



**KTH Architecture and  
the Built Environment**

**Dept of Real Estate and Construction Management**

**Div of Building and Real Estate Economics**

**Master of Science Thesis**

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# **IS THERE A BUBBLE IN CHINA'S HOUSING MARKET?**

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## Master of Science Thesis

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### **ABSTRACT**

China is a huge dragon with a fast developing speed since the reform and opening policy carried out in 1978. Chinese economy has experienced a dramatical increase especially china's housing market. Nowadays, China's housing prices have surprised not only Chinese people but also the whole world. Whether housing bubble exists in China has become a heated debate in the world for several years.

The purpose of this thesis work is trying to analyze whether housing bubble has already existed in China by applying fundamental factors, recognized indicators and the debate in the world. After deep analysis, the result shows that housing bubble has not formed in the whole China, but it has already had in first-tier and second-tier cities. Now Chinese government has paid great attention to it and has taken effective measures one after another to control housing prices, so as to prevent bubble from getting bigger and avoid the disaster when bubble bursts. At the end of the thesis, I have given some personal recommendations to the current housing market in China.

I believe that under the lead of Chinese government, with powerful persistence and determination, it will be possible for the young real estate industry to develop in a healthy and stable way in the near future.

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# **1. INTRODUCTION**

## **1.1. Background**

China's economy has been developing at a dramatically fast speed, since the reform and opening policy was carried out in 1978. Especially when the welfare housing distribution system<sup>1</sup> which has lasted for more than 50 years in China has finally been abolished as well as the housing reform was carried out in 1998, China's real estate market began to form and real estate industry started to be treated as one of the pillar industries in China's national economy.

In recent years, China's housing price has increased very fast in national scale. What causes such a result? The reasons are a lot, i.e. the development of China's GDP and economy, the speedy urbanization process, government's stimulative policy, large domestic demand and real estate speculation etc. However, it is not difficult to find that some problems have already appeared in China's housing market today. The increase speed of China's housing price exceeds the increase speed of China's economy and households' income currently.

Housing prices are roaring, especially in some big cities, such as Shanghai, Beijing, Hangzhou and Shenzhen, the higher and higher housing price makes ordinary households be not able to burden it. Hence, the possibility of a "bubble" may exists in housing market, what is more, the possible damage if bubble bursts and housing price collapses may bring about to Chinese economy have aroused widespread concern and become a very hot topic in the world. China's housing market has been influenced, the housing price has

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<sup>1</sup> More detailed explanation for welfare housing distribution system can be found in Appendix.

fallen to a certain extent in 2008 because of Global Financial Crisis, and however it continues to go up again sharply from the beginning of 2009. So whether there is a bubble in China's housing market is a very important and worthy of concern issue.

## **1.2. Purpose**

Whether there is a bubble in China's housing market is the main research topic of this thesis. Through this thesis I hope that people could know more about the current situation of China's housing market, and get a clearer idea of why currently housing price in China is so high. At the end of this thesis, I will try to give some personal recommendations for China's housing market based on current situation.

## **1.3. Methodology**

Methods or techniques are used to collect and analyze data. A methodology is a recommended set of methods for collecting and analyzing data (Johansson, 2004). In my opinion, the research methodology is the way we collect and analyze the data of the project that we research. The methods of which will be used in this thesis are presented below.

### ***1.3.1. Method to collect information and data***

The main methods of this thesis are to collect data and information by reading books and using the internet. As using the internet, for this thesis I have searched lots of websites for E-journals, articles, E-newspapers, and refer a lot of previous studies, research articles and related books. Statistical data and figures in this thesis are collected from the both China National Statistic

Bureau and local government's homepage.

### **1.3.2. *Method to analyze problems***

Both qualitative and quantitative methods will be used in this thesis to analyze problems. Most of the results of this paper have reached by analyzing the current housing market and applying indicators of real estate bubble. In addition, empirical analyses of the three biggest housing bubbles in the world have also been compared.

### **1.3.3. *Disposition***

Section 1: The introduction part, which includes background, purpose, disposition and methodology.

Section 2: An overview of China's housing market which includes the history of China's housing reform and current situation, in order to make people know clearly about China's housing market, and also pave the way for the following parts.

Section 3: Introducing some relevant theory in this part, such as the definition of a housing bubble, the indicators of a real estate bubble and so on. I expect that it has the function of making people feel easier to follow and understand this thesis.

Section 4: Discussing whether bubble exists in China's housing market from several aspects, such as rational factors, debate of bubble among people and possible indicators with detailed data.

Section 5: Analyzing and comparing the three biggest real estate bubbles in



the world, i.e. American housing bubble, Japanese housing bubble and Southeast Asia and Hong Kong housing bubble. What caused these bubbles? What led to bubbles collapse? Finally, comparing them with current China's housing market. What can we learn from this empirical analysis?

Section 6: Trying to give some personal recommendations for China's housing market.

Section 7: Final conclusion of this thesis.

## **2. AN OVERVIEW OF CHINA'S HOUSING MARKET**

### **2.1. The History of China's Housing Reform**

The welfare housing distribution system, operated since the foundation of the People's Republic of China in 1949, was designed to provide urban dwellers with decent and low-cost accommodations. The government owned most urban land and monopolized land transactions since 1949. The state directly controlled the production, allocation, operation, and pricing of urban housing, playing a dual role as both investor and developer. Since housing was the biggest chunk of lifetime welfare payment for most urban residents, the allocation was always very contentious. Further, urban residents had little choice regarding residential locations and housing size. This situation had lasted for many years which resulted in the defect of China's housing system became more and more serious year by year, therefore, the reform of China's housing system was urgently.

1978 was a big year. Deng Xiaoping called for reforms in the housing sector as soon as possible, so that China began to explore the reform of housing system. Deng Xiaoping's statement symbolized a major shift of the long-standing policy toward the public housing system and it paved the way for subsequent new policies and experiments. Following this guideline, experiments have been carried out in different cities with a focus on reorganizing housing production and promoting sales of public-sector housing to ensure a sufficient return from housing investments. The experiments were the major activities in housing reform between 1980 and 1988. Nevertheless, few policies provided incentive for private or other forms of housing investment. The public sector has kept a leading role in housing construction (Liu, 1991).

During that period, the central government was reluctant to adopt fundamental structural reform in regard to property rights. The top officials believed that the socialist regime was superior in terms of providing social equity to their people. Therefore, reform was focused on increasing efficiency of the public sector by leasing out use rights of public property. In other words, the central government was in favor of marketization rather than privatization as the focus of economic reform. They were trying to introduce competitors into the economy without the privatization of public property. To increase the efficiency of the economy, the central government pushed different state and local owned enterprises to compete with each other in the market. But the ownership of these enterprises was still held by the central or local government. (Yu, 1999)

Major housing policies adopted in that period of time included encouraging new housing sales for just building costs alone, subsidizing public housing sales, and increasing public housing rents steadily each year to promote sales (Wang and Murie, 1996). Although the leaders have addressed the urban housing problem with a complex series of reforms, numerous difficulties have emerged in creating housing markets within a centralized political and economic system.

## **2.2. Current Situation in China's Housing Market**

The sharp raise of housing price started from 1998 when State Council announced to abolish the welfare housing distribution system. Especially since 2003, China's real estate market began to overheat in some regions, so that Chinese government began to conduct a comprehensive macro-control in order to stabilize the market development. But from 2006 to 2007, under the influence of hot money<sup>2</sup>, speculation, appreciation of RMB and other factors,

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<sup>2</sup> More detailed explanation for hot money can be found in Appendix.

the housing price appeared an explosive growth, for that reason the government began to tighten up credit for the purpose of cooling down the “High Fever” real estate market. In 2008, the international economic environment became to decline because of Global Economic Crisis, beyond doubt, China’s economy also experienced a great influence. Under the continuing tightening of credit policy, China’s real estate industry slowed down obviously. Housing turnover decreased over 20% in 2008, however, benefited from stimulus of the government's macroeconomic bailout measure and lower interest rates, the sales status presented a restored momentum month by month from the beginning 2009. Although the economy has almost recovered, real estate is overheated in China now. Under this situation, housing price increases a lot, the price is too high to ordinary households to stand in some places.

### **3. BUBBLE THEORIES**

#### **3.1. Definition of Bubble**

Before discussing whether there is a bubble in China's housing market, we need to define what bubble is firstly. The term "bubble" is widely used but rarely clearly defined. This widespread used term refers to a situation in which excessive public expectations of future price increases which causes prices to be temporarily elevated.

An often quoted definition is presented by Joseph E. Stiglitz in 1990: "If the reason the price is high today is only because investors believe that the selling price will be higher tomorrow---when 'fundamental' factors do not seem to justify such a price----then a bubble exists. "According to the definition from Contemporary Economy, the bubble can also be simply defined as market price of the asset deviated significantly from its fundamental value. However, identifying a bubble as it is developing will not be easy, since the fundamental value of the asset is generally unobservable.

During a housing price bubble, homebuyers think that a house that they would normally consider too expensive for them is now an acceptable purchase, because they believe that it will be compensated by significant price increases in the near future. Homebuyers may also worry during a housing bubble that if they do not buy a house now, they will not be able to afford a home later.

The key features of a bubble are that the level of prices has been bid up beyond what is consistent with underlying fundamentals. But at the same time, people rush to buy houses with the expectation of future price continues increasing. The increasing price causes irrational expectation of buyers who think they can not afford a house in the near future if they don not purchase it

while they can now, so that the demand for houses will consequently increase. Moreover, the soaring demand leads to roaring price further, which makes buyers more positive on the thinking that the price will keep going up.

Housing prices are certainly unstable, if the expectation of rapid future price increase is the important motivation factors for homebuyers. Without doubt, housing prices can not go up forever under this situation. When people perceive that prices have stopped going up, previous support for their acceptance of high housing prices will break down and housing prices will then fall due to the diminished demand.

### **3.2. Causes of Real Estate Bubble**

Form the economical perspective, a bubble is a phenomenon that occurs while the economy is in an unbalanced condition. The causes of unbalanced economy could be various.

