

on Correlation between RMB Exchange Rate and Real Estate Price based on Financial Engineering

LIU Yang ^{a*}, HU Zhiqiang ^b

^a Hubei University of Technology, Wuhan 430068, P.R. China

Wuhan University, Wuhan 430072, P.R.China

^b Wuhan University, Wuhan 430072, P.R.China

Abstract

In the post-crisis age, the continued appreciation of RMB and raise of housing price, and the positive correlation between them caused great attention from the public. This paper examines the relationship between RMB real effective exchange rate and real estate price by VAR test by using the monthly data from Jan, 2007 to Dec, 2010. The empirical result shows in the short run, raise of housing price will cause the depression of RMB exchange rate, however, in the long run, real estate has a positive impact on RMB exchange rate, therefore based on current financial engineering background, it is important for China to control the real estate price in order to maintain gradually and slightly appreciation of RMB.

Keyword: RMB Exchange Rate; Real Estate Price; Correlation; Financial Engineering

1. Introduction

Exchange rate is an important link to connect domestic and international commodity markets and financial markets. With the accelerated process of China's reform and opening, especially after the establishment of Managed Floating Rate System, RMB exchange rate plays an increasingly important role in China's economic development. Exchange rate movement leads to the price change of import and export commodity, furthermore, influence the price level of entire real economy. Since the exchange reform in 2005, RMB has appreciated against U.S. dollar by 21.76%, and the appreciation significantly speed up in the post-crisis era, RMB exchange rate kept reaching the all-time high and reach a record high of 6.47225 on June 25, 2011.

At the same time, as the important pillar of the national economy, the real estate industry is booming. The economy data in 2010 from National Bureau of Statistics of China showed, the real estate investment in 2010 is RMB4.8267 trillion, raised up by 33.2% than the previous year. Among them, the commercial housing investment is RMB3.4038 trillion, went up by 32.9%; the official investment is RMB180.7 billion, went up by 31.2%; commercial business building investment is RMB559.9 billion, increased by 33.9%. Under the impact of subprime crisis in 2008, China's real estate prices fell once, but in the post-crisis era, asset price, which includes Chinese real estate, kept rising, and became one important factor of promoting China's economy growth. According to the data released by National Bureau of Statistics in 2010, real estate companies' funding is RMB7.2494 trillion this year. Of which, domestic loans are RMB1.254 trillion; foreign investment is RMB79.6 billion. Due to the impact of expected

- Corresponding author. Tel.: 00861377899977; fax: 00862787298677
- E-mail address: shirelyang@hotmail.com

appreciation of RMB, a large number of foreign capital flowed into the domestic real estate market, to gain the dual-profit from the appreciation of the RMB and housing price.

With the increasingly internationalization of real estate investment behavior, the link between the housing price and the exchange rate becomes increasingly close, the appreciation of RMB and the raise of real estate price are showing a kind of coexistence situation. Whether there is certain inherent association between them has become a hot issue among domestic and foreign scholars. Based on data from 2007 to 2010, the correlation between RMB exchange rate and the real estate prices were analyzed.

2. Literature Review

Joseph B. Lipscomb, John T. Harvey and Harold Hunt (2003) studied the real estate prices in Mexico, they believe the raise of real estate prices will lead to the raise of exchange rate, however, with the raise of exchange rate, real estate prices rise further high. Norman G. Miller, Michael A. Sklarz and Nicholas. Ordway (1988) examined the relationship between Japanese Yen against the US dollar and the house prices in Honolulu, and found that Yen appreciate 10% against U.S. dollar, the house price in Honolulu would rise around 27 %. Earl D. Benson et al (1999) used ARMA method, using the USD exchange rate data during 1984 to 1994 to test the cumulative price index in Bellingham U.S, and found that the exchange rate have a significant impact on house prices: the exchange rate rose for every 10%, house prices rose 7.7%, but this effect has a three to six months lag. Michael F. Martin and Wayne M. Morrison (2008) study the hot money problem in China, they pointed out that there are a large number of hot money inflows into China's real estate market, which promote the real estate prices. Marcel, Luciana, and Lucio (2008) believe that exchange rate movements is not the key factor of the imbalances of current account, relative changes in global asset price is an effective adjustment source. Due to the wealth effect, raise of housing prices led to the increase of house holders' actual wealth, therefore promoted the consumption, meanwhile makes it easier for companies to find financial investment opportunities.

Wang Aijian, Shen Qingjie (2007) think that with China's rapid economic growth, raise of real estate prices and the appreciation of the RMB exchange rate are two required dynamic adjustment process of economy running. Pegged to the dollar's exchange rate policy, however, has refused to the appreciation of RMB, thereby increasing the internal economic imbalances. Based on the structural characteristics of the Chinese economy, the market chose real estate price as an economic expansion valve. Wu Yifang (2009), Liang Liang (2009) come to the conclusion by data analysis that: before the reform of RMB exchange rate, there is a negative correlation between real estate prices and RMB exchange rate, while the correlation is weak. After the reform, the correlation changed to be positive, and relevance significantly enhanced. Meanwhile, the RMB exchange rate and real estate prices have equilibrium relationship to some extent in the long run. Song Bo and Gao Bo (2007) study the impact of international capital flows on real estate prices, they concluded that: In the short term, raise of real estate prices attract foreign capital inflows; in the long term, the foreign capital inflow promote the China's housing prices. Liu Yi, Shi Yunchang (2009) use VAR model to take the empirical test on hot money inflows and real estate prices in Beijing, Shanghai, Guangzhou and Shenzhen, and found a long-term equilibrium relationship between real estate prices and hot money, hot money is the Granger cause of house price rising and it has a sustained positive impact on housing price.

3. Correlation between the RMB exchange rate and the real estate price

With China's accession to WTO, exchange rate has become an increasingly important macroeconomic variable in the economic life. Exchange rate movements will affect the real estate market fluctuations, in turn, the fluctuations of real estate market will affect the exchange rate policy and the adjustment of exchange rate level. With the improvement of financial markets degree, the interaction degree between housing price and exchange rate will become greater and greater.

3.1 *The impact of exchange rate on real estate price*

3.1.1 *Appreciation of RMB enhance the speculation in real estate market*

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