

The Analysis: the Influence of RMB Exchange Rate Fluctuation on Real

Estate Price in China

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ABSTRACT:

In this paper, we will analyze the effect of the reform of exchange rate institution on the real estate market based on a case study of Taiwan and Japan', and the result suggests that the appreciation of a country's currency leads to the rise of real estate price, or even worse, the economic bubble. Quantified analysis of the international capital flows and the real estate price volatility in China real estate market shows that the expectation of the appreciation of RMB is one of the elements that inspire foreign investment speculating in China real estate market. So we suggest that the government should use various methods of macroeconomic control, based on which to make out the appreciation of RMB step by step, to crack down on the speculations and to make the yield to the normal level, in order that the international speculative capital cannot gain speculative profits and stop their speculation.

Since 2006, the yuan to the US dollar exchange rate has launched fierce "seesaw battle" in 8:1 crossings. On June 30, the central parity of the RMB against the US dollar is 7.9956. The yuan has appreciated 3.4% since it was revalued. Judging from the current situation, the continuous revaluation of RMB, with the expectation of RMB appreciation, has been attracting international speculative capital to flow into China real estate market.

In the last 1980s, the appreciation of Yen and NT dollar led to the serious property market bubble respectively. Compared with Japan and Taiwan in those years, China has a similar macroeconomic environment. So it's necessary to analyze the impact of RMB appreciation on real estate market. In this paper, we try to analyze and show the effect of the reform of exchange rate institution on the real estate market based on Taiwan and Japan's case study. Also we will analyze the international capital flows and the house price volatility in China real estate market and prove that the expectation of RMB appreciation has been attracting

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1. THE ANALYSIS OF THE EFFECT OF APPRECIATION OF YEN AND NT DOLLAR ON REAL ESTATE PRICE

1.1 The appreciation of the Yen and Japanese real estate price fluctuations in 1980s

Since December 1985, in which Japanese government accepted the "Plaza Agreement" and reformed the exchange rate institution, the range and pace of the Yen appreciation had been significant (see Figure 1). Between 1985 and 1988, the exchange rate of the Yen to the U.S. dollar rose from 238.54:1 to 128.15:1, a total appreciation of 86 percent. During this period, the land price of Tokyo circle areas rose more than two times from 1985 to 1991.

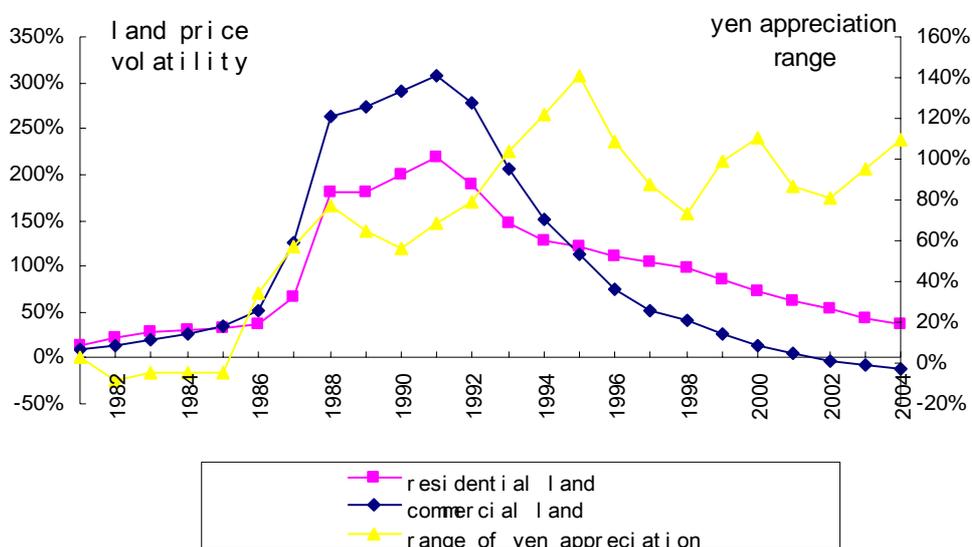


Figure 1. The Appreciation of Yen and the Volatility of Tokyo-circle-areas Land Price

Note: Land price data comes from Japan's Land and Transportation Ministry and exchange rate data from IMF. All the range is calculated based on the data in 1980.

