthening of maturities after controlling the capital account, but they believe the relationship is not statistically significant. Furthermore, Binici et al. (2010) find that there are heterogeneous effects of implementing capital control policies. They show that the effects are varied for different types of capital controls, asset categories, direction of flows, and countries income levels. They conclude that the debt and equity controls are effective in reducing outflows but have little effect on inflows. Chantapacdepong and Shim (2015) investigate the effect of bond inflow management on cross-market correlations. They find that loosened policies would significantly increase the bond flow correlations, while tightened policies are not significantly decreasing bond inflows. Dell'Erba and Reinhardt (2015) find there is an opposite effect of controlling on short term debt flows: it decreases the probability of surges in banking debt flows but increases the probability of surges in financial sector FDI. Landi and Schiavone (2021) find that capital controls on other inflows and outflows are more effective for AEs, but capital controls on portfolio inflows are more effective for EMs.

Forbes and Warnock (2012), Forbes et al. (2015), Frost et al. (2020), Magud et al. (2018), and Osina (2021), however, assert that most capital flow managements (CFMs) do not significantly affect their objectives. Frost et al. (2020) and Osina (2021) believe that the macroprudential policies are more effective in managing the volume of capital (in)flows. The divergence of the results may originate from the datasets the researchers used. For most effective results, researchers usually use the dataset by Schindler (2009) which is a gradated version of AREAER narrative

measures (e.g., Binici et al., 2010; Ostry et al., 2012) or Fernández et al. (2016) which is based on Schindler's dataset (e.g., Dell'Erba and Reinhardt, 2015; Landi and Schiavone, 2021). However, as for the studies with insignificant results (e.g., Forbes and Warnock, 2012; Forbes et al., 2015; Osina, 2021), they use the Chinn and Ito (2008) KAOPEN aggregated indicator of financial globalization that is also compiled using AREAER. Chinn and Ito (2008) use principal component analysis (PCA) on three categorical indicators and take the rolling average of five-years window. As discussed by Karcher and Steinberg (2013) and Quinn et al. (2011) , since it is constructed with five-years average, even if a country has fully liberalized its capital account, the intensity of index still increases. This lead to reverse causality problem that the independent variables would be positively associated with KAOPEN after the liberalization of capital account.

In early 2000s, many studies have examined the effectiveness of the capital control in China. Although some researchers believe that the capital controls are not binding or losing their effectiveness since they can be circumvented under current account convertibility (Habermeier et al., 2017), most of them have reached a consensus that capital controls are still generally effective. However, evaluating the effectiveness of China's capital controls has some difficulties due to its complexity. As argued by Habermeier et al. (2017) and Otani et al. (2011), there are many layers and types of controls, and even if for quantitative measures, it is not clear how to give weights to this actions such that the impact can be qualified properly. Thus, the early literature usually measures the effectiveness of market arbitrage in exchange rates or interest rates (Habermeier et al., 2017). This mechanism means that if the capital control policies are effective, there are significant and persistent spreads between the onshore and offshore interest rates. Chen (2013) , Cheung and Herrala (2014), Ma and McCauley (2008), and Otani et al. (2011) use covered interest differential to infer the effectiveness of China's capital controls and they find the capital control is effective. In addition, Funke et al. (2015) analyze the fundamental or global driving force of the differentials using extended GARCH framework. They find that permitting cross border outflows has an impact in reducing the volatility of differentials. Maziad and Kang (2012) study the inter-linkages between onshore and offshore markets also using a bivariate GARCH model, and they find the evidence of volatility spillovers between two markets. Chen (2013) and Craig et al. (2013)

both study the intensity of capital control using a Threshold Auto-regression (TAR) models. They find the arbitrage opportunities still exist and the capital controls explain much of the divergence of differential.

Although the covered interest differential can explain the effectiveness of capital control policies, it cannot uncover the costs or benefits of implementing specific policies. Controls on different directions of flows, different categories of flows will show different impact on their policy objectives. As pointed out by Chen (2013), covered interest differential is a *de facto* level of capital control. This measure usually not perfectly reflects the policymaker's policy stance (in fact it reflects the impact of many political and economic factors), with the direction of causality going both ways (Quinn et al., 2011). Therefore, it is necessary to use *de jure* measures to quantify the actions of capital control policies. Craig et al. (2013) summarize the capital account liberalization measures, but they do not quantify these measures. Kimball and Xiao (2006) construct annual basis China's capital control indices but they do not adopt an econometric analysis. Although there are also several cross-section level datasets on capital control policies, most of them have either no granular level data (e.g., Chinn and Ito, 2008), or too short time horizon in yearly basis (e.g., Fernández et al., 2016).

The econometric methodology used in this chapter follows Adrian et al. (2019). They use quantile regression and skewed t-distribution to fit a distribution of GDP growth, and finds that the left tail (5th percentile) of GDP growth distribution (namely, GaR) is positively correlated with slack in financial conditions. Besides, they also measure the downside risk of GDP growth using the downside entropy of the unconditional distribution of GDP growth relative to the empirical conditional distribution. This method is generally used for measuring financial instability risk. Following this framework, Adrian et al. (2018) investigate the term structure of GaR using panel quantile regressions for 11 AEs and 10 EMs, and they find that there is an inter-temporal trade off where GaR is higher in short run but lower in mid run if the financial conditions are loose. Arbatli-Saxegaard et al. (2020) study the effect of financial imbalances on macroeconomic tail risks for Norway and other advanced economies. They find that increasing in financial indicators would exacerbate GaR and lead to higher downside risks to growth. In addition, this method can also be used for studying the policy effect to GaR. Brandao-Marques

et al. (2020), Duprey and Ueberfeldt (2020), Franta and Gambacorta (2020), and Galán (2020) study the effects of macroprudential measures on GaR. They find that implementing or tightening macroprudential policy reduces GDP tail risk, narrows GDP distribution, and dampens downside risk. Sánchez and Röhn (2016) agree that using macroprudential tools is related with less positive growth risk, but it lowers the average growth. Duprey and Ueberfeldt (2020) also study the effect of monetary policy and they find monetary policy can also reduce credit growth and GDP tail risk, like macroprudential policy does. Furthermore, besides macroprudential and monetary policy, Brandao-Marques et al. (2020) also consider foreign exchange interventions and CFMs, and they find that tightening monetary policy entails net losses, and the beneficial effects of foreign exchange interventions and CFMs are insignificant. Besides the effects on GaR, there are also several studies focusing on the effects on distribution of gross capital flow. Eguren Martin et al. (2021) find that macroprudential and CFMs measures are related with lower chance of large portfolio inflows and outflows. Gelos et al. (2022) find that foreign exchange interventions can help mitigate the downside risk of portfolio inflow, while capital control policies are related with larger outflows in the short term. Besides, they find little evidence for the effect of monetary and macroprudential policy on capital flows.

A large literature has documented the impact of capital account liberalization on economic growth. Many studies believe that capital controls impair growth, while capital account openness indicates a positive effect on growth (Honig, 2008; McKenzie et al., 2001). However, the literature finds mixed results on different level of development for such a country to achieve this objective. For example, Edison et al. (2004) suggest that intermediate level of development may become necessary for countries to benefit from capital account liberalization. However, Chortareas et al. (2015) and Klein and Olivei (2008) both believe that developed/advanced economies are more important to open their capital account. Quinn and Toyoda (2008) find that both developed and emerging economies are benefit from capital account liberalization. As for institutional quality, Klein (2005) believes that better (not the best) institutions have statistically and economically significant effects of capital control liberalization on economic growth. Kose et al. (2011) show that an easy satisfying lower threshold in institutional quality would improve significantly the cost-benefit trade-off for financial openness.

It must be admitted that, however, there is considerable risk if one country with an undeveloped and unregulated domestic financial market and a peg exchange rate regime quickly liberalizes its capital account transaction. On the one hand, inflow surges can lead to currency appreciation, a lose of competitiveness in trade, asset price bubbles and credit booms (Habermeier et al., 2017). On the other hand, outflow surges are more likely to be significant since the residents are longing for diversifying their portfolios. Nevertheless, there is no consensus on the size of the risk from capital control liberalization. Gou et al. (2010) find that capital inflow openness can enhance economic growth, while outflow openness may impede economic growth. Bekaert et al. (2006) and Kose et al. (2009) both believe that there is little evidence that capital account liberalization could increase vulnerability to developing countries. However, Martin and Rey (2006) find that trade globalization may not relate to financial crashes, while financial globalization may make them more likely. Furthermore, van Hulten and Webber (2009) suggest that capital account openness is not likely to heighten growth, even for the countries with appropriate institutions and policies.

Before 2011, countries that implement capital controls are usually blamed for providing convenience for trade protectionism, and receive political stigma from their trade partners. However, after 2011, IMF changed their policy stance that for developing countries, they can use capital control measures as a way to protect themselves from being tortured by financial instability (Moghadam, 2011). In 2012, IMF states that CFM is one kind of policy toolkit that can be used under certain conditions. In fact, early in 2003, Eichengreen and Leblang (2003) has stated that:

> *"[c]apital control is positive in periods of financial instability, when the insulating capacity of controls is precious, but negative when crises are absent and the direct effect on open capital account – the positive effect on resource allocation and efficiency – tends to dominate."*

This paper is related to that of Eichengreen and Leblang (2003). They study the relationship between capital account liberalization and economic growth for 21 advanced economies over the period of 1880 to 1997. Different from other literature, they consider the impact of crises on growth and the capacity of controls to stem those effects. I also consider the effect of capital flow management measures on

economic growth but distinguish from them in several aspects. First, as noted above, the literature with respect to the effectiveness of China's capital control still use covered interest differential method such that it cannot uncover the cost or benefit of implementing specific policies. In contrast, I use the rigorous constructed China's capital control *de jure* indices by Chen and Qian (2016). This dataset not only quantifies the intensity of actions but also contains different asset categories, gross flow directions and resident and nonresident transaction with long time series. This dataset helps me calculate precisely the marginal effects of different indices and measure the benefits and costs of implementing capital control policies. Second, although Eichengreen and Leblang (2003) use the crisis indicators from Bordo et al. (2014), I define the downside risk using the whole conditional distribution of GDP such that I can avoid the subjectivity of constructing the crisis indicators.[3] Besides, the quantile regression and skewed t-distribution fitting not only offer the conditional mean effects, but also allow the potential benefits of capital controls in terms of GDP growth which can be only observed on the left tail of the distribution. Third, to address the endogenous problem, I use the narrative approach based on scrutinizing the document of China's capital control at AREAER and other rules and regulation from Chen and Qian (2016) and official institutions to identify the causal effects of capital control actions on real GDP growth. Fourth, as a minor contribution, I follow the method and data used in Arregui et al. (2018) and attempt to replicate and extend China's Financial condition index to 2018M12.

4.4 Data and endogeneity

This section provides details of data used in estimation and then examines the endogeneity of the capital control indices for causal inference.

4.4.1 Data description

The analysis is based on a monthly time series dataset for China over the period 1999M1 to 2018M12. Table 4.4.1 provides descriptive statistics for all sample. The data used here rely on various sources such as Bank for International Settlements

[3] Bordo et al. (2014) show that this indicator records currency crisis, a forced change in parity, abandonment of a pegged exchange rate, or an international rescue.

(BIS) statistics, the database on "China Economy Time Series" by Chang et al. (2016), and the China's capital control dataset by Chen and Qian (2016). As for dependent variables, I use nominal GDP data from the updated database constructed by Chang et al. (2016).[4] The CPI data are also from this database. Then I take logarithm and calculate the real GDP. Using the real GDP, I can define the GDP-at-risk (GaR) in this way:

$$\mathbf{P}\left(\Delta_h y_{t+h} \leq GaR_h\left(\alpha|\Omega_t\right)\right) = \alpha \tag{4.1}$$

where $\Delta_h y_{t+h} = \left(y_{t+h} - y_t\right) / \left(h/12\right)$ is the cumulative annualized growth rate of real GDP between month t and month $t+h$, and y_t denotes the real GDP. $GaR_h\left(\alpha|\Omega_t\right)$ is the GDP-at-risk in h months in future at a probability α. In other words, there is α percent probability that the real GDP growth is lower than GaR. In general, GaR is defined to be 5th percentile of the real GDP growth distribution.

As for control variables, I use real GDP, CPI obtained from Chang et al. (2016), real central bank policy rate and real effective exchange rate obtained from BIS statistics. I also consider China's Financial Condition Index (CFCI) as one of control variables since it measures China's financial conditions in money, debt, equity and housing markets. As proposed by Adrian et al. (2019), FCI is found to be relevant to explain the real GDP growth distribution. If CFCI is positive, China's financial conditions are tighter than average. This index has been compiled by Arregui et al. (2018) and used for 2017 Global Financial Stability Report (GSFR), which they estimate FCI from 1990 to 2016 for 43 advanced and emerging markets using 10 financial indicators, but this index is available only until the end of 2016 and it will not be updated regularly. In order to expand the time horizon to 2018M12 as other dependent and explanatory variables, I follow the method and data used in Arregui et al. (2018) and attempt to replicate and extend China's FCI. The method that I follow to estimate FCI is based on the time-varying factor augmented vector autoregressive model (TVP-FAVAR) developed by Koop and Korobilis (2014).[5] The

[4] In Chang et al. (2016), they calculate the monthly nominal GDP by interpolating seasonally adjusted quarterly nominal GDP value added with seasonally adjusted monthly nominal retail sales of consumer goods, nominal exports, imports, and value added of industry.

[5] As pointed out by Koop and Korobilis (2014) and Arregui et al. (2018), there are several advantages of this method: (1) the method can purge the FCI of the effects of macroeconomic conditions. (2) this method can account for the dynamic relationships between macroeconomic and financial variables over time. (3) the time-varying parameters can account for changes in policy regimes.

TVP-FAVAR model takes such form:

$$x_t = \lambda_t^y y_t + \lambda_t^f f_t + v_t, \tag{4.2}$$

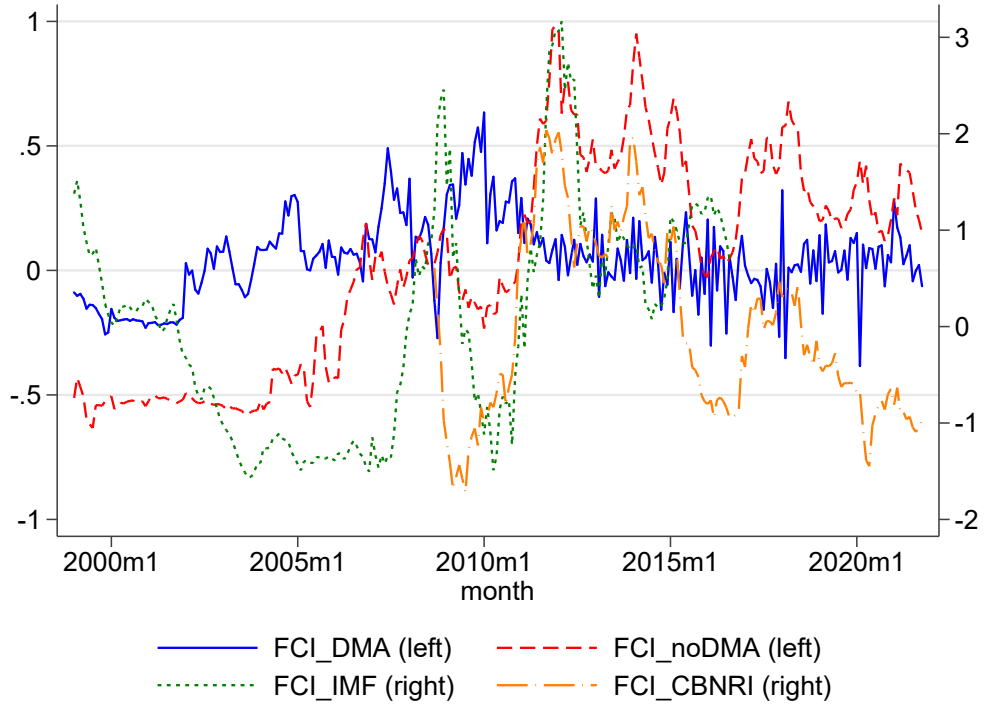
$$\begin{bmatrix} y_t \\ f_t \end{bmatrix} = c_t + B_{t,1} \begin{bmatrix} y_{t-1} \\ f_{t-1} \end{bmatrix} + \cdots + B_{t,p} \begin{bmatrix} y_{t-p} \\ f_{t-p} \end{bmatrix} + \varepsilon_t, \tag{4.3}$$

where x_t is a vector of financial variables, y_t is a vector of macroeconomic variables, f_t is the latent factor, namely the FCI we are interested in. λ_t^y and λ_t^f are regression coefficients and factor loadings respectively. $B_{t,1} \cdots B_{t,p}$ are VAR coefficients.

In order to replicate and extend the CFCI computed by Arregui et al. (2018), I also follow the macroeconomic and financial variables used in their paper.[6] The details of financial and macroeconomic variables I used are presented in Table B.1.2. The second column of data description is copied from Arregui et al. (2018), but since they do not specify the data type and definition they used for each country, I can only use the data roughly corresponding to their definitions. The data I use are listed in column 3 and I also offer the source and the available period of them. Following Koop and Korobilis (2014), all of the variables (including financial and macroeconomic variables) are checked by Augmented Dickey-Fuller (ADF) unit-root test and have been transformed to stationary.[7]

[6] According to Arregui et al. (2018), the choice of financial variables should reflect many sectors of financial system: equity, housing, bond, and interbank markets.

[7] The spread variables all show stationary and thus they remain unchanged in levels. The other financial variables have processed by percent change and they are also stationary variables. As for inflation, the ADF test shows that CPI is a trend stationary process. Thus, we eliminate the trend by HP filter and obtain the detrended CPI that is stationary.



Notes: The blue solid line (left-axis) represents my calculation of FCI using TVP-FAVAR with DMA. The red dashed line (left-axis) denotes my calculation of FCI using TVP-FAVAR. The green dotted line (right-axis) is the FCI computed by Arregui et al. (2018) using TVP-FAVAR. The orange dash-dotted line (right-axis) is the FCI computed by a China's think tank "CBNRI" using PCA.

Figure 4.4.1: China's FCIs: Comparison

The estimated China's FCIs are plotted in Figure 4.4.1. For comparison and showing the validity of my FCI, I also provide the FCI computed by Arregui et al. (2018) and other China's think tank "CBNRI". The blue solid line "FCI_DMA" represents the computation of FCI using TVP-FAVAR with dynamic model averaging (DMA). DMA method calculates FCI by averaging over many individual FCIs calculated using different financial variables, thus reducing the expected risk of the final forecast (Koop and Korobilis, 2014). The red dashed line "FCI_noDMA" is the FCI of interest using only TVP-FAVAR. The green dotted line "FCI_IMF" is the FCI constructed by Arregui et al. (2018) (time horizon until 2016M9) and I use it in robustness check in section 4.7.3. The orange dash-dotted line denotes the FCI constructed by a China's think tank "CBNRI" and this index starts from 2008M9.[8] Figure 4.4.1 shows that "FCI_noDMA" can replicate effectively the tight-

[8]In fact, does not like U.S. Chicago Fed National FCI, China's official institutions do not compile (or publish) China's official FCI index. Besides, although several researchers have constructed

Table 4.4.1: Descriptive statistics

	p5	p25	p50	p75	p95
Real GDP growth (1 year growth, %)	-6.699	4.191	9.524	15.071	26.840
Real GDP (log level)	2.140	2.547	3.191	3.681	3.968
China's financial condition index (CFCI)	-0.558	-0.504	-0.010	0.397	0.671
CPI (log level)	4.537	4.571	4.722	4.867	4.935
Real central bank policy rate, %	1.109	2.037	2.258	2.700	3.846
Real effective exchange rate (log level)	4.439	4.509	4.592	4.759	4.857
Gross capital account control index (CaCP)	-4.111	-2.181	-1.306	-0.694	0.222

Source: BIS statistics; "China Economy Time Series" by Chang et al. (2016); China's Financial Condition Index by Author; China's capital control dataset from Chen and Qian (2016).

ening financial conditions in GFC, and the peak in 2011M11, 2014M2, and 2018M3 corresponding to "FCI_IMF" and "FCI_CBNRI" . Besides, "FCI_noDMA" also has a similar trend pattern with "FCI_IMF" and "FCI_CBNRI", and the correlation coefficients between "FCI_noDMA" and "FCI_IMF" as well as "FCI_noDMA" and "FCI_CBNRI" are 0.6044 and 0.7806 respectively. In other words, the calculation of "FCI_noDMA" is a desirable alternative to Arregui et al. (2018)'s FCI.

The explanatory variables I used here are obtained from China's capital control policy dataset constructed by Chen and Qian (2016). They extract the implementation information of capital control from the IMF's Annual Report on Exchange Arrangement and Exchange Restrictions (AREAER) and supplement with other sources. Then they compile the *de jure* indices with a simple rule – setting the data of 1999M1 as the baseline equal to 0, if capital control tightens then add 1, if it looses then subtract 1 in the next period. They also compile a type of hybrid indices which are calculated by weighted *de jure* indices considering the share of each asset in the total value of China's capital account. Until now, there are a number of capital control datasets originating from AREAER. Quinn and Inclan (1997) have developed an indicator of enforcement of controls on capital account and financial current account. The data cover six categories and are available for 122 countries from 1949 to 2007, and capture the intensity of those restrictions. However, Fernández et al. (2016)

China's FCI using various methods, most of them do not make it available or update it regularly. Thus, I choose the "CBNRI" index since it is regularly updated and can be obtained from WIND database. It is constructed using Principal Component Analysis (PCA) based on the monthly transaction data and statistical data from Interbank lending market (4 variables), Debt market (9 variables), Stock market (3 variables) and Credit market (4 variables).

propose that Quinn's index does not distinguish between capital controls on inflows and outflows respectively. Chinn and Ito (2008) have constructed an capital account openness index called "KAOPEN", which is based on the binary dummy variables of restriction on cross-border financial transaction reported in AREAER. This index is highly aggregated even if it covers 182 countries from 1970 to 2018. As suggested by Quinn et al. (2011), the most finely gradated of the AREAER measures is Schindler (2009) "KA" index. This is a granular indices by asset category (in line with BOP terms), residency status, and direction of transactions (inflows vs. outflows), and it provides binary index at the level of individual types of transactions. Besides, it covers 91 countries during 1995 to 2005. Based on the data from Schindler (2009), Fernández et al. (2016) include more countries (100 countries), more asset categories (four new asset categories are introduced: derivatives, commercial credit, financial guarantee, and real estate), and more years (the period over 1995 to 2017). Even it is an advanced version of Schindler (2009), this dataset also inherits the disadvantage of Schindler (2009) that it cannot measure the intensity of changes in capital controls over time.

Compared with the indices aforementioned, the indices complied by Chen and Qian (2016) have several advantages: (i) both aggregated and granular, inflow and outflow, resident and nonresident transaction data; (ii) the granular data have six major asset categories; (iii) the indices can measure the intensity of changes in capital control over time; (iv) the indices are monthly-frequency and useful for studying high-frequency short-term capital flows. These advantages are capable for us to study the impact of capital control policies on different quantiles of real GDP growth. The capital control data used here are *de jure* indices.[9] The details of aggregated and granular capital control indices are presented in Table 4.4.2.

4.4.2 Identification of capital control policy shocks

I have specify the capital control indices in the last section. However, estimating the effects of capital control policy is difficult because the policy may respond automatically to economic activities or policymakers may adjust policy based the information of prospective economic growth. Friedman and Schwartz (2008) and

[9]I do not use the hybrid data compiled by Chen and Qian (2016) in my baseline model since they are not updated after 2014M12. But such data mitigate issues of lack of importance of capital flows and endogeneity problems, thus I will test these indices in robustness section 4.7.2.

Table 4.4.2: The capital control measures used in this paper

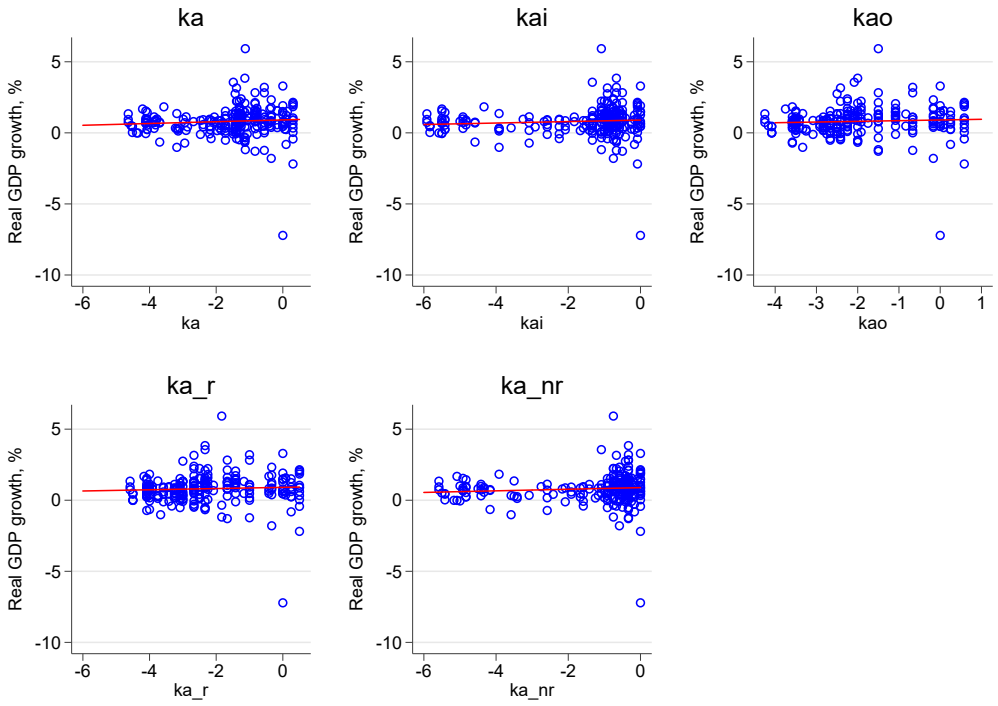
Categories	Description	Abbreviation
Aggregated indices	Gross capital account control index	"ka"
	Control index on capital account inflows	"kai"
	Control index on capital account outflows	"kao"
	Control index of capital flows by resident	"ka_r"
	Control index of capital flows by nonresident	"ka_nr"
Granular indices	Share or other securities	"eq"
	Bonds or other debt securities	"bo"
	Money market instruments	"mm"
	Commercial credits (trade credits)	"cc"
	Financial credits (bank loans)	"fc"
	Controls on direct investment	"di"

Notes: We also use deeply granular data types in the robustness section 4.7.1, like "dii" which is capital control index on inward direct investment and we do not present them in this table.
Source: China's capital control dataset by Chen and Qian (2016).

Table 4.4.3: Policy actions mentioned the objective of economic growth

Date	File Code	Index	Title	Objective
Dec. 23, 2008	HuiFa (2008) No. 73	"cci"	Notice on improving the registration and management system of foreign debts under firm's merchandise trade account	(i) better withstand the negative impact of global financial crisis, (ii) promote stable **economic growth.**
Mar. 17, 2009	HuiFa (2009) No. 14	"fci"	Notice on the verification of short-term external debt of financial institution in 2009	(i) cooperate with the adjustment of national macroeconomic policies, (ii) give full play to the credit intermediary role of financial institutions, (iii) promote real **economic growth** and trade financing.

Source: Capital account and FX management, Policy and Regulations, The State Administration of Foreign Exchange of China (http://www.safe.gov.cn/safe/zbxmwhgl/index.html).



Source: "China Economy Time Series" by Chang et al. (2016); China's capital control dataset from Chen and Qian (2016).

Figure 4.4.2: Relationship between aggregated capital control indices and real GDP growth

Table 4.4.4: Checking for balance of treatment and control sub-populations

Difference (Tightening minus Control)					
	ka	kai	kao	ka_r	ka_nr
Real GDP growth	0.003	0.002	0.004	0.002	0.003
	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
CPI growth	0.001	-0.001	0.001	0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	239	239	239	239	239
Difference (Loosening minus Control)					
	ka	kai	kao	ka_r	ka_nr
Real GDP growth	0.000	0.000	-0.003	-0.003	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
CPI growth	0.000	0.001	0.000	0.000	0.001*
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	239	239	239	239	239

Notes: Each cell in column (2) to (6) is the difference between treatment (tightening or loosening capital control) and control group (no such restriction) for interested economic activity variables (real GDP growth and CPI growth). The null hypothesis is the equality of means for each sub-population. Standard errors in parentheses. *, **, ***, indicate the significant at 10%, 5%, 1% levels respectively. Standard errors in parentheses.

Table 4.4.5: Prediction of implementation of aggregated capital control policies

	(1) ka	(2) kai	(3) kao	(4) ka_r	(5) ka_nr
One lag of real GDP growth	9.60	15.41	4.98	5.23	15.16
	(9.34)	(11.77)	(9.45)	(10.63)	(10.66)
One lag of CPI growth	-30.03	-0.86	-70.95***	-80.19***	8.37
	(22.56)	(27.93)	(24.95)	(27.74)	(25.61)
Observations	238	238	238	238	238
R^2	0.01	0.01	0.03	0.03	0.01

Notes: This table presents OLS regression results. The dependent variables are the aggregated capital control variables of "ka", "kai", "kao", "ka_r", and "ka_nr", respectively. Robust standard errors in parentheses. *, **, ***, indicate the significant at 10%, 5%, 1% levels respectively.

Romer and Romer (1989) have developed a narrative approach which I can use qualitative information from primary documents or records established by policy-makers thereby compiling quantitative indices to identify the causal effects of capital control policies on economic activity.

In order to implement this method, I should specify the endogeneity of the data since it is depended on the motivation of implementing capital control policy. As I have mentioned before, if capital control policies are taken in response to factors that affect current or expected economic activities (output growth, or price stability), these can be called endogenous, while if they are taken for other reasons, we call them exogenous. The data compiled by Chen and Qian (2016) do not contain the background and the reasoning of specific policy actions, thus I need to consult the country level annual reports of AREAER for each of the policy action description. Then, I search for the key words ("output", "GDP", "growth", "CPI", and "inflation") in the description of policy actions and find that no policy action was motivated by these objectives. In addition, I double check the rules, regulations, and notices associated with capital account listed in the website of The State Administration of Foreign Exchange of China (SAFE), and list all the titles of such rules, regulations, and notices and extract their objectives in Appendix B.2. I find two notices mentioning the objective of economic growth. Table 4.4.3 presents the details of such notices. One is the "Notice on improving the registration and management system of foreign debts under firm's merchandise trade account" which is published and implemented at December 23, 2008. This notice mentions the objective of "promoting stable economic growth" and it relates to commercial credit inflow "cci". The other is "Notice on the verification of short-term external debt of financial institution in 2009" which is published at March 17, 2009 and implemented at April 1, 2009. This notice also mentioned the objective of "promoting real economic growth and trade financing" and it relates to financial credit inflow "fci". Following Richter et al. (2019), I should drop all policy actions that are motivated by economic growth. However, after I scrutinize the raw data of Chen and Qian (2016), I do not find any change of the index "cci" between December 2008 and January 2009, and any change of index "fci" between March 2009 and April 2009.[10] In other words, the raw

[10]In fact, the first notice aforementioned (HuiFa (2008), No.73) is a supplement and adjustment of notice published at July 2, 2008, "Notice on implementing the registration and management system of foreign debts under firm's merchandise trade account (HuiFa (2008), No.30)". This

data of Chen and Qian (2016) do not contain policy actions motivated by economic growth. In general, the objectives of specific capital control policies announced by the PBoC or SAFE are more detailed and in micro (or more specific) level. For example, the PBoC announced the "Administrative Measures for the RMB Settlement of Cross-Border Trade Pilot Project" in 2009, this regulation emphasizes the objective of promoting trade facilitation, regulating the behavior of commercial banks, and preventing related risks.

In Chen and Qian (2016), they summarized that China usually implements (looses) capital control policies in a step-by-step gradual style. They also have several conjectures towards the objective of changing capital control policies. For the period from 2005 to 2008 GFC, China tightens the trade payment (or commercial credit) control and encourages outflows. They believe that China uses capital control policy to rein the booming trade surplus in response to ease political pressure from the US government or other trade partners. Besides, they also propose that China encouraged capital inflows in 2008 to contain the "flight to quality" from China, and tightened capital control on financial credit to restrain hot money inflows in 2003. Above, they believe that the implementation of capital controls in China are more related with political pressure and capital flow factors. In addition, Fernández et al. (2016) suggest that capital controls are remarkably acyclical in booms or busts.

Although I have presented that the capital control indices complied by Chen and Qian (2016) do not have real economic objectives, the policymakers may target real economic objectives without stating them explicitly when implementing such actions as proposed by Richter et al. (2019). Thus, I need to do several tests to confirm that there is no systematic relationship between the implementation of capital control policies and real economic variables. Figure 4.4.2 presents a preliminary inspection of the relationship between aggregated capital control indices and real GDP growth. The fitted linear lines of "ka", "ka_r", "ka_nr", "kai", and "kao" present low (near zero) slopes, and they also display no clear pattern that capital control indices can respond to real GDP growth. Besides, I obtain similar results when I use granular

notice stipulates the specifications of (i) advance receipts of export proceeds, and (ii) deferred import payments. The policy actions of this notice have recorded in the raw data where "cci" changed from "1" (in June 2008) to "2" (in July 2008), and from "2" (in October 2008) to "3" (in November 2008).

capital control indices as in Figure B.1.1.

In Table 4.4.4 and Table 4.4.5, I formally examine the relationship between the implementation of capital control policies and real GDP growth and also consider another economic activity variable, namely the CPI growth. It should be noted that the distribution of treatment and control group should be the same in an ideal randomized controlled trial. The simple way to test this condition is to compare the mean of those subpopulations and test their equality. Table 4.4.4 shows the results of checking the balance of treatment and control subpopulations. Following Richter et al. (2019), I differentiate the changing of capital control policies into two treatment, a tightening and a loosening, as well as the control group of observations. The upper (lower) panel shows the difference between tightening (loosening) and control group. The results show that there is no statistically significant difference between the two subpopulations. In other words, the results suggest that the capital control indices are truly exogenous events.

Table 4.4.5 presents the results whether the implementation of capital control policies can be predicted by one month lagged real GDP and CPI growth. Column (1) to (5) show the results from "ka" to "ka_nr". I find that the coefficients for explanatory variables (especially one lag of real GDP growth) are not statistically different from zero even if one month lag of CPI growth has explanatory power for "kao" and "ka_r" to some extent. Meanwhile, I obtain similar results when I use granular capital control indices as in Table B.1.1. Overall, I conclude that the capital control policies are not predicted by real GDP growth and they can be seen as independent to business cycle.

4.5 Methodology

In this section, I turn to quantile regression to characterize formally the conditional relationship between real GDP growth and capital control indices. As proposed by Koenker and Bassett (1978), quantile regression is a useful tool that allows to analyze the marginal effects on different quantiles of the dependent variable. This also allows to capture characteristics that are missed when only focusing on conditional mean effects. I denote $\Delta_h y_{t+h} = (y_{t+h} - y_t) / (h/12)$ as the response variables of interest, the cumulative annualized average change of real GDP growth between base month

t and month $t+h$ over varying forecasting horizons $h = 1, \cdots, H$, where H is 15 in the specification. y_t is the logarithm of real GDP at period t, $\boldsymbol{X}_t$ is a vector of explanatory and control variables.

The predicted value from quantile regression is the quantile of $\Delta_h y_{t+h}$ conditional on $\boldsymbol{X}_t$

$$\widehat{\boldsymbol{Q}}_{\Delta_h y_{t+h}|\boldsymbol{X}_t}(\tau|\boldsymbol{X}_t) = \boldsymbol{X}_t\hat{\boldsymbol{\beta}}_\tau, \tag{4.4}$$

where $\widehat{\boldsymbol{Q}}_{\Delta_h y_{t+h}|\boldsymbol{X}_t}$ is the estimated quantile function, and it is also a consistent linear estimator proved by Koenker and Bassett (1978). τ denotes the percentiles. In such quantile regression of $\Delta_h y_{t+h}$ conditional on $\boldsymbol{X}_t$, the regression slope $\boldsymbol{\beta}_\tau$ is chosen to minimize the quantile weighted absolute value of errors:

$$\hat{\boldsymbol{\beta}}_\tau = \underset{\boldsymbol{\beta}_\tau \in \mathbb{R}^k}{\arg\min} \sum_{t=1}^{T-h} \left[\tau \cdot \mathbf{1}_{\Delta_h y_{t+h} \geq \boldsymbol{X}_t\boldsymbol{\beta}} \left|\Delta_h y_{t+h} - \boldsymbol{X}_t\boldsymbol{\beta}_\tau\right| + (1-\tau) \cdot \mathbf{1}_{\Delta_h y_{t+h} < \boldsymbol{X}_t\boldsymbol{\beta}} \left|\Delta_h y_{t+h} - \boldsymbol{X}_t\boldsymbol{\beta}_\tau\right|\right], \tag{4.5}$$

where $\mathbf{1}_{(\cdot)}$ denotes the indicator function indicating whether the estimated errors are positive or negative.

