



Analysis on China real estate industry

Under comparison of Japan's Bubble

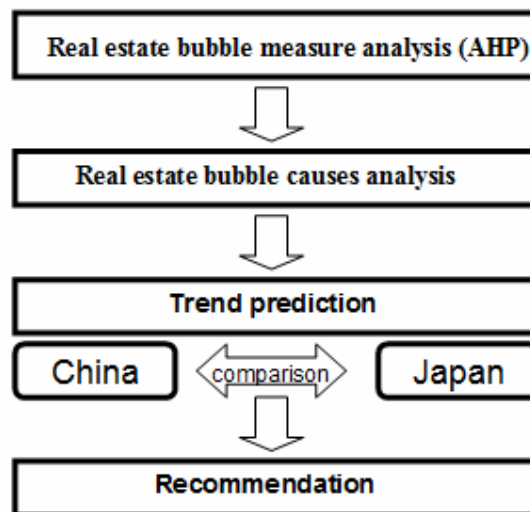
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Introduction

Nowadays, the topic about Chinese real estate market could be the hottest. We have done some research on the Chinese real estate market in this report, and we would like to focus on the Chinese real estate bubble analysis. Firstly, we built a real estate bubble measure model, we tended to find whether there existed bubble in Chinese market and its trend in quantitative view. Secondly, basing on what we did before, we would do the causes analysis and trend prediction focus on the Japan and Chinese market, and a recommendation would be given at last.



Executive summary

As the capital market developing fast, the real estate is playing a more and more important role in Chinese economy. Recent years, the price of houses in some area of China has raised a lot. The public including many researchers doubt that there exist real estate

bubble in Chinese market, and they worry that Chinese could step in the Japanese footsteps twenty years ago. Researchers have done a lot in anglicizing the real estate bubble in China. Qi Liexiu (2005) thinks that in current market situation, China do not exist obvious real estate bubble, after anglicizing the relationship between house demand and supply in China, only some investment demand is magnified that make some area seems abnormal, he considers more about the role of government, though there exist bubble risk, it could be controlled through appropriate currency policy and the government action.

Jia Zuguo (2008) indicates that China is in a process of urbanization, and this is different from Japan. In the urbanization process, the raise of house price is normal and necessary. In 1985, the urbanization rate of Japan is 85% while it is 45% in China nowadays. Peng jianlin (2009) has used econometrics method to evaluate the Chinese real estate bubble, he pointed out that in some part of China, especially in central north, their definitely exist a bit of bubble. Through He Weida's research (2010), he thinks the current Chinese real estate market do not emerge obvious bubble, but it faces much bubble risk, in China nowadays, there are only 10% people could payoff the cash, most buyers are still rely on the mortgage loan, by the way, the consensus towards the income and house price in the world is 1:6 while it is 1:20 in China.

Real estate bubble measure analysis

Firstly, we use AHP to analyze whether there's bubble in China real estate industry based on date from 2006 – 2009.

1) Model Building

To better evaluate the degree of bubble risk we facing, we have design a evaluate model base on some existed research. We hope that we could use the model to analysis the problem in quantitative view. We choose x_1 , x_2 , x_3 , x_4 , x_5 , x_6 , x_7 seven variables. After we analysis the former research and the data we gathered, We conclude these seven variables could better evaluate the degree of the real estate bubble we facing right now, and later we will use data we gathered to demonstrate it.

X1: Housing price growth rate/GDP growth rate

The housing price has a close relationship with the macroeconomic of a country. The variable we choose can reflect the deviation from the real estate to the economic conditions.

X2: Real estate loans growth rate

As we know, the more leverage we use in real estate market, the more bubble risk we face, this variable could let us know the degree of how much leverage we use.

X3: Real estate investment/ investment in fixed assets

Through this variable, we could find whether the investment in real estate is synchronized to the investment in fixed assets. If there are different changes, there will be the bubble risk.

X4: Housing sales price index/Rental price index

This variable is used to evaluate the investment demand for real estate. As we know the real estate bubble is affected by the investment demand to a certain extent.

X5: Housing price/ Average revenue

We could use this variable to evaluate whether the housing price fit for the affordability of the habitant. If the housing price could just be accepted by a few people, there exists bubble.

X6: Growth rate of real estate sales area

We could get to know the fundamental situation of the real estate market, but we couldn't make a decision only by this index.

X7: Bank long terms loans rate

The currency policy is playing a very important role in real estate market. There are a few people that could afford the price by themselves. Most people must get assist from financial organization. Besides, as we know, the reason that leads to the destructive shock in Japan 1990s is also the wrong currency policy.

$$\text{Bubble} = aX1 + bX2 + cX3 + dX4 + eX5 + fX6 + gX7$$

After integrate the seven factors, we could evaluate the real estate bubble we facing in quantity.

2) Fixing on the coefficient ----Base on AHP

In this part, we would like to use AHP (Analytic Hierarchy Process) to settle the coefficient of every variable. At first we will built the comparison matrix.