From 1985 to 1988, the period that Japanese real estate bubble formed and expanded, the appreciation of Yen and the volatility of Tokyo-circle-areas land price were occurring simultaneously, from which we can see that the land price was highly relevant to the volatility of Yen exchange rate.

1.2 The appreciation of the NT dollar and Taiwanese real estate price fluctuations in 1980s

Similar to Japan, Taiwanese reformation of the exchange rate institution also led to significant house price fluctuations.

Before 1985, the NT dollar and the U.S. dollar exchange rate remained basically at the level of 40:1. In December 1985, under the pressure of America, the NT dollar started appreciating. Between 1985 and 1989, the exchange rate of the NT dollar against the U.S. dollar rose from 39.5:1 to 26.4:1, a total appreciation of 51 percent. During the same period, the property price rose continually in Taiwan. Take Taipei City as an example, the residential price rose 36.5% in 1987, 96.5% in 1988 and 78.2% in 1989.

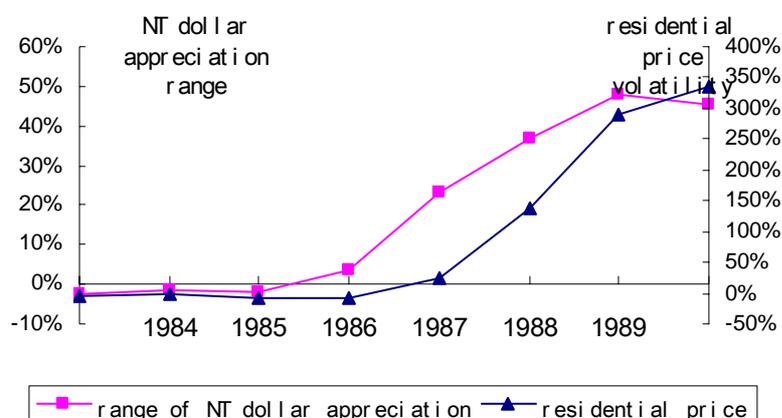


Figure 2. The Appreciation of NT Dollar and the Residential Price Volatility of Taipei City

Note: Residential price data comes from Yang Zhongqin's paper in 1992 and exchange rate data from Taiwan's Central Bank. All the range is calculated based on the data in 1982.

Figure 2 reveals that the residential price volatility of Taipei City was basically consistent with the volatility of NT dollar exchange rate although the house price rose faster than the NT dollar appreciated.

Table 1 the residential price of Taipei City and the exchange rate of NT dollar

Time	Exchange Rate (against the U.S. dollar)	Total Appreciation	Residential Price (1000 NT dollar / Ping)	Total Increases
Quarter 1, 1982	37.91		66.67	

Quarter 2,1982	38.78	-2.24%	65.31	-2.04%
Quarter 3,1982	39.65	-4.39%	61.42	-7.87%
Quarter 4,1982	40.15	-5.58%	64.48	-3.28%
Quarter 1,1983	39.91	-5.01%	63.52	-4.72%
Quarter 2,1983	40.03	-5.30%	59.83	-10.26%
Quarter 3,1983	40.12	-5.51%	58.64	-12.04%
Quarter 4,1983	40.19	-5.67%	62.02	-6.97%
Quarter 1,1984	40.15	-5.58%	61.22	-8.17%
Quarter 2,1984	39.77	-4.68%	61.82	-7.27%
Quarter 3,1984	39.21	-3.32%	63.02	-5.47%
Quarter 4,1984	39.36	-3.68%	64.46	-3.31%
Quarter 1,1985	39.3	-3.54%	58.24	-12.64%
Quarter 2,1985	39.82	-4.80%	60.48	-9.28%
Quarter 3,1985	40.31	-5.95%	60.76	-8.86%
Quarter 4,1985	39.99	-5.20%	59.32	-11.02%
Quarter 1,1986	39.24	-3.39%	58.87	-11.70%
Quarter 2,1986	38.38	-1.22%	61.02	-8.47%
Quarter 3,1986	37.47	1.17%	58.92	-11.62%
Quarter 4,1986	36.29	4.46%	60.89	-8.67%