To calculate the impulse response of real GDP growth over time, I use local projection method introduced by Jordà (2005). This allows me to compute impulse responses without specification and estimation of the underlying multivariate dynamic system. Jordà (2005) shows that local projections can be estimated at each period of interest rather than extrapolating into increasingly distant horizons from a given model like VAR models. The estimated baseline model for conditional quantile of future real GDP growth for up to 15 months ahead can be written as

$$\begin{aligned}
&\text{For "ka": } \widehat{\boldsymbol{Q}}\left(\Delta_h y_{t+h}|CaCP_t, CFCI_t, \boldsymbol{x}_t\right) = \hat{\alpha}_\tau + \hat{\beta}_2^{\tau,h} CaCP_t + \hat{\beta}_3^{\tau,h} CFCI_t \\
&\qquad + \hat{\beta}_4^{\tau,h} CaCP_t \times CFCI_t + \hat{\boldsymbol{\beta}}_5^{\tau,h} \boldsymbol{x}_t + \varepsilon_t^{\tau,h}, \\
&\text{For "kai" and "kao": } \widehat{\boldsymbol{Q}}\left(\Delta_h y_{t+h}|CaCP_t^{in}, CaCP_t^{out}, CFCI_t, \boldsymbol{x}_t\right) = \hat{\alpha}_\tau + \hat{\beta}_2^{\tau,h} CaCP_t^{in} + \hat{\beta}_3^{\tau,h} CaCP_t^{out} \\
&+ \hat{\beta}_4^{\tau,h} CFCI_t + \hat{\beta}_5^{\tau,h} CaCP_t^{in} \times CFCI_t + \hat{\beta}_6^{\tau,h} CaCP_t^{out} \times CFCI_t + \hat{\boldsymbol{\beta}}_7^{\tau,h} \boldsymbol{x}_t + \varepsilon_t^{\tau,h}.
\end{aligned} \tag{4.6}$$

where $h = 1, \cdots, 15$, $CaCP_t$ denotes the aggregated capital control index. $CaCP_t^{in}$ and $CaCP_t^{out}$ represent inflow and outflow capital control index respectively.[11] $CFCI_t$

[11] The effects of resident transaction control index $CaCP_t^r$ and nonresident transaction control index $CaCP_t^{nr}$ are also estimated in pairs.

represents the China's financial conditions index. Following the specification of Eguren Martin et al. (2021), I also include interaction terms between China's financial conditions index and capital control indices as additional explanatory variables. Thus, the marginal effects of implementing corresponding capital control index on quantile τ of real GDP growth h quarters ahead are calculated by

$$\begin{cases} \partial\widehat{\boldsymbol{Q}}/\partial CaCP_t = \hat{\beta}_2^{\tau,h} + \hat{\beta}_4^{\tau,h} \times \text{mean}\,(CFCI_t) & \text{for aggregated index "ka",} \\ \partial\widehat{\boldsymbol{Q}}/\partial CaCP_t^{in} = \hat{\beta}_2^{\tau,h} + \hat{\beta}_5^{\tau,h} \times \text{mean}\,(CFCI_t) & \text{for aggregated inflow index "kai",} \\ \partial\widehat{\boldsymbol{Q}}/\partial CaCP_t^{out} = \hat{\beta}_3^{\tau,h} + \hat{\beta}_6^{\tau,h} \times \text{mean}\,(CFCI_t) & \text{for aggregated outflow index "kao".} \end{cases}$$

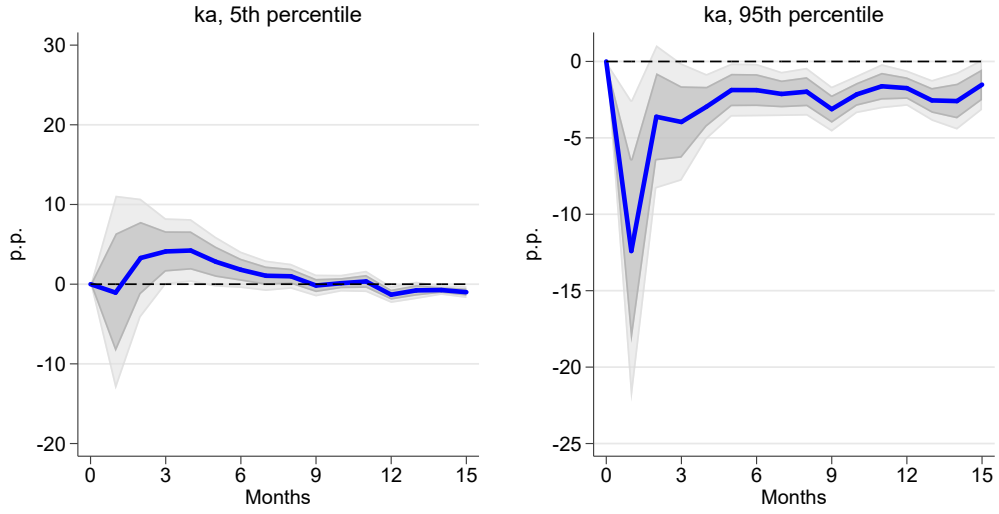
τ represents the estimated quantiles from 5th to 95th percentiles. $\boldsymbol{x}$ is a vector that contains real GDP, CPI, real central bank policy rate, real effective exchange rate. I specify the baseline model in Equation (4.6) referring Galán (2020) and Franta and Gambacorta (2020) in analyzing the effects of macroprudential policies on GaR, and further add real effective exchange rate for capturing the motivation of capital flows.

4.6 Empirical Results

To analyze the results from baseline quantile regression in equation (4.6), I start with the term structure of the impact of capital control policies on GaR. Then I focus on the impact across different percentiles from 5th to 95th at specific time horizons. Besides, I compare the forecast distribution estimated by skewed t-distribution for 3-months-ahead real GDP growth at business cycle upswings and downturns conditional on/without capital control indices. Finally, I provide entropy and expected shortfall to measure the vulnerability of the predicted GDP growth and then compare these measures by conditional on/without capital control indices.

4.6.1 The term structure of the impact of capital control policies on real GDP growth

In order to evaluate the effects of implementing capital control polices on GaR in the near-term (0-3 months) and medium term (3-6 months), I estimate the term structure of baseline model (4.6) using local projection quantile regressions. Figure 4.6.1 and 4.6.2 show the cumulative response of left tail (5th percentile, GaR) and



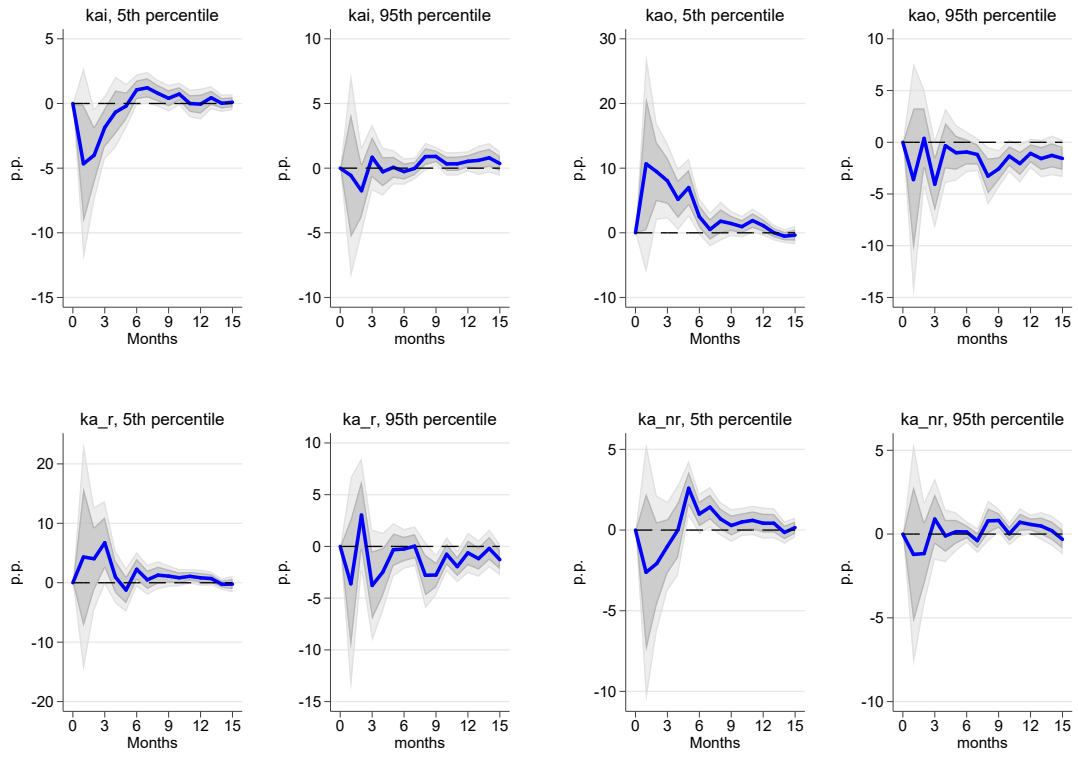
Notes: The blue lines denote the estimated cumulative responses coefficients of a one-point increase in aggregated capital control index "ka" obtained from local projection quantile regressions on real GDP growth at the 5th and 95th percentiles for 1 to 15 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal dashed lines represent the value of zero.

Figure 4.6.1: Estimated coefficients of 5th, and 95th percentiles of real GDP growth to the implementation of aggregated capital control index "ka" from 1 to 15 month horizons.

the right tail (95th percentile) of real GDP growth over entire time horizon from 1 to 15 months, conditional on one point increase in aggregated capital control indices respectively, ceteris paribus. The estimated coefficients are plotted together with 90% and 68% confidence bands.

In Figure 4.6.1, I present the estimated quantile effects of implementing aggregated capital control "ka" on real GDP growth at 5th and 95th percentiles respectively. For 5th percentile of real GDP growth, we can see that in the near-term, the impact of implementing capital control "ka" cannot be distinguished from zero. In the mid-term, however, the benefits of implementing capital control policy are rapidly materialized and the effects are persistent from 3 to 6 months. The maximum benefit in reducing the downturn risk of real GDP growth is reached 4 months after the implementation of an aggregated capital control "ka" and shows around 5% point of real GDP growth, which means that a one point increase in aggregate capital control "ka" is associated with a cumulative increase of 5% point in GaR over 4 months. In the long term, the marginal effects start to diminish after 7 months.

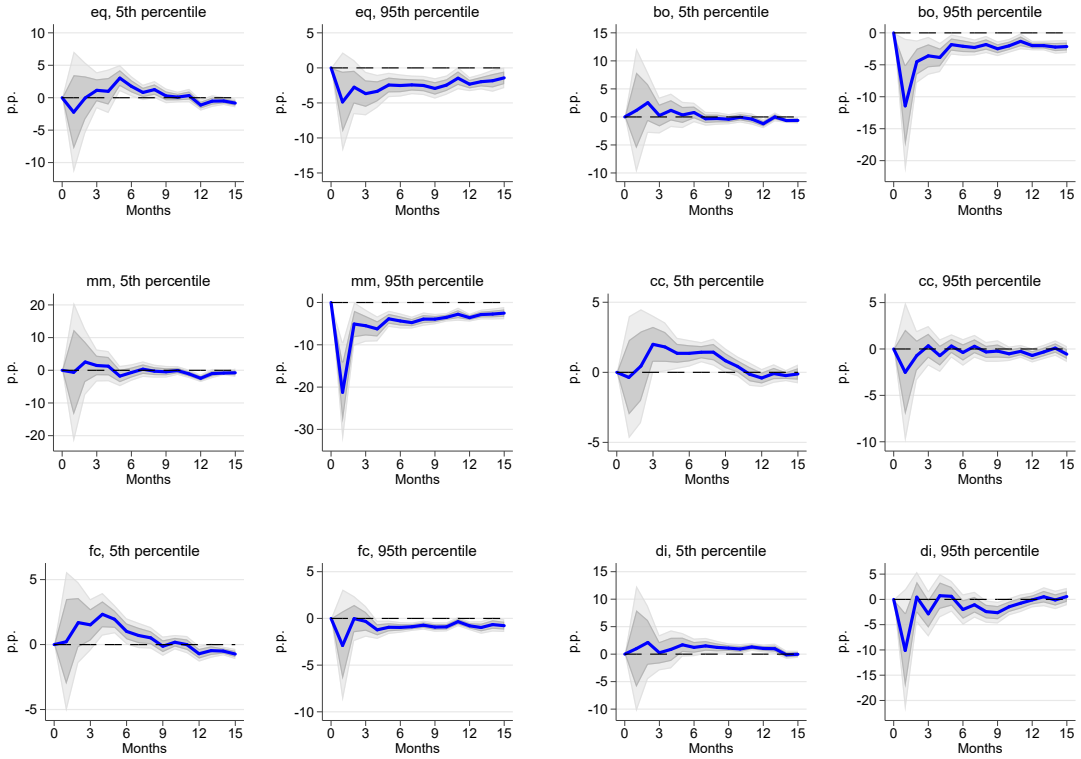
In contrast, there are detrimental effects of implementing capital control policy "ka" on 95th percentile of real GDP growth. The maximum impact is reaching after 1 month with a cost of 12.5% of real GDP growth. Then, the effects dissipate in the mid-term to 2% point at period 6 and become persistent in the long term over 1 year.



Notes: The blue lines denote the estimated cumulative responses coefficients of a one-point increase in each capital control aggregated indices obtained from local projection quantile regressions on real GDP growth at the 5th and 95th percentiles for 1 to 15 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal dashed lines represent the value of zero.

Figure 4.6.2: Estimated coefficients of 5th, and 95th percentiles of real GDP growth to the implementation of aggregated capital control indices from 1 to 15 month horizons.

These results suggest that the implementing of aggregate capital control policy "ka" would be beneficial in lowering the downside risk of real GDP growth while the effects present a lag and are active usually in the mid-term. In contrast, it would be costly to implement aggregated capital control policy during business cycle upswings and the detrimental effects are immediate and persistent over time horizons. I call



Notes: The blue lines denote the estimated cumulative responses coefficients of a one-point increase in each capital control granular indices obtained from local projection quantile regressions on real GDP growth at the 5th and 95th percentiles for 1 to 15 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal dashed lines represent the value of zero.

Figure 4.6.3: Estimated coefficients of 5th, and 95th percentiles of real GDP growth to the implementation of granular capital control indices from 1 to 15 month horizons.

it as the *heterogeneous effects* of capital control on real GDP growth.[12][13] As for the delay effects of the policy, Franta and Gambacorta (2020) and Galán (2020) both find a lag impact on GaR after implementing macroprudential policies immediately.

[12]Although this beyond the scope/objective of this chapter, further analysis is needed to construct a formulated theoretical model to explain the heterogeneous effects of distribution of GDP growth conditional on capital controls. Eichengreen and Leblang (2003) proposed that an open capital account (also, capital controls) to affect economic growth through two channels: directly (when financial markets are functioning well and other distortions are absent, capital account liberalization achieves a more efficient allocation of resources and a faster economic growth) and indirectly (if there exist domestic distortions conducive to excessive risk-taking, the liberalization of capital account may lead domestic agents to lever up their bets, increasing the risk of financial crises).

[13]The positive effects of capital control for welfaring-improving have been modeled by Bianchi (2011) that he intoduces the pecuniary externality inducing an allocation that is suboptimal, and the capital controls can be used to fully internalized the pecuniary externality.

Franta and Gambacorta (2020) show the lag effect lasts over 10 quarters, and Galán (2020) identifies these effects last for 6 quarters. Both of them find longer lag periods for macroprudential policy while I find a shorter lag period for China's capital control policy. Besides, different from our results, Franta and Gambacorta (2020) also find lag effects on 95th percentile of real GDP growth. The heterogeneous of response time on different percentiles can be explained by the fact that, the capital controls are "sticky" (Acosta-Henao et al., 2020). Policymakers would not change capital controls policies frequently during downturns. However, during business cycle upswings, the liberalization process of China's capital account is taken gradually (Chen and Qian, 2016).[14] As for policy implementation, the capital control authorities (e.g., the PBoC, and SAFE) should precisely predict the economic status and then take measures in advance to improve GaR.

As I have depicted in the section 4.4.1, the definition of capital control index "ka" is an aggregation and average of granular types of different catagories. Thus these granular types would be differ in effectiveness and term structure. Eguren Martin et al. (2021) study the impact of CFMs measures on portfolio capital flows-at-risk and they split the CFMs measures between inflows and outflows. Similarly, I introduce capital controls on inflows "kai" and outflows "kao", besides, I also consider capital controls on transactions for resident "ka_r" and nonresident "ka_nr".[15]

In the upper-left and upper-right of Figure 4.6.2, I plot the estimated quantile response of real GDP growth at 5th and 95th percentiles to implementing capital inflow control "kai" and outflow control "kao" respectively over the projection horizons. These results suggest that outflow control measure (upper right) can significantly boost expected real GDP growth and reduce downside risk, and the detrimental effects are persistent for 95th percentile of real GDP growth in the mid and long term as does the aggregated gross index "ka". As for the results of inflow control (upper left), however, there are negative effects on 5th percentile in the near-term and the positive effects are lagging and only significant at 6 months after implementing this policy and the maximum size of the benefits (2% point of GaR) are lower than out-

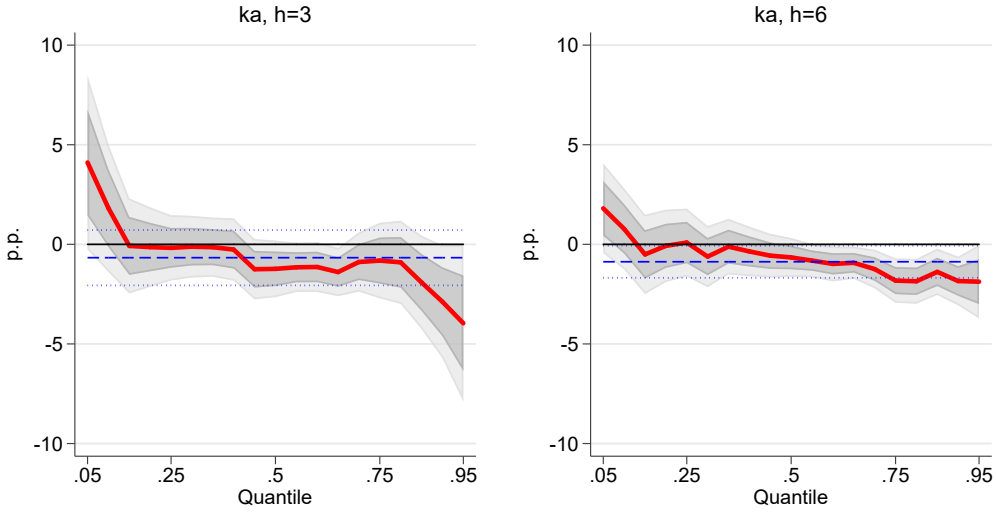
[14] Due to this fact and the figure 4.2.1, China's capital controls are rarely implemented in business cycle upward period, thus the implementation practice of the negative effects of capital control on right-tail of GDP growth distribution is rare. However, in turn, the fact that liberalization of capital account could raise economic growth has been found as I have mentioned in section 4.3.

[15] As depicted by Landi and Schiavone (2021), after mid-1990s, the gross outflows and gross inflows tend to move independently. Thus, it is necessary to analyze the effects of capital controls separately for inflows and outflows.

flow control measure. The rapidly materialized negative effects are intuitive because capital inflows are usually welcomed in the crisis periods for compensating the outflows and stemming the depreciation of exchange rate. The negative effects on 95th percentile are statistically insignificant from 0. As for the lower-left and lower-right of Figure 4.6.2, I present the results for capital controls on transactions for resident "ka_r" and nonresident "ka_nr" respectively. The effects of capital controls on resident "ka_r" are consistent with aggregated and outflow control indices, while the effects of capital controls on nonresident "ka_nr" do not show any heterogeneity for 5th and 95th percentiles of real GDP growth. Although the beneficial effects still exist in the mid-term (implemented after 5 to 7 months) for 5th percentiles of real GDP growth, the effects are limited for other periods. Besides, there is no negative effect on 95th percentile of real GDP growth over all horizons.

Above, I have presented the effects of aggregated capital control indices for different directions (inflow and outflow) and on different agents (residents and nonresidents). In addition, the granularity of capital control indices allows us to study the measures that most directly affect the flows we are interested in. Figure 4.6.3 shows the effects of six types of granular capital control indices ("eq": shares or securities; "bo": bonds or debt securities; "mm": money market instruments; "cc": commercial credits; "fc": financial credits; "di": direct investment) on 5th and 95th percentiles of real GDP growth. Consistent with the findings using aggregated indices, the effects of "eq", "cc", "fc", and "di" are positive in the mid-term on 5th percentile of real GDP growth respectively. In the long term, all the positive effects fade out and become insignificant within one year. However, the effects of "mm" and "bo" are not found to be statistically different from zero across the projection horizons. As for the impact on 95th percentile of real GDP growth, the cost of adjusting "bo" and "mm" is rapidly materialized in the near-term and persists over one year after their implementation. The cost of changing "eq", "cc", "fc" and "di" is not significant in the short-term. In the long term, "cc" still keeps insignificant but "eq", "fc", and "di" turn to be negative and statistically different from 0 even if these effects are relatively weak. Overall, in line with our previous finding using aggregated indices, I also identify that the granular capital control indices "eq", "fc", and "di" are more heterogeneous for left and right tails of real GDP growth.

Overall, these results suggest that the aggregated capital control indices are



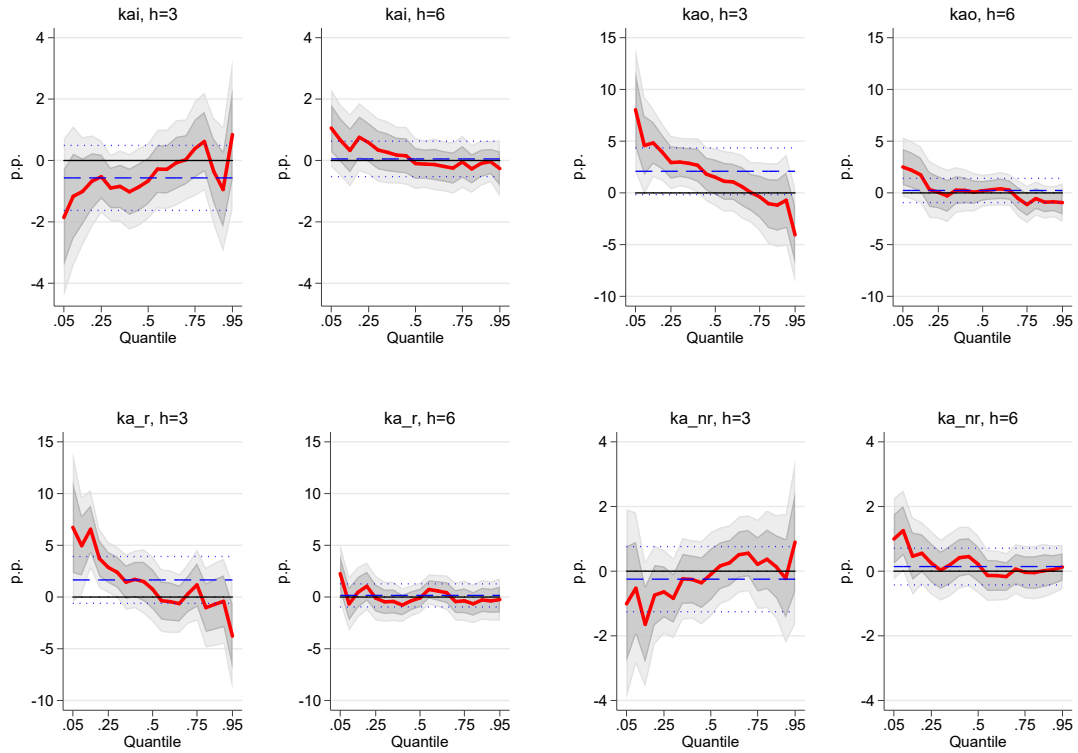
Notes: The red lines denote the estimated cumulative responses coefficients of a one-point increase in aggregated capital control index "ka" obtained from local projection quantile regressions on real GDP growth across quantiles at 3 and 6 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal solid lines represent the value of zero. The blue dashed lines show the OLS estimates and dotted lines represent 1.64 standard error confidence band.

Figure 4.6.4: Estimated quantile regression coefficients of aggregated capital control index "ka" on different quantiles of real GDP growth at 3 and 6 month horizons.

beneficial in reducing the downside risk of real GDP growth in the mid-term whereas they are costly on the upswings of business cycle in the near-term. Specifically, these heterogeneous effects are more evident for outflow control index "kao" and resident transaction control index "ka_r". Besides, for granular indices, these heterogeneous effects are more evident for "eq", "fc" and "di". For "bo" and "mm", the negative effects are more evident on 95th percentile of real GDP growth in the short-term. For "cc", the positive effects are more obvious on 5th percentile in the mid-term. As I have mentioned previously, these results have important policy implications. To benefit from such policy more rapidly after implementation, the capital control measures should be implemented in advance in accordance with the economic status.

4.6.2 The impact of capital control policies on real GDP growth over quantiles

I have analyzed the heterogeneous effects of aggregated and granular capital control indices on the left-tail (5th percentile) and right-tail (95th percentile) of real

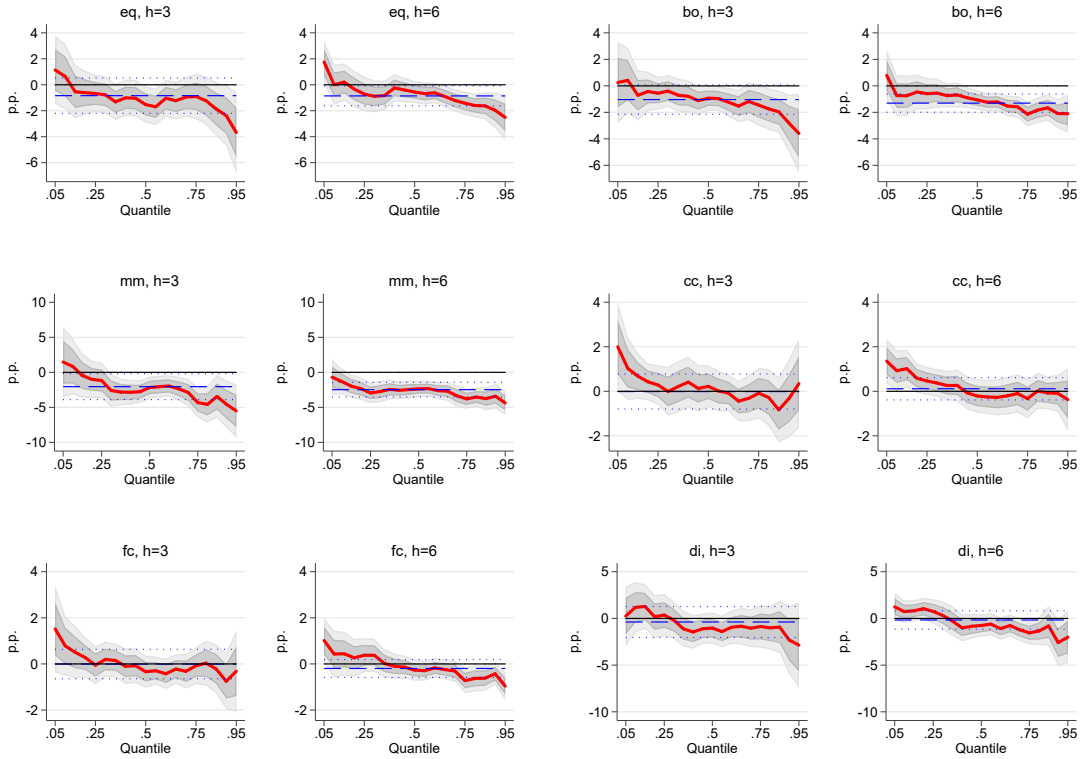


Notes: The red lines denote the estimated cumulative responses coefficients of a one-point increase in each aggregated capital control indices obtained from local projection quantile regressions on real GDP growth across quantiles at 3 and 6 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal solid lines represent the value of zero. The blue dashed lines show the OLS estimates and dotted lines represent 1.64 standard error confidence band.

Figure 4.6.5: Estimated quantile regression coefficients of aggregated capital control indices on different quantiles of real GDP growth at 3 and 6 month horizons.

GDP growth across different time horizons. In this section, I extend the analysis of capital control indices across quantiles (from 5th to 95th percentiles) of real GDP growth distribution at specific near-term (3rd month) and mid-term (6th month) horizon. Figure 4.6.4 and 4.6.5 present the estimated quantile regression coefficients of aggregated capital control indices. The OLS regression (conditional mean, in blue dashed lines) results are also plotted for comparison.

In Figure 4.6.4, I present the estimated quantile effects of implementing aggregate capital control "ka" index. In the near-term ($h = 3$), the beneficial effects of capital control on real GDP growth do exist on the left-tail of the distribution and the effects are 4% point and statistically different from zero. However, on the right-



Notes: The red lines denote the estimated cumulative responses coefficients of a one-point increase in each granular capital control indices obtained from local projection quantile regressions on real GDP growth across quantiles at 3 and 6 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal solid lines represent the value of zero. The blue dashed lines show the OLS estimates and dotted lines represent 1.64 standard error confidence band.

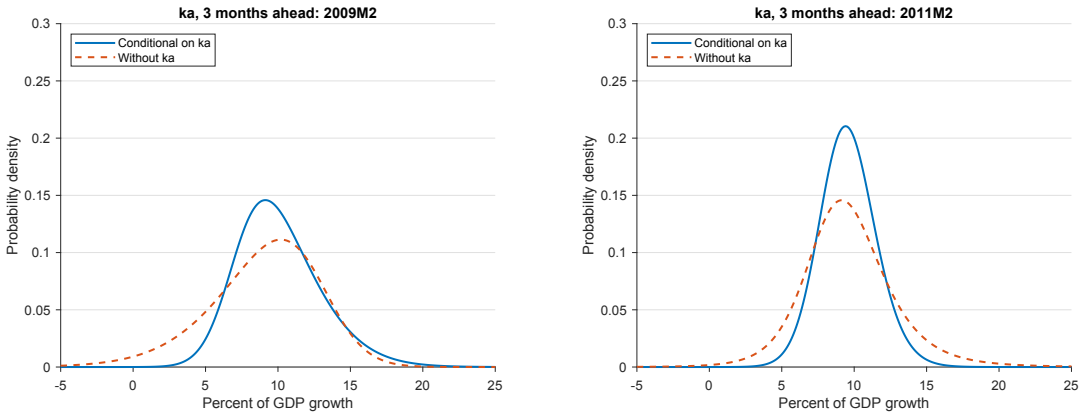
Figure 4.6.6: Estimated quantile regression coefficients of granular capital control indices on different quantiles of real GDP growth at 3 and 6 month horizons.

tail of the distribution, the marginal effects are negative and significant that means using capital control policy is detrimental to the real GDP growth. This result is in line with the OLS counterpart's negative result. At the medium horizon ($h = 6$), implementing aggregated capital control policy also has significantly beneficial effects on the left-tail of real GDP growth even if the effects are only 2% point. As for the right-tail, the detrimental effects are also statistically significant and only -2% point. The negative results also hold for median and OLS counterparts and the impact is clearly significant than in the near-term. Overall, the heterogeneous effects of implementing capital controls on real GDP growth are larger in the short term, and these results are also consistent with the results in section 4.6.1 where the

effects are dissipating gradually in the long-term.

The upper-left and upper-right of Figure 4.6.5 show the effects of inflow control index and outflow control index respectively. In the short term, the inflow control has a negative (positive) but not statistically significant effects on the left-tail (right-tail) of real GDP growth. In mid-term, the effects are positive on the left-tail and negative on the right-tail even if the effects are statistically insignificant for the right-tail. Compared with inflow control index, the outflow control index shows more heterogeneous across the distribution in short term. The detrimental and beneficial effects are more statistically significant at 95th percentile and 5th percentile, respectively. In the mid-term, however, the heterogeneous effects are weakened across the distribution. The characteristics of inflow control index also hold for nonresident capital control index in lower-right of Figure 4.6.5 and the results of outflow control index are similar to resident capital control index in lower-left of Figure 4.6.5. Overall, I find two main results here. First, there exist heterogeneous effects of aggregated capital control indices over the quantiles of real GDP growth distribution and the heterogeneous effects are stronger in the short term. Second, the heterogeneous effects are stronger in short term for outflow control indices and resident control indices.

As was described in section 4.6.1, I also plot the estimated quantile regressions coefficients of granular capital control indices. These results are depicted in Figure 4.6.6. In the short term, capital control of "cc" shows positive and significant effects on the left-tail, but the negative effects are not significant on the right-tail. On the contrary, capital controls of "eq", "bo", and "mm" show negative and significant effects on the right tail, while the positive effects are not significant on the left tail. Besides, the effects of "fc" and "di" are more symmetric and are not significantly different from 0. In the mid-term, capital control of "eq", "fc", and "di" present heterogeneous effects across the distribution. As for other capital control indices, the positive effects of "bo" are not significant on the left-tail, and the negative effects of "cc" are not significant on the right-tail. Overall, the granular indices also show broadly heterogeneous impact even if the impact of several capital controls is insignificant across the distribution.



Notes: The panels in this figure show the estimated probability density function for 3-months ahead real GDP growth at recession (2009M2) and tranquil (2011M2) period. The densities are estimated using a kernel-based method by Adrian et al. (2019). The red dashed lines represent the condiotional ditribution without aggregate capital control index "ka". The blue solid densities show the estimated distribution by conditioning on aggregate capital control index "ka".

Figure 4.6.7: Estimated conditional GDP growth ditribution after the implementation of aggregate capital control index "ka"

4.6.3 The conditional distribution of real GDP growth

The results presented so far analyze the marginal effects of aggregated and granular capital control indices on real GDP growth over quantiles and time horizons. It is necessary to also visualize the estimated empirical distributions such that we will have a more evident view of the integrated shapes of distributions and the shifts arising from implementing the capital control indices. Following Adrian et al. (2019), I fit a skewed t-distribution developed by Azzalini and Capitanio (2003) to smooth the quantile function and obtain an estimated distribution. At each month, I choose four parameters of the skewed t-distribution: μ_t (location), σ_t (scale), α_t (shape), and ν_t (fatness) to minimize the squared distance between the estimated quantile function $\widehat{Q}_{y_{t+h}|x_t}(\tau)$ from equation (4.6) and the inverse cumulative distribution function of the skewed t-distribution $F^{-1}(\tau; \mu_t, \sigma_t, \alpha_t, \nu_t)$ by matching the 5th, 25th, 75th, and 95th percentiles:

$$\{\hat{\mu}_{t+h}, \hat{\sigma}_{t+h}, \hat{\alpha}_{t+h}, \hat{\nu}_{t+h}\} = \underset{\mu,\sigma,\alpha,\nu}{\arg\min} \sum_{\tau} \left(\widehat{Q}_{y_{t+h}|x_t}(\tau|x_t) - F^{-1}(\tau; \mu, \sigma, \alpha, \nu)\right)^2, \quad h = 1, \cdots, 15 \tag{4.7}$$

where the skewed t-distribution can be written as

$$f(\tau;\mu,\sigma,\alpha,\nu) = \frac{2}{\sigma} t\left(\frac{y-\mu}{\sigma};\nu\right) \times T\left(\alpha\frac{y-\mu}{\sigma}\sqrt{\frac{\nu+1}{\nu+\left(\frac{y-\mu}{\sigma}\right)^2}};\nu+1\right), \tag{4.8}$$

where $t(\cdot)$ and $T(\cdot)$ denote the probability density function (PDF) and cumulative density function (CDF) respectively of the t-distribution. Proposed by Adrian et al. (2019) and Eguren Martin et al. (2021), the skewed t-distribution has the shape parameter α that can flexibly accommodate fat tails or skewing effects of the PDF, which is consistent with the features related with real GDP growth.

Figure 4.6.7 shows the conditional forecast distribution estimated by skewed t-distribution for 3-months-ahead real GDP growth at business cycle upswings (2011M2), and downturns (2009M2).[16] The blue solid lines show the density estimated conditional on aggregated capital control index "ka" and other control variables according to baseline model (4.6). For comparison, the red dashed lines denote the estimated density conditional on control variables without "ka" and the interaction term. It is observed that the shapes of the real GDP growth distribution differ between blue and red lines in each sub-figure and the difference is evident for 3-months (one quarter) ahead forecasting.

During downturns (2009M2, left), the distribution conditional on "ka" (blue lines) shows it has a lower variance, positive skewness and a higher conditional mean than the distribution conditional without "ka" (red dash lines). In addition, the left tail contracts and shrinks obviously indicating a decrease in the downside risk after the implementation of capital control index "ka". Meanwhile the right tail expands marginally, resulting a relatively higher probability of high GDP growth. During upswings (2011M2, right), the distribution conditional on "ka" also has a lower variance, positive skewness and a higher conditional mean than the distribution conditional without "ka". Moreover, the left tail shows lower probability of low GDP growth and the right tail also shrinks resulting a smaller likelihood of large real GDP growth. Above, these results supplement the findings with the facts that the implementation of capital control policy can be beneficial to improve GDP-at-risk during downturns and upswings, but it is detrimental to higher real GDP growth

[16] I choose the upwing and downturn periods based on the cyclical component of real GDP. As we can see in Figure 4.2.1, the solid line of real GDP detrended shows that the highest peak and lowest trough are 2011M2 and 2009M2, respectively.

during upswings.

For further analysis, Figure B.1.2 provides the aggregated capital control indices using inflow, outflow, resident and nonresident control measures for 3 months ahead. These results suggest that outflow control index and resident transaction control index could decrease the probability of lower GDP growth and raise the probability of higher GDP growth during downturns in 2009M2. During business cycle upswings, however, the implementation of such policies could reduce the probability of both left- and right-tail of GDP growth distribution similar to the effects of "ka" in Figure 4.6.7. In opposition to our results, Gelos et al. (2022) find that the CFMs are ineffective in reducing or increasing the probability of net outflows. They believe that the ineffectiveness is likely due to the facts that the implementation of capital control may have not been sufficiently comprehensive or were operationally unenforceable. As for the distribution of inflow control index and nonresident transaction control index, although the beneficial effects are still marginally effective during downturn compared with the effects of outflow and resident control index, the detrimental effects are limited for decreasing the probability of higher real GDP growth.

What impact do granular capital control indices have on the distribution? Figure B.1.3 plots the results for granular capital control indices. During downturns, the distributions conditional on capital control indices "eq", "bo", "cc", "fc" and "di" all display lower variance and higher conditional mean. Although "eq", "bo", and "di" have negative skewness, the left tail contracts and shrinks, implying lower probability of downside risk. As for "mm", even if it has larger negative skewness than the estimated distribution conditional without "mm", it has equal level of probability at the left-tail of real GDP growth. Besides, it has larger probability in increasing the right-tail of real GDP growth. During upswings, the distributions conditional on "eq", "bo", and "mm" show lower probability of high real GDP growth, while the distribution conditional on "cc" and "fc" present lower possibility of low real GDP growth. Besides, the distributions conditional on "di" has no significant difference conditional without "di".