#### ***3.2.1. The Macroeconomic Situation and Policies***

Bubbles typically start in a rather extreme boom period that has lasted for a comparative long period. It can also be hypothesized that it is a period where the macroeconomic policies have been rather lax. Real estate industry develops while policies don't follow the pace. The problem lies with the government basically.

#### ***3.2.2. The Capital and Credit Market***

Real estate industry has highly related with the banking industry. When prices for assets increase dramatically, the actors must of course be able to pay

these prices and then credit usually is necessary. Kindleberger (2003) underlines the role of the credit market for asset price bubbles: “The thesis in this book is that the cycle of manias and panics results from the pro-cyclical changes in the supply of credit.” It means that many of the real estate bubbles related to generous lending policies by the banks.

### **3.2.3. *Expectation***

The expectation has an impact on the demand and supply of commercial goods, and to the real estate market this rule is more remarkable. On the one hand from the perspective of demand, consumers will postpone their purchase when they have expectation that the prices of commercial real estate are going down, which reduces the purchase in the market and then further reduces the demand from expectation. Contrarily, consumers will accelerate purchasing real estate when they have expectation that the prices are going up, which increases the purchase and then further increases the demand from expectation. That's so called “buying up not down” in Chinese. On the other hand from the perspective of supply, enterprises driven by profits would like to slower the supply of real estate or even consider postponing the development of real estate if they make sure that the real estate prices are going up in the future, which causes relatively shortage of supply and eventually makes real estate prices go up.

The simple analysis of the influence of supply and demand mentioned above tell us when there is such expectation that the real estate prices is going up, the demand of houses will increase and which stimulates the housing prices to go up, at the same time enterprises will tend to decrease the supply which stimulates the prices to go up further. The combination of these two aspects

finally causes the real estate prices increase. That's so called "self-fulfilling"<sup>3</sup> in economics. The prices will keep going up because this kind of price increase has no self-restraint.

#### **3.2.4. Speculation**

Speculation is a financial action that does not promise safety of the initial investment along with the return on the principal sum. Speculation typically involves the lending of money or the purchase of assets, equity or debt but in a manner that has not been given thorough analysis or is deemed to have low margin of safety or a significant risk of the loss of the principal investment. In a financial context, the terms "speculation" and "investment" are actually quite specific.

Speculation is a universal behavior in the market. It has an intrinsically difference with normal investment which can be summarized in three aspects: (1) these two have different purposes. Investment has corresponding to actual economical growth and aims to appreciate the capital by operating of assets. Speculation has no corresponding to actual economical growth and aims to gain the price difference of assets. (2) These two have different market performances. The behavior how long these two will hold the assets and the behavior after these two purchases the assets are totally different. Investment is long term stable and consistent, while speculation is short termed and uncertainty. (3) These two have different market risk and features. In general, investment is only influenced by the management risk which depends on manager's situation and his judgment of the market, so that the risk is relatively small. But speculation is mainly depends on speculator's subjective prediction. It has a relatively high risk which requires speculators have higher capability of

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<sup>3</sup> More detailed explanation for self-fulfilling can be found in Appendix.



predicting. Higher risk results in higher benefit, so if speculation succeeds, the benefits will way higher than investment. (Lou, 2007)

In reality, different activity levels of speculation have different impacts on the growth of the economy. Appropriate speculation based on investment may have positive impact on real estate market development and macro economics which can boost the prosperous situation. Although it may bring a bubble, this kind of bubble can also push real estate market development and macro economics. While real estate speculation exceeds some degree, appropriate speculation transforms into excessiveness, new and more speculations get involved in this market, which makes the real estate prices soaring. As a result, the real estate bubble will burst along with the accumulative market risk.

### **3.3. The End of Real Estate Bubble**

Illusive prosperity is destined to disappear some day, which either disappear in a way of sudden crisis, or in a way of economy recession for a long time. No matter in which way, economy will be destroyed. Moderate speculation and bubbles are good to activate economy, encourage competition, and improve real estate sector and the whole national economy development. Moderate bubbles can be solved by the asset's value appreciation. However, once the speculation is too big, it's very hard to control bubbles within rational range. It is quite dangerous to the whole society. When real estate bubbles burst, it has a devastating impact on people. Lots of bad assets, stagnating economy, soaring unemployment and unstable political situation etc which caused by bubble bursts make people scary of a bubble. But in reality, a bubble is a quite usual phenomenon in economics and it is merely a small probability event that a bubble bursts. Usually, the bubble will be absorbed or transformed.

### **3.3.1. Real Estate Bubble Absorption**

Real estate bubble absorption is a situation that the level of real estate bubble steps down because of the improvement of the macro economical environment, industrial environment and market environment. It implies that not only the potential real estate value increases because of the improvement of infrastructure, faster speed of industry growth and accelerating urbanization, but also the real estate bubble could decrease with more rational expectation. The soaring growth of economy as well as the improvement of macro environment will make an adjustment to the level of real estate bubble to make it go down which shows that the macro environment has an absorption function to the real estate bubble. The rationalization of industry chain and raising growth rate of industry would also have a bubble absorption function. In addition, the raising ratio of individual residence purchases is also an index to the real estate market environment improvement, because real estate bubble will decrease if this ratio goes up which is favorable for bubble absorption. (Lou, 2007)

### **3.3.2. Real Estate Bubble Transformation**

The transform of a real estate bubble is caused by different efficiency of assets utilization. Bubble of low yield assets will increase because of the bubble decrease of high yield assets. For example, there can be some complex transformation in real estate bubble and stock bubble. If the yield of real estate market is higher than that of stock market, the level of real estate bubble will go down, and vice versa. (Lou, 2007)

### **3.4. The Indicators of Real Estate Bubble**

The saying that housing price increase too fast, housing price increase too much etc are often used to evaluate if there is a housing bubble. But strictly speaking, these sayings are far from accurate. To verify if there is a housing bubble, we need to analyze whether housing market price has been consistently higher than the theoretical price level that it should be. Here, some indicators are often used as references.

#### **3.4.1. Housing Price-to-Income Ratio**

Housing price-to-income ratio is the basic affordability measure for housing in a given area. It is generally the ratio of median house prices to median familial disposable incomes, expressed as a percentage or as years of income.

Housing price-to-income ratio is one of the most common indexes used to measure real estate bubbles internationally. This index is often used to measure people's purchasing power. It has been acknowledged that the greater housing price-to-income ratio, the lower households' ability to pay for houses. According to the standard provided by the World Bank, housing price-to-income ratio normally ranged from 1.8 to 5.5 in developed countries and from 3 to 6 in developing countries.

#### **3.4.2. Housing Price-to-Rent Ratio**

Housing price-to-rent ratio refers to the housing price divided by monthly rent. In normal real estate market, there should be a certain proportional relationship between housing price and rent.

Housing price-to-rent ratio is another important index often used internationally to measure real estate bubbles. Housing price-to-rent ratio is the index that shows the degree that housing price has deviated from its value. We typically use values from 1:200 to 1:300 as a standard to evaluate whether real estate runs well in a certain region and 1:300 is regarded as the warning line in the world. Given rent is determined by market, and social economy is developing in a normal way.

### **3.4.3. Vacancy Rate**

The vacancy rate is an indicator to reflect the degree of demand in real estate market, and it can affect the investors' expectation and judgment for the future real estate market. The formula is:

$$\text{Vacancy rate} = V / T * 100\%$$

**V:** Current Vacant Area of Commercialized Buildings

**T:** Total Completed Area of Commercialized Buildings in the Past Three Years

Vacancy rates are statistics kept on vacancies in rental properties, homes for sale, and hotels. High vacancy rates are usually viewed as a sign that the market is struggling, while low rates are desirable, because they indicate that property is a hot commodity and that vacancies rarely remain unfilled for very long. Statistics on vacancy rates are kept by many government agencies and companies which specialize in economic analysis, and they can be useful to consider when people are relocating to a community.

In theory, when the vacancy rate of a country is less than 3%, the real estate market is a seller's market, and it is difficult for the consumer to find an acceptable house in such market; when the vacancy rate ranges from 3% to

10%, the relationship between supply and demand in the market keeps stable, there would not exist the excess supply in the market, and the buyers also have sufficient choice for real estate commodities; but when the housing vacancy rate is greater than 10%, then the surplus housing supply would destroy the equilibrium in the real estate market; Furthermore, when this rate reaches to 15%, which means the excessive supply cannot be relieved by the real demand for housings, the high vacancy rate can be used to reflect the real estate bubble in the market.

In the sense of housing, a vacancy rate counts up the total number of livable but unoccupied units, and determines what percentage of the total available housing is vacant. Vacancy rates include homes, apartments, and other living arrangements. The lower the vacancy rate, the more challenging it is for people to find housing, because units they are interested in may not come up for rent or sale very often. High vacancy rates in housing usually suggest economic depression. They can occur when lots of people move out of a community, leaving large numbers of homes vacant, and when developers overestimate the market for housing in a community.

## **4. WEATHER BUBBLE EXISTS OR NOT IN CHINA'S HOUSING MARKET**

Although some people think the rapid growth rate of housing price is the most important evidence of a bubble, in section three “bubble theory” dictates that such increases alone are only necessary but not sufficient evidence. Additional evidences that relate current housing prices to their fundamental determinants are required to solidify any claim of a bubble. Measures described in last section have been widely used to support claim of a housing bubble. In this section weather bubble exists or not in China's housing market has been discussed with detailed data and evidences.

### **4.1. Rational Factors**

The amount of housing supply and demand depends on the housing prices in the market. The law of supply and demand states that the amount of supply is directly proportional to the price, the higher the housing price the more the developer will supply. Conversely, the amount of demand is inversely proportional to the price, the higher the housing price the less the consumer will demand.

#### ***4.1.1. Market Demand***

One of the most important factors that the housing prices boost is due to the upward shift in demand. There are many determinants of the demand for housing, such as demographic, Chinese traditional attitude to housing, increase in income, low interest rate, housing loan, investment preferences, and the change of family structure. Among all these above determinants, the decisive factor must be demographic in China.

- *Demographic*

The core demographic variables are population size and population growth: the more people in the economy, the greater the demand for housing. By 2010, China's total population will be kept under 1.4 billion, in order to lead a much better life.