Quarter 1,1987	34.98	8.38%	63.03	-5.46%
Quarter 2,1987	32.39	17.04%	75.21	12.81%
Quarter 3,1987	30.53	24.17%	85.47	28.20%
Quarter 4,1987	29.58	28.16%	95.49	43.23%
Quarter 1,1988	28.61	32.51%	109.04	63.55%
Quarter 2,1988	28.68	32.18%	125.26	87.88%
Quarter 3,1988	28.77	31.77%	169.47	154.19%
Quarter 4,1988	28.39	33.53%	206.77	210.14%
Quarter 1,1989	27.65	37.11%	218.15	227.21%
Quarter 2,1989	26.27	44.31%	244.73	267.08%
Quarter 3,1989	25.74	47.28%	265.89	298.82%
Quarter 4,1989	25.97	45.98%	275.44	313.14%
Quarter 1,1990	26.18	44.81%	284.94	327.39%
Quarter 2,1990	26.91	40.88%	287.86	331.77%
Quarter 3,1990	27.25	39.12%	278.64	317.94%
Quarter 4,1990	27.23	39.22%	272.11	308.14%

Note: Residential price data comes from Yang Zhongqin's paper in 1992 and exchange rate data from Taiwan's Central Bank.

We made a relevant analysis between the Taipei City house price's change (Y) and the NT dollar exchange rate's change (X), and found that the correlation coefficient is 0.907.

$$\text{Model: } Y=2.279+5.770X$$

$$(t=12.349)$$

$$R^2=0.822 , F=152.497 , n=35$$

From the linear regression analysis, we find that the NT dollar's appreciation can explain the increase of house price. If the NT dollar had a one percent appreciation, the house price of Taipei would rise 5.770%.

It can be concluded that, in terms of statistical analysis, the currency appreciation will drive the increase of domestic property price.

1.3 Japan's and Taiwan's Experience and Lessons

By learning Japan's and Taiwan's experience and lessons and analyzing the current macroeconomic environment of China, we may make the following reasonable assumptions:

- (1) The expectation of the appreciation of RMB may attract international speculative capital for speculation in RMB. Appreciate more acutely, more speculative profit.
- (2) The durative appreciation of RMB may attract international speculative capital to flow into the Chinese real estate market, which can drive the durative rise of the house price.
- (3) The range and pace of RMB appreciation will influence the extent of international capital's impact on the Chinese real estate market.
- (4) Whether or not China will take control measures or what control measures China will take to restrict international capital to enter China property market, will decide that whether or not the real estate bubble will come into being or how fast the bubble will expand.

2. THE ANALYSIS OF THE EFFECT OF INTERNATIONAL CAPITAL ON CHINA REAL ESTATE MARKET

2.1 The effect of international capital on China real estate development market

Figure 3 illustrates a steady and healthy growth of total foreign investment that flowed into China real estate development market in recent five years.

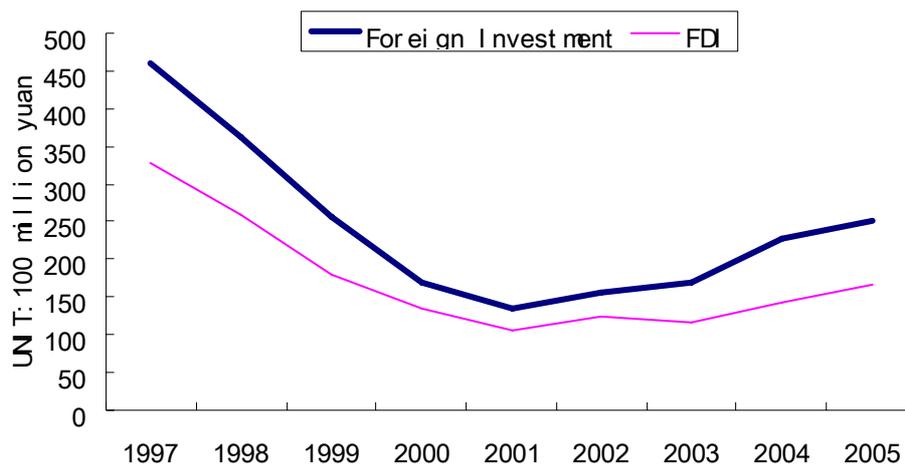


Figure 3. Foreign Investment in China real estate development market

Note: data comes from "China Statistical Yearbook 2005" and "Chinese economic statistics Express 200601".

