

# *The Relationship between Real Estate Bubble and Financial Crisis*

## *—— Taking Shanghai as an Example*

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**Abstract:** In recent years, the real estate market has become increasingly hot, developing very quickly, and has become one of the important industries to promote the development of GDP in China. However, the rapid development of many negative effects, such as high prices and rising costs of living, has caused the real estate market to bubble, causing people to worry about whether it will cause a financial crisis, resulting in an economic crash. As a result, many scholars have conducted various studies on the real estate bubble, but they have not reached a consensus on the bubble. Economic crashes caused by real estate bubbles have occurred on occasion throughout history, and many financial crises are triggered by excessive real estate bubbles. This paper visually analyzes the development of the real estate market in Shanghai in recent years using a literature review method, analyzes the transmission relationship between the real estate bubble and the financial crisis, expounds on the harm caused by the bursting of the real estate bubble, and proposes corresponding countermeasures for the benign development of the real estate market.

**Keywords:** real estate, bubble, financial crisis, Shanghai

## 1. Introduction

With the implementation of urban reform policies, China has maintained a steady development path. The urbanization rate is also increasing, and more and more rural areas have evolved into cities and towns. Since 2002, China's real estate prices have had a rising trend, and the real estate bubble has gradually emerged, expanding and the contained financial risks are also accumulating. After 2016, the rapid rise in housing prices in China has brought about severe social problems: the increasing vacancy rate of commercial housing; the increasing pressure of residential housing loans; and the increasing imbalance of regional development. When the real estate bubble is too high, with the macroeconomic downturn and the government cracking down on property speculation, the market supply and demand environment will change, and the possibility of housing prices will fall on a certain scale [1]. If the housing price falls sharply, the buyers believe that the price of the current property will depreciate. The buyers in the market are prone to panic and sell the property in large quantities, leading to a further decline in the housing price and affecting the stable development of the financial environment [2].

This paper, through a method of literature review, visually analyzes the development of the real estate market in Shanghai in recent years; analyzes the transmission relationship between the real estate bubble and the financial crisis; expounds the harm caused by the bursting of the real estate bubble; and puts forward corresponding countermeasures for the benign development of the real estate market. This paper measures and analyzes the specific Shanghai real estate market, further explores and verifies whether there is a bubble in the Shanghai real estate market, and analyzes the causes and hazards of the real estate bubble from the perspective of supply and demand, so as to provide a corresponding theoretical basis for the government's prevention and control work. Funds saved in the real estate market should be invested in the real estate industry. The real estate industry is large in scale and has a wide influence. The stable development of the real estate market can drive the healthy and reasonable operation of the economy. Excessive housing prices are not conducive to social development and stable economic growth. It has important practical significance for people's living standards [3].

At the same time, real estate prices in Shanghai have increased significantly in recent years. This article summarizes the development of Shanghai's real estate market, which can provide some reference for Shanghai's home buyers, help home buyers understand the situation of Shanghai's real estate market, and reduce their blind buying and follow-up speculation. house behavior to protect the interests of home buyers. As a representative city, Shanghai can provide some theoretical suggestions for the government to regulate the real estate market in the same type of city through the analysis of this specific city, which is conducive to the government's taking corresponding measures to deal with and curb the bubble, so as to maintain the real estate market in my country. The author will promote healthy and orderly development and my country's economic growth [4].

## **2. The Concept Real Estate Bubble and Financial Crisis**

### **2.1. The Concept of a Real Estate Bubble**

Foam is attached to the carrier as a premium, and the concept of "bubble" can be understood as redundant and unrealistic. Different scholars have different opinions and definitions of a real estate bubble. Some scholars believe that a real estate bubble is essentially a substantial asset bubble, with real estate as the principal carrier in the financial industry, while some scholars believe that a real estate bubble refers to the unreasonable deviation between the real price of real estate and its theoretical price. By analyzing the formation mechanism and transmission mode of the real estate bubble, this paper believes that the real estate bubble refers to a form of continuous growth of the real estate price due to the speculative behavior in the real estate market and the expansion of credit scale, and the real price is separated from the theoretical price. In the process of rising real estate prices, although it can promote the rise of the macro economy, when the price reaches a certain high point and it is difficult to continue, the bubble will burst, causing the collapse of the real estate market [5].