Base on the data we got, and use the Expert Analysis method, we've got the comparison matrix, it shows that the relative importance between two variables.

Comparison matrix:

	X1	X2	X3	X4	X5	X6	X7
X1	1	3	1/5	5	1/3	3	2
X2	1/3	1	1/5	2	1/5	2	1/2
X3	5	5	1	7	3	5	2
X4	1/5	1/2	1/7	1	1/3	1/2	1/2
X5	3	5	1/3	3	1	3	2
X6	1/3	1/2	1/5	2	1/3	1	2
X7	1/2	2	1/2	2	1/2	1/2	1
SUM	10.36	17	2.57	22	5.69	15	10

Table 1

Follow AHP, we build Standard judge matrix:

	X1	X2	X3	X4	X5	X6	X7
X1	0.10	0.18	0.08	0.23	0.06	0.20	0.2
X2	0.03	0.06	0.08	0.09	0.04	0.13	0.05

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X3	0.48	0.29	0.39	0.32	0.53	0.33	0.20
X4	0.02	0.03	0.05	0.05	0.06	0.03	0.05
X5	0.29	0.29	0.13	0.14	0.18	0.20	0.20
X6	0.03	0.03	0.08	0.09	0.06	0.07	0.20
X7	0.05	0.12	0.19	0.09	0.09	0.03	0.10
SUM	10.36	17	2.57	22	5.69	15	10

Table 2

Using the judge matrix, we got coefficients:

	Coefficient
X1	0.15
X2	0.07
X3	0.36
X4	0.04
X5	0.20
X6	0.08
X7	0.10

Table 3

After got the coefficients, follow AHP, we should check the consistency of the result we got:

Check:

$$K1=7.587$$

$$K2=7.450$$

$$K3=8.167$$

$$K4=7.785$$

$$K5=8.394$$

$$K6=7.281$$

$$K7=7.15$$

$$\text{Average } K=7.688$$

$$CI = (7.688-7)/6=0.115$$

To check the freedom index we could got RI

N	1	2	3	4	5	6	7	8	9
RI	0	0	0.58	0.96	1.12	1.24	1.32	1.42	1.45

Table 4

$$CR=CI/RI=0.087<0.1$$

Because of $CR<0.1$ we could say that the coefficients we got is believable.

After AHP analysis, we got the model:

$$\text{Bubble}=0.15X1+0.07X2+0.36X3+0.04X4+0.20X5+0.08X6+0.10X7$$

X1: Housing price growth rate/GDP growth rate

X2: Real estate loans growth rate

X3: Real estate investment/ investment in fixed assets

X4: Housing sales price index/Rental price index

X5: Housing price/revenue

X6: Growth rate of real estate sales area

X7: Bank long terms loans rate

3) Data analysis

We got the recent 4 years data of every quarter, to calculate the degree of real estate bubble as

below:

	X1	X2	X3	X4	X5	X6	X7
2006—1	0.347	0.485	0.201	1.040	8.717	0.829	0.063
2006—2	0.333	0.663	0.172	1.039	9.630	0.836	0.064
2006—3	0.343	0.355	0.176	1.044	9.729	-0.418	0.066
2006—4	0.300	0.106	0.171	1.040	7.400	0.176	0.068
2007—1	0.269	0.209	0.202	1.037	5.421	0.121	0.070
2007—2	0.284	0.316	0.173	1.037	6.944	0.280	0.072
2007—3	0.349	0.395	0.185	1.050	6.164	0.508	0.075
2007—4	0.420	0.388	0.185	1.069	6.810	0.165	0.078
2008—1	-0.024	0.338	0.215	1.009	8.687	-0.014	0.078
2008—2	0.435	0.005	0.183	1.068	6.055	-0.108	0.078
2008—3	0.273	-0.099	0.169	1.042	6.854	-0.259	0.078
2008—4	0.038	-0.078	0.166	1.005	7.263	-0.245	0.069
2009—1	-0.304	0.080	0.173	0.994	9.483	0.082	0.059
2009—2	-0.119	0.374	0.152	1.009	10.971	0.476	0.059
2009—3	0.287	0.665	0.165	1.024	12.219	0.682	0.059

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2009—4	0.524	1.305	0.160	1.058	14.473	0.624	0.059
Allocation	0.150	0.070	0.360	0.040	0.200	0.080	0.100

Table 5

(Source: National Bureau of Statistics)

We put the data into our bubble evaluation model, and we got the result as below:

Year & Quarter	Bubble Evaluation
2006--1	2.015851445
2006--2	2.199186079
2006--3	2.100527435
2006--4	1.656348149
2007--1	1.270163435
2007--2	1.586929102
2007--3	1.46966897
2007--4	1.582628885
2008--1	1.881782123
2008--2	1.384223297
2008--3	1.494284375
2008--4	1.540166152
2009--1	1.971276336
2009--2	2.341687327
2009--3	2.694461904