In 2005, 2,117,848 million Yuan was invested in real estate development and only 1.19 percent, 25,196 million Yuan, came from the foreign investment. It seems that foreign capital accounts for a very small proportion of real estate development funds. But, considering that almost all the foreign capital flowed into Shanghai and Beijing, we have no reason to ignore its influence. According to the data from "2004 China Real Estate Financial Report" published by People's Bank of China in August 2005, in the first 11 months of 2004, the total inflow of foreign capital to Shanghai property market was over 22.2 billion Yuan and about 15 billion Yuan for the property development, accounting for 12.8% of total annual real estate development funds. Obviously, foreign investment has sufficient influence in Shanghai real estate development market.

2.1 The effect of international capital on China real estate sales market

Since the Yuan was expected to revalue, "hot money", the international speculative capital that can't be supervised and controlled directly, has flowed into China continuously. Simply,

we may apply the following formula: the amount of "hot money"= the growth of foreign exchange reserves- the trade surplus- the actual use of foreign direct investment. Generally speaking, "hot money" would flow into the stock market and property market if there was a currency appreciation. But the stock market of China is so special, too much government management and control, that we easily and widely take the viewpoint that most "hot money" has flow into China real estate market.

Table 2 the Amount of "Hot Money" Unit: 100 million U.S. dollar

Year	growth of foreign exchange reserves	trade surplus	actual use of foreign direct investment	amount of "hot money"
2003	1168.44	254.7	535.05	378.69
2004	2066.81	320.9	606.3	1139.61
2005	2089.4	1019	603	467.4

Note: data comes from People's Bank of China and National Bureau of Statistics of China.

Now let's do a simple calculation according to the data from Table 2. From 2003 to 2005, the total amount of "hot money" that had flowed into China is about 198.5 billion U.S. dollars (Xie Guozhong, Managing Director of Morgan Stanley Dean Witter Asia, once calculated one number, 350 billion U.S. dollars). Next, make the following assumption: half of the "hot money" flowed into China real estate sales market; the exchange rate of the Yuan against the U.S. dollar is 8:1; the property price is 20000 yuan/m². So we can calculate and conclude easily that the "hot money" purchased approximately 50 million square meters of housing from 2003 to 2005. If the "hot money" purchased with bank loans, it had controlled more square meters. Considering that almost all the foreign capital flowed into Shanghai and Beijing and the total area of housing sales of the two cities is 163 million square meters from 2003 to 2005, we can find that "hot money" occupied about 30% sales of these two cities.

The above calculation according to statistical data is rough. The statistical data from PBOC Shanghai Branch shows that foreign capital accounted for about 20% of the real estate sales from 2002 to 2004 in Shanghai. We can draw the conclusion that, accompanied with the expectation of RMB appreciation, foreign capital can influence the property sales market more strongly, especially in Shanghai and Beijing.

2.3 The analysis of overseas investment fund in real estate market of China

While no accurate statistics showed that how much international capital influenced real estate development and sales market in China, however, we may accept that overseas fund work more and more frequently, which proves that the influence of foreign capital on property market is increasing..

There are two advantages that attract overseas fund to flow into China real estate market. One is that an investment to Chinese property market can yield high growth; the other is that the appreciation of RMB can help obtain additional revenue. The overseas funds, especially the one flowing into sales market, may accelerate the formation or expansion of the real estate bubble. Generally, the overseas funds that flows into sales market took a way of entire-building-purchase or entire-building-sales, which may result in sharp fluctuations of prices in short period. For example, CapitaLand sold almost all of its realty in Shanghai in 2005, simultaneously, house price of Shanghai showed a downward trend in the second half of 2005.