Table 4–1 the population and natural growth rate from 1982 to 2009 in China

<b>Index</b> <b>Year</b>	<b>Population (10 thousand)</b>	<b>Natural Growth Rate (‰)</b>
<b>1982</b>	101654	15.68
<b>1990</b>	114333	14.39
<b>1995</b>	121121	10.55
<b>2000</b>	126743	7.58
<b>2005</b>	130756	5.89
<b>2006</b>	131448	5.28
<b>2007</b>	132129	5.17
<b>2008</b>	132802	5.08
<b>2009</b>	133474	5.05

*Source: National Bureau of Statistics of China*

Since 1981 the family planning has been carried out in China, almost every family has one child now. According to the table 4-1, we can find out that the natural growth rate is decreasing year by year, but because of the large foundation of population in China, there is still huge demand for housing. So it is no wonder that there is quite a huge demand for housing in China's housing market.

- *Chinese traditional attitude to housing*

China Central Bank published an announcement in May 2006, saying that after spot-check 10 cities in China including Beijing, Shanghai, Tianjing etc, they found more households prefer to buying houses instead of renting. Among the 10 cities, about 62% households even never think about renting houses. While in Beijing, the percentage was as high as 90%. Why is that? Firstly, rental houses are not so well equipped which can not give people a sense of security and belonging. Also rental houses give tenants not so much freedom, for instance, they can't decorate the houses as much as they want. Moreover, rental houses are not so cheap as well and rental market has always been disordered.

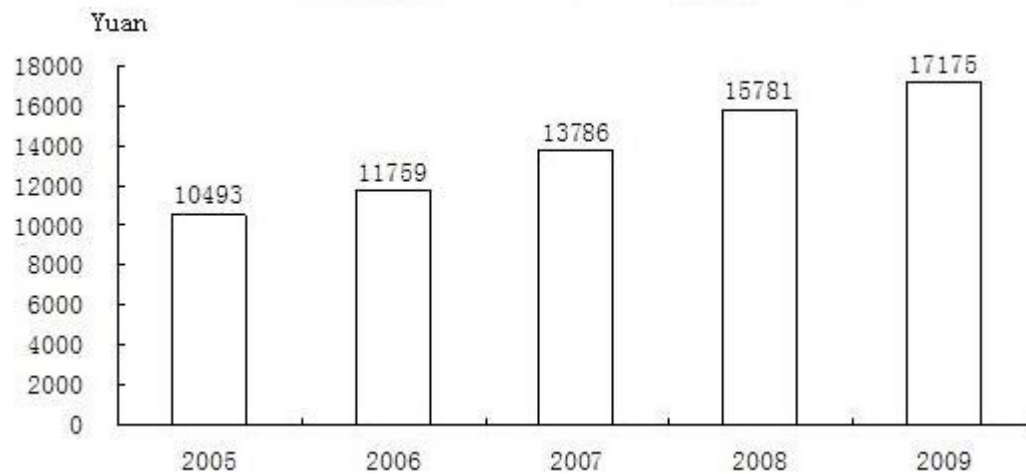
However, the most important underlying reason is Chinese traditional way of thinking. Chinese people think they should buy and have their own houses instead of renting other people's house to live, because in Chinese traditional thinking, no house is no "face". In addition, another Chinese conservative idea is do not get a daughter married if the man do not have his own house. Even now, a large group of families still keep this conservative idea. Therefore you can see how important to own a house in China. But actually it is very dangerous that all the people want to buy houses. It will cause housing demand being exaggerated and push housing price to rise.

- *Increase in income*

Household income level has kept increasing, thus people have stronger desire to improve their living conditions.



Graph 4–1 disposable income of urban residents from 2005 to 2009 in China



Source: National Bureau of Statistics of China

Table 4-2 the growth rate of disposable income of urban residents from 2005 to 2009

Year	2005	2006	2007	2008	2009
<b>Growth Rate of disposable Income of Urban Residents</b>	9.6%	10.4%	12.2%	8.4%	9.8%

Source: National Bureau of Statistics of China

Here I must note that the growth rate of disposable income of urban residents in 2008 was declined compare with 2007 which is because of Global Economic Crisis, but it has firmed up a little bit in 2009. From the graph and table above, we can see the general trend of disposable Income of urban residents is increasing in China. People are except to improve their quality of life, thus, with these money most of them are willing to purchase bigger house with better living condition naturally, so that the housing demand keeps going up.

- *Low interest rate*

In the long run, low interest rate in banks has big responsibility for high housing prices. When interest rate is low, housing price will increase; and vise versa.

Low interest rate will decrease developers' investment costs and people's purchasing costs, which will obviously stimulate more demand for housing. Chinese Yuan has experienced a lot of adjustments, especially in the year 2007 and 2008. The latest adjustment was in 23<sup>rd</sup> December 2008.

Table 4-3 the adjustment history of RMB deposit rate from the end of 2007 until now

<b>Adjustment Time</b>	<b>Current</b>	<b>3 Months</b>	<b>Half Year</b>	<b>1 Year</b>	<b>2 Years</b>	<b>3 Years</b>	<b>5 Years</b>
2007-12-21	0.72	3.33	3.78	4.14	4.68	5.40	5.85
2008-10-09	0.72	3.15	3.51	3.87	4.41	5.13	5.58
2008-10-30	0.72	2.88	3.24	3.60	4.41	4.77	5.13
2008-11-27	0.36	1.98	2.25	2.52	3.06	3.60	3.87
2008-12-23	0.36	1.71	1.98	2.25	2.79	3.33	3.60

Source: The people's bank of China

- *Increase of Housing loan*

Since housing price has kept increasing, under the temptation of huge profit, banks are willing to provide loans including mortgage loan to consumers and development loans to developers with very favorable terms. In recent years, China's housing loan market has increased dramatically. According to the data from National Bureau of Statistics of China, the total individual housing loans was about 42.6 billion yuan in 1998, while by the end of 2007 this number increased to 2.7 trillion yuan. In 2008 real estate development loan provided from China's banks was 725.7 billion yuan which increased 3.4% compare to 2007, while in 2009 the number was 1129.3 billion yuan which increased 48.5% compare to 2008. This phenomenon is very dangerous. Although financial disaster might be brought about, under the lure of huge profits, banks still tend to ignore the horror behind. Easily to get a loan, help the growth of huge amount of "housing slaves".

- *Investment preferences*

In recent years, both Chinese stock market and future market are not so stable and profitable which make investors especially medium and small investors lose faith in them. Limited investment ways make all excess capital flow into real estate sector which is considered relatively more safe and stable to pursue high profits. According to an investigation done by China National Statistic Bureau in Dec 2005, only 5.1% of households think it is wise to invest in stocks nowadays. Moreover, Chinese national bond has limited supply, which can't meet all the needs. Under such circumstances, ordinary households have to deposit money in banks passively, while rich people are willing to use the excess deposit to invest in or speculate real estate, which lead to more and more demand for housing.

- *The change of family structure*

In old China, living condition used to be all family members including father, mother, children, grandmother and grandfather living together in a big apartment. As the family structure becomes smaller and smaller, living habit changed, nowadays in China there are only 1.67 persons in a family on average according to the data from China National Statistic Bureau. Especially when younger children grow old and get married, they no longer live together with their parents, but tend to live separately by themselves. Thus, smaller family structure needs more houses available.

#### **4.1.2. Market Supply**

We can see from table 4-4, construction completion rate is in the trend of going down year by year, which means the developers are becoming more and more desired for this market with an optimistic expectation. This phenomenon may cause by escalating demand as well as higher capability of supply.

Table 4-4 total floor space of buildings under construction and completed (2005-2008)

Year	Floor Space		Floor Space		Construction	
	of Buildings under Construction (10000 sq.m)	Residential Buildings	Of Buildings Completed (10000 sq.m)	Residential Buildings	Completion Rate (%)	Residential Housing
<b>2005</b>	431123.0	239769.6	227588.7	132835.9	52.79	55.40
<b>2006</b>	462677.0	265565.3	212542.2	131408.2	45.94	49.48
<b>2007</b>	548542.0	315629.8	238425.3	146282.7	43.47	46.35
<b>2008</b>	632261.0	364354.4	260307.0	159404.6	41.17	43.75

Source: National Bureau of Statistics of China

Housing supply is produced using land, labor, and various inputs such as electricity and building materials. Generally speaking, the quantity of new supply is determined by the cost of these inputs, the price of the existing stock of houses, and the technology of production. But the housing market is much more complicated in China, besides these fundamental factors, there are other reasons affecting China's housing market.

- *Huge profit induced ascending investment in real estate*

Firstly, the input cost of real estate industry is low in China. On the one hand, it is because the problem of surplus labor in China's manufacturing sectors, thus, the labor cost is low. On the other hand, rapid increase in investment has not led to quick price rise of some materials relevant with real estate. As a result, real estate price is much higher than construction costs throughout China, which attract more and more developers to be involved in real estate industry. In addition, real estate price keeps rising up. People who have high expectation on real estate purchase houses, plus the crowd psychology of

human being, others follow this pace. At the same time, developers under the temptation of gaining big profit are willing to build more buildings even though the prices of the existing real estate are abnormally high already.

- *Real estate has been treated as the pillar industry of national economy*

Real estate sector has been considered as the pillar industry of national economy and the precondition to realize China's 11<sup>th</sup> Five-Year Plan<sup>4</sup>. The whole country especially local government tried every method to encourage real estate development which stimulates the investment in real estate industry. According to table 4-5 we can find that firstly the total real estate investment goes up year by year. Besides, the total real estate investment account for a very large share of China's GDP, and the proportion is still increasing now. The high percentage shows China's economy relies too much on real estate sector. On the one hand it is helpful to improve GDP, but on the other hand it is not optimistic for economy to develop in a healthy and sustainable way.