4.6.4 Measuring Vulnerability

Mentioned by Adrian et al. (2019), policymakers are more interested in the downside and upside risks to GDP growth, namely, the vulnerability of the predicted GDP

growth path. There are two types of indicators used to measure such vulnerability. One is the relative indicator – upside and downside entropy. These indicators quantify the "shifts" induced in the tail region by implementing capital control policies. Given a fitted distribution $\hat{g}_{y_{t+h}}(y)$ the unconditional density calculated by matching the unconditional empirical distribution of GDP growth, $\hat{f}_{y_{t+h}|x_t}(y|x_t)$ the estimated skewed t-distribution conditional on aggregated capital control policy "ka" and other control variables in baseline model (4.6), I compute downside $\mathcal{L}^D$ and upside $\mathcal{L}^U$ relative entropy as

$$\mathcal{L}^D = \int_{-\infty}^{\hat{F}^{-1}_{y_{t+h}|x_t}(0.5|x_t)} \log\left(\frac{\hat{f}_{y_{t+h}|x_t}(y|x_t)}{\hat{g}_{y_{t+h}}(y)}\right) \hat{f}_{y_{t+h}|x_t}(y|x_t)\, dy, \tag{4.9}$$

$$\mathcal{L}^U = \int^{\infty}_{\hat{F}^{-1}_{y_{t+h}|x_t}(0.5|x_t)} \log\left(\frac{\hat{f}_{y_{t+h}|x_t}(y|x_t)}{\hat{g}_{y_{t+h}}(y)}\right) \hat{f}_{y_{t+h}|x_t}(y|x_t)\, dy, \tag{4.10}$$

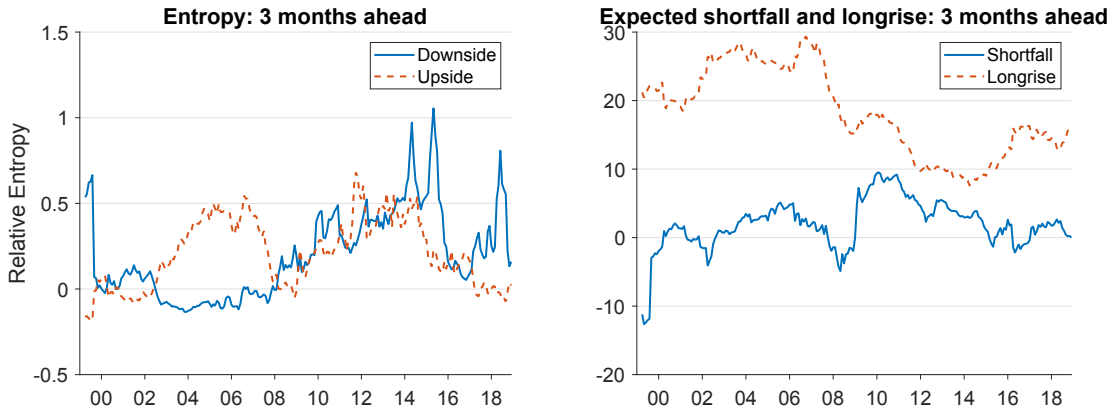
where $\hat{F}_{y_{t+h}|x_t}(y|x_t)$ is the CDF of $\hat{f}_{y_{t+h}|x_t}(y|x_t)$ and $\hat{F}_{y_{t+h}|x_t}(0.5|x_t)$ denotes the conditional median. In other words, downside (upside) entropy measures the divergence between the unconditional density and the conditional density that occurs below (above) the median of the conditional density. A higher downside entropy denotes more positive probability are assigned to extreme left tail of GDP growth than unconditional density.[17] Other indicators of characterizing absolute vulnerability are expected shortfall and longrise. I choose a target probability of 5%, the expected shortfall and longrise are computed as

$$SF_{t+h} = \frac{1}{5\%}\int_0^{5\%} \hat{F}^{-1}_{y_{t+h}|x_t}(\tau|x_t)\, d\tau, \tag{4.11}$$

$$LR_{t+h} = \frac{1}{5\%}\int_{95\%}^{1} \hat{F}^{-1}_{y_{t+h}|x_t}(\tau|x_t)\, d\tau. \tag{4.12}$$

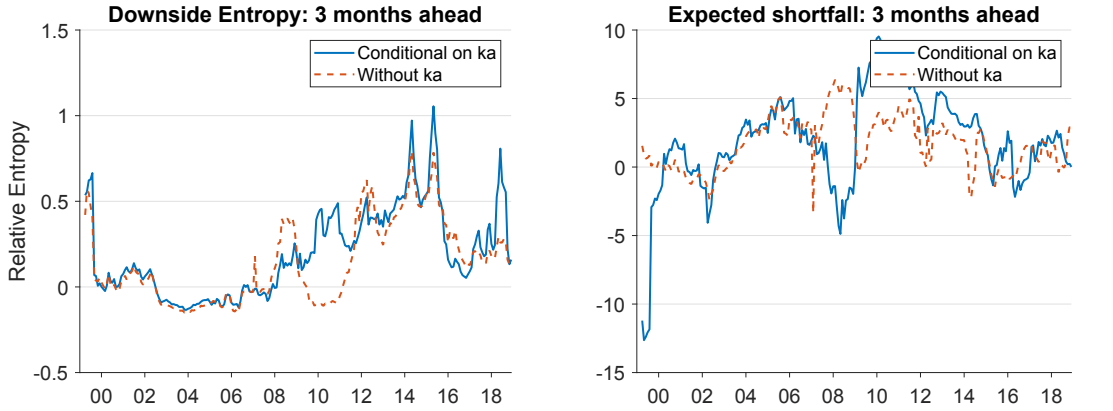
Intuitively, expected shortfall (longrise) measures the average realization drawn from below the 5th percentile (above the 95th percentile) of the predictive distribution (Gu et al., 2021).

[17] Adrian et al. (2019) show that unlike the full relative entropy between two distributions, downside and upside entropy can be negative.



Notes: These figures show the time series evolution of relative downside and upside entropy together with the 5% expected shortfall and 95% expected longrise. The left panel displays the evolution of upside (red dashed lines) and downside (blue solid lines) entropy of predicted distribution over time, conditional on "ka" and other control variables according to baseline model (4.6). The right panel presents the 5% expected shortfall (blue solid lines) and the 95% expected longrise (red dashed lines) over time.

Figure 4.6.8: Relative entropy and expected shortfall and longrise



Notes: These figures show the time series evolution of downside entropy together with the 5 percent expected shortfall conditional on "ka" (blue solid lines) and without "ka" (red dashed lines).

Figure 4.6.9: Downside entropy and expected shortfall: Comparison

The left panel of Figure 4.6.8 shows the evolution of GDP upside and downside entropy 3 months ahead, and the right panel presents the 5% expected shortfall and the 95% expected longrise. The results show a high degree of similarity for these measures, implying that the non-Gaussian features of the conditional distribution are mainly abstracted from the unconditional distribution. Besides, although downside and upside entropy as well as expected shortfall and longrise are positively correlated, downside entropy and expected shortfall are more volatile and has more evident nonlinearities.

Next, to specify the role of capital control in these tail risk measures, I calculate them for both the conditional densities considering aggregated capital control index "ka" (blue solid lines) and the estimated densities do not (red dashed lines) in Figure 4.6.9. In the left panel, I find that the empirical distribution considering the capital control index would decrease the downside risk during downturn periods (e.g., 2008-2009, 2012-2013, and 2015-2016). Hence, the distribution that does not consider capital control index would overestimate the risk during downturn periods. Similarly, considering capital control index "ka" seems to influence the expected shortfall of real GDP growth. From 2000 to 2006 and 2009 to 2016, the expected shortfall shows a upward deviation than the expected shortfall that does not incorporate capital control index "ka". Especially for 2009, the expected shortfall conditional on "ka" was skyrocketing and the expected shortfall without "ka" was plummeting, implying that using capital controls can reduce the expected shortfall during financial crisis period. Overall, considering the capital control index "ka" has the potential to reduce downside risks of China's economy.

4.7 Robustness

In this section, I show that the baseline results are robust to a series of robustness checks.

4.7.1 Further analysis of granular capital control measures

So far, I have analyzed the effects of both aggregated and granular capital control indices on real GDP growth at the 5th and 95th percentiles in section 4.6.1. In this section, I analyze the effects of granular indices further by breaking down into inflows and outflows, as well as transactions on residents and nonresidents. Panel (a) and (b) of Figure B.1.4 plot the results for inflow and outflow granular indices respectively. In panel (a), granular inflow control indices "eqi", "boi", and "dii" all present the beneficial effects at 5th percentile of real GDP growth in the mid-term, and the detrimental effects at 95th percentile of real GDP growth in the near-term even if some of indices are not statistically significant. Panel (b) shows that the heterogeneous effects hold for outflow control indices "eqo", "boo", "cco", and "fco". Panel (a) and (b) of Figure B.1.5 plot the results for granular resident and

Table 4.7.1: The granular capital control indices that have heterogeneous effects

Term	Type	"eq"	"bo"	"mm"	"cc"	"fc"	"di"
Near Term	inflow						
	outflow	✓	✓		✓	✓	
(3 months)	resident	✓			✓	✓	
	nonresident		✓				
Medium Term	inflow	✓	✓				✓
	outflow	✓					
(6 months)	resident	✓					
	nonresident	✓					✓

Notes: The heterogeneous effects mean that the capital control indices have beneficial effects at 5th percentile of real GDP growth and have detrimental effects at 95th percentile of real GDP growth. The capital control index with "✓" mark means such index has heterogeneous effects.

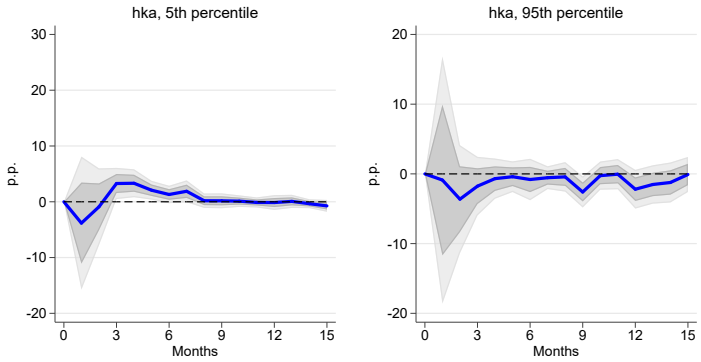
nonresident transaction control indices respectively. The heterogeneous effects can be observed for "eq_r", "cc_r", "fc_r" and "di_r" for resident transaction index. While for nonresident transaction index, the heterogeneous effects are pronounced for "eq_nr", "bo_nr" and "di_nr", other indices are more symmetric over the time horizons.

In Figure B.1.6 and B.1.7, I also provide the estimated quantile regression coefficients across quantiles at 3 and 6 months ahead for inflow and outflow as well as resident and nonresident transaction granular capital controls respectively. In panel (a) of Figure B.1.6, the heterogeneous effects are more evident for "eqi" and "dii" in the medium term. The sub-figures of "boi" and "fci" show negative effects in the lower tail of the distribution and positive effects in the upper tail of the distribution. These results are consistent with the results of the term structure of conditional distribution. As for panel (b) of Figure B.1.6, in the short term, most of the granular measures display the heterogeneous effects across quantiles except "mmo" and "dio". In the medium term, however, most the outflow control measures show symmetric effects over quantiles except "eqo". This is also in line with the results of term structure. In panel (a) of Figure B.1.7, all resident transaction indices display the heterogeneous effects except "bo_r", "mm_r", and "di_r" in the near term, while the heterogeneous effects are also not pronounced in medium term except "eq_r". In panel (b), only "bo_nr" are heterogeneous in the near term and "eq_nr" and "di_nr" are heterogeneous in the medium term.

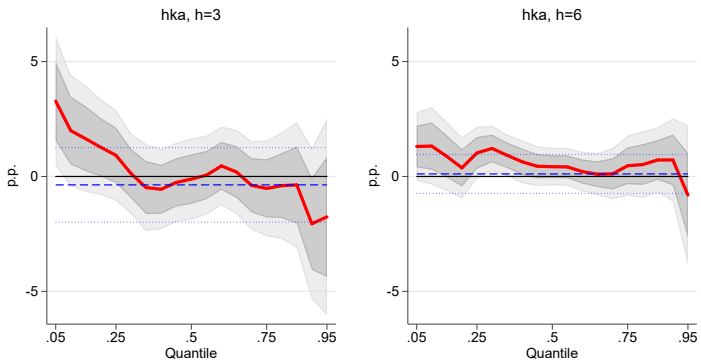
Overall, I summarize the granular capital control indices that have heterogeneous

effects in Table 4.7.1. These results show that the heterogeneous effects are more evident in near term for outflow granular control indices, while in medium term, the inflow granular control indices present more heterogeneous effects. Besides, equity control index "eq" presents more heterogeneity.

4.7.2 Using *hybrid* capital controls



(a) Estimated coefficients of 5th, and 95th percentiles of real GDP growth to the implementation of aggregated hybrid capital control index "hka" from 1 to 15 month horizons.



(b) Estimated quantile regression coefficients of aggregated hybrid capital control index "hka" on different quantiles of real GDP growth at 3 and 6 month horizons.

Figure 4.7.1: The effects of aggregated hybrid capital control index "hka"

Above, I have identified the effects of capital controls on real GDP growth using *de jure* capital control indices. However, the aggregated *de jure* indices are computed by simply averaging indices of different asset categories, and hence, these indices do not consider the relative importance of each asset categories. In order to address this issue, Chen and Qian (2016) consider a weighted average method that the weight

are computed using a *de facto* measure of the share of a subcategory asset value in the total value of all asset categories. Based on BOP data from SAFE, they use a four-year retrospective-style moving average window to generate the weights.[18] Compared with the exclusive *de jure* or *de facto* measures, the hybrid measures solve the issues of lack of importance measures and endogeneity by using weights in the compiling process and using a retrospective-style moving average window to weight the *de jure* indices. Thus, I re-estimate the quantile model in equation (4.6) after replacing the aggregated *de jure* capital control index "ka" by the hybrid capital control index "hka".

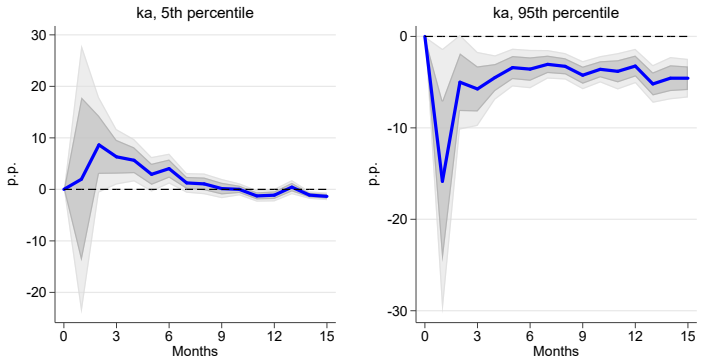
In Figure 4.7.1, I plot the term structure of real GDP growth at 5th and 95th percentile in panel (a) and the estimated response of real GDP growth over quantiles at 3 and 6 months ahead in panel (b). In general, the heterogeneous results are consistent with those obtained above using *de jure* capital control index "ka". Panel (b) shows that one point increase in "ka" would improve GaR by 3% point in the near-term. This positive effect is larger in the near-term than medium term and would persist for 7 months. On the other hand, 95th percentile of real GDP growth would be negatively affected by this policy. Nevertheless, such negative effects are not fully statistically significant in the near-term, and even if it is marginally significant in medium term (9th month), the negative effects are weak for only -3% point.

4.7.3 Using IMF's financial conditional index

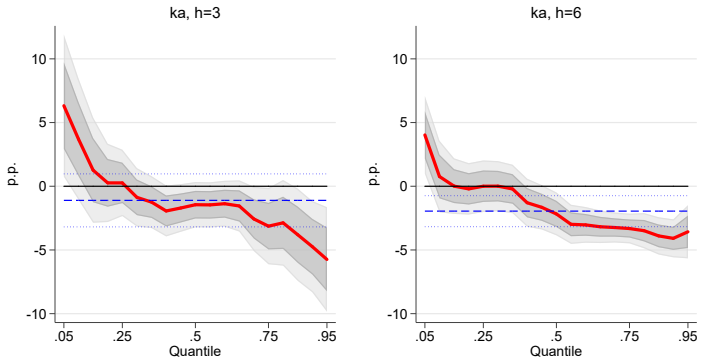
As I mentioned above, the panel data for financial condition index has been compiled by Arregui et al. (2018) and used for IMF's 2017 GSFR, which they estimate FCI from 1990 to 2016 for 43 advanced and emerging markets using 10 financial indicators. They estimate such index based on the FAVAR models with time-varying coefficients (TVP) and stochastic volatility (SV) developed by Koop and Korobilis (2014) that we have used in section 4.4.1. This dataset is widely used in previous literature (see Adrian et al., 2018; Eguren Martin et al., 2021; Galán, 2020) for panel data analysis, while the FCI data are available only until the end of 2016 and would not be updated regularly. Thus, I only use IMF's CFCI for robustness test.

For robustness check, I substitute our "FCI_noDMA" with Arregui et al. (2018)'s

[18] They use a retrospective style to calculate the weights, thus the data of current year and forward year are not included in computing current year's weight. This way can mitigate the endogeneity issues of implementing capital control policies.



(a) Estimated coefficients of 5th, and 95th percentiles of real GDP growth to the implementation of aggregated capital control index "ka" from 1 to 15 month horizons.



(b) Estimated quantile regression coefficients of aggregated capital control index "ka" on different quantiles of real GDP growth at 3 and 6 month horizons.

Figure 4.7.2: The effects of aggregated capital control index "ka": using "FCI_IMF" instead of "FCI_noDMA".

FCI (namely, "FCI_IMF") in the baseline model and the results are depicted in Figure 4.7.2. I still find the positive effects of aggregated capital control index "ka" on 5th percentile of real GDP growth in the medium term and the negative effects on 95th percentile of real GDP growth in the near term. Although the effects are marginally stronger using IMF's CFCI index, the results are in line with main findings in section 4.6.1 and 4.6.2.

4.8 Conclusion

The capital control liberalization has been generally believed to be beneficial to developing and emerging countries, such that capital controls would stem growth

and lead to higher implementation cost. However, if there is a downside risk in one country, with an underdeveloped domestic financial market and banking system as well as a fully liberalized capital account, the country would suffer from capital flight which would depreciate the domestic currency and trigger further outflows, leading to a totally recession. Therefore, policymakers are cautious about fully liberalizing their capital account and they need to use capital controls prevent capital flight and dampen the volatile capital flows. Besides, If capital control policies effectively decrease systemic risk, one could forecast the benefits to be observed in the downside risk of GDP growth distribution.

I study the marginal effects of China's capital control policies on GDP growth distribution and the term structures of such distribution. To this end, I use the framework extended by Adrian et al. (2019) calculate the quantile marginal effects of real GDP growth forward to 15 months on different types of capital control indices and fit a skewed t-distribution to obtain the estimated distribution. Building on the delicately collected China's capital control indices by Chen and Qian (2016), I use a narrative approach to identify the causal relationship between capital control policies and real GDP growth. The results show that there exist heterogeneous effects of aggregated capital control indices over the real GDP growth distribution. Specifically, the aggregated capital control indices are beneficial in reducing the downside risk of real GDP growth in the medium term whereas they are costly on the upswings of real GDP growth in the near-term. After I estimate the marginal effect of capital controls policies on real GDP growth over quantiles, the result shows that the heterogeneous effects are stronger in the near-term than medium term. Besides, the heterogeneous effects are more evident in the short term for outflow control index and resident transaction control index. The granular indices show broadly heterogeneous effects even if several of them are insignificant. As for policymakers, in order to obtain benefits more rapidly after implementation, the capital control measures should be implemented in advance in accordance with the economic status.

Chapter 5

The effectiveness of capital controls: gates versus walls

5.1 Introduction

Large and volatile capital flows cause great concern for policymakers in emerging economies. Recently, the COVID-19 pandemic has led to historic portfolio outflows from emerging economies (IMF, 2020, ch.3). The International Monetary Fund (IMF) had previously opposed any policies that impede the free flow of capital. However, the IMF now admits that capital control policies can be a valid alternative policy tool for emerging economies to manage excessive capital flows under certain circumstances (IMF, 2022).[1] The IMF changed its view on capital controls, when many emerging economies had been contending with the sudden influx of capital due to the unprecedented quantitative easing measures in developed countries after the global financial crisis. The macroeconomic instability in the form of asset bubbles, high inflation, declining international competitiveness due to domestic currency's appreciation, and sudden reversal of capital flows have been observed on a number of occasions in the past. Therefore, many policymakers and researchers consider some kind of policy intervention such as capital controls to be required for the macroeconomic stability.

Against this background, capital controls have been one of the most important topics in international finance, and examined by an increasing number of researchers.

[1] For more details, see also Ostry et al. (2010), Ostry et al. (2012), and IMF (2012).

However, the empirical literature on the effectiveness of capital controls provides mixed results.[2] Some empirical studies suggest that capital controls are effective (e.g., Ostry et al., 2012; Ahmed and Zlate, 2014; Chantapacdepong and Shim, 2015; Bruno et al., 2017), while other empirical studies suggest that capital controls are not effective (e.g., Forbes and Warnock, 2012; Forbes et al., 2015; Frost et al., 2020). It is noteworthy that quite a few empirical studies show that the effectiveness of capital controls depends on many different factors such as asset categories, countries' income levels, financial development levels, regulatory quality levels, structure of banking sector, the direction of flows, the type of capital controls, the difference in advanced and emerging economies, *etc.* (e.g., Binici et al., 2010; Baba and Kokenyne, 2011; Dell'Erba and Reinhardt, 2015; Beirne and Friedrich, 2017; Landi and Schiavone, 2021; Kitano and Zhou, 2022).

We analyze the effectiveness of capital controls on international debt flows using 81 economies' data including both advanced and emerging economies over 1995 to 2019. We use a local projection (LP) estimation methodology proposed by Jordà (2005). We first use total samples including both advanced and emerging economies and examine the effectiveness of imposing capital controls on international debt flows. We further make various distinctions among samples.

The analysis using the total samples shows that although they are in the expected directions, the impulse responses of imposing capital controls are not statistically significant. We find that distinguishing between the pre-crisis and post-crisis periods does not change the result in the total sample case. We next make the distinction between the two groups of advanced and emerging economies. We find that the result on advanced economies is almost similar to the whole sample case, whereas the result on emerging economies is less relevant compared to the whole sample case. However, both results are not statistically insignificant. Further making the distinction between the pre-and-post crisis periods for the two groups of advanced and emerging economies respectively, we find that some of the impulse responses are in the opposite direction to expected, and most results are not statistically significant.

Following the canonical distinction by Klein (2012), we finally distinguish be-

[2]Regarding theoretical studies, many of them suggest that capital controls are a potentially useful policy tool. See, for example, the literature review in Kitano and Takaku (2018) and Kitano and Takaku (2020).

tween the "gate" and "wall" countries. Klein (2012) makes a key distinction between episodic controls that cover a narrow set of asset categories ("gate") and long-standing controls that cover a broad set of asset categories ("wall"). Our result shows that the effectiveness of capital controls is relevant for the "wall" economies (but not for the "gate" economies).

Our study deviates from the existing literature in that we examine the effectiveness of capital controls by using the canonical distinction, "gate" and "wall", originally proposed by Klein (2012). To the best of our knowledge, this paper is the first to follow the canonical distinction between "gate" and "wall" economies and examine how the effectiveness of capital controls differs between the two groups.

5.2 Data and Methodology

5.2.1 Data

We use annual data for 81 economies: 31 advanced and 50 emerging economies from 1995 to 2019 owing to data availability constraints.[3] Following Forbes and Warnock (2012), Broner et al. (2013), and Landi and Schiavone (2021), we use gross inflows (rather than net inflows) as our measure of capital inflows. The gross inflows are defined as the *net* of purchases and sales of domestic assets by foreign agents.[4] We obtain the gross inflow data from the balance of payments in CEIC database.[5] In section 5.2.2, we use capital-inflow-to-GDP ratio, which is defined as the ratio of gross inflows to nominal GDP. The nominal GDP data are also from the CEIC database.

We use the dataset of capital control indices compiled by Fernández et al. (2016). The dataset contains the annual 0-1 dummy variables with 1 if such policy is in place, and 0 for absent for specific asset categories. We choose capital controls on debt transactions. In the dataset by Fernández et al. (2016), we specifically use the indices of "bo_plbn" and "bo_siln" on the asset category of "bonds or other debt securities with an original maturity of more than one year". When "bo_plbn" is 1 (0), it

[3]Table 5.2.1 shows the 31 advanced economies. Table 5.2.2 shows the 50 emerging economies.

[4]The *gross* inflows refer to the *net* of purchases and sales. In this sense, the terminology of "gross inflows" may be confusing (Forbes and Warnock, 2012).

[5]The gross inflow data specifically correspond the term "foreign portfolio investment: debt securities" in the CEIC database.

indicates that capital controls on the *purchase* of domestic debt by foreign agents are in place (absent). The imposition of capital controls on the *purchase* of domestic debt by foreign agents obviously discourages foreign agents from *purchasing* domestic debt. Therefore, if "bo_plbn" is 1, it is expected to *decrease* the gross inflows. On the other hand, when "bo_siln" is 1 (0), it indicates that capital controls on the *sale* of domestic debt by foreign agents are in place (absent). The imposition of capital controls on the *sale* of domestic debt by foreign agents obviously discourages foreign agents from *selling* domestic debt. As argued above, the gross inflows are defined as the *net of purchases and sales* (i.e., purchases minus sales) of domestic assets by foreign agents. Therefore, if "bo_siln" is 1, it is expected to *increase* the gross inflows.

We include each country's real GDP growth rates, CPI inflation rates, financial development indices, nominal exchange rates (depreciation rates against US dollar), nominal interest rates, total of exports and imports to GDP ratios, external debt-to-GDP ratios, and the Volatility Index (VIX) computed by the Chicago Board Options as control variables in regressions in Section 5.2.2. The real GDP growth rates and the CPI inflation rates are taken from the Penn World Table (Feenstra et al., 2015). The financial development indices are taken from the IMF Financial Development (FD) Index Database. The Volatility Index (VIX) data are taken from "FRED" of the Federal Reserve Bank of St. Louis. The other four data (each country's nominal exchange rates, nominal interest rates, total of exports and imports to GDP ratios, and external debt-to-GDP ratios) are obtained from the CEIC database.

Following Klein (2012) and Fernández et al. (2016), we classify the sample economies into three groups: "open", "gate", and "wall." In Section 5.3, we examine how the effectiveness of capital controls differs among them. Using data on inflow controls over 1995–2010 for various asset categories, Klein (2012) divides 44 countries into three groups: "open" countries (persistently open to inflows), "wall" countries (persistently closed), and "gate" countries (i.e., episodic controls). Using data on inflow controls over 1995–2019, we classify 31 advanced and 50 emerging countries into the three categories as shown in Tables 5.2.1 and 5.2.2. When we classify them, we follow the Fernández et al. (2016, p.558)'s criteria: "*"Open" ("Walls") countries have, on average, capital controls on less than 15 percent (more than 70 percent) of their transactions subcategories over the sample period and do not have*

any years in which controls are on more than 25 percent (less than 60 percent) of their transaction subcategories. "Gate" countries are neither Walls nor Open." In Table 5.2.1, there is no "wall" country, since no sample advanced economies are classified as the "wall" economies. In Table 5.2.1, eighteen countries are classified as "open" countries, while thirteen countries are classified as "gate" countries. The countries with * (Finland and Greece) are classified as "open" countries in Fernández et al. (2016) (from 1995 to 2013), but classified as "gate" countries in our analysis (from 1995 to 2019). In Table 5.2.2, we classify eight countries as "open", thirty one countries as "gate," and eleven countries as "wall." The countries with * are classified as "open" in Fernández et al. (2016) (from 1995 to 2013), but classified as "gate" in our analysis (from 1995 to 2019). Although their average capital-control indices are larger than 70%, the countries with ** are classified as "gate" (not as "wall"). This is so because they have at least one year with lower than 60%.

Table 5.2.1: Classification of advanced economies into "open", "gate", and "wall" groups

Open		Gate	
Country	Mean	Country	Mean
Austria	0.146	Australia	0.267
Belgium	0.067	Cyprus	0.450
Canada	0.056	Czech	0.291
Denmark	0.057	Finland*	0.153
France	0.071	Germany	0.193
Hong Kong	0.021	Greece*	0.175
Ireland	0.048	Iceland	0.465
Italy	0.025	Israel	0.126
Japan	0.002	Korea	0.349
Latvia	0.064	Malta	0.322
Netherlands	0	Portugal	0.173
New Zealand	0.101	Slovenia	0.372
Norway	0.052	Switzerland	0.192
Singapore	0.140		
Spain	0.028		
Sweden	0.086		
United Kindom	0.02		
United States	0.134		
(18)		(13)	

Notes: There is no sample advanced economy classified as "wall". The countries with * are classified as "open" in Fernández et al. (2016) (from 1995 to 2013), but "gate" in our analysis (from 1995 to 2019).

Table 5.2.2: Classification of emerging economies into "open", "gate", and "wall" groups

Open		Gate				Wall	
Country	Mean	Country	Mean	Country	Mean	Country	Mean
Georgia	0.063	Argentina	0.509	Kyrgyz	0.266	China	0.957
Mauritius	0.115	Bangladesh**	0.825	Lebanon	0.612	Côte d'Ivoire	0.768
Panama	0	Bolivia	0.173	Mexico	0.603	India	0.967
Paraguay	0.104	Brazil	0.625	Moldova	0.652	Malaysia	0.813
Peru	0.007	Bulgaria	0.179	Nigeria	0.225	Morocco	0.761
Qatar	0.122	Chile	0.390	Oman*	0.159	Pakistan	0.727
Uruguay	0.003	Colombia	0.630	Poland**	0.724	Philippines	0.854
Zambia	0	Ecuador	0.390	Romania	0.318	Sri Lanka	0.992
		Egypt*	0.174	Russia	0.614	Tunisia	0.994
		Ghana	0.520	Saudi Arabia	0.666	Ukraine	0.796
		Hungary	0.237	South Africa	0.647	Uzbekistan	0.897
		Indonesia	0.644	Thailand**	0.734		
		Iran	0.660	Turkey	0.456		
		Kazakhstan	0.481	Venezuela	0.413		
		Kenya	0.321	Vietnam**	0.887		
		Kuwait	0.350				
(8)		(31)				(11)	

Notes: The countries with * are classified as "open" in Fernández et al. (2016) (from 1995 to 2013), but "gate" in our analysis (from 1995 to 2019). Although their average capital-control indices are larger than 70%, the countries with ** are classified as "gate" (not "wall") because they have at least one year with lower than 60%.

5.2.2 Methodology

To examine the effectiveness of capital controls on international debt flows, we use local projection method by Jordà (2005) and compute the impulse response of capital-inflow-to-GDP ratio to the implementation of capital controls.[6] The first regression equation is given by

$$IF_{i,t+h} = \alpha_i^h + \gamma_t^h + \beta_{ALL,v}^h CC_{i,v,t} + \sum_{k=0}^{1} \phi_k^h \boldsymbol{X}_{i,t-k} + \varepsilon_{i,t+h}, \tag{5.1}$$

for $h = 1, \cdots, 5$. This is the case including all the sample economies over all the sample period ($case1$). $IF_{i,t+h}$ denotes the capital-inflow-to-GDP ratio of country i at time $t+h$. α_i^h and γ_t^h denote country-specific and time fixed effects, respectively. $CC_{i,v,t}$ denotes the capital control index for country i at period t, where $v = \{p, s\}$ indicates the purchase (p) or sale (s) of domestic assets by foreign agents. $CC_{i,p,t}$ and $CC_{i,s,t}$ are respectively equivalent to "bo_plbn" and "bo_siln" in the Fernández et al. (2016)'s dataset. $CC_{i,p,t}$ indicates whether capital controls on the *purchase* of domestic debt by foreign agents are in place or not (1 or 0). $CC_{i,s,t}$ indicates whether capital controls on the *sale* of domestic debt by foreign agents are in place or not (1 or 0). Therefore, $\beta_{ALL,v}^h$ denotes the marginal effects of tightening capital controls on the inflow to GDP ratio h periods ahead in each case (where $v = \{p, s\}$).

We use gross inflows (rather than net inflows) as our measure of capital inflows. As we argue in Section 5.2.1, *gross* inflows are defined as the *net* of purchases and sales of domestic assets by foreign agents. When $CC_{i,p,t}$ is 1, we then expect that the imposition of capital controls on the *purchase* by foreign agents *reduces* the gross inflows. When $CC_{i,s,t}$ is 1, we then expect that the imposition of capital controls on the *sale* by foreign agents *increases* the gross inflows.

$\boldsymbol{X}_{i,t-k}$ denotes a vector of control variables. Following the related studies (e.g., Landi and Schiavone, 2021; Ahmed and Zlate, 2014), we choose the following control variables:

$$\boldsymbol{X}_{i,t-k} = [\mathrm{IF}_{i,t-k} \;\; \Delta\mathrm{Y}_{i,t-k} \;\; \mathrm{CPI}_{i,t-k} \;\; \mathrm{FD}_{i,t-k} \;\; \mathrm{EXR}_{i,t-k} \;\; \mathrm{R}_{i,t-k} \;\; \mathrm{TRD}_{i,t-k} \;\; \mathrm{DBT}_{i,t-k} \;\; \mathrm{VIX}_{i,t-k}]\,. \tag{5.2}$$

[6] Ben Zeev (2017) and Loipersberger and Matschke (2022) also employ the local projection method to examine the effectiveness of capital controls.

The controls are current and 1-year lagged values of $\boldsymbol{X}$ at horizon $h = 0$. $\text{IF}_{i,t-k}$ denotes the current and lag values of capital-inflow-to-GDP ratio. $\Delta\text{Y}_{i,t-k}$ and $\text{CPI}_{i,t-k}$ respectively denote the real GDP growth rate and the CPI inflation rate, which are business cycle variables. $\text{FD}_{i,t-k}$ denotes the financial development index, which may affect the effectiveness of capital controls (Bush, 2019). $\text{EXR}_{i,t-k}$ and $\text{R}_{i,t-k}$ denote nominal exchange rates (depreciation rates against US dollar) and nominal interest rates, respectively. $\text{TRD}_{i,t-k}$ denotes a measure of trade integration, which is defined as the GDP ratio of the total of exports and imports. $\text{DBT}_{i,t-k}$ represents the external debt-to-GDP ratio. $\text{VIX}_{i,t-k}$ denotes the Volatility Index (VIX) computed by the Chicago Board Options, which is a measure of global risk aversion. An increase in VIX, which implies a greater global risk aversion, can reduce capital inflows (Ahmed and Zlate, 2014). We explain about the data source for the control variables in Section 5.2.1.

In Section 5.3, in addition to the first case ($case1$), we consider various types of subcategories by using indicator variables. We first make the distinction between the pre-and-post crisis periods ($case2$). The regression equation for the $case2$ is given by

$$IF_{i,t+h} = \alpha_i^h + \gamma_t^h + \beta_{PR,v}^h I_{PR} CC_{i,v,t} + \beta_{PO,v}^h I_{PO} CC_{i,v,t} + \sum_{k=0}^{1} \phi_k^h \boldsymbol{X}_{i,t-k} + \varepsilon_{i,t+h}, \tag{5.3}$$

for $h = 1, \cdots, 5$. As in Eq.(5.1), $CC_{i,v,t}$ denotes the capital control index for country i at period t, where $v = \{p, s\}$ indicates the purchase (p) or sale (s) of domestic assets by foreign agents. Herein, I_{PR} and I_{PO} are the indicator variables for the pre-and-post crisis periods, respectively. If one sample is in the pre-crisis period (post-crisis period), then $I_{PR}(I_{PO}) = 1$, otherwise, $I_{PR}(I_{PO}) = 0$. Therefore, $\beta_{PR,v}^h$ and $\beta_{PO,v}^h$ denote the marginal effects of tightening capital controls on the inflow to GDP ratio (h periods ahead) in the pre- and post-crisis periods, respectively.

We next differentiate between advanced and emerging economies ($case3$). The

regression equation for the *case*3 is given by

$$IF_{i,t+h} = \alpha_i^h + \gamma_t^h + \beta_{AD,v}^h \, I_{AD} \, CC_{i,v,t} + \beta_{EM,v}^h \, I_{EM} CC_{i,v,t} + \sum_{k=0}^{1} \phi_k^h \boldsymbol{X}_{i,t-k} + \varepsilon_{i,t+h}, \tag{5.4}$$

for $h = 1, \cdots, 5$. As in Eq.(5.1), $CC_{i,v,t}$ denotes the capital control index for country i at period t, where $v = \{p, s\}$ indicates the purchase (p) or sale (s) of domestic assets by foreign agents. Herein, I_{AD} and I_{EM} are the indicator variables for advanced and emerging economies, respectively. If one sample is an advanced economy (emerging economy), then $I_{AD}(I_{EM}) = 1$, otherwise, $I_{AD}(I_{EM}) = 0$. Therefore, $\beta_{AD,v}^h$ and $\beta_{EM,v}^h$ denote the marginal effects of tightening capital controls on the inflow to GDP ratio (h periods ahead) in the advanced and emerging economy cases, respectively.

We further differentiate between the pre-and-post crisis periods about the advanced and emerging economies, respectively (*case*4). The regression equation for the *case*4 is given by

$$\begin{aligned} IF_{i,t+h} = {} & \alpha_i^h + \gamma_t^h + \beta_{AD\text{-}PR,v}^h \, I_{AD\text{-}PR} \, CC_{i,v,t} + \beta_{AD\text{-}PO,v}^h \, I_{AD\text{-}PO} \, CC_{i,v,t} \\ & + \beta_{EM\text{-}PR,v}^h \, I_{EM\text{-}PR} \, CC_{i,v,t} + \beta_{EM\text{-}PO,v}^h \, I_{EM\text{-}PO} \, CC_{i,v,t} \\ & + \sum_{k=0}^{1} \phi_k^h \boldsymbol{X}_{i,t-k} + \varepsilon_{i,t+h}, \end{aligned} \tag{5.5}$$

for $h = 1, \cdots, 5$. As in Eq.(5.1), $CC_{i,v,t}$ denotes the capital control index for country i at period t, where $v = \{p, s\}$ indicates the purchase (p) or sale (s) of domestic assets by foreign agents. Herein, $I_{AD\text{-}PR}$, $I_{AD\text{-}PO}$, $I_{EM\text{-}PR}$, and $I_{EM\text{-}PO}$ denote the indicator variables for advanced economies in the pre-crisis period, advanced economies in the post-crisis period, emerging economies in the pre-crisis period, and emerging economies in the post-crisis period, respectively. Therefore, $\beta_{AD\text{-}PR,v}^h$, $\beta_{AD\text{-}PO,v}^h$, $\beta_{EM\text{-}PR,v}^h$ and $\beta_{EM\text{-}PO,v}^h$ denote the marginal effects of tightening capital controls on the inflow to GDP ratio (h periods ahead) in the four above mentioned cases, respectively.

We finally distinguish between the "gate" and "wall" countries (*case*5). The

regression equation for the *case*5 is given by

$$\begin{aligned} IF_{i,t+h} = \alpha_i^h + \gamma_t^h + \beta^h_{AD\text{-}GT,v}\, I_{AD\text{-}GT}\, CC_{i,v,t} \\ + \beta^h_{EM\text{-}GT,v}\, I_{EM\text{-}GT}\, CC_{i,v,t} + \beta^h_{EM\text{-}WL,v}\, I_{EM\text{-}WL}\, CC_{i,v,t} \\ + \sum_{k=0}^{1} \phi_k^h \boldsymbol{X}_{i,t-k} + \varepsilon_{i,t+h}, \end{aligned} \tag{5.6}$$

for $h = 1, \cdots, 5$. As in Eq.(5.1), $CC_{i,v,t}$ denotes the capital control index for country i at period t, where $v = \{p, s\}$ indicates the purchase (p) or sale (s) of domestic assets by foreign agents. Herein, $I_{AD\text{-}GT}$, $I_{EM\text{-}GT}$, and $I_{EM\text{-}WL}$ denote the indicator variables for "gate" group of advanced economies, "gate" group of emerging economies, and "wall" group of emerging economies, respectively. Therefore, $\beta^h_{AD\text{-}GT,v}$, $\beta^h_{EM\text{-}GT,v}$, and $\beta^h_{EM\text{-}WL,v}$ denote the marginal effects of tightening capital controls on the inflow to GDP ratio (h periods ahead) in the three above mentioned cases, respectively. We do not include "wall" group of advanced economies into Eq.(5.6), because no sample advanced economies are classified as "wall" economies as shown in Table 5.2.1. We also do not include the indicator variables for "open" group of advanced and emerging economies into Eq.(5.6), because almost no changes in capital control policies were observed for the "open" group of economies.[7]

5.3 Results

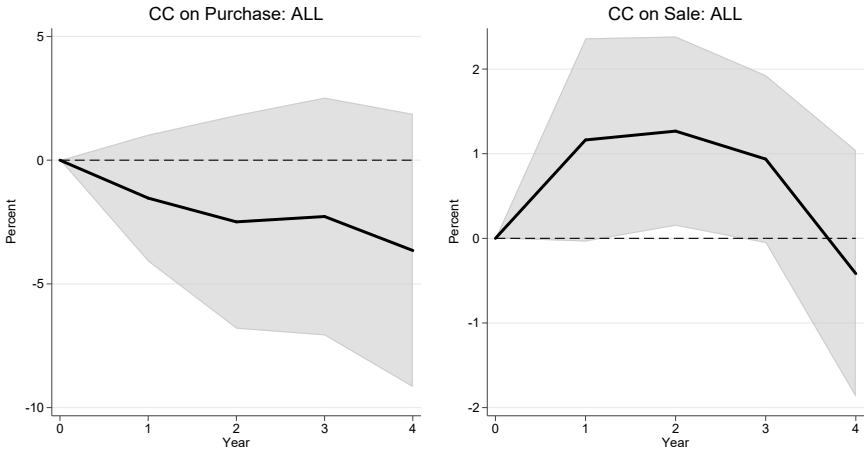
5.3.1 The whole sample case

Figure 5.3.1 shows impulse responses of international debt flow to imposing capital controls in the case where we use the data for all the sample economies over all the sample period. The left panel plots the impulse response of gross inflow (measured as GDP ratio) to imposing capital controls on the purchase of domestic debt by foreign agents ("CC on Purchase: ALL"). The impulse response shows that the imposition of capital controls on the purchase of domestic debt by foreign agents reduces gross inflow as expected, but the result is not statistically significant as indicated by the light shaded area referring to a 90 % confidence interval. The

[7]There is no change in capital control policies in advanced economies. There is only one change in emerging economies.

right panel plots the impulse response of gross inflow (measured as GDP ratio) to imposing capital controls on the sale of domestic debt by foreign agents ("CC on Sale: ALL"). The impulse response shows that the imposition of capital controls on the sale of domestic debt by foreign agents increases gross inflow in the first 3 years as expected. However, the result is statistically significant only in the second year as indicated by the light shaded areas referring to a 90 % confidence interval.