### **2.2. The Concept of a Financial Crisis**

The financial crisis also refers to the financial storm, which refers to the evil change of financial indicators within a certain range of jurisdiction. Its mainstream theory includes financial instability, monetarist theory, and other theories.

This paper holds that the financial crisis refers to the sharp and supercyclical change of all or most financial indicators (such as short-term interest rates, monetary assets, stock prices, land prices, failures of enterprises and failures of financial institutions) in one or more countries and regions. The emergence of a financial crisis is usually accompanied by large-scale corporate bankruptcy and a soaring unemployment rate, resulting in a great economic depression situation and even leading to a certain degree of social unrest or national unrest.

### **3. Real Estate Bubble Formation Mechanism**

#### **3.1. Micromechanism**

First of all, from the perspective of demand, almost all residents need one or even more houses, and their demand elasticity is relatively small. The three-child policy means that the division of school districts in primary and secondary schools is biased toward urbanization. Residents' demand for commercial housing is increasing. In some areas, commercial housing is one of the necessities for both men and women to get married and have children, as well as the elderly. From work to pensions to children's education, many people have a strong desire for superior commercial housing. In the market, speculators see the rigid demand for commercial housing and hoard a large amount of real estate through real estate speculation, which promotes the housing price to rise continuously, so as to make profits, and thus creates a bad situation where the price of commercial housing rises more and more. Under the repeated operation of such a bad situation, the real estate bubble will continue to expand and eventually lead to the actual value of the real estate deviating from the base value, forming the real estate bubble [6].

Secondly, from the perspective of supply, the real estate price depends on the supply of land to a certain extent. If the land supply price rises, the cost of developers will rise accordingly. Most of the land is acquired by the government for auction and transfer, and the developers need more funds to obtain the construction land. Because the land is not renewable, the land prices in various regions have shown a rising trend in recent years. At the same time, the birth policy is gradually liberalized, China's population will continue to increase, the demographic dividend drives the development of the real estate market, and the limited land resources make it difficult to supply the growing population, resulting in the further rise of land prices in the bidding market and the real estate bubble being gradually expanded [7].

#### **3.2. Macro Mechanism**

First of all, from the perspective of investment and financing, the real estate industry has a large amount of capital investment in the development process, which may cause bad tail risks, and the income return needs a long time. Developers in the process of investment and financing need a lot of financial support. Bank loans are the most direct source of funds. The current market is optimistic about the real estate industry because of its low risk and high profit. The vast majority of banks are willing to extend loans to the real estate industry. Massive lending led to bank credit expansion, and the real estate industry's capital stock decreased significantly. At the same time, with the development of financial instruments and derivatives, the financial risks associated with real estate are gradually increasing.

Secondly, from the perspective of government supervision and land control, the Chinese government's supervision of the real estate industry is insufficient. The government has reservations about its development. Reducing restrictions on the real estate industry would enable the control, the Chinese government's supervision of the real estate industry is insufficient. The government has reservations about its development. Reducing restrictions on the real estate industry would enable the industry to get more social investment. Residents' excessive speculation in the real estate market prompted housing prices to rise, leading to parts of the real estate market's development. Local governments' rules and regulations for land transfer and rectification of land policies are not perfect, and their lack of punitive measures for malicious increases in housing prices, such as land hoarding, is allowing some speculators to take advantage of them. At present, there is an unreasonable trading system in the process of land auction. The high bidder can easily obtain more land, but there is not much land that can really provide affordable housing, resulting in the shortage of affordable housing

supply, the high vacancy rate of commercial housing, and the allocation of land resources that cannot reach their maximum efficiency. As the direct basis for the government to transfer land, the land system is not conducive to the control of housing prices [8].

#### 4. Analysis of the Relationship between Real Estate Development and Financial Bubble in Shanghai

##### 4.1. Overview of the Real Estate Development in Shanghai

###### 4.1.1. Investment

From the perspective of the total investment in real estate development in Shanghai, the real estate investment in Shanghai continued to grow from 2010 to 2019, from 95.62 billion yuan in 2010 to 339.578 billion yuan in 2019, with an increase of about 3.5 times, which shows that the development speed of real estate in Shanghai is relatively fast. According to the analysis of the growth rate of real estate investment, the average growth rate of investment exceeded 11.7% before 2014, especially in 2011. The biggest increase was as high as 36.5%, but after 2014, the increase gradually stabilized and gradually recovered after 2017 [9]. It can be seen from Figure 1 that the total real estate investment in Shanghai has been in a state of linear growth for the past 10 years, with a relatively large growth rate, but the growth rate of the investment is relatively volatile, and the investment willingness is affected by many factors.