Table 4-5 some relevant data of total real estate investment from 2005 to 2009 in China

<b>Year</b>	<b>Total Real Estate Investment (billion yuan)</b>	<b>Growth Rate Compare to Last Year (%)</b>	<b>GDP (billion yuan)</b>	<b>Total Real Estate Investment Account for GDP (%)</b>
<b>2005</b>	15759	19.8	182321	8.64
<b>2006</b>	21446	25.4	209407	10.24
<b>2007</b>	28543	32.3	246619	11.57
<b>2008</b>	35215	23.0	300670	11.71
<b>2009</b>	43065	19.9	335353	12.84

*Source: National Bureau of Statistics of China*

<sup>4</sup> More detailed explanation for China's 11th Five-Year Plan can be found in Appendix.

- *Wrong local government leading policies*

Local government directly controls the land which has strong local monopoly characteristics. Nowadays in China, many cities use economy index to judge whether the present local government is qualified or not. Under such circumstances, local government tends to encourage city development especially real estate industry to make the city appear prosperous during his position periods.

Local government gains a large amount of money by both bidding and rent out land. Around 30-40% of local government fiscal income comes from real estate sector directly or indirectly (Xing, 2004). So developing real estate is a main method for local government to increase its fiscal income. Local government not just encourages real estate development, but also encouraged people to buy houses. In some cities, the local governments even came up with promotion policies to encourage people to buy houses.

#### **4.2. The Debate of Bubble in China's Housing Market**

Sine the year 2004, whether there is a bubble in China's housing market has become a heated debate in China. Generally speaking, there are three different perspectives: the first viewpoint claims that there is no bubble in China's housing market and the housing price will keep going up although some problems truly exist in housing market; the second viewpoint claims that the situation of housing bubble is already there at a severe level that people should pay more attention to it; the third viewpoint claims that there is housing bubble but only in first-tier and second-tier cities<sup>5</sup> in China. Following is the detailed description of these three perspectives.

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<sup>5</sup> First-tier cities are metropolises i.e. Beijing, Shanghai, Guangzhou and Shenzhen which play important roles in China's economy and politics. Second-tier cities are usually some municipalities and provincial capitals, such as Tianjing, Chongqin, Shenyang, Hangzhou, Chengdu, Nanjing etc.

#### **4.2.1. Viewpoint of No Housing Bubble**

The viewpoint which claims that there is no bubble in China's housing market is based on these factors.

- *Certain housing vacancy rate is normal*

As I defined in the theory part, vacancy rate is one of the important indicators to determine a real estate bubble. A well-known economist, Professor Zhuoji Xiao thinks China's housing bubble does not exist. He says certain housing vacancy rate is normal, if not, the problem of housing turnover occurs, but the key issue is the vacancy rate can not be too high.

According to the study of E-house China R&D Institute<sup>6</sup> in 2009, the vacant area of China's commercial buildings and commercial residential buildings rose significantly in 2008, at the same time the vacancy rate also fell to rise which increased to 9.50% and 6.34%. The increase rate has reached a new high since the statistical data 1994 in the history, but the vacancy rate of these two items are lower than the average vacancy rate 12.83% and 10.53% in recent 15 years, so E-house China R&D Institute thinks they are still at a reasonable interval.

The study also indicates that according to historical levels, the digestion cycle of vacant area of commercial residential buildings as long as no more than 5 months, can basically be regarded as reasonable. E-house China R&D Institute has combined international practice and the actual situation in China, applies the universal formula to calculate the digestion cycle of vacant area. The formula is: Digestion cycle of vacant area = current vacant area / sales area this year \* 12 months. The result shows that the digestion cycle of vacant area of commercial buildings and commercial residential buildings were 3.17

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<sup>6</sup> It is a professional real estate research institute with legal entity status.

months and 1.95 months in 2008, which were lower than the average level of 5.22 months and 4.03 months in recent 15 years, they are still in the reasonable range, thus, the digestion pressure of vacant area is not great.

- *Real estate development is still at primary stage*

Huai Chen, the Director of Policy Research Centre of Ministry of Housing and Urban-Rural Development of China says that there is no bubble at all in China's real estate market. He says that firstly, Chinese rapid economic growth drives the development of real estate. If the domestic economy has developed rapidly but the price keeps falling, it is contrary to the law of market development which is not normal. Secondly, China has a large population. Current housing supply still does not meet the demand of domestic people, so in terms of the demand exceeds the supply, which is difficult to form a bubble. Thirdly, non-renewable land resources, as well as the land scarcity of city centre and business district, lead to housing prices continue to rise, which is the objective reality of real estate development. He thinks that Chinese real estate development is still at primary stage, talking about housing bubble in a primary stage is contrary to market rules.

#### **4.2.2. Viewpoint of Having Housing Bubble**

The viewpoint which claims there is a bubble in China's housing market is based on these factors.

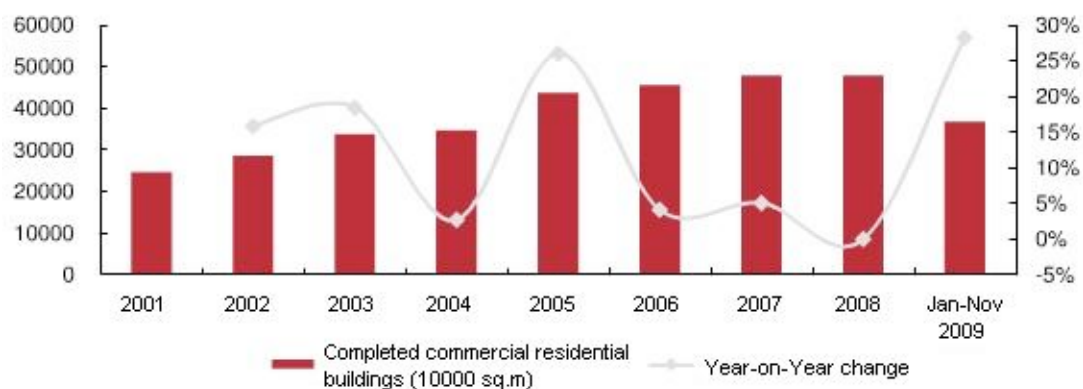
- *Housing supply and demand is unbalanced*

According to following two graphs, we can see that housing demand far exceeds the supply from 2006. Although there was a little drop in 2008 because of Global Economic Crisis, housing demand was still higher than the supply. According to the report from China Real Estate Yearbook 2009, the



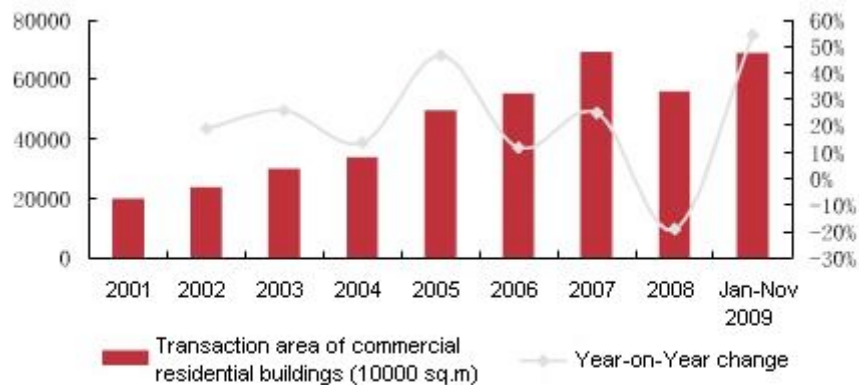
completed commercial residential buildings were 367.0044 million square meters while the transaction areas of commercial residential buildings were 689.5217 million square meters from January to November in 2009. In addition, the year-on-year change of completed commercial residential buildings experienced an increase of 28.2% while the year-on-year change of transaction areas of commercial residential buildings experienced a bigger increase of 54.4% from January to November in 2009. The phenomenon shows the supply and demand is unbalanced in China's housing market. Housing demand is bigger than supply, and it becomes more and more serious now. This is an important reason for rising house prices.

Graph 4-2 completed commercial residential buildings and year-on-year change in China  
(2001-2009)



Source: China Real Estate Yearbook 2009

Graph 4-3 transaction area of commercial residential buildings and year-on-year change  
in China (2001-2009)