2009--4

3.220456018

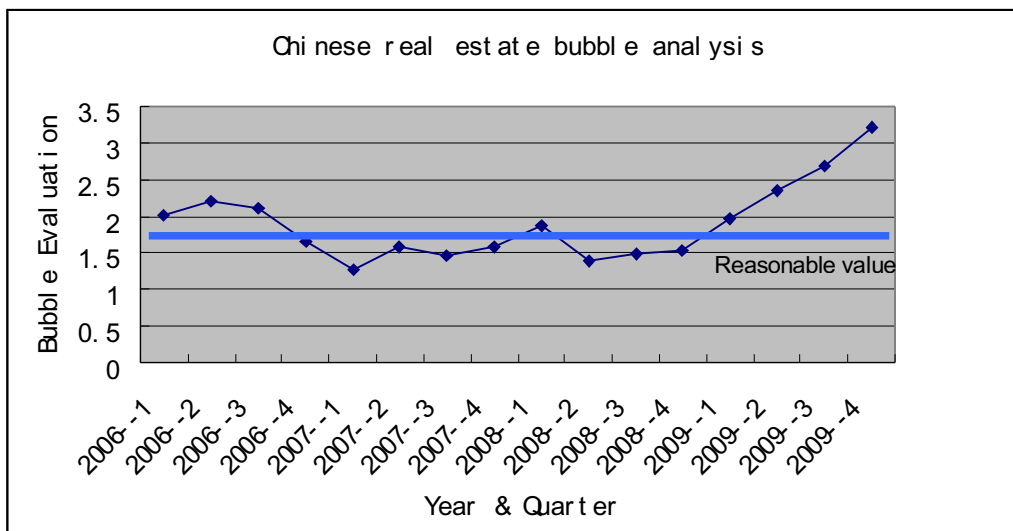


Figure 1

Reasonable value evaluation

According to the previous research and some consensus in the world, we choose a rational value for each variable, and we got a reasonable value for the bubble evaluation through the model we design:

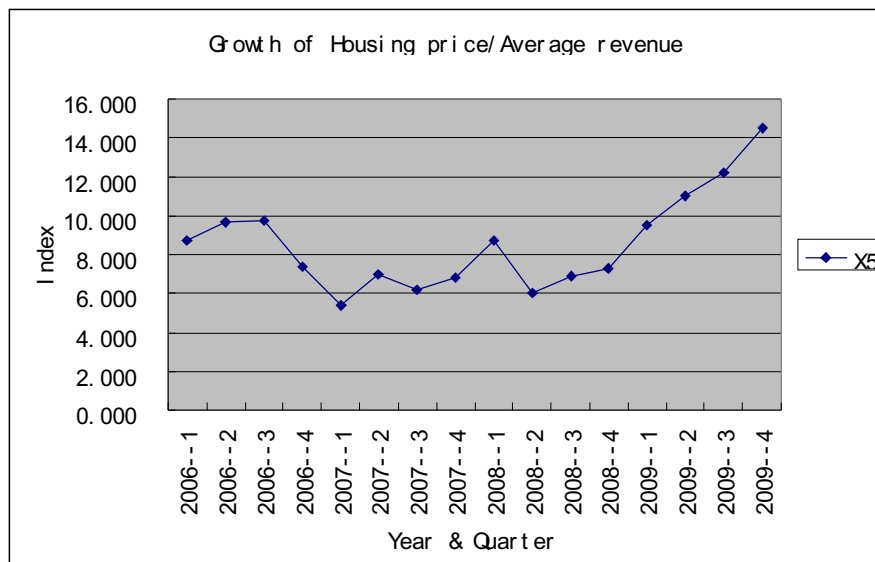
	X1	X2	X3	X4	X5	X6	X7
Rational value	1.5	0.3	0.3	1.5	6	0.5	0.07
Allocation	0.150	0.070	0.360	0.040	0.200	0.080	0.100
Reasonable value	1.661						

Table 6

Through the graph we got, it obviously indicates that before 2009, the Chinese real

estate market turn out to be smooth in general. Except for a fluctuation during 2006-2007, we think it is related to the change in capital market. But after we get in 2009, the bubble evaluation index keeps a high growth rate. In general, the bubble index is higher than the normal value. We think that the bubble emerged.

As Figure 2 below we could concluded that variable X1 (the Housing price growth rate/GDP growth rate) and X5(Housing price/revenue) keeps grow, it indicates that the high housing price or the high growth rate is not droved by the economic growth, under the higher and higher price, there are not indeed demand support, it is just the magnified investment demand make the real estate inflate.