Table 2 Overview: property purchase of some overseas fund

Overseas Fund	Property Purchase
MSREF	2003: Jinlin Tiandi Yayuan , 9 million U.S. dollars;
	2004: Jinlin Tiandi Yayuan, 500 million yuan;
	2005: World Trade Building, 200 million U.S. dollars; Shanghai Plaza, 850 million yuan
CapitaLand	FuLi Shuangzizuo (II), 400 million yuan;
	2004: land (100 thousand square meters, in Beichen Jiayuan), 2 billion yuan;
	6 marketplaces (in Shenzhen), 120 million U.S. dollars; 2 marketplaces (in Beijing), 210 million U.S. dollars;
	2005: Huanlian Commercial Plaza (dept. Anzhen) and Wangjing Shopping Center, 1,746 million yuan; land (14.7 thousand square meters, in Dongzhimen), 550 million yuan;
Citibank	Central World Trade Center(#A and #B), 1837 million yuan;
	By the end of 2005, total investment reached 7.8 billion yuan in Beijing.
Rodamco	2005:office buding in Shanghai, about 800 million yuan
Yangzi Fund	2003: SGS, 2300 U.S. dollars per square meter, 50 million U.S. dollars in total
Kingsway Group	2005: Yuangyang Xinganxian (#D, in Beijing),30 million U.S. dollars
	2005: Yuangyang Xinganxian (#E, in Beijing),236 million yuan

Macquarie Bank	2005: Xinmao Plaza, 800 million yuan
Goldman Sachs Investment Bank	2005: Pidemco Tower(No.318, Fuzhou Str. Shanghai), 107.6 million U.S. dollars(the highest price in Shanghai)
Excel Partners Ltd.	2005: property options(JingrongJie, Beijing), 105 million U.S. dollars

Note: data comes from media reports.

2.4 The influence of international capital on real estate price of China

Since the overture has been broadly focused from February 2003, proposed during the conference of exchequer governors of G7, foreign capital has flowed into real estate market of China in primary cities, influencing the price of property in relative cities. Figure 4 indicates that, compared with Beijing, Guangzhou, Shenzhen and Tianjin city, obviously, the Shanghai's tendency of price increase has been greater since the year 2003. At the same time, the trend of these cities including Beijing, Guangzhou, Shenzhen, Tianjin shows no big difference.

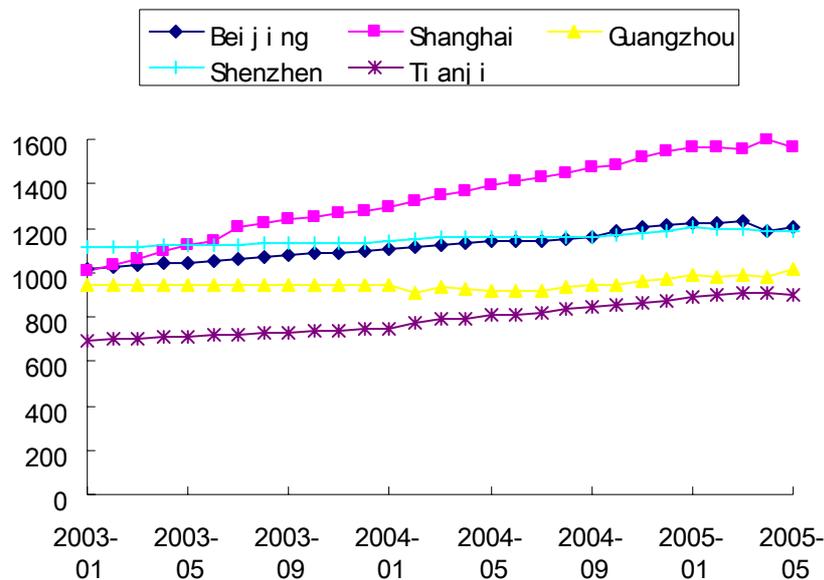


Figure 4 Residential Index of Primary City in China

Note: data comes from CREIIs(China National Real Estate Development Group Corporation Integrate Index).

Before the year 2003, the price of real estate in Shanghai increased slowly, but from 2003 to the ending of June 2005 (in another word, from the appearance of appeal for the revaluation of RMB to the beginning of it), the price uptrend there was remarkable, accompanied with the expectation of RMB appreciation, telling that to some degree, there're some speculations in that market.