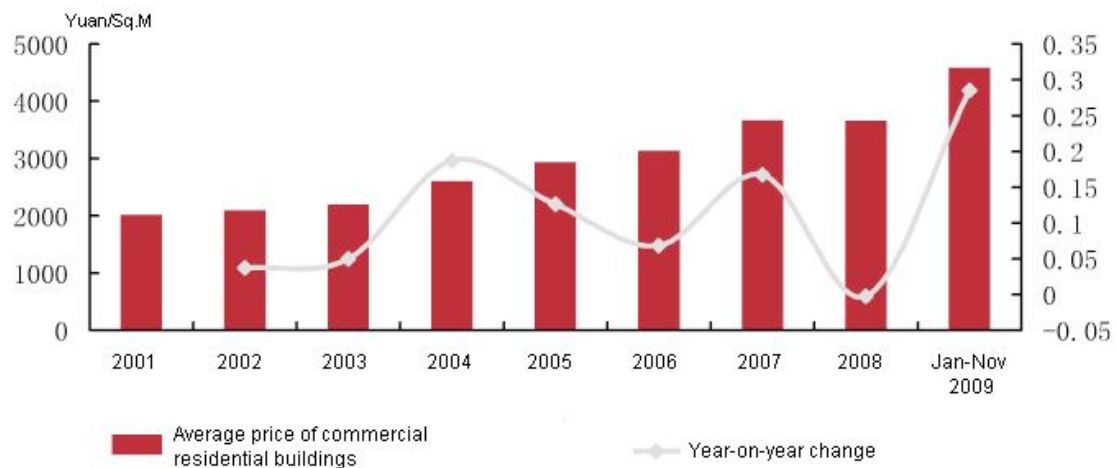


Source: China Real Estate Yearbook 2009

- *Housing price is too high*

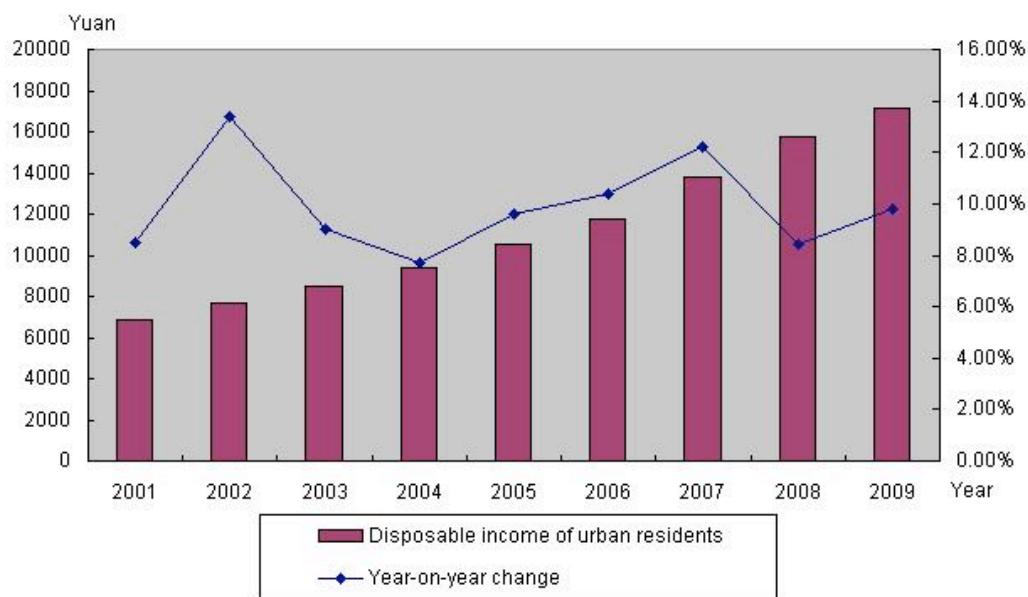
From mid-long period, the increase of real estate prices is very much based on the rules of market. But if the prices surge consistently in short period, it could be the important sign of bubble. According to the report from National Bureau of Statistics of China, the average prices of commercial residential buildings surged a lot in 2009 and reached the highest point in the history. In addition, the year-on-year growth of average prices of commercial residential buildings was much higher than urban residents' average disposable income which we can find from following two graphs. In other word, the increase of income lags behind the growth of housing prices in China.

Graph 4-4 the average prices of commercial residential buildings and year-on-year change in China (2001-2009)



Source: China Real Estate Yearbook 2009

Graph 4-5 urban residents' average disposable income and year-on-year change in China (2001-2009)



Source: National Bureau of Statistics of China

#### ● The risk of loan increase

The loan growth from the banks keeps at a high speed level. According to a report from China Banking Regulatory Commission, in the past year, China's new housing loans up to 5 times compare with the amount in 2008. The real

estate development loans and personal housing mortgage loans have accounted for about 20% of the incremental loans and the loan balance in 2009, while the internationally recognized warning line is 20%. Chinese government has relaxed the lending policy in order to stimulate economic recovery after 2008. On the one hand it can promote economic development, but on the other hand it may bring risks, especially the sharp increase of housing loans. Some experts think that the current situation is becoming more and more dangerous.

#### ***4.2.3. Viewpoint of Housing Bubble Only Exists in First-Tier and Second-Tier Cities***

The viewpoint which claims there is no bubble in whole China' housing market, but exists in first-tier and second-tier cities based on these factors.

- ***Serious speculation in first-tier and second-tier cities***

As we know, first-tier and second-tier cities are political and economic centers in China where are the lands most Chinese people longing for and have favorable investment environments. At the same time, there is also a huge business opportunity there, speculators will certainly not miss. Therefore, real estate speculations are particularly serious in there cities recent years.

- ***Rapid growth in housing prices***

Although the average housing prices raises fast in China, it does not mean housing prices goes up fast in all cities, but it mainly because of the roaring housing prices in first-tier and second-tier cities. Ke Feng, the director of real estate finance research centre of Beijing University said that comparing the beginning and end of 2009, housing prices in Beijing, Shanghai, Shenzhen and Guangzhou rose by 50%-100% which was a very large increase. The

housing prices in second-tier cities also went up a lot. But the increases of housing prices in the rest of Chinese cities are still reasonable.

- *Housing price-to-rent ratio is abnormal*

Most views of the local bubble are based on housing price-to-rent ratio in China. Shiyi Pan, the Chairman of SOHO China said that if applied housing price-to-rent ratio to measure, the housing bubbles in first-tier and second-tier cities were growing. According to a report from China Index Research Institute, the housing price-to-income ratios in Beijing, Shanghai, Shenzhen, Guangzhou, Hangzhou and some other first-tier and second-tier cities have already exceed the warning line. But the situation in other cities is still in a reasonable range.

#### **4.3. Discussion about the Debate**

The debate is very acute in current years in China. Since each side has its own opinions and reasons, as well as the situation in China is very special and complex, it is really not easy to determine who is right. Based on their debate, here I will give a summary and then present my opinion for current situation.

From the viewpoint that claims there is no bubble in China's housing market, people get this idea based on the normal vacancy rate and point out real estate development is still at primary stage in China. No doubt, real estate industry is still young in China, but only with the evidence of normal vacancy rate of China can not explain there is no housing bubble in China.

From the viewpoint that claims there is a bubble in China's housing market, the outcome of analysis shows several problems that China's housing market is facing. These problems could be the signs of bubble and in that case we might

conclude that the bubble is on the way of expanding. But because this viewpoint is based on the average level of China, it is not enough exhaustive.

Finally, the viewpoint that claims there is no bubble in the whole China's housing market but exists in first-tier and second-tier cities. This view is more reliable because it has considered not only whole China's housing market but also each city. Such analysis is more detailed and it is more true reflection of current reality. Therefore, I agree with this viewpoint.

#### **4.4. The Proofs of Bubble in China's Housing Market**

By clarifying my standpoint of there is no bubble in the whole China's housing market but exists in first-tier and second-tier cities. In this part, I will investigate China's housing market with indicator methods to support my viewpoint.

##### ***4.4.1. Housing Price-to-Income Ratio***

As I mentioned in the theory part, the ratio of the median home price to median household income is one frequently employed measure of home ownership affordability. Housing price-to-income ratio normally ranged from 1.8 to 5.5 in developed countries and from 3 to 6 in developing countries. If this ratio is relatively high, then households may find both down payments and monthly mortgage payments more difficult to meet, which should reduce demand and lead to downward pressure on housing prices. If this ratio rises above its long-term average, it could be an indication that prices are overvalued. Table 4-6 is price-to-income ratios in certain years in China. Here we assume that there are three people in a family because of the one-child policy in China. We can see that the price-to-income ratio was over 6 since 2000, and it became higher and higher over the whole China's housing market. Does it imply there

is a housing bubble in the whole China? I don not think so, because China is a big country which consists of many cities. If we take a look at table 4-6, the rank of price-to-income ratio in these cities suggests that only a few big cities are facing housing bubble in China now. I have to point out that there are 333 prefectural-level cities and thousands of counties including county-level cities in China. Here we give an example that evaluate housing price-to-income ratio in some main cities in China. Table 4-7 shows that besides the 31 cities with a high price-to-income ratio over 6, other cities are all in a reasonable range. Therefore, this report supports my viewpoint that housing bubble only exists in first-tier and second-tier cities in China.

Table 4-6 price-to-income ratios in certain years in China

<b>Year</b>	<b>The Average Price Per House (Yuan)</b>	<b>Disposable Income of an Urban Family Per Year (Yuan)</b>	<b>Price-to-Income Ratio</b>
<b>1990</b>	25302	$1510.2 \times 3 = 4530.6$	5.58
<b>1995</b>	76951	$4283.0 \times 3 = 12849$	5.99
<b>2000</b>	128596	$6280.0 \times 3 = 18840$	6.83
<b>2005</b>	237893	$10493.0 \times 3 = 31479$	7.56
<b>2006</b>	262017	$11759.5 \times 3 = 35278.5$	7.43
<b>2007</b>	317130	$13785.8 \times 3 = 41357.4$	7.67
<b>2008</b>	348930	$15780.8 \times 3 = 47342.4$	7.37
<b>The first half of 2009</b>	441564	$8856.0 \times 3 = 26568$	8.31

Source: "2010 Economic Blue Book "from Chinese Academy of Social Sciences

Table 4-7 Rank of price-to-income ratio in 32 Chinese cities in the third quarter 2009

<b>Rank</b>	<b>City</b>	<b>The average price of commercial housing (yuan/ m<sup>2</sup>)</b>	<b>Per capita floor space of housing (m<sup>2</sup>)</b>	<b>Per capita disposable income (yuan/year)</b>	<b>Housing Price-to-income ratio</b>
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1	ShenZhen	20216	32.20	29069	22.39
2	Shanghai	16939	33.40	29161	19.56
3	Beijing	15136	28.74	26721	16.28
4	Ningbo	11390	36.93	27857	15.10
5	Hangzhou	12989	29.83	28020	13.83
6	Guangzhou	13692	27.46	28024	13.42
7	Lanzhou	5431	28.00	12602	12.07
8	Xiamen	10615	29.55	26499	11.84
9	Tianjin	8179	28.53	20176	11.57
10	Kunming	5664	32.90	16389	11.37
11	Nanjing	9563	30.84	26089	11.30
12	Dalian	7829	26.70	18921	11.05
13	Nanning	5187	32.57	16353	10.33
14	Fuzhou	9153	22.10	20565	9.84
15	Taiyuan	4889	30.10	15307	9.61
16	Chongqing	5073	29.70	15748	9.57
17	Wulumuqi	3607	35.11	13440	9.42
18	Haerbin	4543	29.57	15807	8.50
19	Haikou	4756	27.96	16021	8.30
20	Qingdao	6754	26.80	22228	8.14
21	Nanchang	4530	29.00	16284	8.07
22	Wuhan	4898	29.28	18761	7.64
23	Shenyang	4717	29.02	18520	7.39
24	Chengdu	4775	28.30	18483	7.31
25	Changchun	4306	26.88	15940	7.26
26	Zhenzhou	4741	26.00	17365	7.10
27	Xian	4828	26.32	18591	6.84
28	Yinchuan	3473	28.77	15067	6.63