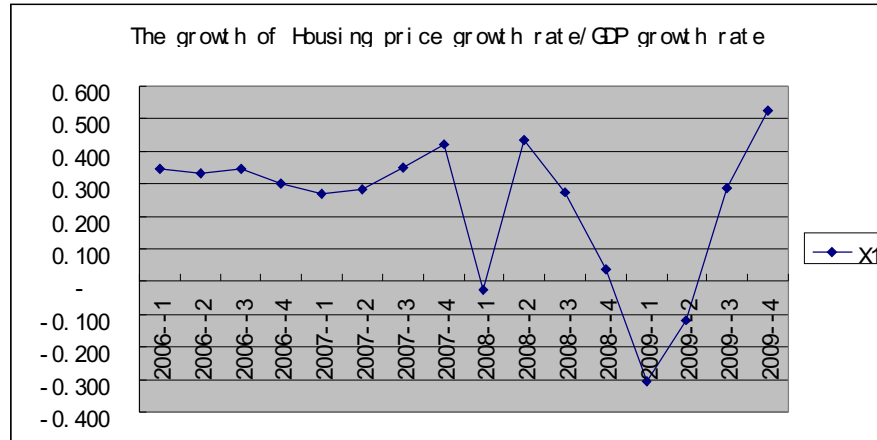


Figure 2

4) Conclusion:

From the fourth quarter 2008, there begin to emerge real estate bubble, in 2009, the bubble keeps growth, we should take some measures to deal with the problem.

Causes of Bubble Analysis

Based on the above analysis, we're going to discuss the causes of bubble in 4 aspects compared with Japan's bubble.

1) Characteristics of land resources

Land is a non-renewable resources, combined with the trend of urbanization in China in recent years, land became extremely scarce resource. Its scarcity shows as follows: the population shows greater demand of owner-occupied housing, while the short term, land supply's elasticity is small, which means a small change in the demand will affect the housing

price largely. The gap between the two causes the optimism expectations of price in the future, resulting in increased demand for housing speculation, so that the total demand for housing to rise further. If the cycle continues, the characteristics of the land as a scarce resource will show more clearly.

2) Characteristics of the real estate market

Industry Characteristics:

Real estate industry is a industry with high-risk, long construction period, and it is constrained by land supply. It is a capital-intensive industry. As the entire industry requires significant capital investment, financial institutions are involved and earn high profits.

Seller:

Currently, China's real estate market is a seller's market. It is common in real estate industry that developers hold a few sites, but slowed down the process of opening in order to increase profits. In addition, the "housing pre-sale system" exists in the market is one of the reasons causing price rise. Housing pre-sale is an agreement made between the real estate development companies and buyers. The buyers deliver the deposit or advance payment, and then own existing homes on a certain date in the future. This is in fact a sale of purchase rights. Through exploit of housing pre-sale system, people sell and buy the housing for several times to meet the needs of their speculation, that is, they generally will not allow housing stay in hands for too long time. And at the same time, because of

the need for rapid exchange, speculators increase costs of inputs in the ads publicity, resulting in high housing price. And also, pre-sale housing advances consumers purchase time, making the already short supply of real estate market tenser.

Buyers:

As the real estate has the characteristics of easy to go up but difficult to fall down, besides the consumer demand, it also arouses the public's speculative demand. High housing demand and limited land resources lead to rising house prices. The current investors' optimistic expectations increase speculative demand.

According to **expectation return model**, people's optimistic expectation on investment return will cause the further rise of housing. The model is based on expected revenue

$$E(R) = \sum F(P_i) V(L_i) (i = 1 \dots N).$$

From the model, we can know that when investors has an optimistic expectation on real estate, that is, the probability P_i increasing, and investment income L_i increasing.

Integrating these factors, expected return on investment becomes higher. People expect real estate prices to rise, and in order to get the capital gains, large amount of capital flows into real estate. Therefore, a good expectation of real estate accelerates the rise in real estate prices.

In addition, combined with central bank lending rates continue to drop, in "herding" effect, people get more money to buy home. The above factors interact and ultimately lead to more severe market conditions in short supply. Finally, the expectations of price rising ultimately become a reality.

Structural contradictions existing in China:

People's needs in low-cost, small and medium size apartment are in serious shortage of supply, while the luxurious and large size apartment (90 square meters) of high-end housing supply is above normal. Currently the ratio between the two is about 3:7, while the ratio of residents in low-income persons with high income is about 8:2. Structure of housing and income structure is on the contrary, and even serious dislocation. This not only resulted in shortage of effective supply, but also promotes the rapid rise in house prices.

3) Factors of Financial Institutions

Financial institutions play an important role in the real estate market.

First, in the process of socio-economic development, financial institutions themselves are also facing rapid development time. They need to continuously expand their business, and the market demand for its own expansion has brought about a series of changes.

In addition, the bank creates a very favorable loan terms to land developers, up 70% premium to the equivalent of a loan can be offered by government. Investors who obtain loans can purchase land for further development. At the same time, we note that recent two years, the state enterprises which are been titled as "land lord" frequently appear. It is mainly because the government relaxes the conditions of bank credit and the most beneficiaries are those large state enterprises. Loans from banks flow into those enterprises, making the central

enterprises have money to buy, forming one after another "land lord". Land bubble planted a hidden danger for the real estate bubble.