Table 1: Total investment in Shanghai from 2010 to 2019 [9].

A particular year	Total real estate investment (RMB 100 million Yuan)	a particular year	Total real estate investment (RMB 100 million Yuan)
2010	956.20	2015	2472.07
2011	1302.72	2016	2606.41
2012	1597.36	2017	2734.01
2013	1853.28	2018	3067.55
2014	2301.08	2019	3395.78

Source: Shanghai Municipal Statistical Yearbook

Construction and completion area. The construction and completed areas reflect the supply of commercial housing. From Table 2, the construction and completed area from 2010 to 2019, it can be seen that the completed area of commercial housing in Shanghai has increased by about 1%, from 11.0018 million square meters to 17.28 million square meters [5]. There was a continuous upward trend in the completed area before 2017, but it has fallen since 2018, which may be affected by the sales restriction policy. At the same time, except for the construction area, which decreased slightly in 2017, all the other years showed an upward trend, but the growth rate gradually eased, indicating that the development of the real estate market is relatively stable. Shanghai's commercial housing construction area grew from 62.2705 million square meters in 2010 to 119.96 million square meters in 2019, a growth of about 2 times [9]. But through consulting data, Shanghai's affordable housing area is about 30% of the commercial housing construction area and 30% of the policy gap, the government's affordable housing land supply shortage.

Table 2: Construction area and completed area of commercial housing in Shanghai from 2010-2019 [9].

A particular year	Construction area (ten thousand square meters)	Completed area (ten thousand square meters)	a particular year	Construction area (ten thousand square meters)	Completed area (ten thousand square meters)
2010	6227.05	1100.18	2015	11142.68	1665.23
2011	7739.69	1135.00	2016	11562.96	1922.99
2012	8284.91	1055.09	2017	11523.00	2086.00
2013	9327.52	1172.24	2018	11750.00	1637.00
2014	10504.80	1501.64	2019	11996.00	1728.00

Comprehensive real estate investment and construction, the completed area of the Shanghai commercial housing supply level is in a state of continuous growth, including 2010 and 2011 growth, far more than in other years when housing supply increased more [9]. Shanghai real estate developers think real estate investment can get higher returns not because the development scale is larger than a few years ago, but because increasing the development volume will produce larger changes. After 2014, it can be seen that the growth rates of real estate investment and real estate construction in Shanghai both decreased, and the increase gradually flattened. It can be inferred that the real estate market in Shanghai is limited by the intervention of the government system or the cycle of commercial housing operations.

#### 4.1.2. Sales Area

The sales area can reflect the buyers' demand for commercial housing. Through Table 3, it can be seen that the sales area showed a continuous growth trend from 2010 to 2019, among which the sales area increased the most in 2016, but the sales area of commercial housing decreased greatly after 2017, and the demand for commercial housing has a certain saturation. Sales in 2011 and 2014 were the least ideal, with low demand for housing or unoptimistic expectations for housing prices. Since 2012, the sale area of commercial housing has gradually increased and stabilized. It can be seen from the difference between the commercial housing sales area and the completed area that except that the difference in 2012 and 2018 is positive [9], the completed area is far less than the sales area, the supply exceeds supply, the difference in other years is negative, the supply of commercial housing is too much, and the market development is overheated.

Table 3: Difference between the commercial housing sales area and the completed area in Shanghai from 2010 to 2019 [9].

A particular year	Sales area of commercial housing (ten thousand square meters)	Difference with the completed area (ten thousand square meters)	a particular year	Sales area of commercial housing (ten thousand square meters)	Difference with the completed area (ten thousand square meters)
2010	988.28	-111.84	2015	1481.45	-183.78
2011	829.18	-305.19	2016	2326.69	403.70
2012	1089.62	24.53	2017	2053.67	-32.33
2013	1139.13	-33.10	2018	1675.00	37.00
2014	1121.13	-380.51	2019	1514.00	-214.00

Data source: Shanghai Statistical Yearbook, where the difference with the completed area is calculated by myself