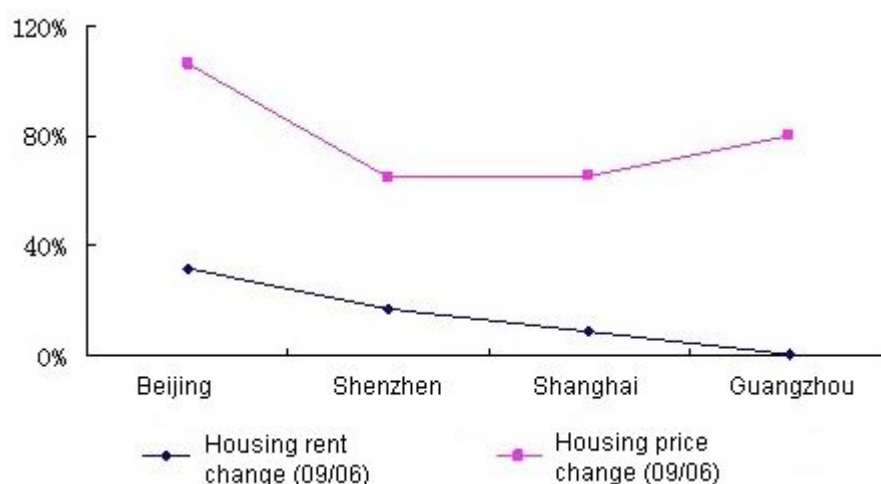


29	Guizhou	3660	27.50	15279	6.59
30	Hefei	4487	25.80	18000	6.43
31	Shijiazhuang	3885	26.30	16308	6.22
32	Jinan	4978	26.50	22084	5.97

#### 4.4.2. Housing Price-to-Rent Ratio

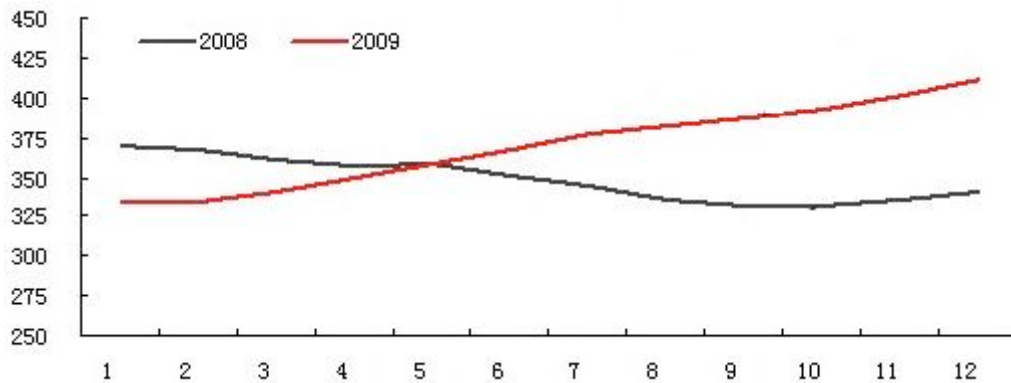
According to the latest statistics from China Index Research Institute that from January to October 2009, housing price-to-rent ratio has reached 1:434 in Beijing, 1:418 in Shanghai, and the number has broken 1:360 in Shenzhen, Hangzhou and Guangzhou. In addition, a few big cities have reached 1:300. As I mentioned in the theory part, 1:300 is regarded as the warning line in the world. It means the housing rent has not keep up the increasing speed of housing price in these cities which can be explained from Graph 4-6. In other word, housing price raises too fast in these cities. This phenomenon signifies that housing bubble may exist in these cities.

Graph 4-6 housing rent and price change in first-tier cities in 2006 and 2009



Source: China Index Research Institute data center

Graph 4-7 the trend of housing price-to-rent ratio in Beijing in 2008 and 2009

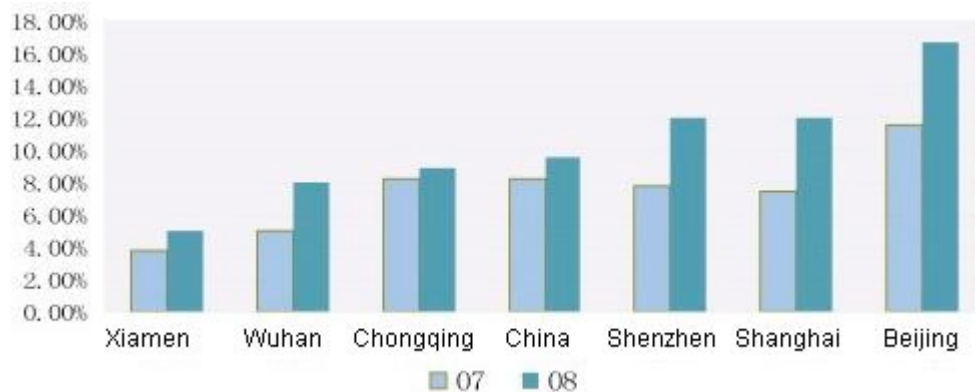


Source: Beijing Zhongyuan 3 Market Research Statistics

#### 4.4.3. Vacancy Rate

Although the study of E-house China R&D Institute shows that the current vacancy rate in the whole China's housing market is normal, but if we separate out the data of some cities we can find the problem. For instance, From Graph 4-8 we can see that the vacancy rate in Beijing, Shanghai and Shenzhen has already exceed the normal range in 2008, specially the rate in Beijing is over 15% which is very dangerous. Moreover, the situation is expanding and becoming more and more serious now.

Graph 4-8 vacancy rates in certain cities and whole China in 2007 and 2008



Source: National Bureau of Statistics of China

#### **4.4.4. Growth Rate of Housing Price vs. Growth Rate of GDP**

The ratio of housing price growth to GDP growth is also an important method to determine if there is a bubble in housing market. Generally speaking, we could say there is no bubble as long as the price growth not exceeds GDP growth. However, if the ratio is between 1 and 2, the warning of a bubble has been formed. If the ratio is over 2, it could be a sign of housing bubble. This index is designed according to the meaning of housing bubble to measure housing growth and monitor the trend of housing bubble. If the index keeps going up in some particular period, it means people can't afford the housing with relatively lower economy growth which will bring them relative lower income. That will make the vacancy rate increase and trigger a bubble.

Table 4-8 comparison of housing price and GDP in China (2001-2009)

<b>Year</b>	<b>Average Housing Price</b>	<b>Growth Rate of Housing Price (A)</b>	<b>GDP</b>	<b>Growth Rate of GDP (B)</b>	<b>A/B Ratio</b>
<b>2001</b>	2017	-	109655.2	8.30%	-
<b>2002</b>	2092	3.72%	120332.7	9.10%	0.41
<b>2003</b>	2197	5.02%	135822.8	10.00%	0.50
<b>2004</b>	2608	18.71%	159878.3	10.10%	1.85
<b>2005</b>	2937	12.65%	183217.4	10.40%	1.22
<b>2006</b>	3119	6.20%	211923.5	11.60%	0.53
<b>2007</b>	3645	16.86%	257306	13.00%	1.30
<b>2008</b>	3576	-1.89%	314045	9.60%	-0.20
<b>2009</b>	4474	25.10%	335353	8.70%	2.89

*Source: Ministry of Land and Resources of P.R. China*

Table 4-8 shows the ratio of housing price growth to GDP growth has reduced a lot because of Global Economic Crisis. But it has increased again and

broken the warning line 2 in 2009, which means the housing bubble has formed in China. Here I separate out 26 Chinese cities as examples in table 4-7. According to my calculation housing price growth not exceeds GDP growth in every city which signifies housing bubble only exists in some cities in China.

Table 4-9 comparison of housing price and GDP in 26 Chinese cities in 2009

<b>Rank</b>	<b>Cities</b>	<b>Average Housing Price 2009</b>	<b>Average Housing Price 2008</b>	<b>Growth Rate of Housing Price 2009 (A)</b>	<b>GDP</b>	<b>Growth Rate of GDP 2009 (B)</b>	<b>A/B Ratio</b>
1	Xiamen	8519	6047	40.88%	1616	8%	5.11
2	Ningbo	10178	7500	35.71%	4214.6	8.60%	4.15
3	Shenzhen	14758	11143	32.44%	8245	10.50%	3.09
4	Dalian	8666	6012	44.15%	4410	15%	2.94
5	Qingdao	8301	6527	27.18%	4900	11%	2.47
6	Chengdu	6035	4650	29.78%	4502.6	14.70%	2.03
7	Haerbin	5036	4060	24.04%	3258.1	13%	1.85
8	Zhengzhou	4652	3905	19.13%	3362.24	12%	1.59
9	Guangzhou	9882	8514	16.07%	9118.6	11%	1.46
10	Hangzhou	15277	13338	14.54%	5098.66	10%	1.45
11	Beijing	15051	13222	13.83%	11865.9	10.10%	1.37
12	Shijiazhuang	3968	3509	13.08%	3063.62	10.60%	1.23
13	Shanghai	15404	14099	9.26%	14900.93	8.20%	1.13
14	Xian	4913	4357	12.76%	2507	14.50%	0.88
15	Tianjin	7820	7139	9.54%	7500	16.50%	0.58
16	Changchun	3451	3332	3.57%	2919	15%	0.24
17	Fuzhou	7580	7373	2.81%	2520.7	12.60%	0.22
18	Changsha	3951	3867	2.17%	3370	14.70%	0.15

<b>19</b>	Nanjing	5322	5389	-1.24%	4170	11.50%	-0.11
<b>20</b>	Kunming	5157	5381	-4.16%	1792	12%	-0.35
<b>21</b>	Wuhan	5240	5526	-5.18%	4500	13%	-0.40
<b>22</b>	Shenyang	4124	4452	-7.37%	4350	14.10%	-0.52
<b>23</b>	Wenzhou	17116	17700	-3.30%	2570	6%	-0.55
<b>24</b>	Hefei	4232	4849	-12.72%	1948	17%	-0.75
<b>25</b>	Chongqing	4015	4884	-17.79%	5856	14.90%	-1.19
<b>26</b>	Nanchang	4359	5332	-18.25%	1837.5	13.10%	-1.39

## **5. COMPARISON OF THE THREE BIGGEST HOUSING BUBBLES IN THE WORLD**

The real estate industry has developed rapidly in the recent 100 years, which makes a large contribution to the world-wide economic growth in the 20<sup>th</sup> century. However, due to various complicated reasons, some countries and regions have undergone a terrible real estate bubble, such as United States, Japan, Southeast Asia and Hong Kong, which left nothing but poverty to millions of investors.