Third, financial institutions' strong support of the real estate development create very favorable conditions for speculators, resulting in sufficient funds for housing exchange, led to further real estate bubble.

Fourth, bank lending gives people good expectation for real estate. Besides speculative demand, it also stimulates people's consumption demand. People have access to get loans, and participating in purchasing house. Rising demand finally leads to price increasing.

(In external business, irrational people need a large number of capital. Financial institutions tend to offer lower interest rates for housing credit using houses as mortgage, considering the prospect of real estate. So, large amount of capital flows into the real estate market. This approach has provided funds for the protection of speculators, and artificially increased the demand for real estate.)

On the other hand, considering the bank's own interests, when the bank holds a large number of real estate, its assets would be overvalued, thus enlarge the bank's capital base and its asset quality and profitability. Under these conditions, the bank will further expand housing credit, which further promoted the rise in house prices.

4) Government Factors

Defects in land transfer system:

In China, the ownership of land belongs to country. While, defects in China's current land transfer system also boost the high prices. When the real estate business needs to purchase land, you need to pay land transfer fees to the government. Of these, 70% of the transfer fee to the local government. As a result, driven by political achievements and rise of GDP, local governments sell lands at high prices through bidding, auction and licensed. This directly results rising house prices based on expensive land. In addition, the land transfer system provides a space for the rent-seeking. Rent-seeking costs also contribute to existing price.

Related to economic policy:

In the year of 2006, the exchange rate of RMB against the dollar increase continuously. So far, the RMB exchange rate has been increased from 1:8 to 1:6.81. Under the pressure of currency appreciation, Chinese export, which contributes to over 1/3 of GDP and takes advantage of low price, experienced damage. Thus, in the next few years, the central bank lowers interest rates five times in succession. As other economic crisis around the world, the policy of lowering interest rates caused by currency appreciation has not guided capital flows into real economy. Instead, capital quickly enters the real estate industry, which has led to today's high demand for housing and high housing prices.

Trends Analysis

After discussion the causes, we will predict the trends by comparing the difference between China and Japan under researches and data analysis.

1) Chinese Government's Control on Financial Systems.

The efficiency of banking regulation is inferior to Chinese ones, and the enterprises in Japan are more independent than Chinese ones. Before the bubble, the Japan government fails to exert effective regulation and guidance for the commercial banks, while the financial institution are the biggest supporters for the real estate bubble, fueling the bubble for almost 10 years.

On the contrary, Chinese government possesses strong power to keep the banks and enterprises in regulation, by guiding the direction of the money, containing the speculation capital at the very beginning, implement policies at proper time, and hurdling the property bubble.

Bank of China, the country's third-largest listed lender by assets, announced this week that profits rose 26 per cent last year to Rmb81bn but, as with ICBC, the growth came on the back of a big expansion in credit and at the cost of falling margins. Both banks said they intended to cut back on lending this year in line with strict government quotas imposed at the start of the year because of worries that rampant credit growth has created asset bubbles, particularly in property.

Although the Chinese government started to encourage the mortgage from 2009, to stimulate the real estate investment behavior, especially encourage the construction of affordable housing to ease the difficulty in house buying, the government is persistently strict with supervision of bank business in mortgage. The supervision process is complex and requires assessment in the loan applicant's business activities, repayment ability, and study the

profitability of investment projects. And at the same time, the mortgage real estate ensures the credit of lenders. All these actions prevent banks from uncontrolled, low-security lending behavior and also inhibit the real estate market speculation to some extent.

In addition, due to the level of Chinese economic development have not reached the level of Japan in late 80s 20th century, and the constraints in financial system, Chinese government is relatively strict with the supervision of financial sector, especially with the object of financing, such as prohibition of loans entering into the stock market. These actions reduce the credit risk of financial institutions and prevent sowing the seeds for the huge amount of irrecoverable debts.

China		Japan	
Year	Increase Rate of Capital in Real Estate Investment from Debts	Year	Increase Rate of Capital in Real Estate Investment from Debts
2002	31.2%	1985	22.1%
2003	41.3%	1986	31.6%
2004	0.6%	1987	17.6%
2005	24.1%	1988	12.8%
2006	36.7%	1989	14.1%
2007	31.0%	1990	3.4%
2008	8.4%	1991	4.4%
2009	48.5%	1992	4.8%

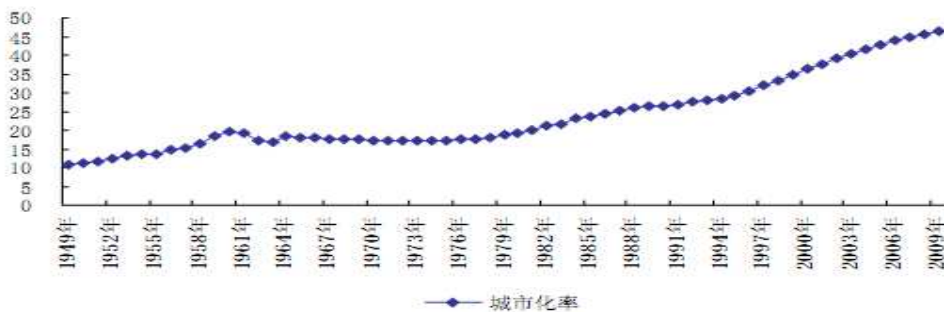
Table 7

However, we must have a clear conscious that, from the second half of 2009, to encourage real estate investment, the Chinese government relaxes the policy requirements for lending, resulting in a substantial growth of domestic lending part of investment and development funding.