Figure 5.3.1: The case for all the sample economies over all the sample period



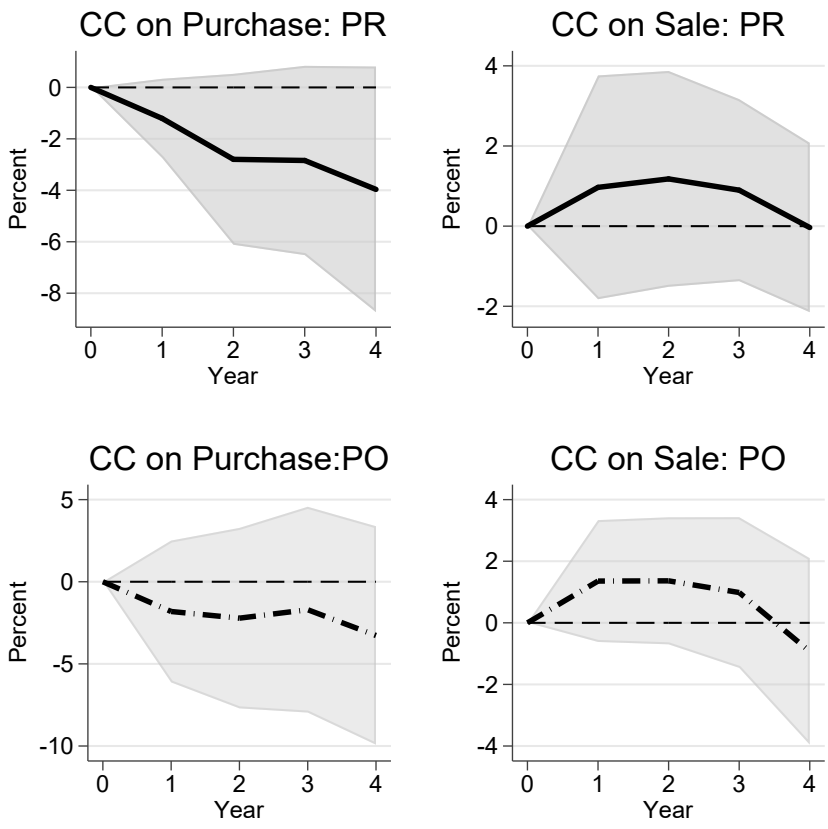
Notes: "CC on Purchase" and "CC on Sale" denote the impulse responses of gross inflow (measured as GDP ratio) to imposing capital controls on the purchase and sale of domestic debt by foreign agents, respectively. The shaded area denotes a 90 % confidence interval.

5.3.2 The case distinguishing between the pre-and-post crisis periods

We next examine whether distinguishing between the pre-crisis (1995-2007) and post-crisis (2008-2019) periods changes the result in Figure 5.3.1 (or not). The upper two panels of Figure 5.3.2 plot the impulse responses for the pre-crisis period ("CC on Purchase: PR" and "CC on Sale: PR"). The lower two panels of Figure 5.3.2 plot those for the post-crisis period ("CC on Purchase: PO" and "CC on Sale: PO"). We notice that both responses in "CC on Purchase: PR" and "CC on Sale: PR" are in the expected direction. However, both results are not significant as indicated by the light shaded area referring to a 90 % confidence interval. We also notice that the same is true for "CC on Purchase: PO" and "CC on Sale: PO." As a whole, we can say that the distinction between the pre-crisis and post-crisis periods does not

change the main result in Figure 5.3.1.

Figure 5.3.2: The case separating into the pre-and-post crisis periods (for all the sample economies)



Notes: "CC on Purchase" and "CC on Sale" denote the impulse responses of gross inflow (measured as GDP ratio) to imposing capital controls on the purchase and sale of domestic debt by foreign agents, respectively. "PR" and "PO" denote the pre-crisis (1995-2007) and post-crisis (2008-2019) periods, respectively. The shaded area denotes a 90 % confidence interval.

5.3.3 The case distinguishing between advanced and emerging economies

We next make the distinction between the two groups of advanced and emerging economies. The upper two panels of Figure 5.3.3 depict the impulse responses of advanced economies ("CC on Purchase: AD" and "CC on Sale: AD"). The lower two panels depict those of emerging economies ("CC on Purchase: EM" and "CC on Sale: EM").

In the upper two panels of Figure 5.3.3, we notice that although both of the

responses in "CC on Purchase: AD" and "CC on Sale: AD" are in the expected direction, both are not statistically significant as indicated by the light shaded area referring to a 90 % confidence interval. We can say that the impulse responses of advanced economies in Figure 5.3.3 are quite similar to the corresponding ones in the whole sample case in Figure 5.3.1.

We find that the same is true for the lower right case ("CC on Sale: EM") in Figure 5.3.3 (i.e., the response is in the expected direction, but not statistically significant). However, in the lower left panel ("CC on Purchase: EM") in Figure 5.3.3, the response is in the opposite direction to expected. As a whole, we can say that when we distinguish between advanced and emerging economies, the result on advanced economies is similar to the whole sample case, whereas the result on emerging economies seems less plausible compared to the whole sample case in Figure 5.3.1.

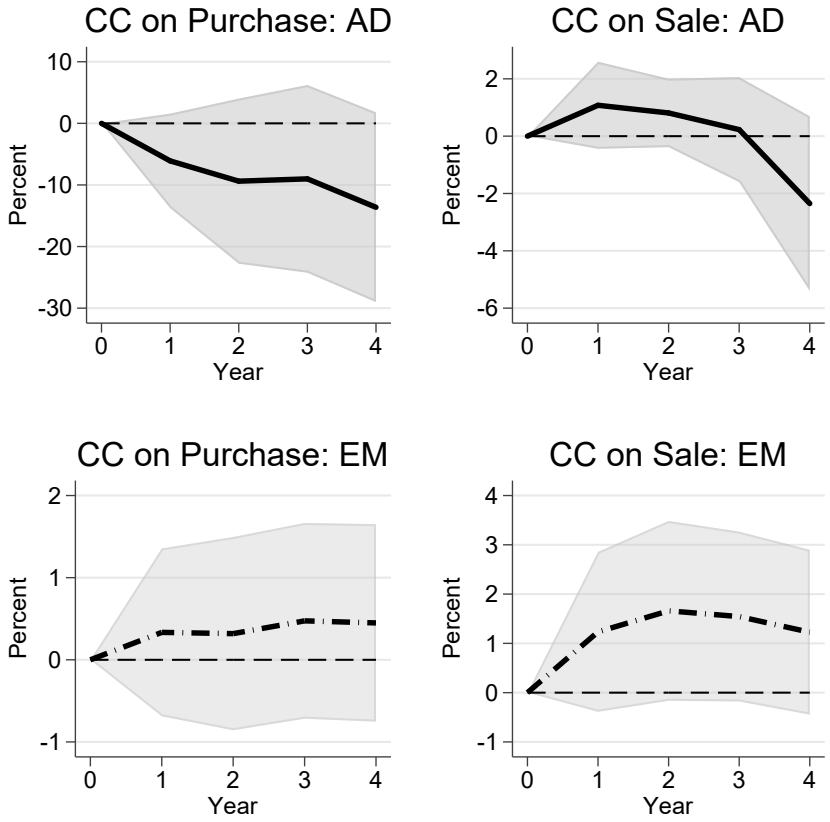
5.3.4 The case distinguishing between advanced and emerging economies in the pre-and-post crisis periods

In Figure 5.3.4, we further differentiate the two sample periods before and after the global financial crisis about the two groups of advanced and emerging economies, respectively.

The panel (a) in Figure 5.3.4 depicts the cases of advanced economies in the pre-and-post crisis periods. Although they are not statistically significant, both of the impulse responses of capital controls on the purchase ("CC on Purchase: AD-PR" and "CC on Purchase: AD-PO") are in the expected direction. In that sense, they are similar between the pre-and-post crisis periods. However, the responses of capital controls on the sale ("CC on Sale: AD-PR" and "CC on Sale: AD-PO") are quite different. While the response in the pre-crisis period ("CC on Sale: AD-PR") is in the expected direction, the response in the post-crisis period ("CC on Sale: AD-PO") is in the opposite direction to expected.

The panel (b) in Figure 5.3.4 depicts the cases of emerging economies in the pre-and-post crisis periods. Although it is not statistically significant, the response of capital controls on the purchase in the pre-crisis period ("CC on Purchase: EM-PR") is in the expected direction. However, the response of capital controls on

Figure 5.3.3: The case distinguishing between advanced and emerging economies (over all the sample period)



Notes: "CC on Purchase" and "CC on Sale" denote the impulse responses of gross inflow (measured as GDP ratio) to imposing capital controls on the purchase and sale of domestic debt by foreign agents, respectively. The shaded area denotes a 90 % confidence interval. "AD" and "EM" denote advanced and emerging economies, respectively.

the purchase in the post-crisis period ("CC on Purchase: EM-PO") is the opposite direction to expected. The response of capital controls on the sale in the pre-crisis period ("CC on Sale: EM-PR") is not statistically significant and also the direction is also ambiguous. On the other hand, the response of capital controls on the sale in the post-crisis period ("CC on Sale: EM-PO") is statistically significant, and also the direction is in the expected.

As a whole, when we further differentiate between the two sample periods before and after the global financial crisis about the two groups of advanced and emerging economies, we find that most of the cases are not statistically significant, and some of the impulse responses are in the opposite direction to expected. The only exception is the impulse response of capital controls on the sale in the post-crisis period ("CC on Sale: EM-PO"), which is statistically significant and also in the expected direction.

5.3.5 The case distinguishing between "gate" and "wall" economies

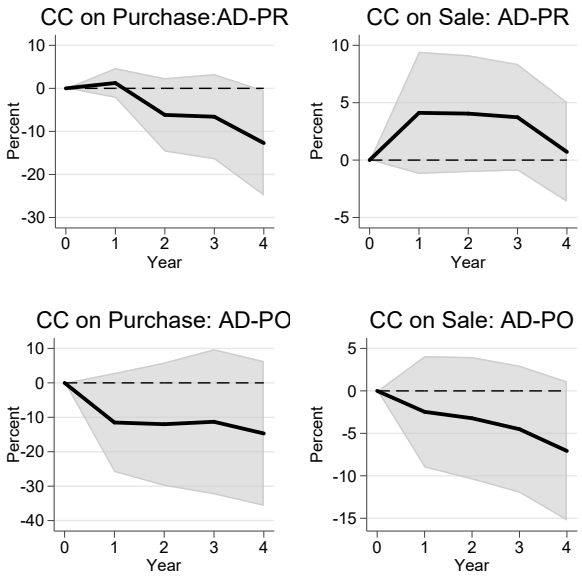
Following the canonical distinction by Klein (2012), we finally make the distinction between "gate" and "wall" for the pattern of capital controls.

In Figure 5.3.5, the panel (a) depicts the impulse responses of the "gate" advanced economies. Since no sample advanced economies are classified as the "wall" economies in our analysis, there is no impulse response of the "wall" advanced economies in Figure 5.3.5. As shown in Table 5.2.1, eighteen advanced economies are classified as the "open" economies. However, the eighteen economies do not change their capital controls on debt transactions at all. Therefore, the impulse responses of the "open" advanced economies are not included in Figure 5.3.5 as well. The impulse response of capital controls on the purchase in the "gate" economies ("CC on Purchase: AD-GT") is similar to that in the case including all advanced economies ("CC on Purchase: AD" in Figure 5.3.3). The impulse response of capital controls on the sale in the "gate" economies ("CC on Sale: AD-GT") is also similar to that in the case including all advanced economies ("CC on Sale: AD" in Figure 5.3.3), although the former is slightly less significant than the latter.

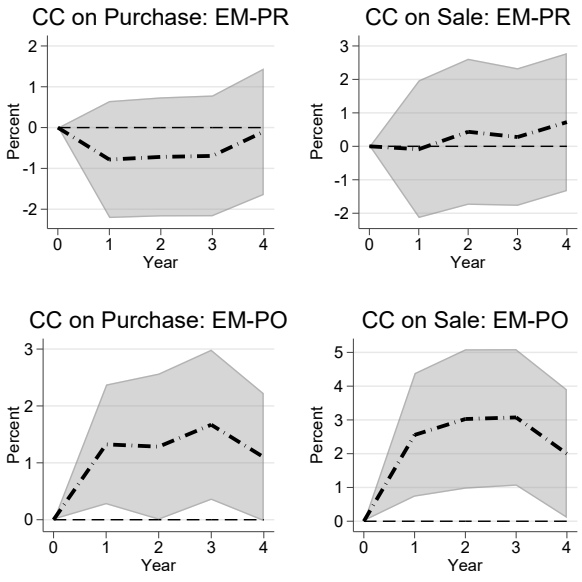
In Figure 5.3.5, the panel (b) depicts the impulse responses of the "gate" and "wall" emerging economies. As shown in Table 5.2.2, eight emerging economies are classified as the "open" economies. However, there is almost no change in their

Figure 5.3.4: The case distinguishing between the pre-and-post crisis periods for advanced and emerging economies, respectively

(a) Advanced economies: pre-and-post crisis periods



(b) Emerging economies: pre-and-post crisis periods



Notes: "CC on Purchase" and "CC on Sale" denote the impulse responses of gross inflow (measured as GDP ratio) to imposing capital controls on the purchase and sale of domestic debt by foreign agents, respectively. The shaded area denotes a 90 % confidence interval. "AD" and "EM" denote advanced and emerging economies, respectively. "PR" and "PO" denote the pre-crisis (1995-2007) and post-crisis (2008-2019) periods, respectively.

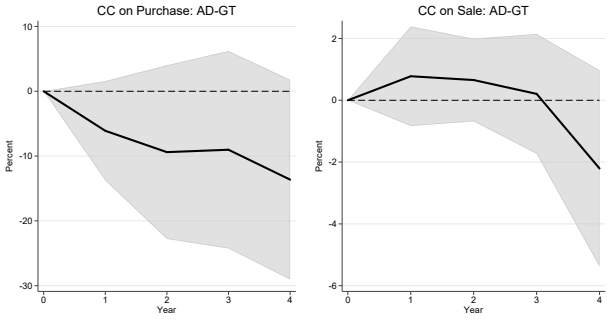
capital control policies on debt transactions.[8] Therefore, the impulse responses of "open" emerging economies are not included in Figure 5.3.5. Comparing the impulse responses of the "gate" and "wall" emerging economies, it is noticeable that the response of capital controls on the purchase in the "wall" economies ("CaCP on Purchase: EM-WL") is in the expected direction and also statistically significant, while the response in the "gate" economies ("CaCP on Purchase: EM-GT") is in the opposite direction to expected and also not statistically significant. It is also noticeable that the response of capital controls on the sale in "wall" economies ("CaCP on Sale: EM-WL") is again in the expected direction and also statistically significant. On the other hand, although it is in the expected direction, the response in the "gate" economies ("CaCP on Sale: EM-GT") is not statistically significant.

As a whole, when we distinguish between the "gate" and "wall" economies, we find that while the main result does not change for the advanced economies (compared to the whole sample case), the result on the emerging economies implies that the effectiveness of capital controls is relevant for the "wall" emerging economies.

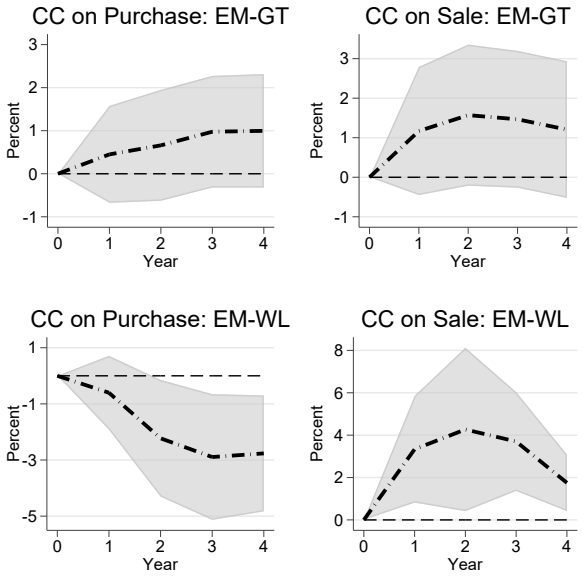
[8] Only one policy change was observed in Qatar in 2005.

Figure 5.3.5: The case distinguishing between "gate" and "wall" economies

(a) Advanced economies



(b) Emerging economies



Notes: "CC on Purchase" and "CC on Sale" denote the impulse responses of gross inflow (measured as GDP ratio) to imposing capital controls on the purchase and sale of domestic debt by foreign agents, respectively. The shaded area denotes a 90 % confidence interval. "AD" and "EM" denote advanced and emerging economies, respectively. "GT" and "WL" denote the "gate" and "wall" economies (defined in the main text), respectively.

5.4 Conclusions

We analyze the effectiveness of capital controls on international debt flows using 81 economies' data including both advanced and emerging economies over 1995 to 2019. Using the total sample economies, we first show that although they are almost not statistically significant, the impulse responses of imposing capital controls are in the expected directions. We next make various distinctions among samples as follows. We find that distinguishing between the pre-and-post crisis periods does not change our previous result. Separating the sample economies into the two groups of advanced and emerging economies, we find that the effectiveness of capital controls is more relevant to advanced economies rather than emerging economies, although both results are not statistically insignificant. Further distinguishing between the pre-and-post crisis periods for the two groups of advanced and emerging economies respectively, we find that most results are not statistically significant or opposite to the expected. Following the canonical classification by Klein (2012), we finally separate the pattern of capital controls into the "gate" and "wall" types. Our result reveals that the effectiveness of capital controls is relevant to the emerging economies with the "wall" type of capital controls.

Our finding that the effectiveness of capital controls is relevant to the "wall" economies (but not to the "gate" economies) is consistent with the Klein (2012)'s argument on the classification between the "gate" and "wall" countries. Klein (2012) shows that capital controls are not effective if they are episodic. While long-standing controls ("wall") may have some effect, episodic controls ("gate") do not reduce financial vulnerabilities. This chapter contributes the literature by adding another empirical evidence for the Klein (2012)'s argument that long-standing controls ("wall") are effective, but episodic controls ("gate") are not.

It is beyond the scope of our analysis to consider why long-standing controls are effective (but episodic controls are not). However, the following Klein (2012)'s argument is insightful and convincing. Klein (2012) argues that "[e]pisodic controls are likely to be less efficacious than long-standing controls because evasion is easier in a country that already has experience in international capital markets than in one that does not" (p.319). Related to this, he also argues that "[p]eople in countries with long-standing controls also tend to have fewer options for evasion ... because controls are imposed on a wider set of assets than in countries with episodic controls"

(pp.319-320). We leave further analysis of this for future research.

Chapter 6

Concluding Remarks

This dissertation is a collection of four empirical chapters in the field of international finance, investigating the effectiveness of capital controls in advanced and emerging economies. I address this overarching question in three separate research themes: (i) the effects of capital controls on housing prices; (ii) the impact of China's capital controls; (iii) the effects of capital controls on capital flows.

In the following, I will provide a short summary of the main findings from the four empirical chapters, identify any challenges faced in conducting the research and provide a short prospect into further research induced by this thesis.

In chapter 2, I study the effects of capital control polices on real housing prices. My analysis complements the existing literature by using a more granular index of capital control dataset compiled by Fernández et al. (2016) that allow me to study whether capital controls on specific asset types and flow directions are effective in decreasing or dampening the decrease of real housing prices. For this purpose, I estimate the marginal effects of four types of inflow and outflow capital control indices (including restrictions for direct investment "di", financial credit "fc", commercial credit "cc", and real estate transaction "re") on real housing prices respectively using a large cross-country panel of 53 economies from 1995 to 2017. The model is estimated using a more "misspecification robust" local projection method and I also check the endogeneity of Fernández et al. (2016)'s dataset using econometric method.

Results show that most capital control indices I analyzed in this paper appear to reduce real housing prices even if some of them tend to be insignificant and marginal. Besides, I find that capital controls have asymmetric effects on housing

prices for AEs and EMs. After employing a series of robustness test, I show that the negative effects of capital controls on housing prices are mainly driven by pre-crisis subsample, which means the capital controls have been used several times before GFC. I also estimate the effects for boom and slump periods respectively and find that capital control policies are implemented in an acyclical way.

There exists endogenous problem in capital controls on real estate transaction "re", and I address this issue using IPWRA estimator because such method can achieve the random allocation of capital control treatment. I find that the negative response for all capital controls on "re" are weakened after using IPWRA estimators. The attenuation effects of the IPWRA estimators are stronger in the long-term and thus it can be attributed much of the long-term real housing prices variation to endogenous factors. Then, I also estimate the response of credit variables to capital control on real estate transactions "re" to study the effects on housing demand. I find that the results of credit to households are similar to bank credit. The effects of capital control on real estate inflow "rei" and outflow "re_slbn" can reduce the volume of both credits, but the effects of "rei" are relatively insignificant. However, the response to "re_pabr" is positive for all horizons. This may relate to the fact that preventing the domestic investors from investing in foreign housing market makes them have no choice but invest in the local housing market.

A key limitation of this chapter is the difficulty to account for the effects of outflow controls on housing prices. Even if we have explained that outflow controls can prevent capital flight literally and then avoid the housing price plummet, there also have illegal methods to circumvent these restrictions, and restrcition on outflow may also deter inflows and further decreasing housing demand. Therefore, there are several opposing effects and we cannot measure them accurately, and the mechanism between outflow control and housing prices are ambiguous. In fact, not only the effects on housing prices, but also on capital flows, and most of previous studies only focus on the effects of inflow measures (Ahmed and Zlate, 2014; Beirne and Friedrich, 2017; Bruno et al., 2017; Frost et al., 2020). These should be solved in future research.

Unlike Chapter 2, Chapter 3 and 4 investigate the impact of capital controls on – specific capital account constrained country – China. Using the elaborate dataset of Chen and Qian (2016) and the local projection method, Chpter 3 explored the

impact of capital controls on corresponding flows in individual asset categories in China. To the best of our knowledge, this study is the first to distinguish individual asset categories and examine how changes in corresponding capital controls affect net inflows of individual asset categories in China. Our results reveal stark differences among the individual asset categories. Capital controls on equity (shares or other securities of a participating nature) and financial credits (mainly bank loans) affect the corresponding capital net inflows, whereas those on the other asset categories (bonds, commercial credits, and direct investment) do not.

Although this is beyond the scope of this study, further analysis is needed to explain the stark differences among individual asset markets. Some preliminary inferences are still possible. The government can control financial credits (mainly bank loans) more effectively, potentially because the banking sector is one of the most regulated sectors and the government can supervise banks more directly compared to the other asset market players. In contrast, it is widely perceived that trade misinvoicing (i.e., under- and over-invoicing exports and imports) is a main channel of capital flight in China (Cheung and Qian, 2010; Cheung et al., 2016). The prevalence of capital flight through trade misinvoicing in China is consistent with our result that capital controls on commercial credits (trade credits) are ineffective. From this perspective, further analysis on individual asset categories in connection with capital flight would be fruitful. This should be examined in future research.

In chapter 4, I study the marginal effects of China's capital control policies on GDP growth distribution and the term structures of such distribution. To this end, I use the framework extended by Adrian et al. (2019) calculate the quantile marginal effects of real GDP growth forward to 15 months on different types of capital control indices and fit a skewed t-distribution to obtain the estimated distribution. Building on the delicately collected China's capital control indices by Chen and Qian (2016), I use a narrative approach to identify the causal relationship between capital control policies and real GDP growth. The results show that there exist heterogeneous effects of aggregated capital control indices over the real GDP growth distribution. Specifically, the aggregated capital control indices are beneficial in reducing the downside risk of real GDP growth in the medium term whereas they are costly on the upswings of real GDP growth in the near-term. After we estimate the marginal effect of capital controls policies on real GDP growth over quantiles, the result

shows that the heterogeneous effects are stronger in the near-term than medium term. Besides, the heterogeneous effects are more evident in the short term for outflow control index and resident transaction control index. The granular indices show broadly heterogeneous effects even if several of them are insignificant. As for policymakers, in order to obtain benefits more rapidly after implementation, the capital control measures should be implemented in advance in accordance with the economic status.

A further line of research is the extent to which capital controls will influence GDP growth distribution in emerging countries. To address this research question, further data collection on capital control measures in emerging countries is essential. Although dataset by Fernández et al. (2016) is a regularly updated dataset for advanced and emerging countries, it is in yearly basis and cannot measure the effects of capital control every each month/quarter. Therefore, in the future research, I will follow the method of Chen and Qian (2016) and construct an emerging markets capital control dataset with the raw data from IMF's AREAER and official files/regulations/rules for each country. In addition, the theoretical (mechanism) link between capital controls and GDP growth distribution is unknown, and further analysis on the relationship between financial volatility and economic growth would be meaningful. I leave these for future research.

Capter 5 investigates the effectiveness of capital controls on international debt flows using 81 economies' data including both advanced and emerging economies over 1995 to 2019. Using the total sample economies, we first show that although they are almost not statistically significant, the impulse responses of imposing capital controls are in the expected directions. We next make various distinctions among samples as follows. We find that distinguishing between the pre-and-post crisis periods does not change our previous result. Separating the sample economies into the two groups of advanced and emerging economies, we find that the effectiveness of capital controls is more relevant to advanced economies rather than emerging economies, although both results are not statistically insignificant. Further distinguishing between the pre-and-post crisis periods for the two groups of advanced and emerging economies respectively, we find that most results are not statistically significant or opposite to the expected. Following the canonical classification by Klein (2012), we finally separate the pattern of capital controls into the "gate" and "wall" types. Our result

reveals that the effectiveness of capital controls is relevant to the emerging economies with the "wall" type of capital controls.

Our finding that the effectiveness of capital controls is relevant to the "wall" economies (but not to the "gate" economies) is consistent with the Klein (2012)'s argument on the classification between the "gate" and "wall" countries. Klein (2012) shows that capital controls are not effective if they are episodic. While long-standing controls ("wall") may have some effect, episodic controls ("gate") do not reduce financial vulnerabilities. Our paper contributes the literature by adding another empirical evidence for the Klein (2012)'s argument that long-standing controls ("wall") are effective, but episodic controls ("gate") are not.

It is beyond the scope of our analysis to consider why long-standing controls are effective (but episodic controls are not). However, the following Klein (2012)'s argument is insightful and convincing. Klein (2012) argues that "[e]pisodic controls are likely to be less efficacious than long-standing controls because evasion is easier in a country that already has experience in international capital markets than in one that does not" (p.319). Related to this, he also argues that "[p]eople in countries with long-standing controls also tend to have fewer options for evasion ... because controls are imposed on a wider set of assets than in countries with episodic controls" (pp.319-320). We leave further analysis of this for future research.

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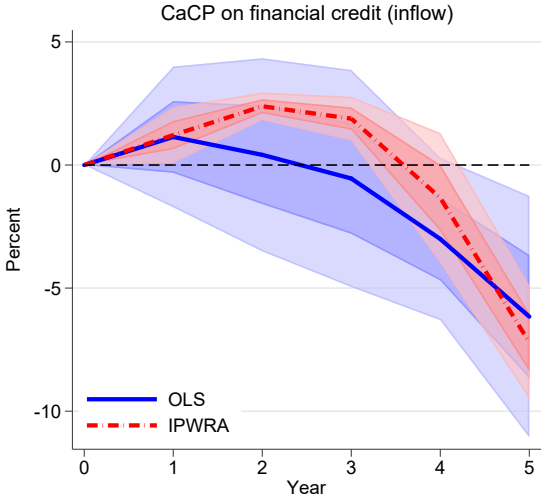
Appendices

Appendix A

Appendix for Chapter 2

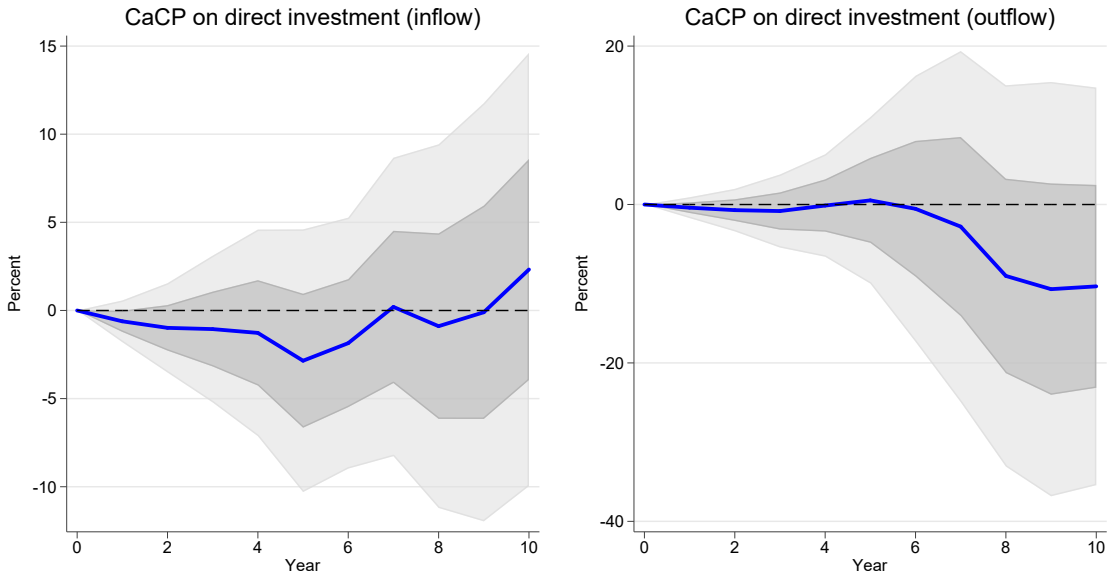


Notes: Y-axes denotes 100×log (real housing price). The explanatory variables is capital control on financial credit inflow "fci". The blue and red lines denote the coefficients of cumulative response of real housing price estimated by OLS and IPWRA local projection respectively over 5 years.

Figure A.0.1: Local Projection: Impact of capital control of financial credit on real housing prices by IPWRA estimation

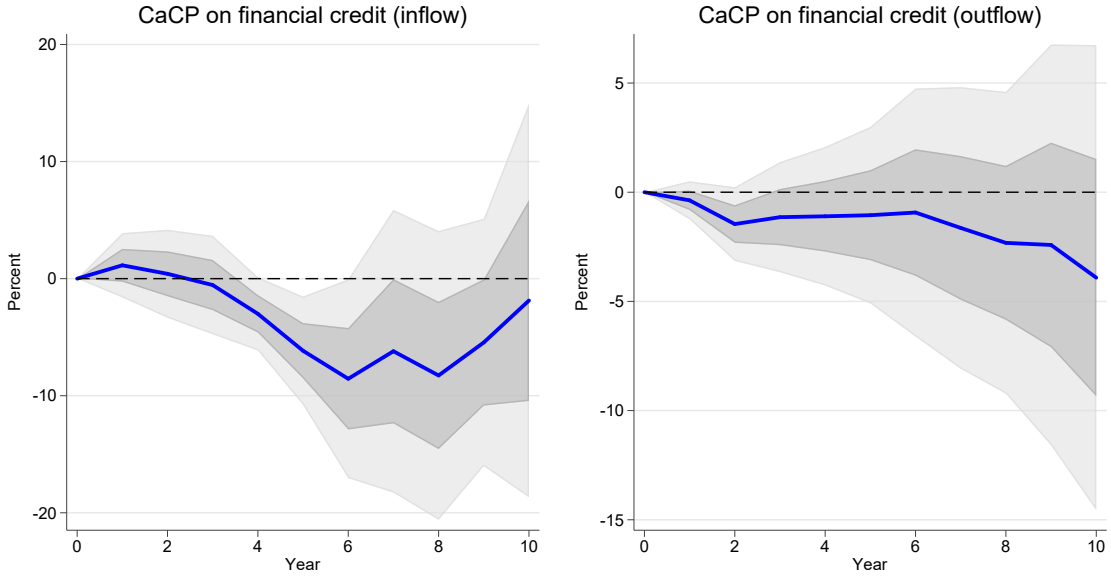
Table A.0.1: Data definitions and sources

Type	Variables	Source	Description
Dependent Variables	Housing price	BIS & CEIC	Residential property price indices, adjusted by CPI from 1995 to 2017, annual basis
	Bank credit	BIS	Credit to private non-financial sector from bank, adjusted by CPI from 1995 to 2017, annual basis
	Credit to households	BIS	Credit to households and NPISHs from all sectors, adjusted by CPI from 1995 to 2017, annual basis
Explanatory Variables	Capital control on "di"	Fernández et al. (2016)	Contains "dii" and "dio" for restriction on inflows and outflows 0-1 Binary variables, from 1995 to 2017
	Capital control on "fc"	Fernández et al. (2016)	Contains "fci" and "fco" for restriction on inflows and outflows 0-1 Binary variables, from 1995 to 2017
	Capital control on "cc"	Fernández et al. (2016)	Contains "cci" and "cco" for restriction on inflows and outflows 0-1 Binary variables, from 1995 to 2017
	Capital control on "re"	Fernández et al. (2016)	Contains "rei" and "re_pabr", "re_slbn" for restriction on inflows and outflows 0-1 Binary variables, from 1995 to 2017
Control Variables (Monetary Policies)	Central bank policy rate	BIS	from 1995 to 2017. Other sources: Bulgaria and Morocco (Central bank) Singapore (using exchange rate), UAE (using EBIOR)
	Short-term interest rate	CEIC	from 1995M1 to 2017M12, averaged. Other sources: Peru (central bank) Brazil (FRED), Chile (FRED)
(MaPP)	LTV caps	Cerutti et al. (2017)	0-1 Binary variables, from 2000 to 2017
(Exchange Rates)	Real effective exchange rate	BIS	CPI based, broad indices, annual basis
	Biliteral nominal interest rate	Penn World Table v9.1	National currency per USD, from 1995 to 2017
(Capital flows)	Direct investment (inflow/outflow)	IFS (BOP/IIP)	Data in USD, annual basis, from 1995 to 2017
	Portfolio investment (inflow/outflow)	IFS (BOP/IIP)	Data in USD, annual basis, from 1995 to 2017
	Other investment (inflow/outflow)	IFS (BOP/IIP)	Data in USD, annual basis, from 1995 to 2017
	Cross border loan from BIS reporting bank	JEDH	Data in USD, annual basis, from 1995 to 2017
	Cross border loan from BIS reporting bank to nonbanks	JEDH	Data in USD, annual basis, from 1995 to 2017
(Global liquidity driving)	VIX	CBOE	Daily basis, averaged, from 1995 to 2017
	Ted spread	Federal Reserve Bank of St. Louis	Daily basis, averaged, from 1995 to 2017
	Bank leverage	Global Financial Development Database	Annual basis, from 1995 to 2017
(Fundamentals)	GDP	Penn World Table v9.1	"rgdpna", adjusted by CPI, annual basis, from 1995 to 2017
	CPI	Penn World Table v9.1	annual basis, from 1995 to 2017, 2010 = 100



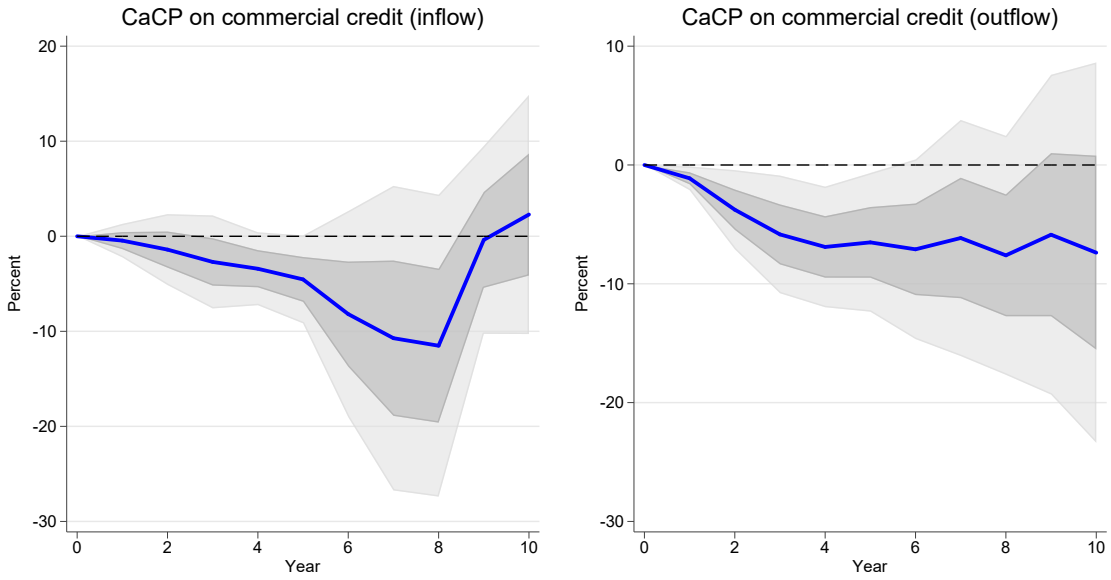
Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing prices over 10 years following the changing in capital control of direct investment inflow and outflow from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure A.0.2: Local Projection: Impact of capital controls of direct investment on real housing prices, 10 years horizons