### **5.1. The United States Housing Bubble**

In the mid-20th century, the United States' economy has appeared a transitory prosperity, at the same time the construction industry has become prosperous day by day. In this context, Florida with its special geographical position has experienced an unprecedented real estate bubble.

As Florida's land price has been much lower than other states, so the state has become an ideal investment place. Many Americans came here, impatient to buy real estate. With the increase in demand, the land price in Florida began to rise. Especially in the years between 1923 -1926, Florida had a remarkable increase in land price. For example, a piece of land on Palm Beach, the value was 0.8 million U.S. dollars in 1923, which increased to 1.5 million U.S. dollars in 1924 and increased to 4 million U.S. dollars in 1925. According to statistics, in 1925, Miami actually appeared more than 2000 real estate companies, while the city had only 75000 people, of which 25000 were real estate brokers.

But the good time did not last long. In 1926, Florida real estate bubble quickly broken, so that many bankrupt entrepreneurs and bankers, either suicide or mad, while others reduced to beggars. Then, this bubble exacerbated the United States' economic crisis and triggered the collapse of stock market in Wall Street, ultimately led to the world economic crisis in the 1930s.

## **5.2. Japanese Housing Bubble**

The latter half of the 1980s was an extraordinary period in Japanese economic history. Future historians will call it "the age of the bubble." Stock and land prices showed remarkable increases and the economy enjoyed an investment and consumption boom. Overseas investment from Japan increased very rapidly and Japan become the world's largest creditor country. (Noguchi, 1994)

In the late of the 1980s, in order to stimulate economic development, the Japanese central bank has taken a very loose monetary policy to encourage capital flows into real estate and stock markets, resulting in skyrocketing real estate prices. In September 1985, finance ministers of the United States, West Germany, Japan, France and the United Kingdom signed the "Plaza Agreement", decided to depreciation of U.S. dollar. A large number of international capitals entered into the Japanese real estate when U.S. dollar depreciated, which stimulated the increase of housing prices. From 1986 to 1989, Japan's housing prices tripled. During this period, the demand in the whole real estate market was quite strong, and the speculation was prevalent, which stimulated the sustained increase of the real estate prices.

After 1991, with the withdrawal of international capital after profit, the Japanese real estate bubble quickly burst and real estate prices plummeted

immediately. Until 1993, Japanese real estate collapsed totally. In March 2003, seven major Japanese banks have written off about 5.6 trillion yen bad debts totally, and the Nikkei Stock Index also dropped below 8000 points (Japanese Economic and Fiscal Report, 2003), the lowest level in history. The burst of the economic bubble, especially the lasting decline in real estate prices led to a serious financial crisis, and destroyed Japanese economy wholly. Japanese economy has entered a long term recession period and in the following 10 years, the economic growth has always been wandering at the state of stagnation, which is called as the “lost decade” by economic circle.

### **5.3. Southeast Asia and Hong Kong Housing Bubble**

After Japan, the real estate bubble was also a painful experience in Thailand, Malaysia, Indonesia and other Southeast Asian countries and territories, of which Thailand is particularly prominent. In the mid of 1980s, the Thai government regarded real estate as a priority investment area, and gradually introduced a series of stimulating policies, thereby promoted the prosperity of real estate market. After the Gulf War, a large number of developers and speculators pouring into the real estate market, coupled with the indulgence of bank credit policies, led to the emergence of the real estate bubble. Meanwhile, large amounts of foreign capital also entered into other Southeast Asian countries and territories to play speculative activities in property markets. Unfortunately, this situation was not well regulated by the governments in these areas, which led to the housing supply far exceeded demand and an enormous bubble formed finally. Before the outbreak of the financial crisis in 1996, Thailand's real estate has already been in dangerous situation, housing vacancy rate continues to rise. When the Southeast Asian financial crisis broke out in 1997, the real estate bubble burst in Thailand and other Southeast Asian countries, which directly led to serious economic recession in countries and



regions.

Southeast Asian financial crisis also led directly to Hong Kong real estate bubble. Hong Kong's property boom could be traced back as early as the 1970s. At that time, the business tycoons invested in real estate one after another, moreover those from Japan, Southeast Asia and Australia also put their funds in the property market. Driven by various factors, Hong Kong's housing prices and land prices went up sharply. By 1981, the housing price and land price in Hong Kong has become the second highest region in the world. From 1984 to 1997, the average annual growth rate of housing price was over 20%. While Southeast Asian financial crisis befallen when Hong Kong's real estate bubble reached the peak. According to expert calculations, from 1997 to 2002, five years, the Hong Kong real estate and stock market capitalization has lost about 8 trillion Hong Kong dollars which was more than the GDP of Hong Kong in corresponding period.

#### **5.4. Learn From the Historical Lessons**

Many countries have once suffered or are suffering from serious real estate bubbles. What can we learn from these historical lessons?

##### ***5.4.1. Enhance the Sense of Crisis of Real Estate Bubble***

The lessons of the United States housing bubble, Japanese housing bubble and Southeast Asia and Hong Kong housing bubble tells us must be careful about real estate bubbles. The damage of real estate bubble is very heavy. It may take more than 10 years to heal wound. "The Wall Street Journal" said that the overheated housing market in China maybe resurge the real estate bubble in the early of 1990s. As the housing bubbles have already existed in

some areas, the situation becomes more and more serious. Japan's "Tokyo Shimbun" announced that a report from the Japanese cabinet said that China has the risk of occurrence of housing bubble. Once the bubble bursts, it will cause great damage to China. How to cool down the overheated real estate market is the important task of the whole country now.

#### **5.4.2. *Reduce Over-investment in Real Estate***

Over-investment in real estate industry is always the fuse of bubble. Table 4-4 shows some relevant data of total real estate investment from 2005 to 2009 in China. We can see that the total real estate investment grows fast and which account for large share of GDP. The massive investment is driven by large interest. House prices are rising while the increase of the bubble is also enlarging day by day. When bubble has been blown to a certain extent, it will burst one day. We must learn painful lessons from the United States housing bubble, Japanese housing bubble and Southeast Asia and Hong Kong housing bubble. Prevent bubble economy brought by over-investment. As long as return to a rational development idea, the overheated investment may cool down as well as the development of real estate market can return to healthy and orderly.

#### **5.4.3. *Government Policies***

Japanese housing bubble and Southeast Asia and Hong Kong housing bubble had a common reason that they both took a loose monetary policy in order to stimulate the development of economy. I could not say it was wrong but the police might not perfect. So government and his policies are very important to prevent, control and solve a bubble. Thus, how can Chinese government do now I will discuss in the following section.

## **6. RECOMMENDATIONS**

The imbalance of supply-demand structure and the scarcity of land resources would result in the irrational expectation, the speculation behaviors and the herd effect are the fundamental reasons for real estate bubbles. Furthermore, the imperfect market mechanism and the asymmetric information in China's housing market make the banks and other financial institutions pursue their own interests and underestimate the risk of loans, which would further encourage the blind development and expand the housing bubble crisis. Therefore, it is necessary for Chinese government to carry out some policies and measures to avoid the irrational behaviors, to guide the rational investment, to improve the land policies and to complete the housing system in real estate market.

### **6.1. Change the Economic Interest Relation between Government and Real Estate Industry**

We should admit that China's real estate market is a very special market that is affected by government actions and policies. Real estate development is directly related to a local government's revenue. Firstly, local governments can earn big money under government's land monopoly; secondly, local governments' GDP relies a lot on real estate industry.

#### ***6.1.1. Reform Government's Land Monopoly***

Government's land monopoly brings about dual impacts of underestimation and overestimation of land value during the utilization of land. On the one hand, village collective land has been undervalued by government during the expropriation process. On the other hand, land value has been overestimated

under the monopoly operation by government in urban development. Real estate developers sometimes seek administrators in local government to execute industry monopoly and regional monopoly, and conspire to lower land prices. The greater the profit the greater the investment, industry is often over expansion under the stimulation of huge profits. Therefore, improve the revenue and expenditure management of land transfer fee and make it more transparent and public is very necessary. In addition, prepare enough amount of money to compensation for expropriation, resettlement and demolition, and subsidize landless farmers who lack of social security. These measures may fundamentally change our human control housing market. Ensure the healthy and stable development of the housing market.

#### **6.1.2. *Reduce Government's Revenue from Real Estate***

According to statistics, government tax revenue accounts for around 20%-40% of real estate prices, plus 20%-40% of land costs, thus local government revenue from the house property accounts for nearly 50%-80% of the entire housing prices in China. However, land prices plus taxes which collected by government accounts for about only 20% of housing prices in Europe and America. The majority of these wealth flows into local governments and real estate relevant departments. So attractive profits make local governments go after real estate industry like a flock of ducks. GDP growth political achievements of local governments push the over-exploitation of real estate. Real estate investment have accounted for a big part in local government GDP nowadays. Do not change the traditional examination of using pace of economic development as the main political achievements indicators, as well as do not cut off the interest link between local government and real estate industry, it is difficult to radically change the overheated real estate market.

## **6.2. Improve Financial System**

Chinese government has already carried out a series of policies to improve the financial system recent years. Since real estate industry is still in the developing stage in China, leaks are inevitable.

### ***6.2.1. Improve Developers' Credit Control***

The presale mode is popular in China, which also means real estate developers almost don't need to take any development risks, and stimulate new speculation capitals rush into real estate industry. Also the marginal profit rate in real estate industry is much more than others, which helps to gather more capital in real estate industry.