2) The Difference of Urbanization

The urbanization rate of Japan scaled the height of 76.7% in 1985, indicating the end of urbanization process; yet China is still accelerating in the progress of urbanization, reaching only 45.68% in 2008. In comparison with the developed countries with the urbanization rate of 90%, more and more population will be shifted from rural areas to cities. The population of rural areas was only 34% of the total population when the Lewis turning point appeared in Japan in 1960s; and the percentage of rural population is 34% for North Korea when the Lewis turning point appeared in 1980s. China has a long way to go. What's more, there is a much more vast area of the real estate market in China than Japan, when the risk accumulated quickly in one specific area, the capital will shift to other cities. The development of transportation enhances the shift from first-line cities to second-line cities. Therefore, the breadth and depth of the Chinese real estate market is unmatched by Japan, with the immense volume of accommodating risk.

图 4：城市化率稳步提高，但城市化水平仍低



资料来源：CEIC, 申万研究

Figure 3

3) The Difference of Demographic Structure

The total population of Japan reaches its pinnacle in 1990, while the total population of China won't reach its peak until 2030. Lewis turning point, the indication of the transform from the rural labor to urban labor, appeared in Japan at the end of 1960s. However, China saw the Lewis turning point around 2007. The demographic dividend (the large portion of potential efficient labor) of China will persist to around 2015 in comparison to Japan, where the demographic disappeared in 1980s. Furthermore, China could achieve a second round demographic dividend through establishing creative systems, social security system, improving the labor market, enhancing the education level and job training, abolishing the household registration system.

图 1：我国的人口红利和人口负债



Figure 4

Economic indicators before and after the Lewis turning point

	Japan Year1960~1972	North Korea Year1982~1996	China Year1997~2009
Average GDP(%)	8.9	8.5	9.6
Average CPI(%)	5.6	5.2	1.3
Max CPI(%)	13.1	11.1	4.8
Min CPI(%)	3.6	2.3	-1.5

Table 8

(Source: Arthur Kroeber(2010))

4) Monetary and Exchange Rate Policy

The origin of Japan's stagnation for the 20 years after its housing bubble burst lies in its failure to stand up to US pressure for the yen to appreciate. Indeed, the yen rose from a low of Y260/\$ in February 1985 to Y200/\$ 10 months later and on to the high of Y80/\$ in May 1995. Japan's economic performance in the past 20 years has lagged its potential. In fact, policy counter-measures – monetary easing and fiscal stimulus against too-rapid yen appreciation – grew stronger in 1986. Monetary easing continued until 1989. Considering what was going on in the property market, this monetary tightening and strong regulatory measures, such as restrictions on loan-to-value ratios, should have been applied much earlier, in 1987 or 1988. The bubble may not be completely avoided purely by monetary tightening, but the damage may be reduced by early tightening and prudential regulations.

The Chinese authorities are doing better than their Japanese counterparts in the 1980s. The central bank is tightening regulation of loan-to-value ratios and trying to end easy credit. But they are hesitating to take up the best policy – interest rate hikes and appreciation of the Chinese Renminbi. The property bubble is a clear sign of overheating. China's reported inflation rate does not show rampant inflation, but that was also the case in Japan in the 1980s.

5) Investment Demand in China

The need of investment in property market is huge in China, which should be satisfied. To some extent, the investment need is rigid demand, while the dwelling need is merely soft demand. The unusual prosperity in Chinese real estate market is highly related to the limited channel to invest in China, where the lower tax of household transaction and the demographic structure each play a role. An important reason for the real estate bubble in Japan was due to the aging of the population, when the passion for investment faded. However, the average age of Chinese people is around 32, which is the peak period of investment with overwhelm passion. Therefore, even though the adjustment is made upon the property market, the investors will not be too pessimistic to lead to the irrational plummet of the real estate market. What's more, the real estate market in China is contained by the monopoly by the government and the storing of real estate companies, while the demand is promoted by the process of urbanization, resulting in the demand over supply. It is quite different from Japan, since the prosperity is backed up by real demand of investors and consumers.

Conclusion:

As mentioned before, based on our research, comparison and analysis, our point of view is that there is slight bubble in China property industry, which is different from the one happened in Japan and was less severe. Thus, if China government can take immediate and effective action to deflate the bubble, China property industry can still lead a healthy and

promising future.

