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Do short-term international capital inflows drive China's asset markets?

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ABSTRACT

The purpose of this paper is to investigate the relationship between short-term international capital inflows and asset markets in China. First, several indices are used to measure the status of China's markets in recent years and to determine possible impacts of short-term foreign capital inflows on asset markets. Second, a structural vector auto-regressive (SVAR) model is used to explore the effects of the unsterilized portion of the monetary base and short-term international capital inflows on the Chinese stock markets and real estate markets. The empirical evidence demonstrates that the relationship between short-term international capital inflows and asset prices is self-fufilling and mutually reinforcing. The unsterilized portion of the monetary base further exacerbates asset price bubbles, which suggests that short-term international capital inflows and excess liquidity will gradually escalate the severity of asset price bubbles.
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1. Introduction

In the context of globalization and internationalization, short-term international capital constantly flows across borders in search of arbitrage opportunities in the flourishing international capital market. Governments have gradually started paying attention to the resulting effects and impacts on their capital markets. In response to RMB appreciation expectations, the wide interest rate spreads and a generally optimistic outlook of China's economy, a considerable short-term international capital has flown into China in recent years, largely in the hope of making arbitrage profits in the domestic capital market.[1] In 2011, foreign investment in real estate development enterprises stood at 78.52 billion RMB, up by 96.21% over that in 2006. Direct investment in the property market by foreign investors was 38.65 billion RMB, up 127.53% over that in 2006.[2]

The People's Bank of China has continuously followed a sterilization policy along with foreign exchange market intervention, to stabilize the foreign exchange market. With inadequate sterilization, the increase in funds outstanding for foreign exchange due to the inflows of short-term international capital result in increased domestic money supply, further pushing up property prices. While short-term foreign capital inflows bring about capital mobility, there are already ample funds in the real estate market in China. Consequently, such capital inflows, to a certain extent, result in housing bubbles in some areas.

In addition, by sterilized intervention on a massive scale, the Chinese government has inevitably increased the risks of the financial sector. Since the People's Bank of China has mandated higher reserve requirement ratios, it not only weakens the autonomy of commercial banks but also lowers the profit margin for banks due to limitations of credit growth. In order to secure their existing market shares, commercial banks are forced to lower their loan standards or turn towards high-risk investments, which may render the loan

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[1] While the capital account in China has not yet been fully opened up, foreign capital can still flow into its capital market through associated channels.

[2] See National Bureau of Statistics of China, *China Statistics Annual Report*.

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conditions for specific industries too lax. With an over-abundance of funds and a shortage of other viable channels of investment in China, such circumstances tend to encourage investments and speculations in the stock market and real estate market. Consequently, this causes China's stock market to fluctuate and prices of real estate are being driven up in China.

And as such, despite the various tight monetary policies that the Chinese government has adopted, the scale of mortgage businesses of banks remains steadily on the rise. According to the statistics from the People's Bank of China, the real estate loan surplus in June 2012 for major financial institutions, rural cooperative financial institutions, urban credit cooperatives and foreign capital banks came to a total of 11.32 trillion RMB (a growth of 10.3% compared to the same period in 2011). Balance of land development loans, real estate loan balance and individual housing loans came to 803.7 billion RMB, 2.92 trillion RMB and 7.49 trillion RMB, with growth of 0.8%, 11.3% and 11%, respectively, compared to the same period in 2011. The ratio of China's real estate development completed investment against the nation's GDP has grown steadily over the years; by the end of June 2012, the ratio came to 13.48%. These figures reflect the flourishing development of China's real estate market.[3]

With this kind of huge investment in the real estate market, housing prices in various Chinese cities have risen considerably; some cities have even experienced a housing market bubble. Given the limited effectiveness of various sterilization tools deployed by the People's Bank of China, the increase in funds outstanding for foreign exchange due to inadequate sterilization create additional base currency and money supply, thereby amplifying the inflationary pressure for general goods and commodities. Not only that, this also creates a source of funding for real estate that causes inflation. It propels rapid growth in housing prices across major Chinese cities and creates higher risks of housing market bubbles.