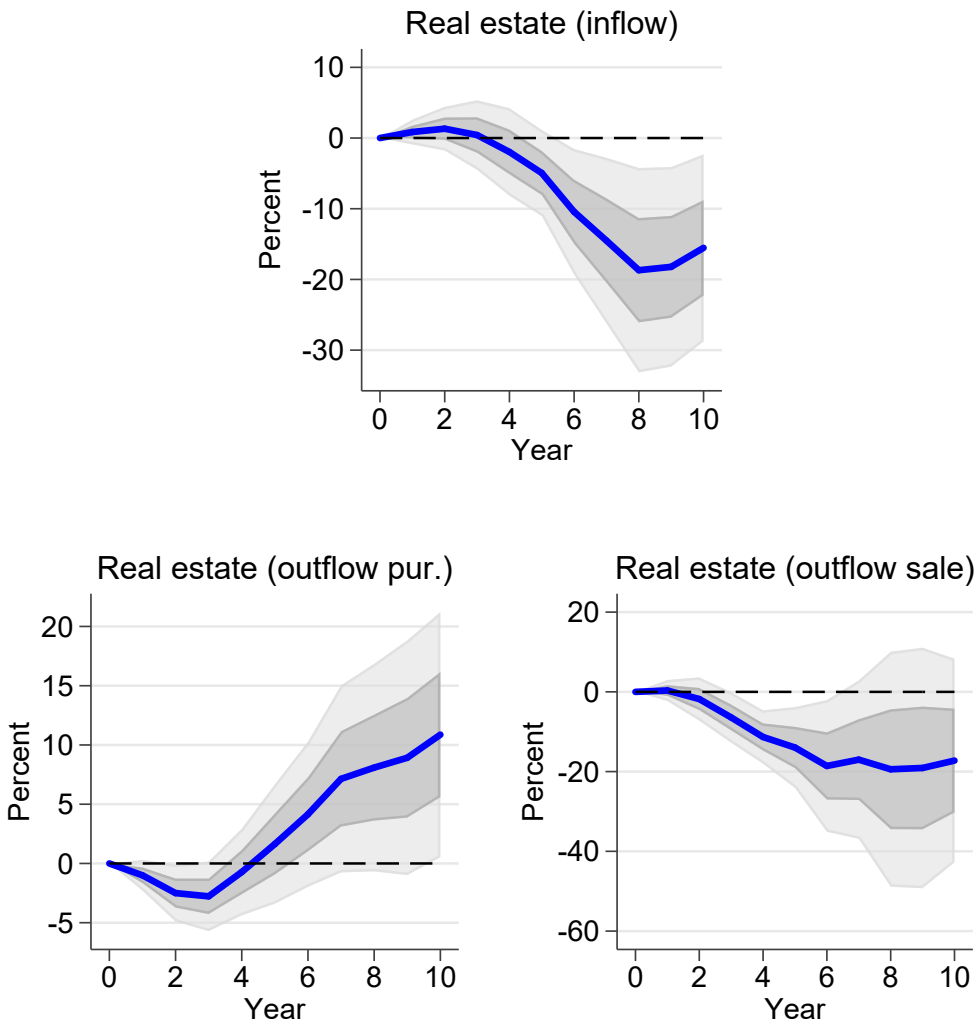
Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing prices over 10 years following the changing in capital control of financial credit inflow and outflow from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure A.0.3: Local Projection: Impact of capital controls of financial credit on real housing prices, 10 years horizons



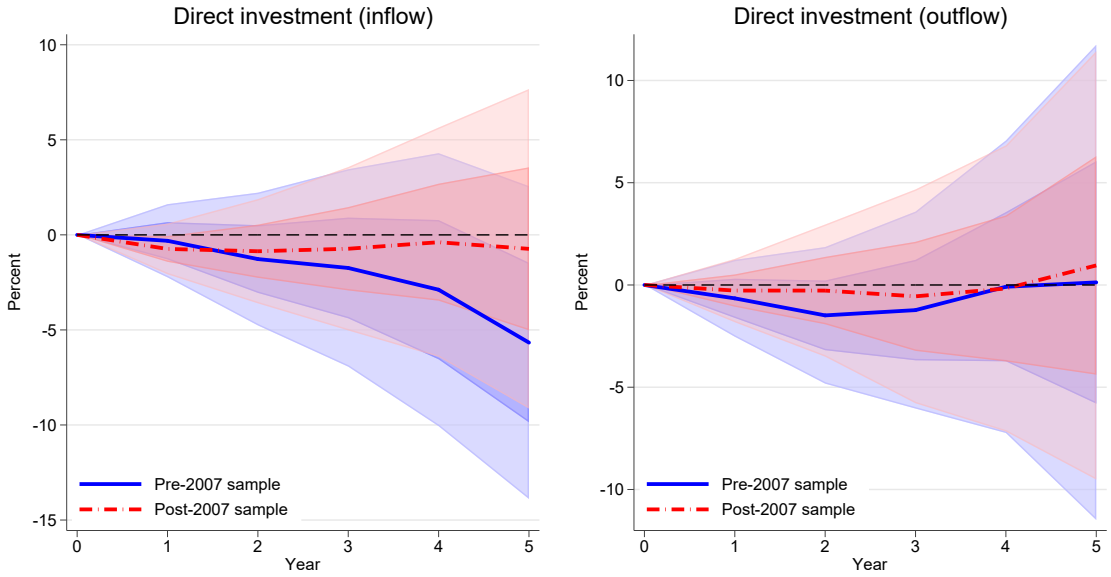
Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing price over 10 years following the changing in capital control of commercial credit inflow and outflow from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure A.0.4: Local Projection: Impact of capital controls of commercial credit on real housing prices, 10 years horizons



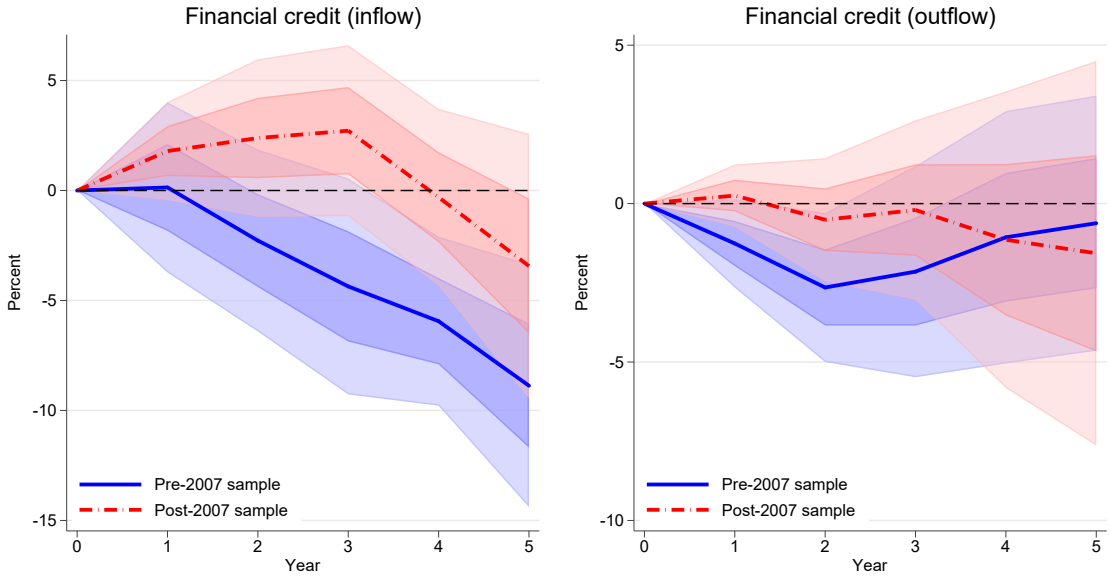
Notes: Y-axes denotes 100×log (real housing price). The blue lines denote the coefficients of cumulative response of real housing price over 10 years following the changing in capital control of real estate transaction inflow (purchase locally by nonresident) and outflow (purchase abroad by resident, and sale locally by nonresident) from no restriction "0" to restriction "1" respectively. Shade areas are 1 standard error (dark) and 1.96 standard error (gray) bands around the response estimates.

Figure A.0.5: Local Projection: Impact of capital control of real estate transactions on real housing prices, 10 years horizons



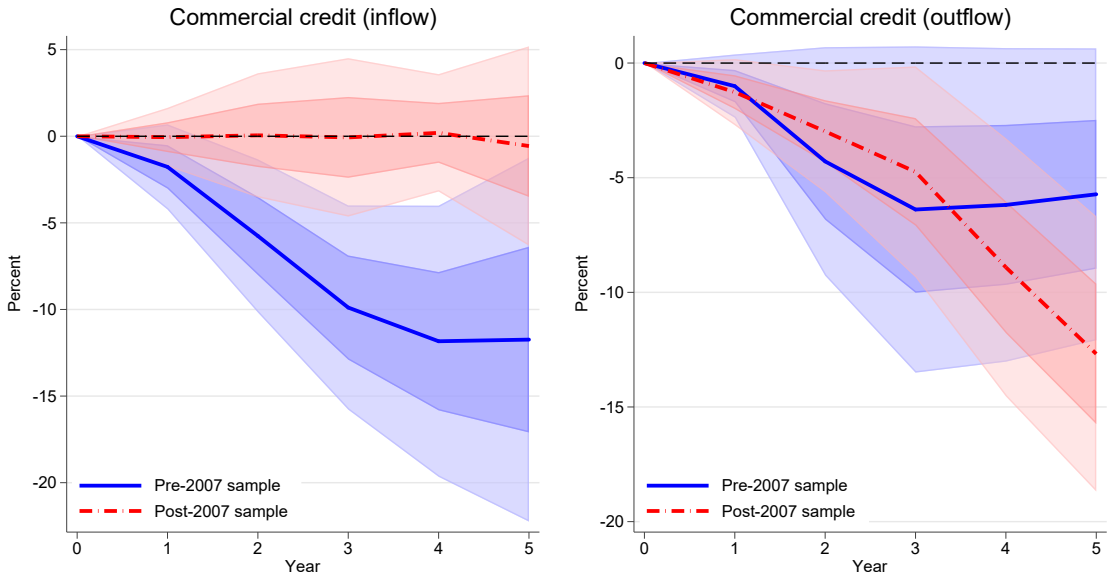
Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for pre-crisis period and post-crisis respectively over 5 years following a capital control policy implemented on direct investment.

Figure A.0.6: Local Projection: Impact of capital controls of direct investment on real housing prices – comparison of pre-crisis and post-crisis



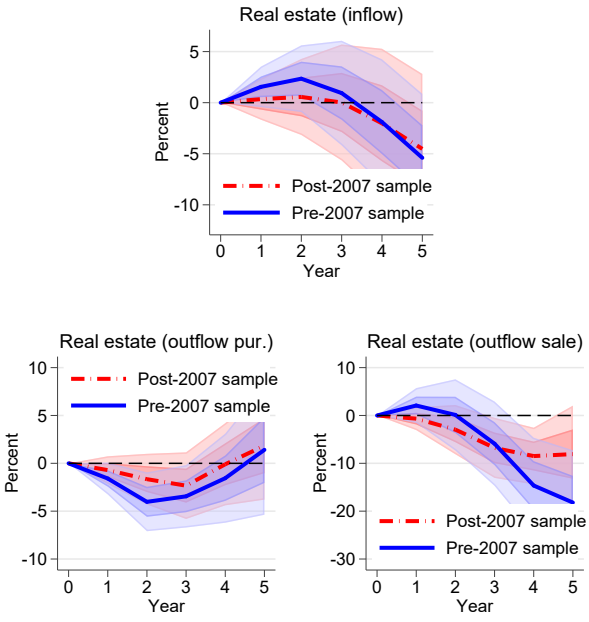
Note: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for pre-crisis period and post-crisis respectively over 5 years following a capital control policy implemented on financial credit.

Figure A.0.7: Local Projection: Impact of capital controls of financial credit on real housing prices – comparison of pre-crisis and post-crisis



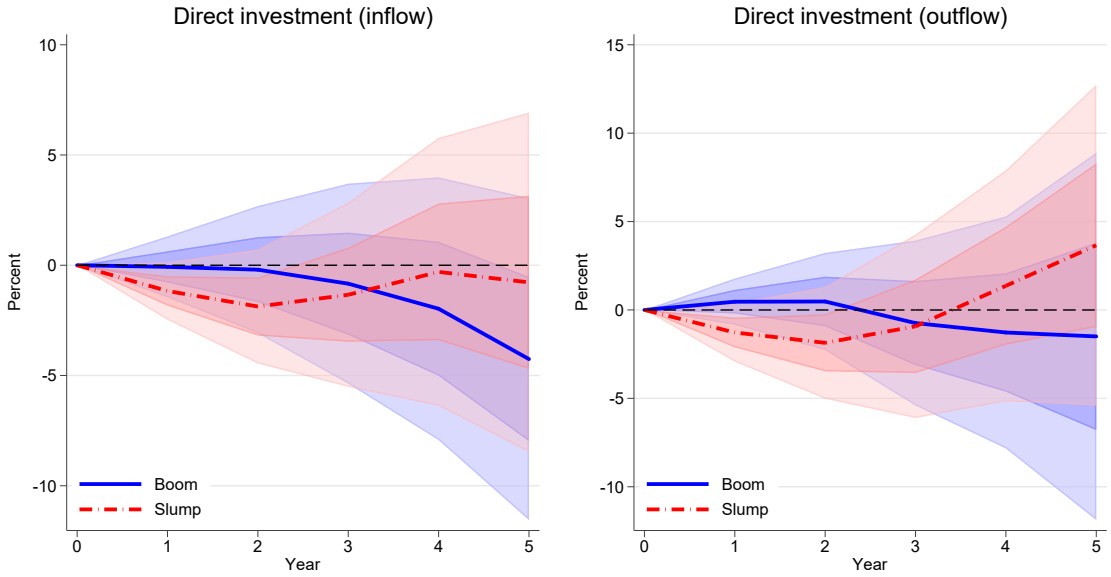
Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for pre-crisis period and post-crisis respectively over 5 years following a capital control policy implemented on commercial credit.

Figure A.0.8: Local Projection: Impact of capital controls of commercial credit on real housing prices – comparison of pre-crisis and post-crisis



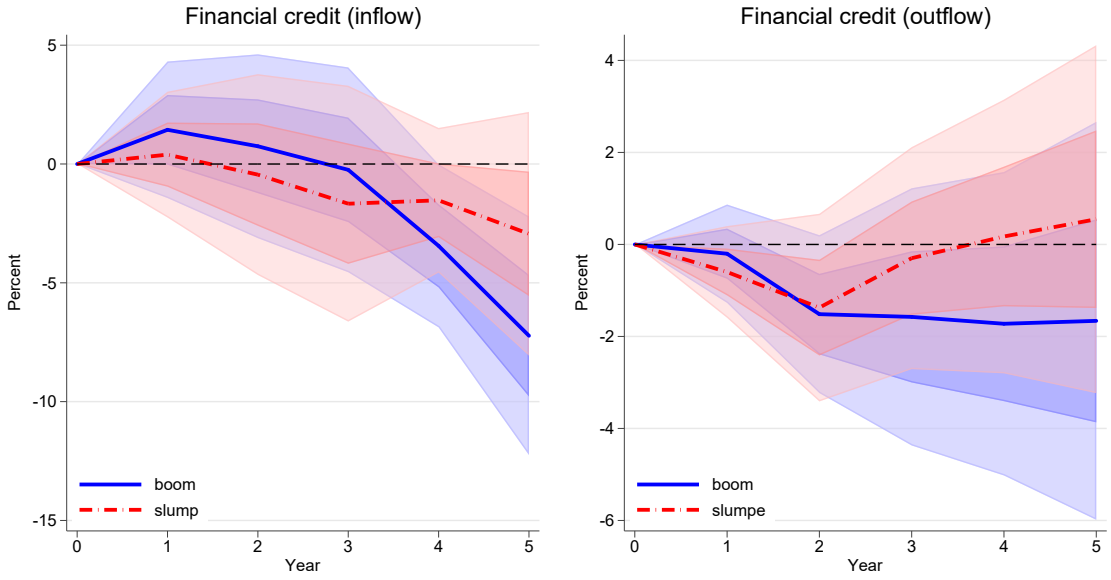
Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for pre-crisis period and post-crisis respectively over 5 years following a capital control policy implemented on real estate transaction.

Figure A.0.9: Local Projection: Impact of capital control of real estate transactions on real housing prices – comparison of pre-crisis and post-crisis



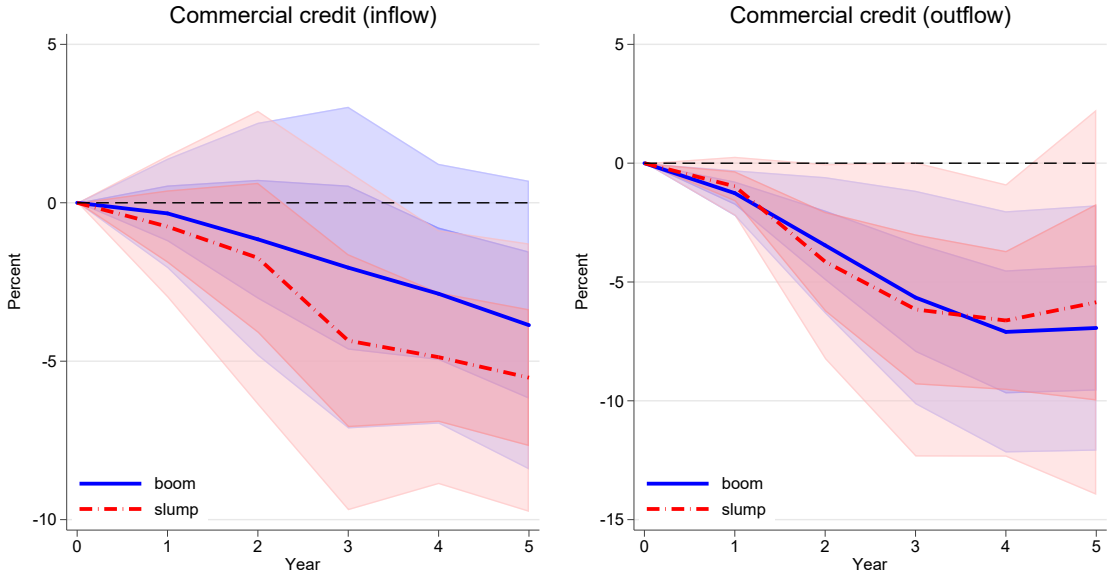
Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for boom and slump periods respectively over 5 years following a capital control policy implemented on direct investment.

Figure A.0.10: Local Projection: Impact of capital controls of direct investment on real housing prices – comparison of boom and slump subsamples



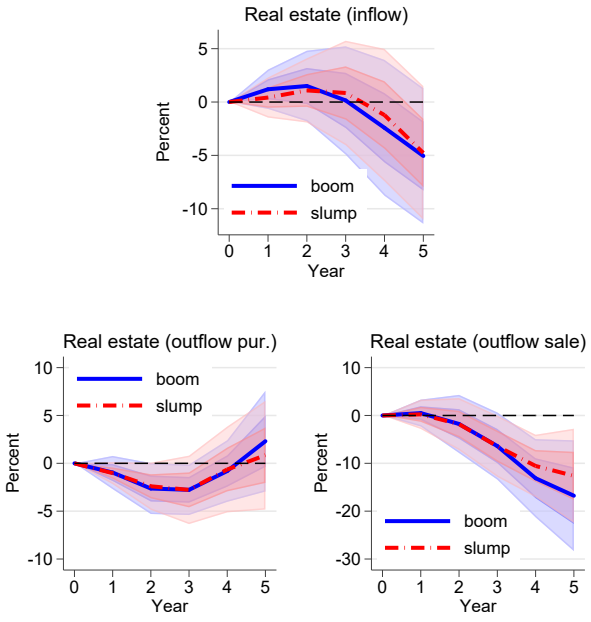
Note: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for boom and slump periods respectively over 5 years following a capital control policy implemented on financial credit.

Figure A.0.11: Local Projection: Impact of capital controls of financial credit on real housing prices – comparison of boom and slump subsamples



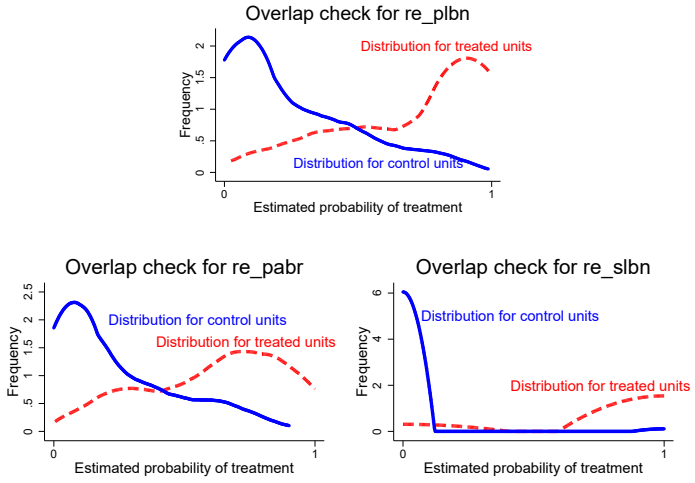
Notes: Y-axes denotes 100×log (real housing price). The blue and red lines denote the coefficients of cumulative response of real housing price for boom and slump periods respectively over 5 years following a capital control policy implemented on commercial credit.

Figure A.0.12: Local Projection: Impact of capital controls of commercial credit on real housing prices – comparison of boom and slump subsamples



Notes: Y-axes denotes 100×log (real credit to households). The blue and red lines denote the coefficients of cumulative response of real housing price for boom and slump periods respectively over 5 years following a capital control policy implemented on real estate transaction.

Figure A.0.13: Local Projection: Impact of capital controls of real estate transaction on real housing prices – comparison of boom and slump subsamples



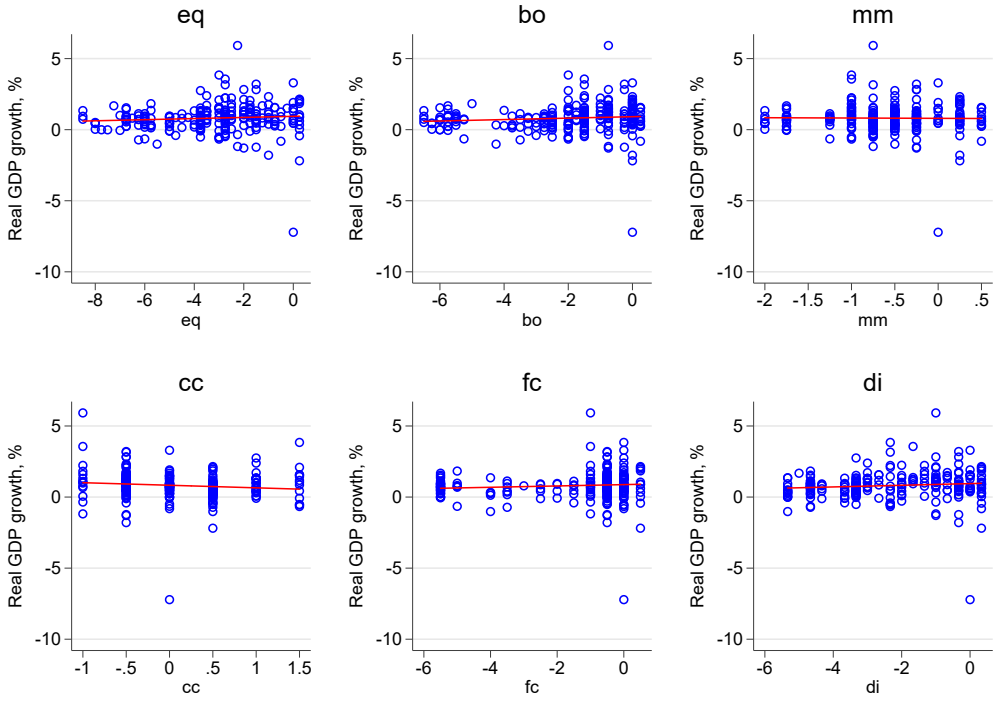
Notes: The red dashed lines denote the empirical density of the predicted probabilities of implementing each capital control "rei", "re_pabr", "re_slbn", the blue solid lines display the control observations. The propensity score is estimated using the specification in Table 2.6.2 with including country fixed effects.

Figure A.0.14: Overlap test: probit results for capital control on "re"

Appendix B

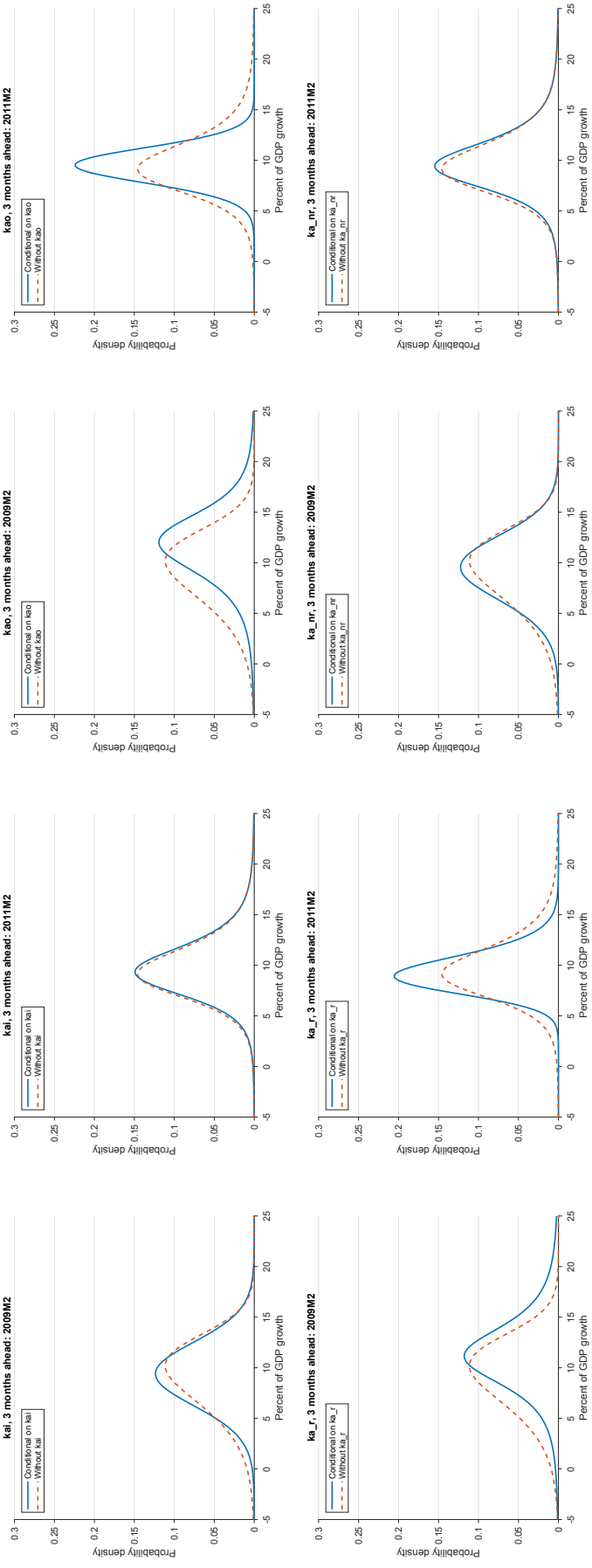
Appendix for Chapter 4

B.1 Figures and Tables



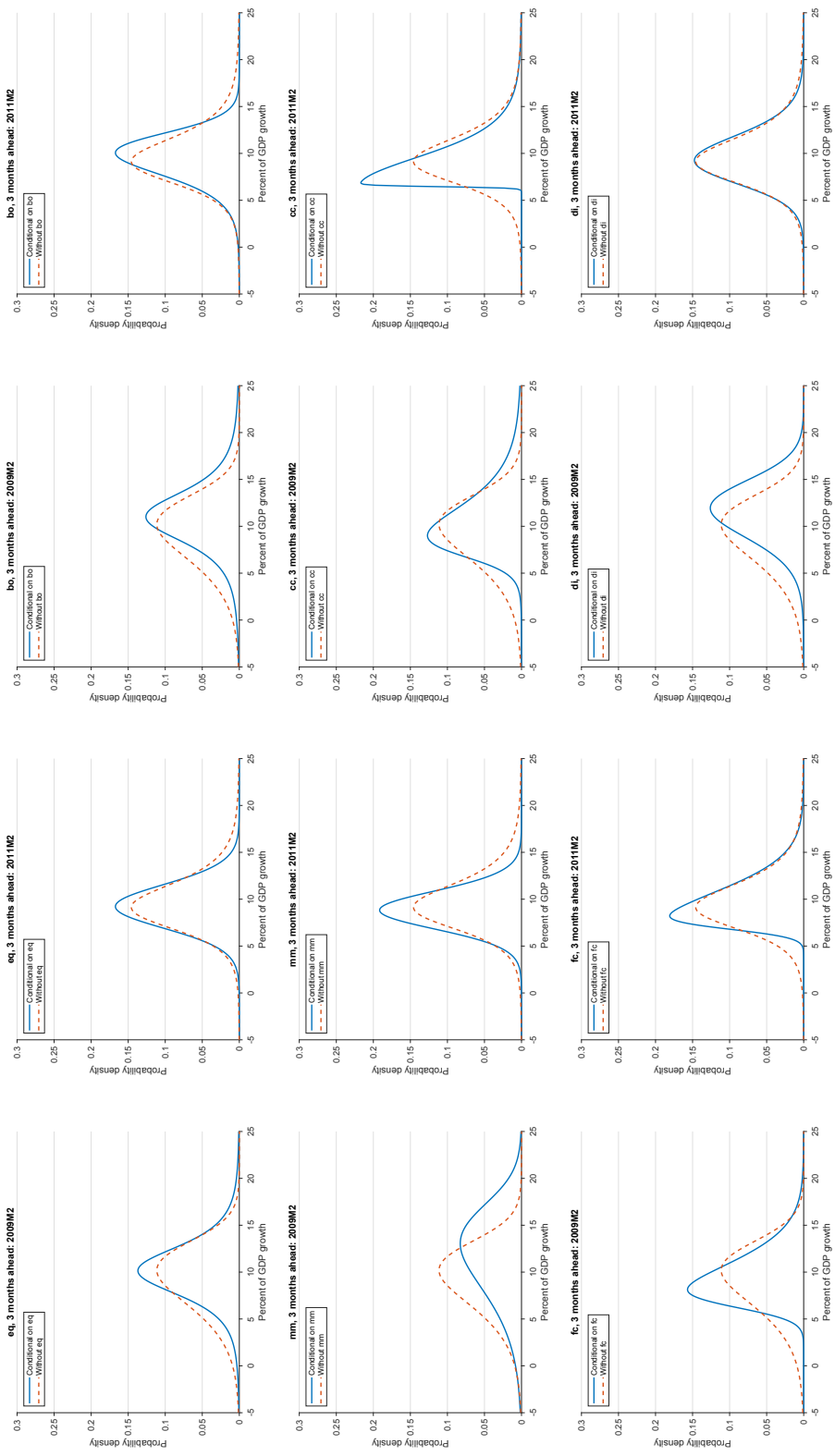
Source: "China Economy Time Series" by Chang et al. (2016); China's capital control dataset from Chen and Qian (2016).

Figure B.1.1: Relationship between granular capital control indices and real GDP growth



Notes: The panels in this figure show the estimated probability density function for 3-months-ahead real GDP growth at recession (2009M2) and tranquil (2011M2) period. The densities are estimated using a kernel-based method by Adrian et al. (2019). The red dashed lines represent the condiotional ditribution by conditioning without each aggregated capital control index. The blue solid densities show the estimated distribution by conditioning on each aggregated capital control index.

Figure B.1.2: Estimated conditional GDP ditribution after the implementation of aggregate capital control indices



Notes: The panels in this figure show the estimated probability density function for 3-months-ahead real GDP growth at recession (2009M2) and tranquil (2011M2) period. The densities are estimated using a kernal-based method by Adrian et al. (2019). The red dashed lines represent the condiotional ditribution by conditioning without each granular capital control index. The blue solid densities show the estimated distribution by conditioning on each granular capital control index.

Figure B.1.3: Estimated conditional GDP ditribution after the implementation of granular capital control policies

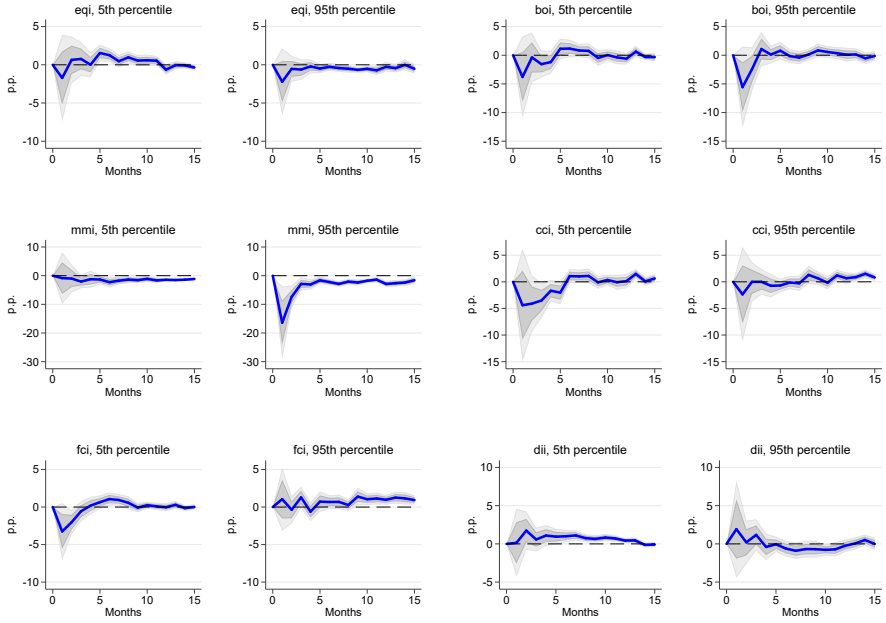
Table B.1.1: Prediction of implementation of granular capital control policies

	(1) eq	(2) bo	(3) mm	(4) cc	(5) fc	(6) di
One lag of real GDP growth	15.24	16.96	-1.48	-6.67	18.97	14.57
	(17.11)	(13.50)	(2.94)	(4.75)	(12.60)	(13.77)
One lag of CPI growth	-64.39	-29.80	-32.97***	-10.79	25.54	-67.80**
	(40.12)	(32.50)	(10.28)	(14.61)	(30.45)	(34.27)
Observations	238	238	238	238	238	238
R^2	0.02	0.01	0.03	0.01	0.01	0.02

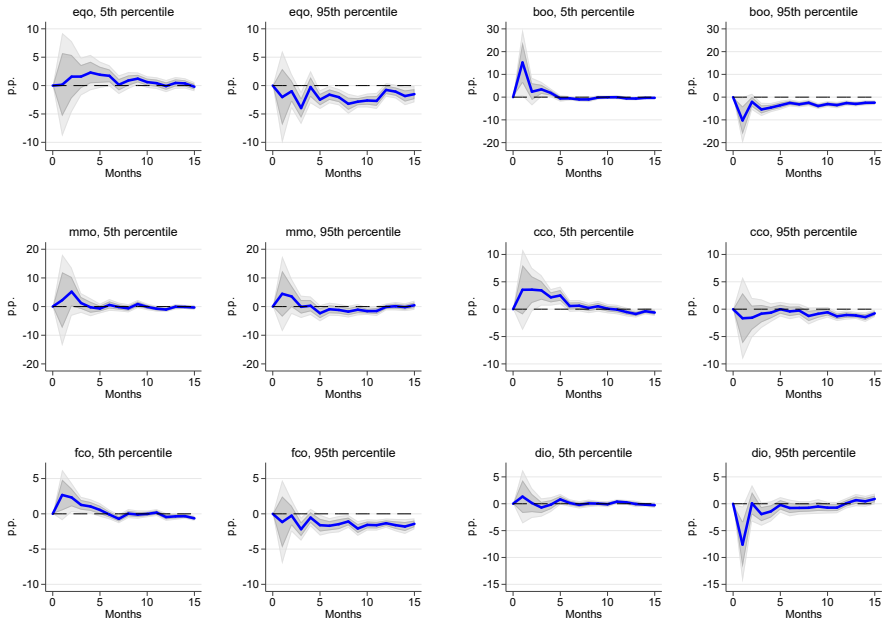
Notes: This table presents OLS regression results. The dependent variables are the granular capital control variables of "eq", "bo", "mm", "cc", "fc" and "di", respectively. Robust standard errors in parentheses. *, **, ***, indicate the significant at 10%, 5%, 1% levels respectively.

Table B.1.2: Data source used to compute China's FCI: Comparison

Variables	Data used by Arregui et al. (2018)	Data used by us	Source	Periods
Financial Variables				
Term spreads	Yield on 10-year government bonds minus yield on 3-month Treasury bills	Yield on 10-year ChinaBond government bond minus yield on 3-month ChinaBond government bond	WIND	2002M1 to 2021M10
Interbank spreads	Interbank interest rate minus yield on three-month Treasury bills	3-month Interbank lending weighted interest rate minus 3-month ChinaBond government bond	WIND	2004M5 to 2021M10
Change in Long-Term Real Interest Rate	Percentage point change in the 10-year government bond yield	Percentage point change in the 10-year ChinaBond government bond	WIND	2002M1 to 2021M10
Corporate Spreads	Corporate yield of the country minus corporate yield of the benchmark country	3-month ChinaBond Corporate yield minus 3-month ChinaBond government bond	WIND	2006M3 to 2021M10
Equity Returns	Log difference of the equity indices	Log difference of Shanghai composite index	WIND	1999M1 to 2021M10
House Price Returns	Percent change in house price index	Percent change in Price index of new commercial housing in 70 large and medium-sized cities	WIND	2005M7 to 2021M10
Equity Return Volatility	Exponential weighted moving average of equity price returns	Exponential weighted moving average of Shanghai composite index	WIND	1999M1 to 2021M10
Change in Financial Sector Share	Percentage point change in market capitalization of the financial sector to total market capitalization	Percentage point change in market capitalization of the financial sector to total market capitalization	WIND	1999M1 to 2021M10
Credit Growth	Percent change in the depository corporations' claims on private sector	Percent change in the new RMB loan for financial institutions	WIND	2001M1 to 2021M10
Sovereign Spreads	Yield on 10-year government bonds minus the benchmark country's yield on 10-year government bonds	Yield on 10-year ChinaBond government bond minus the U.S. 10-year government bonds	WIND	2002M1 to 2021M10
Macroeconomic Variables				
Industrial Production Growth	Percent change in the industrial production index	Percent change in the China's industrial production index	WIND	1999M1 to 2021M10
Inflation	Percent change in the consumer price index	Detrended (HP filtered) China's consumer price index	FRED	1999M1 to 2021M10



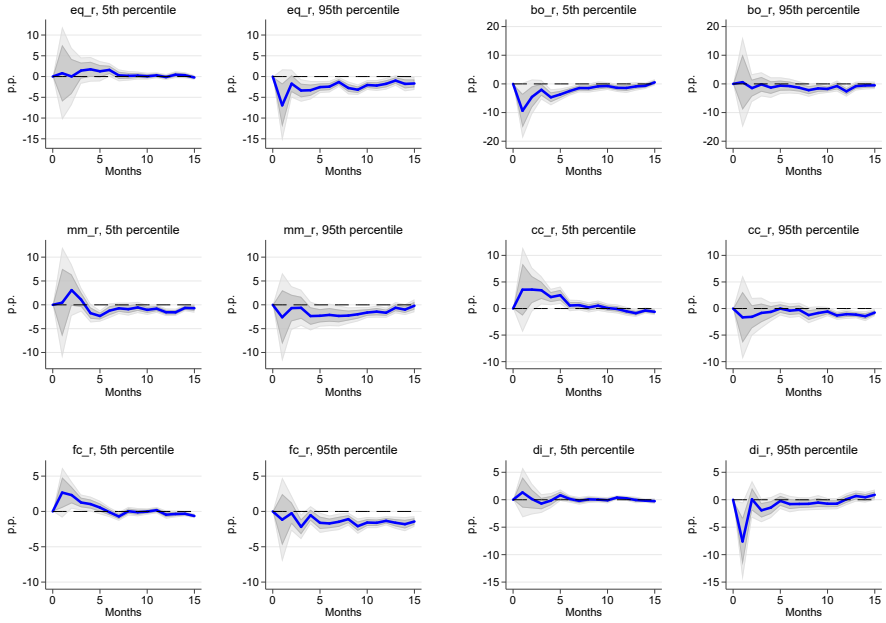
(a) The impact of capital inflow control policies



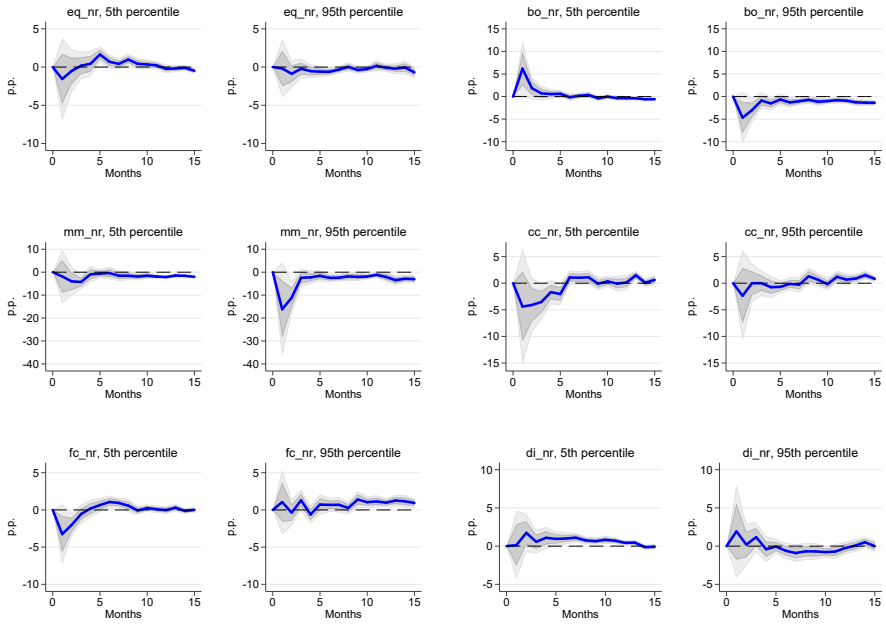
(b) The impact of capital outflow control policies

Notes: The blue lines denote the estimated cumulative responses coefficients of a one-point increase in each capital inflow and outflow control index obtained from local projection quantile regressions on real GDP growth at the 5th and 95th percentiles for 1 to 15 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal dashed lines represent the value of zero.