Recommendations to Deflate Bubble:

Finally, we come up with some recommendations to deflate the bubble.

1) Reinforce the supervision and control of real estate market

On one hand, China's transaction system of land and the industry supervision system is still developing, which accelerates the speculation and results in slight bubble. On the other hand, over-investment on property make the overall growth of property industry surpasses the growth of urbanization significantly and results in the imbalance between supply and demand and the increase of housing vacancy rate.

Thus, first about how to prevent over-speculation, it's essential for the China government to make out specific policies for all-round supervision of the real estate market. No only national policies , but also policies based on different situation of local places, especially those developed cities. Even though speculation on property in China is not as heat as the one in Japan, the first step to deflate bubble is to establish the basis for supervision and control by setting specific and reasonable policies.

As for cool down the over-investment on property, the government should keep controlling the scale of property development at a stable speed. That is, first to invest based on local places income level and reduce overstock. Second, to reinforce the supervision on second market and prevent over-speculation. Last is to further develop housing based on real

demand, sector with deep insight of property market and make Property the leading industry in China without bubble.

2) Strengthen land resources management

Government can keep a good control on housing price through the supply of land resources. The supply of land resources should be based on local market demand and public bids system should be used under supervision. The usage of land resources should also keep a balance between housing and business use. Furthermore, to punish irregular investment and development, keep a close supervision on the developers, and make necessary amendments to the rules and regulations are important. Besides, it's necessary to prevent corruption among the government and developers in China as to strengthen land resources management.

3) Build up a sound forecast system for healthy development of property industry

As important as supervision and control, building up a sound forecast system is crucial for risk management ,come up with timely reaction and deflate bubble. By collecting & analyzing information on property market, predicting and evaluating properly on the market based on analysis and publishing research report by period, the government can make out proper policies and better supervise property market. Also, the investors and developers can have a better and clearer evaluation on the whole property market, which may benefit reasonable investment.

4) Strengthen supervision on finance sector and prevent loan risks

There is a strong combination between property sector and finance sector, no matter in Japan or China. To deflate the bubble, it definitely should strengthen supervision on finance sector and take financial strategy to deflate the bubble.

For example, China had made several moves in the last month to do just this, including reimposing a sales tax on homes sold within five years of their purchase from this year and increasing the down payment requirement for property purchases to at least 50 percent of the total price. In another move to cool the property market, the People's Bank of China, the central bank, announced on Tuesday to raise the deposit reserve requirement ratio by 0.5 percentage points from Jan.18 this year. The government also renewed its pledge on Wednesday to stabilize home prices by providing more affordable housing and cracking down on speculation.

5) Keep the RMB exchange rate's long-term stability

In 1985, Japanese yen's appreciation was forced under the great pressure put by America. Then to alleviate depression caused by decreasing exports, Japan's government substantially reduced the interest rate to stimulate domestic demand, which led to the expansion of real estate financing and became the driving force for real estate bubble. Learning from this, China should keep the RMB exchange rate's long-term stability.

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Appendix:

房价销售增长率/ GDP增长率

年份	季度	房屋销售价格指数	同比增长率	本季GDP (亿元)	同比增长率	X1
2005	1			39,117.40		
	2			42,795.20		
	3			44,744.40		
	4			58,280.40		
2006	1	105.5	5.50%	45,315.80	15.85%	0.347
	2	105.7	5.70%	50,112.70	17.10%	0.333
	3	105.5	5.50%	51,912.80	16.02%	0.343
	4	105.5	5.50%	68,973.10	18.35%	0.300
2007	1	105.6	5.60%	54,755.90	20.83%	0.269
	2	106.3	6.30%	61,243.00	22.21%	0.284
	3	108.2	8.20%	64,102.20	23.48%	0.349
	4	110.2	10.20%	85,709.20	24.26%	0.420
2008	1	99.5	-0.50%	66,283.80	21.05%	-0.024
	2	109.2	9.20%	74,194.00	21.15%	0.435
	3	105.3	5.30%	76,548.30	19.42%	0.273
	4	100.5	0.50%	97,019.30	13.20%	0.038
2009	1	98.9	-1.10%	68,682.00	3.62%	-0.304
	2	99.5	-0.50%	77,303.00	4.19%	-0.119
	3	101.9	1.90%	81,612.00	6.62%	0.287
	4	105.8	5.80%	107,756.00	11.07%	0.524

房地产开发投资资金来源贷款增长率

年份	季度	房地产开发投资 资金中来源贷款 (亿元)	同比增长率	X2
2005	1	980.66		
	2	773.85		
	3	882.71		
	4	1,197.45		
2006	1	1,456.11	48.48%	0.485
	2	1,287.22	66.34%	0.663
	3	1,196.25	35.52%	0.355
	4	1,323.83	10.55%	0.106
2007	1	1,760.60	20.91%	0.209
	2	1,694.19	31.62%	0.316
	3	1,668.88	39.51%	0.395
	4	1,837.31	38.79%	0.388
2008	1	2,356.33	33.84%	0.338
	2	1,702.47	0.49%	0.005
	3	1,503.70	-9.90%	-0.099
	4	1,694.05	-7.80%	-0.078
2009	1	2,545.46	8.03%	0.080
	2	2,339.87	37.44%	0.374
	3	2,503.02	66.46%	0.665
	4	3,904.34	130.47%	1.305