Real estate developers rely so much on bank capitals, we have to change it and expand new financing channels for real estate companies while tight up credit loans that real estate companies can get from banks. In this way, risks that are accumulated in banks can be decentralized. In many developed countries, their real estate market is matured, and real estate developers have a lot of ways to accumulate investment capitals besides bank loans, including real estate investment funds, trusts etc. and bank loans just take up less than 40% of the capitals that real estate investment and development needs. However, things are quite opposite in China, besides the self-owning capital that real estate developers have, all the other capital comes from the banks. Currently, more than 60% of real estate development capitals are from bank loans. In some real estate companies, more than 75% of the capitals come from the banks (Li, 2003).

Current system should be improved. For example, banks are not allowed to give loans to real estate developers whose own capital is less than 35%, so as

to prevent developers stock land and houses by taking advantage of loans from banks. While the best solution is to improve direct financing in market, which make developers directly take the risks come with market financing channels. For instance, issue stocks in market, issue company bonds, real estate investment funds and trusts. Also those commercial houses that have been vacant for more than three years are not allowed to be credit mortgage.

### **6.2.2. Control Consumption Credit**

There are big leaks in China's financial system, especially when it comes to the risk management when deciding credit loans. Huge amount of capital rushed into real estate industry, which pushes housing price to increase further. Government imposed a lot of policies to control consumption credit, including impose real name system when buying and selling houses, charge high tax to people who bought second house, all the banks increased principal proportion and mortgage interest rate, and shorten the required time period of giving back the loan. China Construction Bank has increased the interest rate of mortgage loan up to 5.94% to the loans which are more than 5 years now.

Housing loans increases 40%-60% every year in China since 2000 which is relatively high. It has directly caused excessive rapid growth of real estate industry, even has leaded the formation of housing bubbles in some areas. Control the growth rate of housing loan within 20% may prevent a housing bubble to expand (Chen, 2008).

### **6.2.3. Restrain International Capital**

China's real estate market is like a delicious cake which attracts not only domestic investors but also foreign investors. China has implemented

super-national treatment<sup>7</sup> for foreign enterprises in order to speed up the development of Chinese economy for several years. The inflow of foreign capital has stimulated the growth of real estate industry, but at the same time it has also led to housing bubbles in some areas finally. What can we do? Firstly, removal the super-national treatment for foreign real estate enterprises, and further regulate the market access and transaction of foreign investors. Secondly, strengthen the inflow and outflow of foreign capitals in real estate market, and the exchange chain management which including stabilize RMB exchange rate.

### **6.3. Decentralized Development**

Nowadays too much base infrastructures have concentrated in the downtown in main cities which intensified the conflict between human and land, and drives up the housing prices. It becomes a catalyst for housing bubbles. Therefore disperse city functions and extend geographical space is a wise move to push the development of cities, stabilize housing prices and solve the predicament of housing.

### **6.4. Broaden Investment Ways**

The fact that investment ways are limited in China is one of the main reasons that caused huge amount of capital to rush into the real estate sector. Policies should be imposed to furthermore rebuild small and medium investors' confidence to stock market; recover stamps collections and other antiques' attraction to appeal more social capitals. Lower the standard to open private business, and encourage more private business and companies, to prevent all the money stuck in real estate.

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<sup>7</sup> More detailed explanation for super-national treatment can be found in Appendix.

## 7. CONCLUSION

Since 2003, China's housing prices have been roaring in China, especially in big cities. High housing prices have aroused a lot of complaint nowadays. At the same time, the debate that whether there is a housing bubble in China under the extremely high housing price has become a hotspot both in China and in the world.

This paper has investigated whether there is a housing bubble in China recent years. The findings indicate that China's real estate industry has experienced a great development in past few years and the housing prices seem to interact with market demand and supply, disposable income, local government GDP and so on. The high housing prices are unreasonable and have not enough fundamental economic support, especially in big cities. Although currently a lot of key statistic data and standard index are not available in China, a lot of facts in first-tier and second-tier cities still can't be ignored, such as housing price-to-income ratio, high housing price-to-rent ratio, huge amount of vacant houses, a lot of irrational housing purchase behavior, huge amount of housing speculations, and most ordinary people can't afford houses in big cities, etc. The result shows that housing bubble has not formed in the whole China, but it has already existed in first-tier and second-tier cities.

Strictly speaking, nobody can exactly for sure tell if these bubbles burst in the end. Because of butterfly effect<sup>8</sup>, it is also impossible to predict how China's high housing prices may end up in the future, especially when a lot of policies and measures are taken one after another, and nowadays everything is different from what has used to be and what has happened in history. In an accurate sense, only time can tell where China's housing market is heading,

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<sup>8</sup> More detailed explanation for butterfly effect can be found in Appendix.



and if housing prices in China will keep climbing or fall back to the ground.

I hope that the findings in this paper can present some efficient strategies for Chinese government to regulate and control the real estate industry, prevent the irrational investment in the Chinese real estate, avoid the spread of housing bubble in China. In addition, I believe that under the lead of Chinese government, with powerful persistence and determination, it will be possible for the young real estate industry to develop in a healthy and stable way in the near future.

## REFERENCES

Baker, Dean (2007), "2007 Housing bubble update: 10 economic indicators to watch", *Center for Economic and Policy Research*

Case, Karl E. and Shiller, Robert J. (2004), "Is there a bubble in the housing market?", *Cowles Foundation Paper. No. 1089*

Chen, Xialian (2008), "The measures which can be taken to control the real estate bubble in China", *Economic Analysis, No.977*

Huang, Lijing and Qiu, Minfang (2008), "The formation of Chinese real estate bubble and inhibition methods", *Economic&Trade Update, Vol. 6, No. 109*

Kindleberger, Charles P. (2005), "Manias, panics and crashes: a history of financial crises", *John Wiley and Sons, Hoboken*

Li, Xia (2003), "Analyses of the circulating funds situation and ways of the real estate development enterprises in China", *Journal of Henan Social Sciences, Vol. 6*

Li, Xiaoling (2007), "Analysis of the current high housing prices in China and possible policies", *Royal Institute of Technology, No. 389*

Lind, Hans (2009), "Price bubbles in housing market: concept, theory and indicators", *International Journal of Housing Markets and Analysis, Vol. 2, pp. 78-90*

Lou, Kai (2007), "An analysis of the bubble in the Shanghai housing market",

*Royal Institute of Technology, No.397*

Liu, Hongyu. and Shen, Yue (2004), "Analysis of housing price changes in China", *Chinese Building Economics*, Vol. 9, pp. 43-7

Liu, Qi (1991), "Housing and reform discussion 2: success and problems", *Urban Problems*, No.3, pp 16-22

Noguchi, Yukio. (1994), "The 'bubble' and economic policies in the 1980s", *Journal of Japanese Studies*, Vol. 20, No.2, pp 291-329

Ratajczak, Donald (2006), "Is there a housing bubble?", *Journal of Financial Service Professionals*, Jan. 2006, P39-44

Stiglitz, Joseph Eugene (1990), "Symposium on bubbles", *Journal of Economic Perspectives*, Vol. 4, No. 2, pp13-18

Wang, Junhong (2008), "Analysis of the real estate bubble causes and countermeasures in China", *Market Modernization*, No. 558

Wang, Yaping and Murie, Alan (1996), "The process of commercialization of urban housing in China", *Urban Studies*, June 1996, Vol. 33, No. 6, pp 971

Xing, Mengjun (2005), "Analyzing on the relationship of playing chess between local government and central government during the period of society's transformation", *Journal of Tribune of Study*, 2004, Vol.11

Yu, Zhou (2006), "Heterogeneity and dynamics in China's emerging urban housing market: two sides of a success story from the late 1990s", *Habitat International* 30, pp 277–304

Zhang, Xingquan (2001), "Redefining state and market: urban housing reform in China", *Housing, Theory and Society*, 18, pp 67–78

Zhou, Jingkui and Cao, Zhengliang (2004), "Foaming and non-foaming in Chinese real estate market - An empirical analysis based on speculative theory", *Journal of Shan Xi Finance and Economics University*, Vol.26, No.1

Zhou, Yu (1999), "China's urban housing reform----With specific emphasis on property ownership", *The Virginia Polytechnic Institute and State University*

Website of China National Statistic Bureau

URL: <http://www.stats.gov.cn/>

Website of Ministry of Land and Resources of the P.R. China

URL: <http://www.mlr.gov.cn/>

Website of China Construction Ministry

URL: <http://www.cin.gov.cn/fcdc/>

Website of Chinese Academy of Social Sciences

URL: <http://www.cass.cn/>

Website of National Knowledge Infrastructure (CNKI)

URL: <http://number.cnki.net/>

Website of E-House China R&D Institute

URL: <http://www.yiju.org/>

## **APPENDIX     Definitions**

### *Welfare housing distribution system*

Until 1999, most of people in China's urban area had lived under the Welfare Housing Distribution System in which the government provided nearly free housing for urban residents. All employees that work in state-owned companies received allocated housing from the government or their company.

### *Hot money*

Or floating capital, or refugee capital, is the money that is moved by its owner quickly from one form of investment to another, as to take advantage of changing international exchange rates or gain high short-term returns on investments. Its main characteristics are short term, arbitrage and speculation of foreign currency. Just because of hot money, Asian financial crisis could be so serious that almost break down all southeast countries' financial systems in 1997.

### *Self-fulfilling*

A self-fulfilling prophecy is a prediction that directly or indirectly causes itself to become true, by the very terms of the prophecy itself, due to positive feedback between belief and behavior.

### *China's 11<sup>th</sup> Five-Year Plan*

Among the main purposes of the Eleventh Five-Year Guideline (2006-2010) are securing economic growth and economic structure, urbanizing the population, conserving energy and national resources, encouraging sound environmental practices, and improving education. In addition, the plan seeks to increase access to employment and medical care and to improve pensions for the elderly.

### *Super-national treatment*

On the basis of national treatment, add more special treatment for foreign enterprises which is more than the treatment of domestic citizens. It is applied to encourage international investments in China.

### *Butterfly effect*

A name given to the extreme sensitivity of chaotic systems, in which small changes or perturbations lead to drastically different outcomes. A common example of this phenomenon is a butterfly flapping its wings in California, and thereby initiating a change in weather patterns that results in the formation of a thunderstorm in Nebraska.