Considering the overall current state of the real estate market in China, authorities have implemented an array of policies to suppress rising house prices. Short-term international capital lurking in the real estate market has started to flow out of the country, leading to collapse in the real estate market. For ensuring the development of real estate market in China does not suffer, understanding the current status of China's real estate market and the relationship between foreign capital and housing price are the pressing issues.

The extant literature has often used vector auto-regression (VAR) model or vector error correction (VECM) model to examine the effects of foreign capital flows on asset prices, with a focus on the impact of short-term international capital inflows on stock and real estate markets. This paper differs from other studies as it employs a structural vector auto-regression (SVAR) model and incorporates a variable for the unsterilized portion of the monetary base. It not only analyzes interactions among variables in the current period, but also further explores the effects of short-term international capital inflows and unsterilized portion of the monetary base on asset prices in China. In addition, it also examines whether increases in asset prices attract further short-term international capital inflows.

The empirical findings of this paper demonstrate that the relationship between short-term international capital inflows and asset prices is self-fulfilling and mutually reinforcing. Short-term international capital inflows have a positive impact on asset prices. In particular, the impact on stock prices is smaller but prolonged as compared to that on real estate prices. In addition, increasing asset prices result in inflows of short-term international capital. Furthermore, the unsterilized portion of the monetary base further lifts asset prices. Therefore, the influx of short-term international capital not only leads to increases in foreign exchange reserves but also induces expansion of domestic money supply and pushes up asset prices in China.

After introduction, Section 2 of this paper presents a quick overview of relevant research works and literature, which discuss the relationship between short-term international capital inflow and asset price. Section 3 provides a concise summary of short-term international capital inflows and asset markets in recent years, and Section 4 focuses on the empirical model. Section 5 covers the data description and empirical results. Section 6 describes the various robustness checks, followed by conclusions of this paper.

2. Literature review

Moderate international capital inflows can boost economic growth of a nation. Nevertheless, excessive short-term capital inflows impact the country's asset market, even leading to serious economic crises at times.[4] Financial booms and crises in emerging economies are tightly linked to international capital inflows. Large capital flows into emerging markets lead to a financial boom in host countries. On the other hand, when large amounts flow out, they lead to a crisis. Weak macroeconomic fundamentals are one of the major reasons for capital out-flows from emerging markets in the form of hot money. Domowitz, Glen, and Madhavan (1997) found that hot money from abroad had significantly affected stock price increases and market capitalization in Mexico, and had contributed to the 1994 Mexican financial market turmoil to a great extent. Sarno and Taylor (1999) examined the view that 1997 East Asian crisis was precipitated by bursting of asset price bubbles, which had been fueled by strong capital inflows that were largely the result of a moral hazard problem in financial intermediation and the situation was exacerbated by a vicious cycle of asset price deflation and incipient and actual capital flight.Foreign exchange rate is an important channel that connects domestic and international economies and globally experience has shown the close correlation between foreign exchange rates and real estate prices. Given that sterilization policies are unsustainable, public anticipation of currency appreciation triggers inflows of international capital and pushes the prices of stocks and real estate even further up. Calvo, Leiderman, and Reinhart (1996) studied the data spanning 1990 to 1994 of Asian and Latin American countries and the results of their study showed that the inflow of international capital not only causes stock and real estate prices to rise but also result in rapid growth in foreign exchange reserves and money supply, along with appreciation of real exchange rates.

Kim and Singal (2000) estimated changes in the level and volatility of stock returns, inflation and exchange rates around market openings, and found that the movements of speculative funds, particularly in emerging markets, are apparently highly sensitive to differences in interest rates, expectations of currency revaluations and expected returns from holding of securities. Benson, Hansen, Schwartz, Arthur, and Smersh (1997) examined the influence of buying and selling by Canadians in a study of 397 residential properties in Point Roberts, Washington. They found that the sensitivity of real estate prices to exchange rate changes appears to be a three-to-six month lagged function. In general, it appears that a higher Canadian dollar increases the Canadian demand for Point Roberts real estate which, in turn, leads to higher transaction prices.

Benson, Hansen, Schwartz, Arthur, and Smersh (1999) used autoregressive moving average (ARMA) for tracking the data from

[3] See National Bureau of Statistics of China, *China Statistics Annual Report.*

[4] Examples include the burst of the Japanese asset price bubble in the 1990s and the collapse of the housing market in Thailand in 1997.

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