房地产投资完成额/固定资产投资完成额

年份	季度	房地产投资 完成额 (亿元)	固定资产投资 完成额 (亿元)	X3
2005	1			
	2			
	3			
	4			
2006	1	2,792.70	13,908.00	0.201
	2	4,901.90	28,463.50	0.172
	3	5,207.80	29,570.50	0.176
	4	6,480.10	37,927.80	0.171
2007	1	3,543.80	17,525.70	0.202
	2	6,343.40	36,642.20	0.173
	3	6,926.90	37,361.30	0.185
	4	8,465.60	45,709.80	0.185
2008	1	4,687.80	21,845.46	0.215
	2	8,507.90	46,556.16	0.183
	3	8,082.00	47,843.88	0.169
	4	9,302.10	56,045.60	0.166
2009	1	4,880.30	28,129.10	0.173
	2	9,625.00	63,192.10	0.152
	3	10,545.10	63,735.90	0.165
	4	11,181.30	69,788.50	0.160

房屋销售价格指数/ 房屋租赁价格指数

年份	季度	房屋销售价格指数	房屋租赁价格指数	X4
2005	1			
	2			
	3			
	4			
2006	1	105.5	101.4	1.040
	2	105.7	101.7	1.039
	3	105.5	101.1	1.044
	4	105.5	101.4	1.040
2007	1	105.6	101.8	1.037
	2	106.3	102.5	1.037
	3	108.2	103	1.050
	4	110.2	103.1	1.069
2008	1	99.5	98.6	1.009
	2	109.2	102.2	1.068
	3	105.3	101.1	1.042
	4	100.5	100	1.005
2009	1	98.9	99.5	0.994
	2	99.5	98.6	1.009
	3	101.9	99.5	1.024
	4	105.8	100	1.058

房屋销售价格指数/ 人均可支配收入增长率÷ 100

年份	季度	房屋销售价格指数	城镇人均可支配收入 (元)	城镇人均季度可支配收入增长率 (元)	X5
2005	1				
	2				
	3				
	4				
2006	1	105.5	3,293.40	12.10%	8.717
	2	105.7	2,703.30	10.98%	9.630
	3	105.5	2,802.10	10.84%	9.729
	4	105.5	2,960.70	14.26%	7.400
2007	1	105.6	3,934.90	19.48%	5.421
	2	106.3	3,117.10	15.31%	6.944
	3	108.2	3,294.00	17.55%	6.164
	4	110.2	3,439.81	16.18%	6.810
2008	1	99.5	4,385.60	11.45%	8.687
	2	109.2	3,679.30	18.04%	6.055
	3	105.3	3,800.10	15.36%	6.854
	4	100.5	3,915.76	13.84%	7.263
2009	1	98.9	4,843.00	10.43%	9.483
	2	99.5	4,013.00	9.07%	10.971
	3	101.9	4,117.00	8.34%	12.219
	4	105.8	4,202.00	7.31%	14.473

房地产销售面积增长率

年份	季度	季度商品房 销售面积 (亿元)	同比增长率	X6
2005	1	5,172.70		
	2	-5,172.70		
	3	-		
	4	-		
2006	1	9,458.70	82.86%	0.829
	2	13,517.90	83.57%	0.836
	3	12,906.80	-41.83%	-0.418
	4	24,744.70	17.59%	0.176
2007	1	10,600.80	12.07%	0.121
	2	17,303.40	28.00%	0.280
	3	19,465.50	50.82%	0.508
	4	28,823.00	16.48%	0.165
2008	1	10,449.60	-1.43%	-0.014
	2	15,443.00	-10.75%	-0.108
	3	14,428.20	-25.88%	-0.259
	4	21,768.10	-24.48%	-0.245
2009	1	11,308.70	8.22%	0.082
	2	22,799.90	47.64%	0.476
	3	24,262.40	68.16%	0.682
	4	35,342.00	62.36%	0.624

工行购房贷款利率(5年以上)

年份	季度	工行购房贷款利率 (5年以上)	X7
2005	1		
	2		
	3		
	4		
2006	1	6.26%	0.063
	2	6.39%	0.064
	3	6.62%	0.066
	4	6.84%	0.068
2007	1	6.98%	0.070
	2	7.16%	0.072
	3	7.49%	0.075
	4	7.83%	0.078
2008	1	7.79%	0.078
	2	7.79%	0.078
	3	7.79%	0.078
	4	6.89%	0.069
2009	1	5.94%	0.059
	2	5.94%	0.059
	3	5.94%	0.059
	4	5.94%	0.059