Figure B.1.4: Estimated coefficients of 5th, and 95th percentiles of real GDP growth to the implementation of inflow and outflow granular capital control indices from 1 to 15 months horizons.



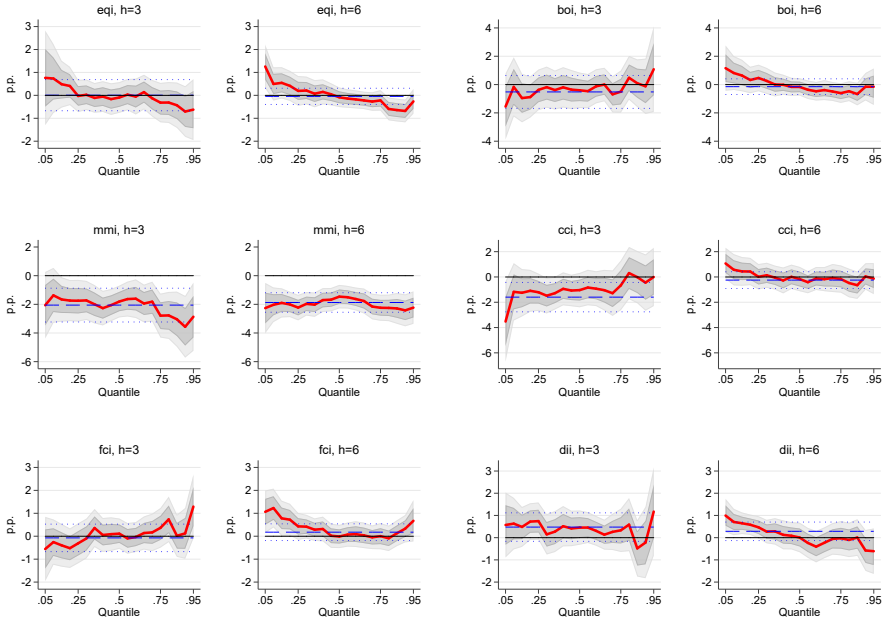
(a) The impact of capital control policies on residents



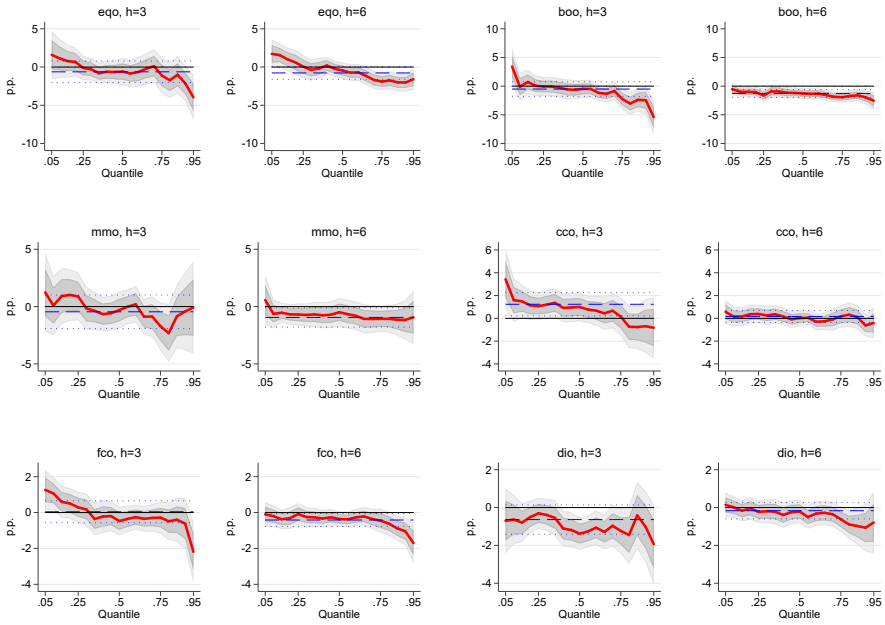
(b) The impact of capital control policies on nonresidents

Notes: The blue lines denote the estimated cumulative responses coefficients of a one-point increase in each capital control indices on residents and nonresidents respectively obtained from local projection quantile regressions on real GDP growth at the 5th and 95th percentiles for 1 to 15 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal dashed lines represent the value of zero.

Figure B.1.5: Estimated coefficients of 5th, and 95th percentiles of real GDP growth to the implementation of granular capital control indices on residents and nonresidents respectively from 1 to 15 months horizons.



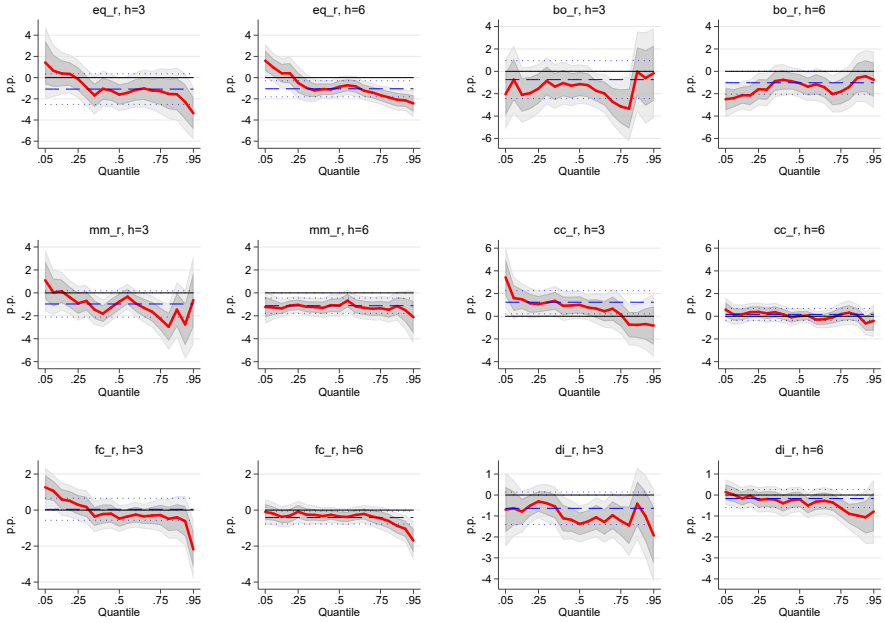
(a) The impact of capital inflow control policies



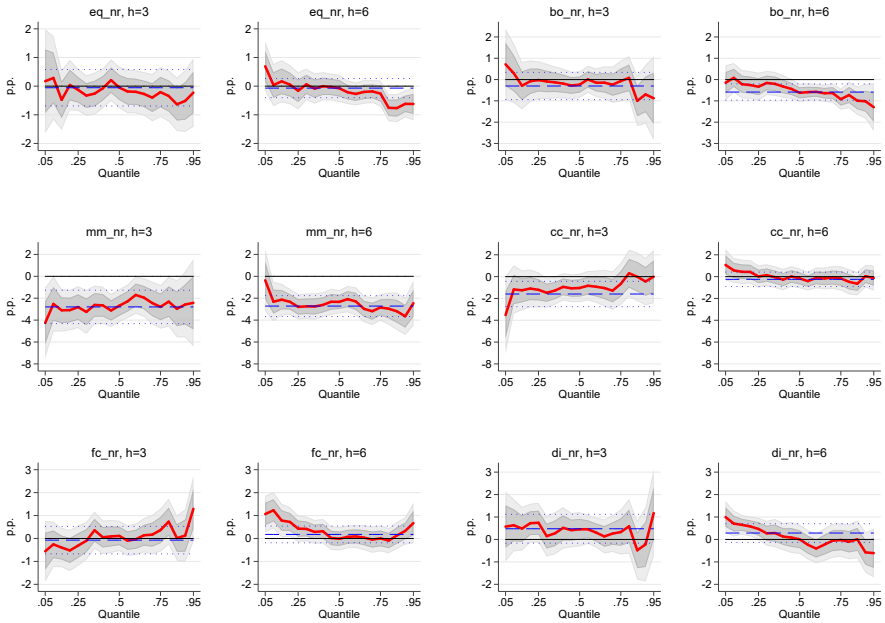
(b) The impact of capital outflow control policies

Notes: The red lines denote the estimated cumulative responses coefficients of a one-point increase in each capital inflow and outflow control index obtained from local projection quantile regressions on real GDP growth across quantiles at 3 and 6 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal solid lines represent the value of zero. The blue dashed lines show the OLS estimates and dotted lines represent 1.64 standard error confidence bands.

Figure B.1.6: Estimated quantile regression coefficients of inflow and outflow granular capital control indices on different quantiles of real GDP growth at 3 and 6 months horizons.



(a) The impact of capital control policies on residents



(b) The impact of capital control policies on nonresidents

Notes: The red lines denote the estimated cumulative responses coefficients of a one-point increase in each capital control indices on residents and nonresidents respectively obtained from local projection quantile regressions on real GDP growth across quantiles at 3 and 6 months ahead. Shaded areas refer to 1 standard error (dark) and 1.64 standard error (light), and the standard error are calculated by bootstrapping techniques with 500 replications. The y-axis indicates the percentage point change in real GDP growth. The horizontal solid lines represent the value of zero. The blue dashed lines show the OLS estimates and dotted lines represent 1.64 standard error confidence bands.

Figure B.1.7: Estimated quantile regression coefficients of granular capital control indices on residents and nonresidents respectively on different quantiles of real GDP growth at 3 and 6 months horizons.

B.2 Rules, Regulations, and Notices

In this appendix, I have double checked the rules, regulations, and notices associated with capital account listed in the website of SAFE. I collect all the official file's titles and extract their objectives and translate them in English.

APPENDIX B

Yang ZHOU, Graduate School of Economics, Kobe University

Notes:

(1) I supply the titles and their objectives of cicular or notice in both English and Chinese. (2) Titles and objectives in red color are transalated by me, while titles in black color are copied from "Catalogue of Major Existing Laws and Regulations in Effect on Foreign Exchange Administration" in the website of SAFE (http://www.safe.gov.cn/en/RulesandRegulations/index.html). (3) The notices in yellow background are those displayed in Table 4.3. (4) The notices and ciculars presented here (in Chinese) are collected from the website of "capital account and FX management", "Policy and Regulations", SAFE, (http://www.safe.gov.cn/safe/zbxmwhgl/index.html)

Date	File code	Title	Objectives	URL	标题 (Title in Chinese)	目标 (Objectives in Chinese)
1999/1/7	Huifa(1999) No.10	Circular of the State Administration of foreign exchange on improving the administration of foreign exchange under capital account	(i) According to the new situations and problems in the foreign exchange management of capital account recently reflected by various branches and financial institutions, in order to (ii) further improve the management and facilitate operation.	http://m.safe.gov.cn/safe/1999/0107/5450.html	关于完善资本项目外汇管理有关问题的通知	根据各分局和金融机构近期反映的资本项目外汇管理中出现的新情况和问题，为进一步完善管理、便于操作。
1999/4/20	Waijingmaojicaifa(1999) No.195	Notice on simplifying the foreign exchange management of overseas processing and assembly business with materials		http://m.safe.gov.cn/safe/1999/0420/5491.html	关于简化境外带料加工装配业务外汇管理的通知	
1999/7/30	Huifa(1999) No.251	Circular of the State Administration of Foreign Exchange and the Ministry of Foreign Trade and Economic Cooperation on Issues Concerning Foreign Exchange Administration of Foreign Aid Projects	(i) cooperate with the reform of foreign aid methods and (ii) ensure the smooth implementation of foreign aid projects.	http://m.safe.gov.cn/safe/1999/0730/5492.html	关于援外项目外汇管理有关问题的通知	为配合援外方式的改革，保证援外项目的顺利实施。
1999/10/18		Notice on issues related to the submission of tax vouchers for the sale and payment of foreign exchange under non trade and some capital items	(i) improve the state's management of foreign exchange sales and payments and taxation.	http://m.safe.gov.cn/safe/1999/1018/5451.html	关于非贸易及部分资本项目项下售付汇提交税务凭证有关问题的通知	为完善国家售付汇和税收管理。
1999/11/3	YinFa(1999) No.367	Circular on matters related to the resumption of capital account foreign exchange business by branches at and below the county level of designated foreign exchange banks	(i) improve work efficiency and (ii) reduce the operating costs of enterprises.	http://m.safe.gov.cn/safe/1999/1103/5452.html	关于外汇指定银行县级和县级以下支行恢复办理资本项目外汇业务有关事项的通知	提高办事效率，降低企业经营成本。
1999/12/13	Huifa(1999) No.380	Circular of the State Administration of Foreign Exchange on Adjusting the Authority for Examining and Approving the Opening of Dedicated Foreign Exchange Accounts and Settlement of the Foreign Exchange Proceeds of Share Offerings for Domestic Issuances of B-Shares and Overseas Listed Shares.	(i) improve the foreign exchange management of domestic B shares and overseas shares, (ii) simplify the relevant examination and approval procedures.	http://m.safe.gov.cn/safe/1999/1213/5551.html	关于调整境内发行B股和境外上市股票外汇专用帐户的开立和募股收入结汇审批权限的通知	为了完善境内发行B股和境外发行股票的外汇管理，简化有关审批手续。
1999/12/22	Huifa(1999) No.397	Circular of the State Administration of Foreign Exchange on Authorizing the Branches to Handle Equity Transfers and Foreign Exchange Clearing Business for Foreign-Funded Enterprises	(i) further improve the foreign investment environment, (ii) reduce the running time of official documents and (iii) improve work efficiency.	http://m.safe.gov.cn/safe/1999/1222/5493.html	关于授权分局办理外商投资企业转股、清算外汇业务的通知	为了进一步改善外商投资环境，减少公文运转时间，提高工作效率。
2000/1/11	JiWaiZi(2000) No.53	Circular of the State Development Planning Commission, the People's Bank of China, and the State Administration of Foreign Exchange on Implementing Administration of the Outstanding Mid-term and Long-term External Debt for State-owned Commercial Banks	(i) deepen the reform of the financial system, further (ii) strengthen the management of full-scale foreign debt, (iii) improve the use efficiency of foreign loans, (iv) improve the foreign exchange asset structure of state-owned commercial banks, (v) prevent financial venture capital, and (vi) give better play to the role of state-owned commercial banks in external financing.	http://m.safe.gov.cn/safe/2000/0111/5602.html	国家计委、中国人民银行、国家外汇管理局关于国有商业银行实行中长期外债余额管理的通知	为了深化金融体制改革，进一步加强全口径外债管理，提高国外贷款的使用效益，改善国有商业银行外汇资产结构，防范金融风险投资，更好地发挥国有商业银行对外筹资作用。
2000/2/23		Opinions on Further Strengthening the management of external bond issuance	(i) standardize the overseas issuance of bonds by domestic institutions, (ii) improve the use efficiency of the funds raised by issuing bonds, and (iii) prevent the risk of national foreign debt.	http://m.safe.gov.cn/safe/2000/0223/5603.html	关于进一步加强对外发债管理的意见	为了规范我国境内机构境外发债行为，提高发债筹集资金的使用效益，防范国家外债风险。
2000/5/19	Huifa(1999) No.372	Notice on issues related to the submission of tax vouchers for the sale and payment of foreign exchange under non trade and some capital items	(i) improve the State Administration of Taxation and the sale and payment of foreign exchange, the State Administration of Taxation and the State Administration of Foreign Exchange jointly issued the notice on issues related to the submission of tax vouchers for the sale and payment of foreign exchange under non trade and some capital items (HuiFa [1999] No. 372) in November 1999, in order to (ii) effectively implement the management and improve work efficiency.	http://m.safe.gov.cn/safe/2000/0519/5453.html	关于非贸易及部分资本项目项下售付汇提交税务凭证有关问题的通知	为完善国家税收和售付汇管理，国家税务总局和国家外汇管理局于1999年11月联合发布了《关于非贸易及部分资本项目项下售付汇提交税务凭证有关问题的通知》（汇发[1999]372号，以下简称《通知》），为有效实施管理，提高工作效率。
2000/8/10	Huifa(2000) No.105	Circular of the State Administration of Foreign Exchange on Principles for Dealing with the Payment of Overseas Guarantee Fees	(i) standardize the management of the payment of foreign guarantee fees.	http://m.safe.gov.cn/safe/2000/0810/5605.html	关于支付涉外担保费有关处理原则的通知	为了规范支付涉外担保费的管理。
2001/1/1		Interim Measures for settlement of foreign exchange income under capital account	(i) improve the management of capital account foreign exchange settlement.	http://m.safe.gov.cn/safe/2001/0101/5455.html	资本项目外汇收入结汇暂行办法	为完善资本项目结汇管理。
2001/2/22	ZhengJianFa(2001) No.22	Circular of the China Securities Regulatory Commission and the State Administration of Foreign Exchange on Several Issues Concerning Investments in Listed Domestic Foreign-funded Shares by Domestic Individual Residents	(i) promote the healthy development of domestic listed foreign shares (hereinafter referred to as "B" shares) market, (ii) maintain the normal order of B-share market and foreign exchange market, (iii) protect the legitimate rights and interests of investors and (iv) standardize the behavior of market participants.	http://m.safe.gov.cn/safe/2001/0222/5552.html	关于境内居民个人投资境内上市外资股若干问题的通知	为了促进境内上市外资股（以下简称"B"股）市场的健康发展，维护B股市场和外汇市场的正常秩序，保护投资人的合法权益，规范市场参与者的行为。

2001/2/23	Huifa(2001) No.31	Supplementary Circular of the State Administration of Foreign Exchange on Issues Concerning Investments in Listed Domestic Foreign-funded Shares by Domestic Individual Residents	(i) implement the notice on Several Issues concerning domestic residents' individual investment in domestic listed foreign capital shares (hereinafter referred to as the notice), we will (ii) do a good job in the foreign exchange management of domestic residents' investment in B shares.	http://m.safe.gov.cn/safe/2001/0223/5554.html	国家外汇管理局关于境内居民投资境内上市外资股有关问题的补充通知	为了贯彻《关于境内居民个人投资境内上市外资股若干问题的通知》（以下简称《通知》），做好对境内居民投资B股的外汇管理工作。
2001/2/23	ZhengJianFa(2001) No.26	Supplementary Circular of the China Securities Regulatory Commission and the State Administration of Foreign Exchange on Several Issues Concerning Securities Trading Institutions Engaging in B-Share Business	(i) implement the notice on Several Issues concerning individual investment of domestic residents in domestic listed foreign shares.	http://m.safe.gov.cn/safe/2001/0223/5553.html	关于证券经营机构从事B股业务若干问题的补充通知	为贯彻执行《关于境内居民个人投资境内上市外资股若干问题的通知》（证监发［2001］22号，以下简称《通知》）精神。
2001/4/3	Huifa(2001) No.45	Circular of the State Administration of Foreign Exchange on Beginning the Use of the New Version of the Approval Instrument of the State Administration of Foreign Exchange for Foreign Exchange Businesses under the Capital Account	(i) standardize the foreign exchange management of capital account.	http://m.safe.gov.cn/safe/2001/0403/5456.html	国家外汇管理局关于启用新版《国家外汇管理局资本项目外汇业务核准件》的通知	为规范资本项目外汇管理。
2001/7/11	ZhengJianFa(2001) No.81	Measures for Administration of the Overseas Futures Hedging Business of State-owned Enterprises	(i) strengthen the management of overseas futures business.	http://m.safe.gov.cn/safe/2001/0711/5555.html	国有企业境外期货套期保值业务管理办法	为了加强对境外期货业务的管理。
2001/7/20	YinFa(2001) No.235	Circular of the people's Bank of China and the State Administration of foreign exchange on foreign debt registration of usance letters of credit by Chinese funded designated foreign exchange banks	(i) comply with the latest international statistical standards of foreign debt and (ii) increase the transparency and comparability of foreign debt statistical data.	http://m.safe.gov.cn/safe/2001/0720/5608.html	中国人民银行、国家外汇管理局关于中资外汇指定银行就远期信用证进行外债登记的通知	为了与国际最新外债统计标准接轨，增加外债统计数据的透明度和可比性。
2001/8/8	Huifa(2001) No. 142	Circular of the State Administration of foreign exchange on the pilot reform of the mode of foreign exchange administration of domestic foreign exchange loans	(i) improve the management of domestic foreign exchange loans and (ii) improve work efficiency.	http://m.safe.gov.cn/safe/2001/0808/5609.html	国家外汇管理局关于对国内外汇贷款外汇管理方式进行改革试点的通知	为了改进国内外汇贷款的管理，提高工作效率。
2001/9/3	Huifa(2001) No. 150	Operational Rules for Foreign Exchange Administration of the Overseas Futures Hedging Business of State-owned Enterprises (Trial)	(i) further improve the foreign exchange management of overseas futures hedging business of state-owned enterprises.	http://m.safe.gov.cn/safe/2001/0903/5556.html	国家外汇管理局关于《国有企业境外期货套期保值业务外汇管理操作规程(试行)》的通知	为了进一步完善国有企业境外期货套期保值业务的外汇管理工作。
2001/10/24	YinFa(2001) No.304	Circular of the People's Bank of China and the State Administration of Foreign Exchange on Adjustments to Certain Administrative Measures for Foreign Exchange Purchases under the Capital Account	In 1998, according to the needs of the situation, the people's Bank of China and the State Administration of foreign exchange adopted some temporary restrictions on the purchase of foreign exchange under capital accounts. These measures played a positive role in stabilizing the foreign exchange situation at that time and preventing foreign exchange evasion and arbitrage. At present, (i) China's macro-economy is running healthily and the foreign exchange revenue and expenditure is in good condition. In order to (ii) support enterprises to operate independently, (iii) promote banks to improve asset quality and (iv) implement the strategy of "going out".	http://m.safe.gov.cn/safe/2001/1024/5457.html	中国人民银行、国家外汇管理局关于调整资本项下部分购汇管理措施的通知	1998年，中国人民银行和国家外汇管理局根据形势需要，在资本项目外汇管理方面采取了一些临时性的购汇限制措施。这些措施对稳定当时的外汇形势、防止逃套汇起到了积极作用。目前，我国宏观经济健康运行，外汇收支状况良好。为支持企业自主经营，促进银行提高资产质量，贯彻"走出去"的战略。
2001/12/25	Waijingmaozifa (2001) No. 700	Circular of the Ministry of Foreign Trade and Economic Cooperation, the State Economic and Trade Commission, the Ministry of Finance, the General Administration of Customs, the State Taxation Administration, the State Administration for Industry and Commerce, and the State Administration of Foreign Exchange on Implementing a Program for Joint Annual Inspections of Foreign-Invested Enterprises	(i) further improve the level of joint annual inspection of foreign-invested enterprises.	http://m.safe.gov.cn/safe/2001/1225/5495.html	关于2002年外商投资企业联合年检有关工作的通知	为进一步提高外商投资企业联合年检工作水平。
2002/3/15	CaiKuai(2002) No. 1017	Circular of the Ministry of Finance and the State Administration of Foreign Exchange on Further Strengthening Capital Verifications of Foreign-Invested Enterprises and Perfecting the Foreign Exchange Registration System for Foreign Investments	(i) further strengthen the capital verification of foreign-invested enterprises, (ii) improve the foreign exchange registration system, (iii) ensure the rational and orderly flow of foreign exchange funds, and (iv) promote the healthy development of the utilization of foreign capital.	http://m.safe.gov.cn/safe/2002/0315/5496.html	财政部 国家外汇管理局关于进一步加强外商投资企业验资工作及健全外资外汇登记制度的通知	为进一步加强外商投资企业验资工作，健全外资外汇登记制度，保证外汇资金合理、有序流动，促进利用外资工作的健康发展。
2002/4/22	Huifa(2002) No.38	Circular of the State Administration of Foreign Exchange on Adjustments to the Measures for Management of the Purchase of Foreign Exchange for the Early Repayment of Loans	(i) facilitate enterprises to choose their own time to adjust the debt structure and (ii) improve the quality of bank assets.	http://m.safe.gov.cn/safe/2002/0422/5610.html	国家外汇管理局关于调整购汇提前还贷管理措施的通知	为方便企业自主选择时机进行债务结构调整，改善银行资产质量。
2002/4/30	Huifa(2002) No.42	Circular of the State Administration of Foreign Exchange on Issues Concerning Implementation of Foreign Exchange Registration of Foreign Direct Investments	(i) implement the notice of the Ministry of Finance and the State Administration of foreign exchange on Further Strengthening the capital verification of enterprises with foreign investment and improving the foreign exchange registration system (CAI Kuai [2002] No. 1017), (ii) improve the management and standardize the operation.	http://m.safe.gov.cn/safe/2002/0430/5497.html	国家外汇管理局关于开展外商直接投资外汇登记工作有关问题的通知	为贯彻落实《财政部、国家外汇管理局关于进一步加强外商投资企业验资工作及健全外资外汇登记制度的通知》（财会［2002］1017号，以下简称《通知》），完善管理，规范操作。

2002/6/17	Huifa(2002) No.59	Circular of the State Administration of Foreign Exchange Concerning Reform of the Administrative Mode for Foreign Exchange Settlement of Capital under Foreign-Invested Items	(i) further improve the foreign investment environment, (ii) improve the regulatory efficiency of foreign exchange settlement under foreign investment and (iii) facilitate the operation of enterprise investment funds, (iv) ensure the smooth implementation of this reform.	http://m.safe.gov.cn/safe/2002/0617/5498.html	国家外汇管理局关于改革外商投资项下资本金结汇管理方式的通知	为进一步改善外商投资环境，提高外商投资项下资本金结汇监管效率，便利企业投资资金运作，为保证此项改革的顺利实施。
2002/7/8	JiWaiZi(2002) No.1092	Circular of the State Development Planning Commission, the people's Bank of China and the State Administration of foreign exchange on printing and distributing the guiding opinions on foreign debt risk management and structural adjustment of state-owned and state holding enterprises	(i) promote the foreign debt risk management and structural adjustment of state-owned and state holding enterprises.	http://m.safe.gov.cn/safe/2002/0708/5611.html	国家发展计划委员会、中国人民银行、国家外汇管理局关于印发国有和国有控股企业外债风险管理及结构调整指导意见的通知	为推动国有和国有控股企业外债风险管理及结构调整工作。
2002/8/20	Huifa(2002) No.77	Circular of the State Administration of Foreign Exchange and the China Securities Regulatory Commission on Issues Concerning Further Improving Foreign Exchange Administration of Overseas Listings	(i) regulate the foreign exchange revenue and expenditure related to overseas listing, (ii) strengthen the foreign exchange management of the repatriation of funds raised for listing and the settlement and sale of foreign exchange.	http://m.safe.gov.cn/safe/2002/0820/5557.html	国家外汇管理局、中国证监会关于进一步完善境外上市外汇管理有关问题的通知	为规范境外上市有关的外汇收支行为，加强对上市所筹资金的调回及结售汇的外汇管理。
2002/9/9	HuiZiHan(2002) No.29	Circular of the capital account management department of the State Administration of foreign exchange on matters related to the administration of foreign exchange for overseas listing	(i) implement the notice of the State Administration of foreign exchange and China Securities Regulatory Commission on further improving the foreign exchange management of overseas listing (Hui Fa [2002] No. 77), (ii) improve the management and standardize the operation.	http://m.safe.gov.cn/safe/2002/0909/5558.html	国家外汇管理局资本项目管理司关于做好境外上市外汇管理工作有关事项的通知	为贯彻落实《国家外汇管理局、中国证监会关于进一步完善境外上市外汇管理有关问题的通知》（汇发[2002]77号，以下简称《通知》），完善管理，规范操作。
2002/10/24	Huifa(2002) No.105	Circular of the State Administration of Foreign Exchange on Forwarding the Circular of the General Office of the State Council on Relevant Issues Concerning the Proper Handling of Existing Projects with Guaranteed Fixed Returns on Investments for Foreign Parties	(i) further standardize the behavior of attracting foreign investment, (ii) properly solve the problems left over by history, and (iii) promote the healthy development of China's work of attracting foreign investment.	http://m.safe.gov.cn/safe/2002/1024/5500.html	国家外汇管理局关于转发《国务院办公厅关于妥善处理现有保证外方投资固定回报项目有关问题的通知》的通知	为进一步规范吸引外资行为，妥善解决历史遗留问题，促进我国吸引外资工作健康发展。
2002/11/12	Huifa(2002) No.110	Circular of the State Administration of foreign exchange on issues related to clearing up the profit margin returned from overseas investment	(i) implement the development strategy of "going out", (ii) implement the relevant spirit of the decision of the State Council on canceling the first batch of administrative examination and approval projects (GF [2002] No. 24).	http://m.safe.gov.cn/safe/2002/1112/5501.html	国家外汇管理局关于清理境外投资汇回利润保证金有关问题的通知	为贯彻实施“走出去”发展战略，落实《国务院关于取消第一批行政审批项目的决定》（国发［2002］24号）的有关精神。
2002/11/18		Interim Provisions on utilizing foreign capital to reorganize state owned enterprises	(i) guide and standardize the use of foreign capital to reorganize state-owned enterprises, (ii) promote the strategic reorganization of the state-owned economy, (iii) accelerate the pace of state-owned enterprises in establishing a modern enterprise system, and (iv) maintain social stability	http://m.safe.gov.cn/safe/2002/1118/5502.html	利用外资改组国有企业暂行规定	为引导和规范利用外资改组国有企业的行为，促进国有经济的战略性改组，加快国有企业建立现代企业制度的步伐，维护社会稳定。
2002/11/19		Interim Measures for the administration of domestic securities investment by Qualified Foreign Institutional Investors	(i) standardize the investment behavior of qualified foreign institutional investors in China's domestic securities market and (ii) promote the development of China's securities market.	http://m.safe.gov.cn/safe/2002/1119/5559.html	《合格境外机构投资者境内证券投资管理暂行办法》	为了规范合格境外机构投资者在中国境内证券市场的投资行为，促进中国证券市场的发展。
2002/11/27		Interim Measures for joint annual inspection of overseas investment	(i) strengthening the macro supervision of overseas investment, (ii) mastering the changes of overseas investment and (iii) promoting the healthy development of overseas investment.	http://m.safe.gov.cn/safe/2002/1127/5503.html	境外投资联合年检暂行办法	为加强境外投资的宏观监管，掌握境外投资变动情况，促进境外投资的健康发展，特制定本办法。
2002/11/28	SAFE, PBoC: No. 12	Announcement of the State Administration of foreign exchange on Issuing the Interim Provisions on the administration of foreign exchange for domestic securities investment by Qualified Foreign Institutional Investors	(i) regulate the investment behavior of qualified foreign institutional investors (hereinafter referred to as QFII) in China's domestic securities market and (ii) maintain the stability of China's foreign exchange market and the balance of international payments.	http://m.safe.gov.cn/safe/2002/1128/5560.html	国家外汇管理局关于发布《合格境外机构投资者境内证券投资外汇管理暂行规定》的公告	为了规范合格境外机构投资者（以下简称合格投资者）在中国境内证券市场的投资行为，维护中国外汇市场的稳定和国际收支的平衡。
2002/12/6	Huifa(2002) No.125	Circular of the State Administration of Foreign Exchange on Implementing the Reform of the Mode of Foreign Exchange Administration of Domestic Foreign Exchange Loans	(i) facilitate enterprises to use domestic foreign exchange loans and financial institutions for creditor's rights management, the State Administration of Foreign Exchange decided to reform the foreign exchange management mode of domestic foreign exchange loans nationwide on the basis of summarizing the pilot experience in some regions.	http://m.safe.gov.cn/safe/2002/1206/5612.html	国家外汇管理局关于实施国内外汇贷款外汇管理方式改革的通知	为方便企业使用国内外汇贷款和金融机构进行债权管理，国家外汇管理局在总结部分地区试点经验的基础上，决定在全国范围内对国内外汇贷款外汇管理方式进行改革。
2002/12/12	Huifa(2002) No.124	Circular of the State Administration of Foreign Exchange and the Ministry of Finance on Adjusting the Table of Foreign Exchange Issues Under the Annual Inspections of the Foreign Exchange Business of Foreign-Invested Enterprises	(i) further do a good job in the future annual foreign exchange inspection of foreign-invested enterprises and (ii) effectively improve the quality of foreign exchange audit of certified public accountants.	http://m.safe.gov.cn/safe/2002/1212/5504.html	（已废止）国家外汇管理局、财政部关于调整外商投资企业外汇年检“外汇内容表”的通知	为进一步做好今后的外商投资企业外汇年检工作，切实提高注册会计师外汇审核工作质量。

2002/12/30	Waijingmaofafa (2002) No.575	Circular of the Ministry of foreign trade and economic cooperation, the State Administration of Taxation, the State Administration for Industry and Commerce and the State Administration of foreign exchange on strengthening the examination and approval, registration, foreign exchange and tax administration of enterprises with foreign investment	(i) adapt to the new situation of absorbing foreign investment, (ii) standardize the management of foreign-invested enterprises, (iii) ensure the healthy development of foreign-invested enterprises and (iv) safeguard the legitimate rights and interests of Chinese and foreign investors.	http://m.safe.gov.cn/safe/2002/1230/5505.html	对外贸易经济合作部、国家税务总局、国家工商行政管理总局、国家外汇管理局关于加强外商投资企业审批、登记、外汇及税收管理有关问题的通知	为了适应吸收外商投资工作面临的新形势，规范对外商投资企业的管理，保证外商投资企业的健康发展，维护中外投资者的合法权益。
2003/1/6	Huifa(2003) No.2	Circular of the State Administration of Foreign Exchange on Policy-related Issues Concerning the Mortgaging of Foreign Exchange for RMB Loans by Domestic Individual Residents	(i) standardize foreign exchange pledge.	http://m.safe.gov.cn/safe/2003/0106/5613.html	国家外汇管理局关于境内居民个人以外汇抵押人民币贷款政策问题的通知	为规范外汇质押行为。
2003/1/8		Interim Measures for the administration of foreign debt	(i) standardize the borrowing of foreign debt, (ii) improve the efficiency of the use of foreign debt funds and (iii) prevent foreign debt risks.	http://m.safe.gov.cn/safe/2003/0108/5614.html	外债管理暂行办法	为规范举借外债行为，提高外债资金使用效益，防范外债风险。
2003/1/20	Waijingmaohefa (2003) No.5	Notice on carrying out the joint annual inspection and comprehensive performance evaluation of overseas investment in 2003	(i) The implementation of joint annual inspection and comprehensive performance evaluation of overseas investment is the need to accelerate the implementation of the "going global" strategy and strengthen the macro management and policy guidance of overseas investment; (ii) It is a measure to comply with China's accession to the World Trade Organization and fully implement the State Council's decision to further promote the reform of the administrative system.	http://m.safe.gov.cn/safe/2003/0120/5506.html	关于开展2003境外投资联合年检和综合绩效评价工作的通知	实行境外投资联合年检和综合绩效评价，是加快实施“走出去”战略，加强境外投资宏观管理和政策指导的需要；是顺应我国加入世界贸易组织，全面贯彻落实国务院关于进一步推进行政管理体制改革的一项举措。
2003/2/18		Regulations on the administration of foreign invested venture capital enterprises	(i) encourage foreign companies, enterprises and other economic organizations or individuals (hereinafter referred to as foreign investors) to engage in venture capital in China, (ii) establish and improve China's venture capital infrastructure.	http://m.safe.gov.cn/safe/2003/0218/5507.html	《外商投资创业投资企业管理规定》	为鼓励外国公司、企业和其他经济组织或个人（以下简称外国投资者）来华从事创业投资，建立和完善中国的创业投资机制。
2003/3/6	Huifa(2003) No.30	Circular of the State Administration of Foreign Exchange on Issues Concerning Improvements in the Foreign Exchange Administration of Foreign Direct Investments	(i) adapt to the new trend of international investment, (ii) introduce foreign capital through multiple channels, (iii) constantly improve the foreign exchange management of foreign direct investment and (iv) further improve the foreign investment environment.	http://m.safe.gov.cn/safe/2003/0306/5508.html	国家外汇管理局关于完善外商直接投资外汇管理工作有关问题的通知	为适应国际投资新趋势，多渠道引进外资，不断完善外商直接投资外汇管理，进一步改善外商投资环境。
2003/3/19	Huifa(2003) No.43	Circular of the State Administration of foreign exchange on simplifying the examination of the sources of foreign exchange funds for overseas investment	(i) implement the "going global" development strategy, implement the relevant spirit of the decision of the State Council on canceling the first batch of administrative examination and approval projects (GF [2002] No. 24), and (ii) do a good job in the follow-up supervision of canceling the two administrative examination and approval of “foreign exchange risk of overseas investment” and “repatriation of profit margin”.	http://m.safe.gov.cn/safe/2003/0319/5509.html	国家外汇管理局关于简化境外投资外汇资金来源审查有关问题的通知	为贯彻实施“走出去”发展战略，落实《国务院关于取消第一批行政审批项目的决定》（国发［2002］24号）的有关精神，做好取消境外投资外汇风险审查和汇回利润保证金两项行政审批的后续监管工作，国家外汇管理局决定简化境外投资外汇资金来源审查手续。
2003/3/29	Huifa(2003) No.44	Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning Foreign Exchange Administration of Fund Management Companies with Foreign Shares	(i) standardize the foreign exchange management of foreign capital staking in fund management companies.	http://m.safe.gov.cn/safe/2003/0329/5561.html	国家外汇管理局关于外资参股基金管理公司有关外汇管理问题的通知	为规范外资参股基金管理公司外汇管理。
2003/4/3	Huifa(2003) No.50	Circular of the State Administration of Foreign Exchange on Transitional Policies and Measures after Revocation of Certain Administrative Examinations and Approvals of Foreign Exchange Administration under the Capital Account	(i) ensure the smooth connection of capital account management after the cancellation of relevant administrative approval projects and (ii) prevent disconnection.	http://m.safe.gov.cn/safe/2003/0403/5458.html	国家外汇管理局关于取消部分资本项目外汇管理行政审批后过渡政策措施的通知	《国务院关于取消第一批行政审批项目的决定》(国发［2002］24号)和《国务院关于取消第二批行政审批项目和改变一批行政审批项目管理方式的决定》（国发［2003］5号）已经对外发布，为了保证有关行政审批项目取消后，资本项目管理工作能够顺利衔接，防止脱节。
2003/4/12		Interim Provisions on merger and acquisition of domestic enterprises by foreign investors	(i) promote and regulate foreign investors' investment in China, (ii) introduce foreign advanced technology and management experience, (iii) improve the level of foreign capital utilization, (iv) realize the rational allocation of resources, (v) ensure employment, (vi) maintain fair competition and national economic security.	http://m.safe.gov.cn/safe/2003/0412/5510.html	外国投资者并购境内企业暂行规定	为了促进和规范外国投资者来华投资，引进国外的先进技术和管理经验，提高利用外资的水平，实现资源的合理配置，保证就业、维护公平竞争和国家经济安全。