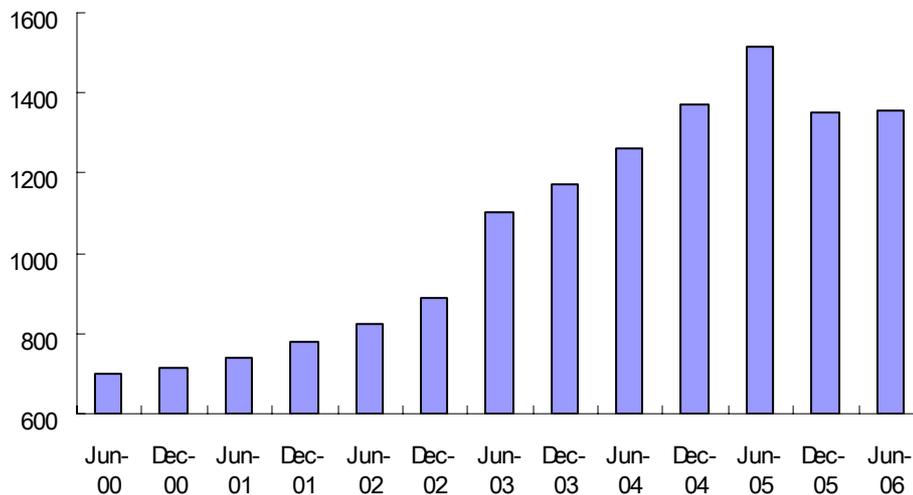


Figure 5 the Comparison of CREIIs before the Appreciation of RMB and after it

Note: data comes from CREIIs.

From 2002 to 2004, foreign capital had taken up about 20% of the distribution in the Shanghai real estate market, with the price rising from 4010 yuan/m² to 6385 yuan/m² in this period. The acceleration of price has greatly transcended the one of governable income of citizens. As a matter of fact, in June 2005, the price of property was as 1.2 times as it was 5 years ago, while, the governable income had only went up about 60%. According to the discussion above, we can draw the conclusion that speculation is one of the factors leading to the rise of the property price.

Table 4 the Comparison between Citizen's Governable Income and Property Price Change in Shanghai

Year	2000	2001	2002	2003	2004	2005
Average governable income(yuan)	11718	12883	13250	14867	16683	18718
Increase speed (compared with the year before)	9.94%	2.85%	12.20%	12.21%	9.94%	12.20%
Increase speed (compared with the year 2000)	9.94%	13.07%	26.87%	42.37%	59.74%	9.94%

Month/Year	06/2000	06/2001	06/2002	06/2003	06/2004	06/2005
CREII	701	741	823	1102	1260	1517
Increase speed (compared with last June)		5.71%	11.07%	33.90%	14.34%	20.40%
Increase speed (compared with June,2000)		5.71%	17.40%	57.20%	79.74%	116.41%

Note: data comes from "Shanghai Statistical Yearbook 2005" and CREIIs.

However, Since June 2005, the real estate price in Shanghai has fallen, attributed to a series of macroeconomic regulations carried out by the government (Figure 5), and the foreign capital began to select other cities to make investment. In fact, the price in Beijing and Guangzhou went up more rapidly than it did in Shanghai. It was not a coincidence: the foreign capital flowing into an area within a short time will result in a swift increase of price there. To answer the question that whether there is a market bubble, it does need more examination.

3. CONCLUSION

As discussed above, the conclusion is that accompanied with the continuous expectation of appreciation of RMB, the massive flow of foreign capital into Chinese real estate market has caused a speculative fluctuation of the property price. In other words, the three factors, which are the expectation of RMB appreciation, the speculation activity and the flow of foreign capital in Chinese real estate market, are closely related with one and the other.

According to the current status of China ,the best strategy may be the one that operates a slow and trifle revaluation of RMB, not the one that makes up a one-off and mass appreciation. To make good use of foreign capital in the Chinese real estate market, especially to maintain a rational price fluctuation and to promote a healthily developing market, the government should establish more strict laws and regulations to control foreign capital and restrain the speculations by utilizing taxation and other market means.

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