2003/6/4	Huifa(2003) No.72	Circular of the State Administration of Foreign Exchange on Adjusting the Issues Related to the Opening of Domestic Foreign Exchange Accounts in the Operational Rules for Foreign Exchange Administration of the Overseas Futures Hedging Business of State-owned Enterprises (Trial)	(i) facilitate the operation of enterprises and (ii) further meet the needs of the development of the situation.	http://m.safe.gov.cn/safe/2003/0604/5562.html	国家外汇管理局关于调整《国有企业境外期货套期保值业务外汇管理操作规程(试行)》中有关开立境内外汇账户问题的通知	2001年，我局发布并实施了《国有企业境外期货套期保值业务外汇管理操作规程（试行）》（下称《规程》，见附件），规范了我国国有企业境外期货套期保值业务的外汇管理。《规程》关于期货专户的管理规定，主要针对在京中央企业。近期，经国务院批准，证监会批准了10家企业从事境外期货套期保值业务的资格，其中7家企业属北京以外地区注册的企业。因此，《规程》中关于期货专户开户行的管理规定，已不能完全适应目前管理的要求。**为方便企业经营，进一步适应形势发展的需要**，现对《规程》中关于境内期货专户开户银行的要求作如下修改: 删除“系在京外汇指定银行总行”的条款，其他内容不变。
2003/6/26	ShangHeFa(2003) No.126	Circular of the Ministry of Commerce and the State Administration of foreign exchange on simplifying the examination and approval procedures for overseas processing trade projects and delegating authority	(i) implement the spirit of the 16th CPC National Congress and the second plenary session of the 16th CPC Central Committee, further (ii) implement the document Guo Ban Fa [1999] No. 17, (iii) encourage and promote the development of overseas processing trade, and (iv) accelerate the implementation of the "going global" strategy, (v) according to the requirements of the adjustment of the institutions and functions of relevant departments of the State Council and the deepening of the reform of the administrative examination and approval system, The Ministry of Commerce and the State Administration of foreign exchange have adjusted the examination and approval procedures and authorities of overseas processing trade projects.	http://m.safe.gov.cn/safe/2003/0626/5511.html	商务部、国家外汇管理局关于简化境外加工贸易项目审批程序和下放权限有关问题的通知	为深入贯彻党的十六大和十六届二中全会精神，进一步落实国办发[1999]17号文件，鼓励和推进境外加工贸易发展，加快实施“走出去”战略，根据国务院有关部门机构与职能的调整和深化行政审批制度改革的要求，商务部和国家外汇管理局对境外加工贸易项目的审批程序和权限进行了调整。
2003/7/8	Huifa(2003) No.81	Circular of the State Administration of foreign exchange on issues related to the return of profit margin returned from overseas investment	(i) implement the "going global" development strategy and (ii) implement the relevant spirit of the decision of the State Council on canceling the first batch of administrative examination and approval projects (GF [2002] No. 24), the State Administration of foreign exchange has cancelled the system of remitting profit margin for overseas investment (hereinafter referred to as "margin") and decided to return the received margin to the corresponding investors.	http://m.safe.gov.cn/safe/2003/0708/5512.html	国家外汇管理局关于退还境外投资汇回利润保证金有关问题的通知	为贯彻实施“走出去”发展战略，落实《国务院关于取消第一批行政审批项目的决定》（国发［2002］24号）的有关精神，国家外汇管理局已取消了境外投资汇回利润保证金（下称“保证金”）制度，并决定将已经收取的保证金退还给相应的投资主体。
2003/9/12	HuiZongFa(2003) No.124	Circular of the general affairs department of the State Administration of foreign exchange on the operation of QFII foreign exchange management	(i) For ease of operation.	http://m.safe.gov.cn/safe/2003/0912/5563.html	国家外汇管理局综合司关于QFII外汇管理操作问题的通知	《合格境外机构投资者境内证券投资外汇管理暂行规定》已于2002年11月28日由国家外汇管理局（以下简称外汇局）发布实施。在实施过程中，外汇局陆续收到一些机构投资者关于合格境外机构投资者（以下简称QFII）境内证券投资外汇管理问题的咨询。**为方便操作**。
2003/9/24	Huifa(2003) No.108	Circular of the State Administration of Foreign Exchange on Relevant Issues Regarding Improving Foreign Exchange Administration of Overseas Listings	(i) further improve the management and standardize the operation, the State Administration of foreign exchange has standardized the implementation of relevant matters in Huifa No. 77 document. At the same time, (ii) it has formulated the operating procedures for foreign exchange management of overseas listing (see annex, hereinafter referred to as the operating procedures), and redesigned the foreign exchange registration form of overseas listed stocks.	http://m.safe.gov.cn/safe/2003/0924/5564.html	国家外汇管理局关于完善境外上市外汇管理有关问题的通知	为进一步完善管理，规范操作，总局对执行汇发77号文中有关事项进行了规范，同时，拟定了《境外上市外汇管理操作规程（见附件，以下简称《操作规程》），重新设计了境外上市股票外汇登记表。
2003/10/15	Huifa(2003) No.120	Circular of the State Administration of foreign exchange on issues related to further deepening the reform of foreign exchange management of overseas investment	(i) promote the in-depth implementation of the "going global" development strategy, (ii) deepen the pilot reform of foreign exchange management of overseas investment, and (iii) further improve the foreign exchange management of overseas investment.	http://m.safe.gov.cn/safe/2003/1015/5513.html	国家外汇管理局关于进一步深化境外投资外汇管理改革有关问题的通知	为推动“走出去”发展战略的深入贯彻实施，深化境外投资外汇管理改革试点工作，进一步完善境外投资外汇管理。
2003/11/17	(2003) No.3	Order of the Ministry of Commerce, the General Administration of customs, the State Administration of Taxation and the State Administration of foreign exchange on the administration of the establishment of export procurement centers with foreign investment	(i) further promote the development of foreign trade, (ii) expand opening to the outside world and attract foreign investment.	http://m.safe.gov.cn/safe/2003/1117/5514.html	商务部 海关总署 国家税务总局 国家外汇管理局令——关于设立外商投资出口采购中心管理办法	为进一步促进对外贸易发展，扩大对外开放和吸引外商投资，根据中华人民共和国有关外国投资及对外贸易管理的法律、法规制定本办法。外国投资者在中国投资设立外商投资出口采购中心，应遵照本办法执行。

2004/2/18	Huifa(2004) No.7	Circular of the State Administration of Foreign Exchange on Issues Concerning Improvements in the Annual Inspections of the Foreign Exchange Business of Foreign-Invested Enterprises	(i) standardize the practice of accounting firms in the annual foreign exchange inspection, (ii) improve the participation rate of foreign-invested enterprises in the annual foreign exchange inspection, and (iii) comprehensively monitor the overall situation of foreign exchange revenue and expenditure of foreign-invested enterprises in China.	http://m.safe.gov.cn/safe/2004/0218/5515.html	国家外汇管理局关于改进外商投资企业外汇年检工作有关事项的通知	2004年外商投资企业外汇年检即将开展，为规范会计师事务所在外汇年检中的执业行为，提高外商投资企业外汇年检参检率，全面监测我国外商投资企业外汇收支整体状况。
2004/3/8	ShangHeHan(2004) No. 6	Circular of the Ministry of Commerce and the State Administration of foreign exchange on matters related to the joint annual inspection and comprehensive performance evaluation of overseas investment in 2004		http://m.safe.gov.cn/safe/2004/0308/5516.html	商务部 国家外汇管理局关于2004年境外投资联合年检和综合绩效评价工作有关事项的通知	
2004/5/17	Huifa(2004) No.42	Circular of the State Administration of Foreign Exchange on Improving the Verification of Foreign Exchange Settlements under the Capital Account and the Administration of External Debt Registration of Foreign-invested Enterprises	(i) guide the rational and orderly flow of foreign investment funds in China and (ii) maintain and promote the balance of international payments.	http://m.safe.gov.cn/safe/2004/0517/5459.html	国家外汇管理局关于改进外商投资企业资本项目结汇审核与外债登记管理工作的通知	为引导外商投资资金在境内合理有序流动，维护和促进国际收支平衡。
2004/5/27	NDRC, PBoC, CBRC: No. 9	Measures for Management of the External Debt of Domestic Foreign-funded Banks (Decree No. 9 [2004] of the National Development and Reform Commission, the People's Bank of China, and the China Banking Regulatory Commission)	(i) strengthen the comprehensive management of foreign debt, effectively (ii) regulate the total amount of foreign debt and (iii) standardize the management of foreign debt of domestic and foreign banks.	http://m.safe.gov.cn/safe/2004/0527/5616.html	境内外资银行外债管理办法	为加强外债的全口径管理，有效调控外债总量，规范境内外资银行外债管理。
2004/6/21	Huifa(2004) No.59	Circular of the State Administration of Foreign Exchange on Issues Concerning Implementation of the Measures for Management of the External Debt of Domestic Foreign-funded Banks		http://m.safe.gov.cn/safe/2004/0621/5617.html	国家外汇管理局关于实施《境内外资银行外债管理办法》有关问题的通知	
2004/7/15	Huifa(2004) No.72	Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning Foreign Exchange Administration of Automotive Financial Companies	(i) standardize the foreign exchange management of Automotive financing companies.	http://m.safe.gov.cn/safe/2004/0715/5565.html	国家外汇管理局关于汽车金融公司有关外汇管理问题的通知	为规范汽车金融公司外汇管理。
2004/10/18	Huifa(2004) No.104	Circular of the State Administration of foreign exchange on issues related to the internal operation and management of foreign exchange funds of multinational corporations	(i) optimize the allocation of foreign exchange resources and (ii) facilitate and support the use and operation of foreign exchange funds of multinational corporations.	http://m.safe.gov.cn/safe/2004/1018/5460.html	国家外汇管理局关于跨国公司外汇资金内部运营管理有关问题的通知	为优化外汇资源配置，便利和支持跨国公司外汇资金运用和经营行为。
2004/10/27	Huifa(2004) No.108	Circular of the State Administration of Foreign Exchange on Carrying Out Confirmation of Capital Verifications of Foreign Direct Investments and Foreign Exchange Registration of Foreign Investments in the Export Processing Zones, the Bonded Zones, and within the Shanghai Diamond Exchange	(i) improve the capital verification and foreign exchange registration system of foreign-invested enterprises and (ii) prevent false capital contribution and capital verification.	http://m.safe.gov.cn/safe/2004/1027/5517.html	国家外汇管理局关于在出口加工区、保税区和上海钻石交易所开展外商直接投资验资询证及外资外汇登记工作的通知	为完善外商投资企业验资询证和外资外汇登记制度，防止虚假出资及验资。
2004/11/16	PBoC(2004) No. 16	Interim Measures for Administration of the Sales and Payments of Foreign Exchange in Terms of External Transfers of Personal Property	(i) facilitate and standardize the external transfer of personal property.	http://m.safe.gov.cn/safe/2004/1116/5461.html	中国人民银行公告[2004]第16号	为便利和规范个人财产对外转移行为。
2004/12/9	Huifa(2004) No.119	Circular of the State Administration of foreign exchange on printing and distributing the operation guidelines of the Interim Measures for the administration of the sale and payment of foreign exchange for the transfer of personal property to foreign countries (for Trial Implementation)	(i) ensure the implementation of this policy, (ii) clarify the relevant operating procedures for the convenience of the applicant.	http://m.safe.gov.cn/safe/2004/1209/5462.html	国家外汇管理局关于印发《<个人财产对外转移售付汇管理暂行办法>操作指引（试行）》的通知	为保证此项政策的贯彻落实，明确有关操作程序，方便申请人办理。
2004/12/17	Huifa(2004) No.119	Circular of the State Administration of Foreign Exchange on Foreign Exchange Administration of the Disposal of Non-performing Assets with Foreign Investments by Financial Asset Management Companies	(i) standardize the foreign exchange management of financial asset management companies using foreign capital to dispose of non-performing assets.	http://m.safe.gov.cn/safe/2004/1217/5618.html	国家外汇管理局关于金融资产管理公司利用外资处置不良资产有关外汇管理问题的通知	为规范金融资产管理公司利用外资处置不良资产的外汇管理。
2005/1/26	Huifa(2005) No.4	Circular of the State Administration of foreign exchange on the verification of short-term foreign debt indicators of domestic and foreign-funded banks in 2005		http://m.safe.gov.cn/safe/2005/0126/5619.html	国家外汇管理局关于2005年境内外资银行短期外债指标核定工作的通知	
2005/1/27	Huifa(2005) No.9	Circular of the State Administration of Foreign Exchange, the Ministry of Foreign Affairs, the Ministry of Public Security, the Ministry of Supervision, and the Ministry of Justice on Issues Concerning Implementation of the Interim Measures for the Administration of the Sales and Payments of Foreign Exchange in Terms of External Transfers of Personal Property	(i) do a good job in the supervision of the sale and payment of foreign exchange for the external transfer of personal property, (ii) strengthen the examination of the legitimacy and authenticity of the identity of the applicant and the source of relevant property, and (iii) prevent criminals from transferring assets to the outside.	http://m.safe.gov.cn/safe/2005/0127/5463.html	国家外汇管理局 外交部 公安部 监察部 司法部关于实施《个人财产对外转移售付汇管理暂行办法》有关问题的通知	为做好个人财产对外转移售付汇的监管工作，加强对申请人身份及有关财产来源的合法性和真实性审查，防止违法犯罪人员对外转移资产。

2005/1/31	GuoShuiFa(2005) No.13	Circular of the State Administration of Taxation and the State Administration of Foreign Exchange on Relevant Issues Concerning Submission of Tax Certificates or Tax Payment Vouchers for Outward Transfers of Personal Property	(i) implement the Interim Measures for the administration of the sale and payment of foreign exchange for the external transfer of personal property (announcement [2004] No. 16 of the people's Bank of China, hereinafter referred to as the measures), (ii) facilitate the applicant to handle business and (iii) prevent the loss of state tax revenue.	http://m.safe.gov.cn/safe/2005/0131/5464.html	国家税务总局 国家外汇管理局关于个人财产对外转移提交税收证明或者完税凭证有关问题的通知	为落实《个人财产对外转移售付汇管理暂行办法》（中国人民银行公告[2004]第16号，以下简称《办法》），便利申请人办理业务，防止国家税收流失。
2005/3/3	Huifa(2005) No.14	Circular of the State Administration of foreign exchange on issues related to the administration of foreign exchange for overseas investment in border areas	(i) further implement the "going global" development strategy and (ii) promote economic and trade exchanges with neighboring countries.	http://m.safe.gov.cn/safe/2005/0303/5520.html	国家外汇管理局关于边境地区境外投资外汇管理有关问题的通知	为了进一步落实"走出去"发展战略，促进与毗邻国家的经贸往来。
2005/3/31	ShangHeFa(2005) No. 131	Circular of the Ministry of Commerce and the State Administration of foreign exchange on printing and distributing the preliminary reporting system for overseas mergers and acquisitions of enterprises	(i) timely understand the overseas mergers and acquisitions of Chinese enterprises and (ii) provide timely and effective government services for overseas mergers and acquisitions.	http://m.safe.gov.cn/safe/2005/0331/5521.html	商务部 国家外汇管理局关于印发《企业境外并购事项前期报告制度》的通知	为及时了解我国企业境外并购情况，向企业提供境外并购及时有效的政府服务，商务部和国家外汇管理局制定了《企业境外并购事项前期报告制度》。
2005/4/1	Huifa(2005) No.22	Circular of the State Administration of foreign exchange on Issuing the short-term foreign debt quota of domestic and foreign-funded banks in 2005	According to China's current macroeconomic and foreign exchange revenue and expenditure situation, with reference to the growth of foreign exchange credit of foreign banks, the use of short-term foreign debt quota and the growth trend of China's foreign debt scale, and based on the principle of controlling the scale of short-term foreign debt and adjusting the structure of short-term foreign debt, the General Administration approved the total short-term foreign debt indicators of domestic foreign banks in 2005 of US $34.8 billion.	http://m.safe.gov.cn/safe/2005/0401/5620.html	国家外汇管理局关于下达2005年境内外资银行短期外债指标的通知	根据当前我国的宏观经济和外汇收支形势，参考外资银行外汇信贷增长情况、短期外债指标的使用情况以及我国外债规模增长趋势，本着控制短期外债规模、调整短期外债结构的原则，总局核定2005年境内外资银行短期外债指标合计348亿美元。
2005/4/6	ShangHeHan(2005) No. 9	Circular of the Ministry of Commerce and the State Administration of foreign exchange on matters related to the joint annual inspection and comprehensive performance evaluation of overseas investment in 2005	The joint annual inspection and comprehensive performance evaluation of overseas investment in 2005 are about to begin. Please make full preparations and carefully organize the annual inspection department, and earnestly do a good job in the joint annual inspection and comprehensive performance evaluation on the basis of summarizing the work in 2004.	http://m.safe.gov.cn/safe/2005/0406/5522.html	商务部 国家外汇管理局关于2005年境外投资联合年检和综合绩效评价工作有关事项的通知	2005年境外投资联合年检和综合绩效评价工作即将开始，请年检部门充分准备，精心组织，在总结2004年工作的基础上，认真做好此次联合年检和综合绩效评价工作。
2005/4/8	Huifa(2005) No.25	Circular of the State Administration of foreign exchange on Issuing the target of short-term foreign debt balance of Chinese funded institutions in 2005	(i) unify the management caliber of short-term foreign debt of Chinese and foreign banks and further (ii) strengthen the management of short-term foreign debt of Chinese funded institutions.	http://m.safe.gov.cn/safe/2005/0408/5621.html	国家外汇管理局关于下达2005年度中资机构短期外债余额指标的通知	为统一中、外资银行的短期外债管理口径，进一步加强中资机构短期外债的管理。
2005/5/17	Huifa(2005) No.34	Circular of the State Administration of Foreign Exchange on Issues Related to Modification of the Operational Rules for Foreign Exchange Administration of the Overseas Commodity Futures Hedging Business of State-owned Enterprises (Trial)	(i) meet the needs of the development of overseas commodity futures hedging business of state-owned enterprises, (ii) further standardize the foreign exchange management under commodity futures hedging.	http://m.safe.gov.cn/safe/2005/0517/5566.html	国家外汇管理局关于修改《国有企业境外商品期货套期保值业务外汇管理操作规程（试行）》有关问题的通知	为适应国有企业境外商品期货套期保值业务发展的需要，进一步规范商品期货套期保值项下外汇管理
2005/5/19	Huifa(2005) No.35	Circular of the State Administration of foreign exchange on issues related to expanding the pilot reform of foreign exchange control of overseas investment	(i) facilitate Chinese enterprises to invest abroad and (ii) deepen the reform of foreign exchange management for overseas investment.	http://m.safe.gov.cn/safe/2005/0519/5523.html	国家外汇管理局关于扩大境外投资外汇管理改革试点有关问题的通知	**为促进我国企业到境外投资的便利化，深化境外投资外汇管理改革**，国家外汇管理局决定在总结2002年以来在部分地区开展境外投资外汇管理改革试点（以下简称"试点"）经验的基础上，将此项试点扩大到所有地区。
2005/8/16	Huifa(2005) No.61	Circular of the State Administration of foreign exchange on adjusting the management methods of financing external guarantees provided by domestic banks for overseas investment enterprises	(i) support enterprises to participate in international economic and technological cooperation and competition, (ii) promote investment facilitation and (iii) solve the financing difficulties of overseas investment enterprises.	http://m.safe.gov.cn/safe/2005/0816/5622.html	国家外汇管理局关于调整境内银行为境外投资企业提供融资性对外担保管理方式的通知	**为支持企业参与国际经济技术合作和竞争，促进投资便利化，解决境外投资企业融资难问题**，根据《境内机构对外担保管理办法》及其实施细则（以下简称《办法》），国家外汇管理局决定进一步简化对外汇指定银行（以下简称银行）为我国境内机构在境外注册的全资附属企业和参股企业（以下简称境外投资企业）提供融资性对外担保的管理手续。
2005/8/25	Huifa(2005) No.63	Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning the Delegation of Certain Approval Authorities for Foreign Exchange Businesses under the Capital Account	(i) simplify administrative examination and approval procedures and procedures.	http://m.safe.gov.cn/safe/2005/0825/5465.html	（已修改）国家外汇管理局关于下放部分资本项目外汇业务审批权限有关问题的通知	为简化行政审批手续和程序。
2005/10/21	Huifa(2005) No.74	Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning Improving Administration of the External Debt	(i) promote domestic enterprises to make rational and orderly use of foreign capital and (ii) improve the management of foreign debt.	http://m.safe.gov.cn/safe/2005/1021/5623.html	国家外汇管理局关于完善外债管理有关问题的通知	为促进境内企业合理、有序地利用外资，完善外债管理。
2005/10/28	Huifa(2005) No.78	Circular of the State Administration of Foreign Exchange on Popularizing the Statistics and Monitoring System for the External Debt (Bank Version) and Adjusting the Requirements for the Submission of External Debt Data	(i) further improve the accuracy and timeliness of foreign debt statistics, the State Administration of foreign exchange will soon promote the foreign debt statistics and monitoring system (bank version) throughout the country.	http://m.safe.gov.cn/safe/2005/1028/5624.html	国家外汇管理局关于推广外债统计监测系统（银行版）和调整外债数据报送要求的通知	为了进一步提高外债统计的准确性和时效性，国家外汇管理局将于近期在全国推广外债统计监测系统（银行版）。

2005/11/24	HuiZongFa(2005) No.124	Notice of the general affairs department of the State Administration of foreign exchange on Issuing the operating procedures of the notice on issues related to improving the management of foreign debt and the notice on issues related to the management of foreign exchange for financing and return investment by domestic residents through overseas special purpose companies	(i) better implement the relevant contents of the notice of the State Administration of foreign exchange on issues related to improving the management of foreign debt (Hui Fa [2005] No. 74, hereinafter referred to as "document 74") and the notice of the State Administration of foreign exchange on issues related to the management of foreign exchange for financing and return investment of domestic residents through overseas special purpose companies (Hui Fa [2005] No. 75, hereinafter referred to as "document 75").	http://m.safe.gov.cn/safe/2005/1124/5466.html	国家外汇管理局综合司关于下发《关于完善外债管理有关问题的通知》及《关于境内居民通过境外特殊目的公司融资及返程投资外汇管理有关问题的通知》操作规程的通知	为更好地执行《国家外汇管理局关于完善外债管理有关问题的通知》(汇发［2005］74号，以下简称"74号文件")、《国家外汇管理局关于境内居民通过境外特殊目的公司融资及返程投资外汇管理有关问题的通知》（汇发［2005］75号，以下简称"75号文件"）有关内容，规范操作。
2005/12/31	Decree No. 28 (2005) of the Ministry of Commerce of the People's Republic of China, the CSRC, the State Administration of Taxation, the State Administration for Industry and Commerce, and the SAFE	Measures on Administration of Strategic Investments in Listed Companies by Foreign Investors	(i) regulate foreign investors' strategic investment in A-share listed companies (hereinafter referred to as listed companies) after the split share structure reform, (ii) maintain the order of the securities market, (iii) introduce overseas advanced management experience, technology and funds, (iv) improve the governance structure of listed companies, and (v) protect the legitimate rights and interests of listed companies and shareholders.	http://m.safe.gov.cn/safe/2005/1231/5525.html	《外国投资者对上市公司战略投资管理办法》	**为了规范股权分置改革后外国投资者对A股上市公司（以下简称上市公司）进行战略投资，维护证券市场秩序，引进境外先进管理经验、技术和资金，改善上市公司治理结构，保护上市公司和股东的合法权益**。按照《关于上市公司股权分置改革的指导意见》的要求，根据国家有关外商投资、上市公司监管的法律法规以及《外国投资者并购境内企业暂行规定》，制定本办法。
2006/4/17	YinFa(2006) No.121	Interim Measures for the administration of commercial banks offering overseas wealth management business on behalf of customers	(i) promote the convertibility of RMB capital account in an orderly and controllable manner, (ii) meet the reasonable needs of domestic institutions and individuals for foreign financial investment and asset management, and (iii) promote the balance of payments.	http://m.safe.gov.cn/safe/2006/0417/5567.html	《商业银行开办代客境外理财业务管理暂行办法》	为有序可控推进人民币资本项目可兑换，满足境内机构和个人对外金融投资和资产管理的合理需求，促进国际收支平衡。
2006/6/2	ShangHeHan(2006) No. 8	Circular of the Ministry of Commerce and the State Administration of foreign exchange on matters related to the joint annual inspection and comprehensive performance evaluation of overseas investment in 2006		http://m.safe.gov.cn/safe/2006/0602/5526.html	商务部 国家外汇管理局关于2006年境外投资联合年检和综合绩效评价工作有关事项的通知	
2006/6/6	Huifa(2006) No.27	Circular of the State Administration of foreign exchange on adjusting foreign exchange control policies for some overseas investments	(i) meet the needs of foreign economic development, (ii) improve supporting policies to encourage overseas investment and (iii) facilitate domestic investors to carry out transnational operations, the State Administration of foreign exchange has decided to adjust some foreign exchange management policies for overseas investment.	http://m.safe.gov.cn/safe/2006/0606/5527.html	国家外汇管理局关于调整部分境外投资外汇管理政策的通知	为适应对外经济发展的需要，完善鼓励境外投资的配套政策，便利境内投资者开展跨国经营，国家外汇管理局决定调整部分境外投资外汇管理政策。
2006/7/11	JianZhuFang(2006) No.171	Opinions of the Ministry of Construction, the Ministry of Commerce, the National Development and Reform Commission, the People's Bank of China, the State Administration for Industry and Commerce, and the State Administration of Foreign Exchange on Regulating Access and Administration of Foreign Investments in the Real Estate Market	(i) promote the healthy development of the real estate market.	http://m.safe.gov.cn/safe/2006/0711/5467.html	中华人民共和国建设部、商务部、国家发展和改革委员会、中国人民银行、国家工商行政管理总局、国家外汇管理局关于规范房地产市场外资准入和管理的意见	今年以来，我国房地产领域外商投资增长较快，境外机构和个人在境内购买房地产也比较活跃。**为促进房地产市场健康发展**，经国务院同意，现就规范房地产市场外资准入和管理提出以下意见。
2006/8/8	Decree (2006) No.10 of the Ministry of Commerce, the State-owned Assets Supervision and Administration Commission of the State Council, the State Administration of Taxation, the State Administration for Industry and Commerce, theCSRC, and the SAFE	Provisions on Mergers and Acquisitions of Domestic Enterprises by Foreign Investors	(i) promote and regulate foreign investors' investment in China, (ii) introduce foreign advanced technology and management experience, (iii) improve the level of foreign capital utilization, (iv) realize the rational allocation of resources, (v) ensure employment, (vi) maintain fair competition and national economic security.	http://m.safe.gov.cn/safe/2006/0808/5528.html	修订后的《关于外国投资者并购境内企业的规定》	**为了促进和规范外国投资者来华投资，引进国外的先进技术和管理经验，提高利用外资的水平，实现资源的合理配置，保证就业、维护公平竞争和国家经济安全**。依据外商投资企业的法律、行政法规及《公司法》和其他相关法律、行政法规，制定本规定。
2006/8/24	Decree No. 36 [2006] of the CSRC, the PBoC, and the SAFE	Measures for Administration of Domestic Securities Investments by Qualified Foreign Institutional Investors	(i) regulate the investment behavior of qualified foreign institutional investors in China's domestic securities market and (ii) promote the development of China's securities market.	http://m.safe.gov.cn/safe/2006/0824/5568.html	《合格境外机构投资者境内证券投资管理办法》	**为了规范合格境外机构投资者在中国境内证券市场的投资行为，促进中国证券市场的发展**，根据有关法律、行政法规，制定本办法。
2006/8/30	Huifa(2006) No.46	Circular of the State Administration of foreign exchange on issues related to the foreign exchange administration of overseas securities investment by fund management companies	(i) meet the reasonable needs of domestic residents, individuals and institutions for foreign financial investment and asset management, (ii) standardize the foreign exchange management of overseas securities investment of fund management companies.	http://m.safe.gov.cn/safe/2006/0830/5569.html	国家外汇管理局关于基金管理公司境外证券投资外汇管理有关问题的通知	**为满足境内居民个人和机构对外金融投资和资产管理的合理需求，规范基金管理公司境外证券投资的外汇管理**。根据中国人民银行2006年第5号公告精神，现就有关问题通知如下。
2006/9/1	Huifa(2006) No.47	Circular of the State Administration of Foreign Exchange and the Ministry of Construction on Issues Related to Regulating Foreign Exchange Administration of the Real Estate Market	(i) implement the opinions on standardizing the access and management of foreign capital in the real estate market (Jian Fang [2006] No. 171) issued by the Ministry of construction and other six ministries and commissions and (ii) promote the healthy development of the real estate market.	http://m.safe.gov.cn/safe/2006/0901/5468.html	国家外汇管理局 建设部关于规范房地产市场外汇管理有关问题的通知	为落实建设部等六部委发布的《关于规范房地产市场外资准入和管理的意见》（建住房［2006］171号），促进房地产市场健康发展，现就规范房地产市场外资准入和管理所涉及的外汇管理事宜通知如下。

2007/3/2	Huifa(2007) No.14	Circular of the State Administration of foreign exchange on issues related to the management of short-term foreign debt of financial institutions in 2007	(i) control the scale of short-term foreign debt, (ii) promote balance of payments and maintain national economic and financial security	http://m.safe.gov.cn/safe/2007/0302/5625.html	国家外汇管理局关于2007年度金融机构短期外债管理有关问题的通知	为严格控制短期外债规模,促进国际收支平衡，维护国家经济金融安全
2007/6/11	ShangZiHan(2007) No. 50	Circular of the Ministry of Commerce and the State Administration of foreign exchange on Further Strengthening and standardizing the examination, approval and supervision of foreign direct investment in the real estate industry	(i) standardize the access and management of foreign capital in the real estate market. (ii) According to the laws and regulations on foreign investment and the opinions to further strengthen and standardize the examination, approval, filing and supervision of foreign-invested real estate.	http://m.safe.gov.cn/safe/2007/0611/5529.html	商务部、国家外汇管理局关于进一步加强、规范外商直接投资房地产业审批和监管的通知	为规范房地产市场外资准入和管理，国务院六部门联合下发了《关于规范房地产市场外资准入和管理的意见》（建住房[2006]171号，以下称《意见》）。各地、各部门认真执行《意见》的各项规定和要求，取得一定的实效。但少数地区仍存在一些问题。根据外商投资法律法规和《意见》的有关规定，现就进一步加强、规范外商投资房地产审批、备案和监管相关事宜。
2007/7/31	Decree (2007) No. 2 of the China Insurance Regulatory Commission, the PBoC, and the SAFE	Interim Measures for the Administration of Overseas Investments of Insurance Funds	(i) strengthen the management of overseas investment of insurance funds, (ii) prevent risks and (iii) protect the legitimate rights and interests of the insured and the parties involved in overseas investment of insurance funds.	http://m.safe.gov.cn/safe/2007/0731/5530.html	保险资金境外投资管理暂行办法	为了加强保险资金境外投资管理，防范风险，保障被保险人以及保险资金境外投资当事人合法权益。
2008/7/2	Huifa(2008) No.30	Circular of the State Administration of Foreign Exchange on Issues Concerning Implementation of Management of Registration of the External Debt under the Item of Corporate Trade in Goods	(i) improve the statistical monitoring and management of foreign debt and (ii) prevent the risk of foreign debt payment.	http://m.safe.gov.cn/safe/2008/0702/5627.html	国家外汇管理局关于实行企业货物贸易项下外债登记管理有关问题的通知	为完善外债统计监测与管理，防范外债支付风险。
2008/7/21	HuiZongFa(2008) No. 120	Notice on issues concerning foreign exchange settlement or transfer of prepayment for some export firms	On July 14, 2008, the trade credit registration management system and the online verification system for export settlement and settlement of Foreign Exchange began to operate respectively. After the operation of the system, because the two systems have not been networked and the initial value of the amount of foreign exchange receivable for advance payment given by the system to some enterprises is small or zero, the advance payment received by these enterprises after July 14 cannot be settled or transferred to the bank in time.	http://m.safe.gov.cn/safe/2008/0721/5628.html	国家外汇管理局综合司关于过渡期部分企业预收货款结汇或划转有关问题的通知	2008年7月14日，贸易信贷登记管理系统和出口收结汇联网核查系统分别开始运行。系统运行后，由于两系统尚未实现联网及系统赋予部分企业的预收货款可收汇额度初始值较小或为零，致使这些企业７月１４日后收到的预收货款无法及时到银行办理结汇或划转。
2008/8/5	HuiZongFa(2008) No. 129	Circular of the General Affairs Department of the State Administration of Foreign Exchange on Issues Concerning the Operations of the Foreign Exchange Business Information System and the Foreign Exchange Account System for Direct Investments	(i) ensure the data integrity of the foreign exchange account system, after the business personnel of the foreign exchange bureau enter the information such as the information of foreign-invested enterprises and the approval documents for opening capital accounts in the investment system, they also need to repeatedly enter the information into the foreign exchange account system through the counter of enterprise archives Class information. (ii) In order to completely solve the problem of repeated entry and realize the sharing of investment information in other business systems.	http://m.safe.gov.cn/safe/2008/0805/5532.html	国家外汇管理局综合司关于直接投资外汇业务信息系统与外汇账户系统操作有关问题的通知	**为了保障外汇账户系统数据完整性，外汇局业务人员在投资系统中录入外商投资企业信息、资本金账户开户核准件等信息后，还需通过企业档案专岗柜台向外汇账户系统重复录入该类信息**。现系统已进入正常运行时期，**为彻底解决重复录入问题，实现投资信息在其他业务系统的共享**，国家外汇管理局投资系统推广领导小组办公室於日前制订并实施了解决方案。
2008/8/29	HuiZongFa(2008) No. 142	Circular of the General Affairs Department of the State Administration of Foreign Exchange on Relevant Business Operation Issues Concerning Improving Administration of the Payment and Settlement of Foreign Exchange Capital of Foreign-Invested Enterprises	(i) administrate their foreign exchange, (ii) facilitate the verification, payment, and settlement of foreign exchange capital of FIE, (iii) standardize the some business operation of foreign-exchange banks and accounting firms	http://m.safe.gov.cn/safe/2008/0829/5533.html	已废止）国家外汇管理局综合司关于完善外商投资企业外汇资本金支付结汇管理有关业务操作问题的通知	为改进外商投资企业外汇管理，便利外商投资企业办理外汇资本金（以下简称“资本金”）验资和支付结汇等业务、规范外汇指定银行（以下简称“银行”）和会计师事务所的相关业务操作，现就国家外汇管理局直接投资外汇业务信息系统（以下简称“投资系统”）运行后，外商投资企业资本金支付结汇管理的有关业务操作事项通知如下
2008/9/24	Huifa(2008) No.46	Circular of the State Administration of Foreign Exchange on Issues Concerning Doing a Good Job in Management of Registration of the Deferred Payments of Enterprises		http://m.safe.gov.cn/safe/2008/0924/5629.html	国家外汇管理局关于做好企业延期付款登记管理工作有关问题的通知	
2008/9/26	HuiZongFa(2008) No. 157	Circular on relevant issues concerning the administration of registration for deferred payments of importing firms	(i) improve the statistical monitoring of foreign debt and (ii) standardize the registration and management of foreign debt under goods trade of domestic enterprises.	http://m.safe.gov.cn/safe/2008/0926/5630.html	《贸易信贷登记管理系统（延期付款部分）操作指引》	**为完善外债统计监测，规范境内企业货物贸易项下外债的登记管理**，根据《中华人民共和国外汇管理条例》《外债统计监测暂行规定》和《国家外汇管理局关于实行企业货物贸易项下外债登记管理有关问题的通知（汇发［２００８］３０号）相关规定，制定本指引，企业进口货物贸易项下延期付款应按本指引进行登记和管理。
2008/10/30	Huifa(2008) No.56	Regulation on managing the registration system for foreign debts under firm's trade account	(i) establish a comprehensive system of government supervision and management for foreign debt assets and (ii) regulate the cross-border trade flows and overall balance of payments	http://m.safe.gov.cn/safe/2008/1030/5631.html	国家外汇管理局关于对企业货物贸易项下对外债权实行登记管理有关问题的通知	为建立健全境外债权统计监测管理体系，规范贸易项下资金跨境流动，促进国际收支平衡
2008/11/5	HuiZongFa(2008) No. 174	Notice to implement a government registration and management system for trade credit (prepayments of imports)	(i) establish a comprehensive system of statistical supervision and management for foreign obligatory right, (ii) regulating cross border trade flows.	http://m.safe.gov.cn/safe/2008/1105/5632.html	《贸易信贷登记管理系统（预付货款部分）操作指引》	为建立健全境外债权统计监测管理体系，规范贸易项下资金跨境流动，现就境内企业货物贸易项下对外债权的登记管理制定本指引，企业进口货物贸易项下预付货款（以下简称“进口预付货款）应按本指引进行登记和管理。

2008/11/15	HuiZongFa(2008) No. 176	A parallel notice on a registration and management system of trade credit (deferred payments of exports)	(i) improve the statistical supervision of foreign assets, (ii) regulate the registration management of foreign obligatory right under the trade account of domestic enterprises, and (iii) protect the legal right of exporting enterprises, to assure the authenticity and coherence of cross-border trade and related trade flows.	http://m.safe.gov.cn/safe/2008/1115/5633.html	《贸易信贷登记管理（延期收款部分）操作指引》	为完善对外资产统计监测，规范境内企业货物贸易项下对外债权的登记管理，保护出口企业的正当权益，保证跨境贸易活动与其资金流动的真实性和一致性，特制定本指引。
2008/12/22	Huifa(2008) No.72	Circular of the State Administration of foreign exchange on promoting the overseas investment module of the direct investment foreign exchange business information system	(i) improve the foreign exchange management of overseas direct investment, (ii) facilitate domestic enterprises, banks and accounting firms to handle foreign exchange business under overseas direct investment, and (iv) improve the statistical monitoring of foreign exchange revenue and expenditure of overseas direct investment.	http://m.safe.gov.cn/safe/2008/1222/5534.html	国家外汇管理局关于在全国范围推广上线直接投资外汇业务信息系统境外投资模块有关事项的通知	**为改进境外直接投资外汇管理方式，便利境内企业、银行及会计师事务所办理境外直接投资项下外汇业务，完善境外直接投资外汇收支统计监测**，国家外汇管理局在前段完成“直接投资外汇业务信息系统”（以下简称“系统”）外商投资模块（以下简称“FDI模块”）全国推广上线运行的基础上，从2008年10月份起分别在辽宁（含大连）、吉林、黑龙江和浙江（含宁波）开始境外直接投资模块（以下简称“ODI模块”）的试点运行。
2008/12/23	Huifa(2008) No.73	Notice on improving the registration and management system of foreign debts under firm's merchandise trade account	(i) better withstand the negative impact of global financial crisis, (ii) promote stable economic growth.	http://m.safe.gov.cn/safe/2008/1223/5634.html	国家外汇管理局关于完善企业货物贸易项下外债登记管理有关问题的通知	为应对国际金融危机的不利影响，促进经济平稳较快发展，根据《国务院办公厅关于当前金融促进经济发展的若干意见》（国办发[2008]126号）的精神，现就有关问题通知如下
2009/3/17	Huifa(2009) No.14	Notice on the verification of short-term external debt of financial institution in 2009	(i) cooperate with the adjustment of national macroeconomic policies, (ii) give full play to the credit intermediary role of financial institutions, (iii) promote real economic growth and trade financing.	http://m.safe.gov.cn/safe/2009/0317/5635.html	（已失效）国家外汇管理局关于2009年度金融机构短期外债指标核定情况的通知	为配合国家宏观经济政策调整，发挥金融机构的信用中介作用，促进实体经济增长和贸易融资，现就2009年度（2009年4月1日至2010年3月31日，下同）境内金融机构（以下简称“金融机构”）短期外债指标核定情况和相关政策通知如下
2009/5/13	Huifa(2009) No.21	Circular of the State Administration of Foreign Exchange on Adjustments to Certain Approval Authorities for Foreign Exchange Businesses under the Capital Account	(i) simplify administrative examination and approval procedures and (ii) promote investment and trade facilitation.	http://m.safe.gov.cn/safe/2009/0513/5469.html	（已修改）国家外汇管理局关于调整部分资本项目外汇业务审批权限的通知	为简化行政审批手续和程序，促进投资贸易便利化。
2009/6/9	Huifa(2009) No.24	Circular of the State Administration of Foreign Exchange on Issues Concerning Foreign Exchange Administration of Overseas Lending Granted by Domestic Enterprises	(i) facilitate and support the use and operation of foreign exchange funds of domestic enterprises, (ii) improve the fund using efficiency of domestic enterprises, (iii) broaden the follow-up financing channels of overseas enterprises, (iv) standardize the management and statistics of foreign creditor's rights, and (v) promote the "going global" policy of domestic enterprises.	http://m.safe.gov.cn/safe/2009/0609/5535.html	国家外汇管理局关于境内企业境外放款外汇管理有关问题的通知	为便利和支持境内企业外汇资金运用和经营行为，提高境内企业资金使用效率，拓宽境外企业后续融资渠道，规范对外债权的管理与统计，促进境内企业“走出去”发展。
2009/6/22	HuiZongFa(2009) No. 78	Circular of the General Affairs Department of the State Administration of Foreign Exchange on Issues Concerning Further Improvements to Trade Credit Registration for Enterprises and Administration of On-line Inspections for the Collection and Settlement of Foreign Exchange from Exports	(i) implement the policies and measures of the State Council on further stabilizing external demand, (ii) clarify the responsibilities of trade credit registration and management, (iii) improve the online verification system of export collection and settlement of foreign exchange, and (iv) promote trade facilitation.	http://m.safe.gov.cn/safe/2009/0622/5636.html	国家外汇管理局综合司关于进一步完善企业贸易信贷登记和出口收结汇联网核查管理有关问题的通知	为贯彻实施国务院关于进一步稳定外需的政策措施，明晰贸易信贷登记管理职责，改进出口收结汇联网核查系统，促进贸易便利化。
2009/7/13	Huifa(2009) No.30	Circular of the State Administration of Foreign Exchange on Issuing the Regulations on Foreign Exchange Administration of the Overseas Direct Investment of Domestic Institutions	(i) carryout the go-global strategy of development, (ii) promot the healthy development of overseas direct investment of domestic institutions, (iii) implementing the balanced management of cross-border capital flows, and safeguarding the basic equilibrium in the balance of payments of China.	http://m.safe.gov.cn/safe/2009/0713/5536.html	《境内机构境外直接投资外汇管理规定》	为贯彻落实“走出去”发展战略，为促进和便利境内机构境外直接投资活动，规范境外直接投资外汇管理，促进我国国际收支基本平衡，根据《中华人民共和国外汇管理条例》等相关法规，制定本规定
2009/10/10	(2009) No.1	Regulations on Foreign Exchange Administration of Domestic Securities Investments by Qualified Foreign Institutional Investors (QFII)	(i) standardize the foreign exchange administration of Qualified Foreign Institutional Investors (hereinafter referred to as QFII) in China's securities market, these Regulations are promulgated based on the Regulations of the People's Republic of China on Foreign Exchange Administration and the Measures for Administration of Domestic Securities Investments by Qualified Foreign Institutional Investors (QFII) (Decree [2006] No. 36 of the CSRC, PBOC, and SAFE).	http://m.safe.gov.cn/safe/2009/1010/5572.html	（已废止）合格境外机构投资者境内证券投资外汇管理规定	为规范合格境外机构投资者（以下简称合格投资者）在中国境内证券市场的外汇管理，根据《中华人民共和国外汇管理条例》以及《合格境外机构投资者境内证券投资管理办法》（中国证券监督管理委员会、中国人民银行、国家外汇管理局2006年第36号令），制定本规定。
2009/10/10	Huifa(2009) No.47	Circular of SAFE on Relevant Issues Concerning Foreign Exchange Administration of Overseas Securities Investments by Fund Management Companies and Securities Companies	(i) regulate foreign exchange administration of overseas securities investments by domestic fund management companies and securities companies (hereinafter referred to as Securities Trading Institutions) and (ii) pursuant to the Regulations of the People's Republic of China on Foreign Exchange Administration and the relevant regulations	http://m.safe.gov.cn/safe/2009/1010/5571.html	国家外汇管理局关于基金管理公司和证券公司境外证券投资外汇管理有关问题的通知	为规范境内基金管理公司和证券公司（以下简称“证券经营机构”）境外证券投资外汇管理，根据《中华人民共和国外汇管理条例》及相关规定，现就有关问题通知如下：

2009/10/15	Huifa(2009) No.49	Circular of the SAFE on Promulgating the Provisions on the Centralized Operations and Administration of Foreign Exchange Funds of Internal Members of Domestic Enterprises	(i) facilitate and supporting the utilization and operation of foreign exchange funds by domestic enterprises, (ii) improve internal operations and administration of foreign exchange funds by domestic enterprises, and (iii) enhance the efficiency of utilization of foreign exchange funds	http://m.safe.gov.cn/safe/2009/1015/5470.html	国家外汇管理局关于发布《境内企业内部成员外汇资金集中运营管理规定》的通知	为便利和支持境内企业外汇资金运用和经营行为，完善境内企业外汇资金内部运营管理、提高外汇资金使用效率
2010/4/29	Huifa(2010) No.18	Circular of the SAFE on Relevant Issues Concerning the Release of the Quota for the Short-term External Debt Balance in 2010	(i) maintain an equilibrium in the balance of payments and (ii) guard against risks caused by abnormal inflows of cross-border funds	http://m.safe.gov.cn/safe/2010/0429/5637.html	（已失效）国家外汇管理局关于下发2010年度短期外债余额指标有关问题的通知	为维护国际收支平衡，防范异常跨境资金流入风险，国家外汇管理局决定适度压缩2010年度境内机构短期外债余额指标总规模，共核定境内机构短期外债余额指标324亿美元，在2009年指标规模基础上调减1.5%。同时，为优化指标分配结构，提高指标使用效率，国家外汇管理局调减了指标历史基数大、指标使用率低的中、外资金融机构指标，对近年贸易融资业务发展较快的股份制银行和地方性商业银行给予适当政策倾斜。现就2010年度（2010年4月1日至2011年3月31日，下同）境内机构短期外债余额指标（以下简称"指标"）核定情况和相关政策通知如下
2010/6/29	Huifa(2010) No.29	Circular of the SAFE on Adjusting Approval Authority for Certain Foreign Exchange Businesses Under the Capital Account	(i) streamline administrative procedures and processes and (ii) promote facilitation of trade and investment	http://m.safe.gov.cn/safe/2010/0629/5471.html	国家外汇管理局关于调整部分资本项目外汇业务审批权限的通知	为进一步简化行政审批程序，促进投资贸易便利化
2010/7/5	Huifa(2010) No.31	Circular of the SAFE on Relevant Issues Concerning Foreign Exchange Administration of Overseas Direct Investments by Domestic Banks	(i) regulating the foreign exchange-related business involved in overseas direct investments by domestic banks	http://m.safe.gov.cn/safe/2010/0705/5537.html	国家外汇管理局关于境内银行境外直接投资外汇管理有关问题的通知	为规范境内银行境外直接投资所涉外汇业务
2010/11/15	JianFang(2010) No. 186	Circular of the Ministry of Housing and Urban-Rural Development and the State Administration of Foreign Exchange on Further Regulating Administration of Housing Purchases by Overseas Institutions and Individuals	(i) implement the notice of the State Council on Resolutely Curbing the rapid rise of house prices in some cities (GF [2010] No. 10), we hereby (ii) strengthen the implementation supervision of the opinions on regulating the access and management of foreign capital in the real estate market (Jian Fang [2006] No. 171) and further (iii) standardize the management of house purchase by overseas institutions and individuals.	http://m.safe.gov.cn/safe/2010/1115/5472.html	关于进一步规范境外机构和个人购房管理的通知	为落实国务院《关于坚决遏制部分城市房价过快上涨的通知》（国发[2010]10号），现就加强《关于规范房地产市场外资准入和管理的意见》（建住房[2006]171号）的实施监管，进一步规范境外机构和个人购房管理通知。
2011/4/15	Huifa(2011) No.14	Circular of the SAFE on Issues Concerning the Ratification of Quotas for Outstanding Short-term External Debts of Domestic Institutions in 2011	(i) maintain an equilibrium in the balance of payments and (ii) strengthen the management of liquidity, the State Administration of Foreign Exchange has decided to further reduce the aggregate quota for outstanding short-term external debts of domestic institutions in 2011 based on the shrinkage in the relevant quotas in 2010. (iii) For the purpose of directing the banks' response to the State's macroeconomic regulatory policy to optimize the structure of the quota allocation, the SAFE has reduced the quotas granted to financial institutions with a relatively higher proportion of borrowing, deposits, and lending, and a relatively larger historical quota, and has appropriately increased the quotas granted to banks that have shown rapid growth in trade financing in recent years and have a relatively small historical quota.	http://m.safe.gov.cn/safe/2011/0415/5638.html	（已失效）国家外汇管理局关于核定2011年度境内机构短期外债余额指标有关问题的通知	为维护国际收支平衡，加强流动性管理，国家外汇管理局决定在2010年压缩境内机构短期外债余额指标总规模的基础上，再次适当调减2011年度指标总规模。同时，为引导银行配合国家宏观调控政策、优化指标分配结构，调减了资金拆入和存、拆放业务比重较高、指标历史基数较大的金融机构指标，适度增加了近年贸易融资业务发展较快、指标历史基数较小的银行指标。现就2011年度（2011年4月1日至2012年3月31日，下同）境内机构短期外债余额指标（以下简称指标）核定情况和相关管理要求通知如下
2011/5/23	Huifa(2011) No.20	Circular of the SAFE on Cancellation and Adjustment of the Approval Authority and Administrative Measures for Certain Foreign Exchange Businesses under the Capital Account	(i) reduce the number of administrative licensing items, (ii) promote the facilitation of trade and investment, and (iii) steadily advance the convertibility of the RMB under the capital account	http://m.safe.gov.cn/safe/2011/0523/5473.html	国家外汇管理局关于取消和调整部分资本项目外汇业务审核权限及管理措施的通知	为进一步减少行政许可项目，促进贸易投资便利化，稳步推动人民币资本项目可兑换进程，根据《中华人民共和国行政许可法》、《中华人民共和国外汇管理条例》及相关外汇管理规定，国家外汇管理局（以下简称总局）决定取消和调整部分资本项目外汇业务审核权限，并调整部分贸易信贷管理措施。
2011/5/27	Huifa(2011) No.19	Circular of the SAFE on Printing and Distributing the Operational Rules on Foreign Exchange Administration for Financing and Return Investments by Domestic Residents through Special-Purpose Overseas Companies	(i) clarify the administrative principles and relevant issues in the application of the Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning Foreign Exchange Administration for Financing and Return Investments by Domestic Residents through Special-Purpose Overseas Companies (HuiFa No.75 [2005]) and (ii) to simplify the operational process	http://m.safe.gov.cn/safe/2011/0527/5538.html	国家外汇管理局关于印发《境内居民通过境外特殊目的公司融资及返程投资外汇管理操作规程》的通知	为进一步明确《国家外汇管理局关于境内居民通过境外特殊目的公司融资及返程投资外汇管理有关问题的通知》（汇发[2005]75号）管理原则和适用中的相关问题，简化操作流程
2011/12/23	Huifa(2011) No.50	Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning the Pilot Program on Domestic Securities Investments by Fund Management Companies and Securities Companies as RMB Qualified Foreign Institutional Investors	(i) regulate business related to the pilot program on domestic securities investments by fund management companies and securities companies as RMB qualified foreign institutional investors (hereinafter referred to as "RQFIIs")	http://m.safe.gov.cn/safe/2011/1223/5573.html	国家外汇管理局关于基金公司、证券公司人民币合格境外机构投资者境内证券投资试点有关问题的通知	为规范基金管理公司、证券公司人民币合格境外机构投资者（以下简称人民币合格境外机构投资者）境内证券投资试点相关业务
2012/3/16	Huifa(2012) No.50	Circular of the SAFE on Relevant Issues Concerning Foreign Exchange Administration over Involvement of Domestic Individuals in Equity Incentive Plans of Overseas Listed Companies	(i) regulate and improve the foreign exchange administration over involvement of Domestic Individuals in Equity Incentive Plans of Overseas Listed Companies	http://m.safe.gov.cn/safe/2012/0316/5574.html	国家外汇管理局关于境内个人参与境外上市公司股权激励计划外汇管理有关问题的通知	为规范和完善境内个人参与境外上市公司股权激励计划外汇管理

2012/6/15	Huifa(2012) No.33	Circular of the State Administration of Foreign Exchange on Foreign Exchange Administration Issues Involved in Encouraging and Guiding the Healthy Development of Private Investment	(i) further implement the several opinions of the State Council on encouraging and guiding the healthy development of private investment (GF [2010] No. 13) and (ii) encourage and guide the healthy development of private capital overseas investment.	http://m.safe.gov.cn/safe/2012/0615/5539.html	国家外汇管理局关于鼓励和引导民间投资健康发展有关外汇管理问题的通知	**为进一步贯彻落实《国务院关于鼓励和引导民间投资健康发展的若干意见》（国发[2010]13号），鼓励和引导民间资本境外投资健康发展**，现就完善境外投资促进和保障体系所涉外汇管理有关问题通知如下。
2012/8/17	HuiZongFa(2012) No. 126	Circular of the general affairs department of the State Administration of foreign exchange on issues related to the settlement of foreign exchange and the payment of abandonment fees for offshore cooperative oil and gas fields in the special foreign exchange account of foreign investors	(i) further promote investment facilitation and (ii) support the development of the real economy.	http://m.safe.gov.cn/safe/2012/0817/5541.html	国家外汇管理局综合司关于外国投资者外汇专用账户内资金结汇缴纳海上合作油气田弃置费有关问题的通知	**为进一步促进投资便利化，支持实体经济发展**，现就外国投资者外汇专用账户内资金结汇缴纳海上合作油气田弃置费有关问题通知如下：
2012/11/21	HuiFa(2012) No. 58	Circular of the State Administration of foreign exchange on issues related to foreign exchange management of partnership enterprises with foreign investment	(i) promote the facilitation of foreign direct investment, (ii) standardize and improve the foreign exchange management of foreign-invested partnership enterprises.	http://m.safe.gov.cn/safe/2012/1121/5543.html	国家外汇管理局关于外商投资合伙企业外汇管理有关问题的通知	为促进外商直接投资便利化，规范和完善外商投资合伙企业外汇管理。
2012/11/21	Huifa(2012) No.59	Circular of the State Administration of Foreign Exchange on Further Improving and Adjusting the Policies for Foreign Exchange Administration of Direct Investment	(i) deepen the reform of the foreign exchange management system, (ii) simplify the administrative examination and approval procedures and (iii) promote the facilitation of investment and trade, the State Administration of foreign exchange has decided to improve the mode of foreign exchange management of direct investment and cancel and adjust some administrative licensing projects for foreign exchange management of direct investment.	http://m.safe.gov.cn/safe/2012/1121/5542.html	（已修改）国家外汇管理局关于进一步改进和调整直接投资外汇管理政策的通知	**为深化外汇管理体制改革，简化行政审批程序，促进投资贸易便利化**，国家外汇管理局决定改进直接投资外汇管理方式，取消和调整部分直接投资外汇管理行政许可项目。
2012/12/3	Huifa(2012) No.60	Circular of the State Administration of foreign exchange on the pilot of capital account information system and the submission of relevant data	(i) further promote capital account facilitation and (ii) strengthen statistical monitoring and risk prevention of cross-border capital flows.	http://m.safe.gov.cn/safe/2012/1203/5474.html	国家外汇管理局关于资本项目信息系统试点及相关数据报送工作的通知	进一步推动资本项目便利化、加强跨境资本流动统计监测和风险防控。
2012/12/14	(2012) No.2	Provisions on the Foreign Exchange Administration of Securities Investments in China by Qualified Foreign Institutional Investors	(i) further standardize the foreign exchange management of domestic securities investment by qualified foreign institutional investors.	http://m.safe.gov.cn/safe/2012/1214/5575.html	（已废止）《合格境外机构投资者境内证券投资外汇管理规定》（国家外汇管理局公告2009年第1号）作出如下修改	为进一步规范合格境外机构投资者境内证券投资外汇管理。
2013/2/7	Huifa(2013) No.5	Circular of the State Administration of foreign exchange on issues related to the administration of foreign exchange for overseas listing	(i) standardize and improve the foreign exchange management of overseas listing.	http://m.safe.gov.cn/safe/2013/0207/5576.html	（已废止）国家外汇管理局关于境外上市外汇管理有关问题的通知	为规范和完善境外上市外汇管理。
2013/3/1	Huifa(2013) No.6	Circular of the State Administration of Foreign Exchange on Issues Concerning the Ratification of the Quotas for Outstanding Short-term External Debts of Domestic Institutions in 2013	(i) support the healthy development of small and medium-sized enterprises, the State Administration of Foreign Exchange decided to appropriately increase the short-term foreign debt balance quota of domestic institutions in 2013, with a total scale of US $37.307 billion. When SAFE verifies the indicators, it increases the regional indicators of financial institutions and branches, and continues to favor the central and western regions and small and medium-sized banks.	http://m.safe.gov.cn/safe/2013/0301/5639.html	（已失效）国家外汇管理局关于核定2013年境内机构短期外债余额指标有关问题的通知	为支持中小企业健康发展，国家外汇管理局决定适度调增2013年度境内机构短期外债余额指标，总规模为373.07亿美元。核定指标时，在调增各金融机构和分局地区指标的同时，继续向中西部地区和中小银行倾斜。
2013/3/19	Decree No. 90 [2013] of the CSRC, the PBoC, and the SAFE)	Measures for the Pilot Program of Securities Investment in China by RMB Qualified Foreign Institutional Investors	(i) regulate the securities investment of RMB qualified foreign institutional investors in China, (ii) promote the development of the securities market and (iii) protect the legitimate rights and interests of investors.	http://m.safe.gov.cn/safe/2013/0319/5577.html	《人民币合格境外机构投资者境内证券投资试点办法》	**为规范人民币合格境外机构投资者在境内进行证券投资的行为，促进证券市场发展，保护投资者合法权益**，根据有关法律和行政法规，制定本办法。
2013/3/21	Huifa(2013) No.9	Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning the Pilot Program of Domestic Securities Investments by RMB Qualified Foreign Institutional Investors	(i) standardize the pilot domestic securities investment business of RMB qualified foreign institutional investors.	http://m.safe.gov.cn/safe/2013/0321/5578.html	国家外汇管理局关于人民币合格境外机构投资者境内证券投资试点有关问题的通知	为规范人民币合格境外机构投资者（以下简称人民币合格投资者）境内证券投资试点业务。
2013/5/2	Huifa(2013) No.19	Circular of the State Administration of Foreign Exchange on Promulgating the Measures for Administration of External Debt Registration	(i) deepen the reform of the foreign exchange management system, (ii) simplify the administrative examination and approval procedures, (iii) strengthen the statistical monitoring of foreign debt and prevent foreign debt risks, the State Administration of foreign exchange has decided to improve the registration and management of foreign debt.	http://m.safe.gov.cn/safe/2013/0502/5640.html	国家外汇管理局关于发布《外债登记管理办法》的通知	**为深化外汇管理体制改革，简化行政审批程序，强化外债统计监测，防范外债风险**，国家外汇管理局决定改进外债登记管理方式。
2013/5/3	Huifa(2013) No.17	Circular of the State Administration of Foreign Exchange on Promotion of the Capital Account Information System	(i) promote the facilitation of capital projects and (ii) strengthen the statistical monitoring and risk prevention of cross-border capital flows.	http://m.safe.gov.cn/safe/2013/0503/5475.html	国家外汇管理局关于推广资本项目信息系统的通知	为进一步推动资本项目便利化、加强跨境资本流动统计监测和风险防范。
2013/5/11	Huifa(2013) No.21	Circular of the State Administration of Foreign Exchange on Printing and Distributing the Provisions on Foreign Exchange Administration of Domestic Direct Investments by Foreign Investors and the Supporting Documents	(i) promote and facilitate foreign investors' domestic direct investment and (ii) standardize the foreign exchange management of foreign investors' domestic direct investment.	http://m.safe.gov.cn/safe/2013/0511/5544.html	（已修改）国家外汇管理局关于印发《外国投资者境内直接投资外汇管理规定》及配套文件的通知	为促进和便利外国投资者境内直接投资，规范外国投资者境内直接投资外汇管理。

2013/8/27	SAFE(2013) No.1	Provisions for the Administration of Foreign Exchange in Overseas Securities Investments by Qualified Domestic Institutional Investors	(i) standardize the foreign exchange management of qualified domestic institutional investors' overseas securities investment.	http://m.safe.gov.cn/safe/2013/0827/5579.html	《合格境内机构投资者境外证券投资外汇管理规定》	为规范合格境内机构投资者（以下简称合格投资者）境外证券投资外汇管理。
2014/1/24	Huifa(2014) No.2	Circular of the State Administration of Foreign Exchange on Further Improving and Adjusting Foreign Exchange Administration Policies under the Capital Accoun	(i) further deepen the reform of foreign exchange administration of the capital account, (ii) streamline the procedures for administrative examination and approval, and (iii) promote trade and investment facilitation	http://m.safe.gov.cn/safe/2014/0124/5476.html	国家外汇管理局关于进一步改进和调整资本项目外汇管理政策的通知	**为进一步深化资本项目外汇管理改革，简化行政审批程序，促进贸易投资便利化**，根据《中华人民共和国外汇管理条例》及相关规定，国家外汇管理局决定进一步改进资本项目外汇管理方式，并调整部分资本项目外汇管理措施。
2014/2/21	Huifa(2014) No.5	Circular of the State Administration of Foreign Exchange on Printing and Distributing the Measures for Foreign Exchange Administration of External Debt On-lending	(i) improve the registration and exchange management of foreign debt to loans and (ii) simplify the foreign exchange management procedures, the State Administration of foreign exchange has decided to reform the foreign exchange management mode of foreign debt to loans.	http://m.safe.gov.cn/safe/2014/0221/5641.html	《外债转贷款外汇管理规定》	**为完善外债转贷款的登记和汇兑管理，简化外汇管理程序**，国家外汇管理局决定改革外债转贷款外汇管理方式。
2014/4/8	Huifa(2014) No.14	Circular of the State Administration of Foreign Exchange on Issues Concerning the Ratification of the Quotas for Outstanding Short-term External Debts of Domestic Institutions in 2014	(i) support the healthy development of small and medium-sized enterprises, the State Administration of foreign exchange has decided to appropriately increase the short-term foreign debt balance quota of domestic institutions in 2014, and the total scale of the approved quota is US $43.392 billion. When SAFE increases the regional indicators of financial institutions and branches, it will continue to favor the central and western regions and small and medium-sized banks.	http://m.safe.gov.cn/safe/2014/0408/5642.html	（已失效）国家外汇管理局关于核定2014年度境内机构短期外债余额指标有关问题的通知	为支持中小企业健康发展，国家外汇管理局决定适度调增2014年度境内机构短期外债余额指标（以下简称指标），核定指标总规模为433.92亿美元。在调增各金融机构和分局地区指标的同时，继续向中西部地区和中小银行倾斜。
2014/5/19	Huifa(2014) No.29	Circular of the SAFE on Releasing the Provisions on Foreign Exchange Administration for Cross-border Guarantees	(i) deepen the reform of the foreign exchange administration system, (ii) streamline administrative approval procedures, and (iii) regulate receipt and payment activities under cross-border guarantees	http://m.safe.gov.cn/safe/2014/0519/5643.html	国家外汇管理局关于发布《跨境担保外汇管理规定》的通知	为深化外汇管理体制改革，简化行政审批程序，规范跨境担保项下收支行为，国家外汇管理局决定改进跨境担保外汇管理方式
2014/5/23	HuiZongFa(2014) No.58	Circular of the General Affairs Department of the State Administration of Foreign Exchange on Issues Concerning Annual Declaration Work on Foreign Exchange Operation Status by Foreign-invested Enterprises in 2014	(i) effectively do a good job in the declaration of annual foreign exchange operation status of foreign-invested enterprises in 2014.	http://m.safe.gov.cn/safe/2014/0523/5545.html	国家外汇管理局综合司关于2014年外商投资企业年度外汇经营状况申报工作有关问题的通知	为切实做好2014年外商投资企业年度外汇经营状况申报工作。
2014/7/14	Huifa(2014) No.37	Circular of the SAFE on Foreign Exchange Administration of Overseas Investments and Financing and Round-Trip Investments by Domestic Residents via Special Purpose Vehicles	(i) give full play to the decisive role of the market in resource allocation, (ii) support implementation of China's "going-global" strategy, (iii) make full use of domestic and overseas resources and markets, (iv) further streamline and offer conveniences for cross-border capital transactions involved in investment and financing activities by domestic residents via SPVs (special purpose vehicles), (v) serve the development of the real economy, and (vi) improve the level of convertibility of cross-border and financial transactions in good order.	http://m.safe.gov.cn/safe/2014/0714/5546.html	国家外汇管理局关于境内居民通过特殊目的公司境外投融资及返程投资外汇管理有关问题的通知	为充分发挥市场在资源配置中的决定性作用，支持国家“走出去”战略的实施，充分利用国际国内两种资源、两个市场，进一步简化和便利境内居民通过特殊目的公司从事投融资活动所涉及的跨境资本交易，切实服务实体经济发展，有序提高跨境资本和金融交易可兑换程度。
2014/8/4	Huifa(2014) No.36	Circular of SAFE on Relevant Issues Concerning Implementation of the Pilot Reform on an Administrative Approach for the Settlement of Foreign Exchange Capital Funds of Foreign-invested Enterprises in Certain Areas	(i) further deepening the reform of the foreign exchange management system and (ii) better satisfying and facilitating the requirements for business and capital operations of foreign-invested enterprises (FIEs).	http://m.safe.gov.cn/safe/2014/0804/5547.html	(已废止)国家外汇管理局关于在部分地区开展外商投资企业外汇资本金结汇管理方式改革试点有关问题的通知	**为进一步深化外汇管理体制改革，更好地满足和便利外商投资企业经营与资金运作需要**，国家外汇管理局决定在部分地区（天津滨海新区、沈阳经济区、苏州工业园区、东湖国家自主创新示范区、广州南沙新区、横琴新区、成都市高新技术产业开发区、中关村国家自主创新示范区、重庆两江新区、黑龙江沿边开发开放外汇管理改革试点地区、温州市金融综合改革试验区、平潭综合实验区、中国-马来西亚钦州产业园区、贵阳综合保税区、深圳前海深港现代服务业合作区和青岛市财富管理金融综合改革试验区）开展外商投资企业资本金结汇管理方式改革试点。
2014/12/31	Huifa(2014) No.54	Circular on Foreign Exchange Administration for Overseas Listings	(i) standardize and improve foreign exchange administration for overseas listings.	http://m.safe.gov.cn/safe/2014/1231/5581.html	国家外汇管理局关于境外上市外汇管理有关问题的通知	为规范和完善境外上市外汇管理。

2015/2/28	HuiZongFa(2015) No.13	Circular on Further Simplifying and Improving Policies for Foreign Exchange Administration for Direct Investment	(i) further deepen the reform of foreign exchange administration for capital account, (ii) boost and facilitate the operations of cross-border investment funds by enterprises, (iii) standardize foreign exchange administration for direct investment and (iv) enhance administration efficiency, the SAFE decides to further simplify and improve the policies for foreign exchange administration for direct investment across the country, based on the experience from the preliminary pilot program conducted in some regions.	http://m.safe.gov.cn/safe/2015/0228/5548.html	（已修改）国家外汇管理局关于进一步简化和改进直接投资外汇管理政策的通知	**为进一步深化资本项目外汇管理改革，促进和便利企业跨境投资金运作，规范直接投资外汇管理业务，提升管理效率**，国家外汇管理局决定在总结前期部分地区试点经验的基础上，在全国范围内进一步简化和改进直接投资外汇管理政策。
2015/4/8	Huifa(2015) No.19	Circular of the State Administration of Foreign Exchange Concerning Reform of the Administrative Approaches to Settlement of Foreign Exchange Capital of Foreign-invested Enterprises	(i) further deepen the reform of foreign exchange administration system, (ii) better serve and facilitate the business and capital operations by foreign-invested enterprises, the SAFE decides to implement the reform of the administrative approach to settlement of foreign exchange capital by foreign-invested enterprises across the country, based on the experience from the preliminary pilot program conducted in some regions.	http://m.safe.gov.cn/safe/2015/0408/5549.html	（已修改）国家外汇管理局关于改革外商投资企业外汇资本金结汇管理方式的通知	**进一步深化外汇管理体制改革，更好地满足和便利外商投资企业经营与资金运作需要**，国家外汇管理局决定在总结前期部分地区试点经验的基础上，在全国范围内实施外商投资企业外汇资本金结汇管理方式改革。
2015/7/31	Huifa(2015) No.35	Circular of the State Administration of Foreign Exchange on Foreign Exchange Administrationfor Overseas Traders and Brokers Engaging in Futures Trading under Specific Domestic Categories	(i) regulate foreign exchange administrationfor overseas traders and brokers engaging in futures trading under specific domestic categories.	http://m.safe.gov.cn/safe/2015/0731/5582.html	国家外汇管理局关于境外交易者和境外经纪机构从事境内特定品种期货交易外汇管理有关问题的通知	为规范境外交易者、境外经纪机构从事境内特定品种期货交易外汇管理。
2015/11/9	GongGao(2015) No.36	Operational guidelines for the management of cross border issuance and sales funds of mainland and Hong Kong Securities Investment Funds		http://m.safe.gov.cn/safe/2015/1109/5583.html	《内地与香港证券投资基金跨境发行销售资金管理操作指引》	
2015/12/7	HuiZongFa(2015) No.88	Circular of the General Affairs Department of the State Administration of Foreign Exchange on Releasing QFII Quota Administration Guideline	(i) facilitate the domestic securities investments of Qualified Foreign Institutional Investors (QFIIs).	http://m.safe.gov.cn/safe/2015/1207/5584.html	（已废止）国家外汇管理局综合司关于发布《合格境外机构投资者额度管理操作指引》的通知	为便利合格境外机构投资者境内证券投资运作。
2015/12/11	Huifa(2015) No.45	Circular of the State Administration of Foreign Exchange on Adjusting the Method of Data Submission by Qualified Institutional Investors	(i) improve the supervision of qualified foreign institutional investors, RMB qualified foreign institutional investors and qualified domestic institutional investors, and (ii) facilitate the cross-border securities investment of qualified institutional investors.	http://m.safe.gov.cn/safe/2015/1211/6837.html	（已废止）国家外汇管理局关于调整合格机构投资者数据报送方式的通知	**为改进对合格境外机构投资者、人民币合格境外机构投资者、合格境内机构投资者（上述三类分别简称QFII、RQFII、QDII，统称合格机构投资者）的监管，便利合格机构投资者跨境证券投资**，国家外汇管理局（以下简称外汇局）自2016年1月1日起，对合格机构投资者有关数据报送方式进行调整。
2016/2/4	SAFE(2016) No.1	Regulations on Foreign Exchange Administration of Domestic Securities Investments by Qualified Foreign Institutional Investors	(i) standardize the foreign exchange management of qualified foreign institutional investors' domestic securities investment.	http://m.safe.gov.cn/safe/2016/0204/5586.html	《合格境外机构投资者境内证券投资外汇管理规定》	为规范合格境外机构投资者（以下简称合格投资者）境内证券投资外汇管理。
2016/5/27	Huifa(2016) No.12	Circular of the State Administration of Foreign Exchange on Foreign Exchange Administration for Overseas Institutional Investors Participating in China's Interbank Bond Market	(i) standardize the foreign exchange management of foreign institutional investors' investment in the domestic inter-bank bond market.	http://m.safe.gov.cn/safe/2016/0527/5587.html	国家外汇管理局关于境外机构投资者投资银行间债券市场有关外汇管理问题的通知	为规范境外机构投资者投资境内银行间债券市场外汇管理。
2016/6/15	Huifa(2016) No.16	Circular of the SAFE on the Policies for Reforming and Standardizing Management of Foreign Exchange Settlement under the Capital Account	(i) further deepen the reform of foreign exchange administration system, (ii) better serve and facilitate the business and capital operations by domestic enterprises, the SAFE decides to implement the reform of the administrative approach to foreign exchange settlement of the external debt of enterprises across the country, based on the experience from the preliminary pilot program conducted in some regions, while standardizing the management for discretionary settlement and payment of foreign exchange receipts under the capital account in a uniform manner.	http://m.safe.gov.cn/safe/2016/0615/6836.html	国家外汇管理局关于改革和规范资本项目结汇管理政策的通知	**为进一步深化外汇管理体制改革，更好地满足和便利境内企业经营与资金运作需要**，国家外汇管理局决定在总结前期部分地区试点经验的基础上，在全国范围内推广企业外债资金结汇管理方式改革，同时统一规范资本项目外汇收入意愿结汇及支付管理。
2016/9/5	YinFa(2016) No. 227	Circular of the People's Bank of China and the State Administration of Foreign Exchange on the Management of Domestic Securities Investment by RMB Qualified Foreign Institutional Investors	(i) regulate the management of domestic securities investment by RMB qualified foreign institutional investors (RQFIIs).	http://m.safe.gov.cn/safe/2016/0905/6838.html	（已废止）中国人民银行 国家外汇管理局关于人民币合格境外机构投资者境内证券投资管理有关问题的通知	为规范人民币合格境外机构投资者（以下简称人民币合格投资者）境内证券投资管理。
2018/2/13	BaoJianFa(2018) No.5	Circular of the China Insurance Regulatory Commission and the State Administration of Foreign Exchange on Relevant Issues Concerning Regulation of Insurance Institutions in Conducting Overseas Loans under Domestic Guarantees	(i) regulate insurance group (holding) companies and insurance companies (hereinafter referred to as insurance institutions) to carry out domestic insurance and foreign loan business, (ii) strengthen the supervision of overseas financing business and (iii) prevent overseas financing risks.	http://m.safe.gov.cn/safe/2018/0213/8238.html	中国保监会 国家外汇管理局关于规范保险机构开展内保外贷业务有关事项的通知	**为规范保险集团（控股）公司、保险公司（以下简称保险机构）开展内保外贷业务，加强境外融资业务监管，防范境外融资风险**。根据《保险资金运用管理暂行办法》《保险资金境外投资管理暂行办法》《保险资金境外投资管理暂行办法实施细则》及国家外汇局《跨境担保外汇管理规定》等相关政策。

2018/3/19	ShangZiHan(2018) No. 92	Notice of the Ministry of Commerce, the Ministry of finance, the State Administration of Taxation, the General Administration of quality supervision, inspection, the Bureau of statistics and the Bureau of foreign exchange on launching the joint report on the annual investment and business information of foreign-invested enterprises in 2018	(i) implement the spirit of the 19th CPC National Congress, further (ii) transform government functions, (iii) optimize the business environment, and (iv) strengthen the coordinated supervision of foreign investment.	http://m.safe.gov.cn/safe/2018/0319/8782.html	商务部 财政部 税务总局 质检总局 统计局 外汇局 关于开展2018年外商投资企业年度投资经营信息联合报告的通知	为深入贯彻党的十九大精神，进一步转变政府职能，优化营商环境，加强对外商投资事中事后协同监管。
2018/3/20	YinJianFa(2018) No.5	Opinions on further supporting the innovation of capital instruments of commercial banks	(i) broaden the capital supplement channels of commercial banks and (ii) improve their ability to support the real economy.	http://m.safe.gov.cn/safe/2018/0320/8783.html	关于进一步支持商业银行资本工具创新的意见	为拓宽商业银行资本补充渠道，提升其支持实体经济的能力。
2018/3/23	Huifa(2017) No.21	Circular of the State Administration of Foreign Exchange on Relevant Issues Concerning Foreign Exchange Administration of Financial Leasing	(i) further promote the replication and promotion of the pilot experience of the reform of the pilot free trade zone and (ii) effectively serve the development of the real economy.	http://m.safe.gov.cn/safe/2018/0323/8784.html	国家外汇管理局关于融资租赁业务外汇管理有关问题的通知	**为进一步推进自由贸易试验区改革试点经验的复制推广，切实服务实体经济发展**，根据《中华人民共和国外汇管理条例》（国务院令2008年第532号）、《商务部 交通运输部 工商总局 质检总局 外汇局关于做好自由贸易试验区第三批改革试点经验复制推广工作的函》（商资函〔2017〕515号）及其他有关法规。
2018/6/12	SAFE(2018) No.1	Regulations on Foreign Exchange Administration for Domestic Securities Investments by Qualified Foreign Institutional Investors	(i) standardize foreign exchange administration for Qualified Foreign Institutional Investors (Qualified investors) in domestic securities investment.	http://m.safe.gov.cn/safe/2018/0612/9320.html	《合格境外机构投资者境内证券投资外汇管理规定》	**为规范合格境外机构投资者（以下简称合格投资者）境内证券投资外汇管理**，根据《中华人民共和国外汇管理条例》（国务院令第 532 号，以下简称《外汇管理条例》）、《合格境外机构投资者境内证券投资管理办法》（中国证券监督管理委员会、中国人民银行、国家外汇管理局第 36 号令）及相关规定，制定本规定。
2018/6/12	YinFa(2018) No.157	Circular of the People's Bank of China and the State Administration of Foreign Exchange on the Management of Domestic Securities Investment by RMB Qualified Foreign Institutional Investors	(i) regulate the management of domestic securities investment by RMB qualified foreign institutional investors (RMB qualified investors).	http://m.safe.gov.cn/safe/2018/0612/9321.html	（已废止）中国人民银行 国家外汇管理局关于人民币合格境外机构投资者境内证券投资管理有关问题的通知	为规范人民币合格境外机构投资者（以下简称人民币合格投资者）境内证券投资管理。