## 4.2. Real Estate Financial Risk Analysis in Shanghai

In the process of operation and development, the Shanghai real estate industry needs more investment funds, and financing and loans basically need to go through banks and other financial institutions. Although the real estate industry is a traditional construction industry, the unit price of commercial housing sold is relatively high. At present, the housing price to income ratio in Shanghai is more than 10 [9]. Therefore, most buyers prefer to choose mortgage loans in the process of buying houses, resulting in a high degree of correlation between buyers and banks. Therefore, no matter from the perspective of developers or home buyers, the real estate industry and financial institutions have a great connection, which makes it easy to breed financial risks. Due to the implementation of the commercial housing pre-sale system in the market, under the joint action of the pre-sale and mortgage systems, the banks can affect the residents' willingness to buy houses by adjusting the loan interest rate and the credit scale. The leverage ratio of Shanghai can be calculated through the household deposit and loan data.

Table 4: Leverage ratio of Shanghai from 2015 to 2019 [9].

A particular year	Household deposit balance (RMB 100 million)	Household loan balance (RMB 100 million)	Household capital leverage ratio	GDP,(100 million)	Household sector leverage ratio
2015	7617.75	5859.46	0.77	10495.27	0.56
2016	8493.27	7800.77	0.92	11709.45	0.67
2017	8670.60	9653.68	1.11	13160.71	0.73
2018	10198.50	13945.70	1.36	14306.72	0.97
2019	11901.30	16518.10	1.38	15373.04	1.07

Data source: Shanghai Statistical Yearbook (no household loan balance statistics before 2015)

Through Table 4, it can be seen that since 2015, the balance of deposits and loans of Shanghai households has increased year by year, and the growth rate of the loan balance is greater than the deposit balance. The household capital leverage ratio reached 1 in 2017, and increased to 1 in 2019. The household debt ratio is much higher than the normal standard, the household loan amount is too high, and there is a large credit scale. The leverage ratio of the housing sector also reached 1 in 2019, similar to that seen before the housing bubbles in the US and Japan burst [9]. Second, the correlation analysis of the bubble in table 3 and household capital leverage ratio and statistical year of Shanghai real estate enterprise asset-liability ratio data import shows that the Shanghai real estate bubble is correlated with financial risk, the phenomenon of excessive financial support, and the rapid development of the real estate market has produced a certain financial bubble.

At the same time, in the development process of Shanghai real estate enterprises, there are the following financial risks: First, the financing channels of Shanghai real estate enterprises are too narrow. Real estate enterprises have the characteristic of being capital-intensive, whether in operation or construction. They need more original capital. The qualification requirement for issuing stocks and bonds is higher. Shanghai's currently listed real estate enterprises account for a very small proportion of the total. The remaining unlisted companies lack complete direct financing capacity. I prefer to choose commercial loans as their own development funds. As a result, real estate enterprises are highly dependent on commercial bank loans. At present, the loan ratio of real estate enterprises in Shanghai exceeds 80%, Banks bear great risks in the operation process of real estate enterprises. If the improper operation of the borrowing enterprise causes capital problems, the problem will act directly on the banks. This increases the financial risk of banks; next, the development scale of real estate enterprises in Shanghai is uneven. Listed companies have a very high market share. However,



the asset-liability ratio of each enterprise exceeds the normal standard, The proportion of private funds is relatively small. There is a certain liability risk. In small real estate enterprises, there are problems such as low enterprise credit and substandard housing quality, which are likely to lead to real estate price changes and price risk. Moreover, Shanghai's real estate developers accept the accumulation fund less. Some enterprises do not even go to the relevant departments. Buyers use the accumulation fund repayment period for a long time, making it difficult for developers to quickly withdraw funds. Buyers can only choose the provident fund after the development of commercial loans. Due to the increasing age of buyers in Shanghai, the housing commercial loan cycle is long, and there is a repayment risk caused by the unemployment of buyers.

To sum up, the real estate market in Shanghai currently has two problems: excessive housing prices and too rapid development. Home buyers have optimistic expectations for the market, and society invests more funds in the real estate market. At the same time, banks and other financial institutions have excessive support for the real estate market, and outstanding household loans are growing too fast, even exceeding the total GDP in 2019. However, according to the current development situation, the real estate bubble produced in the development process of Shanghai has a certain scale. However, due to the decrease in the completed area in recent years, the housing completion volume has gradually decreased, the population inflow has increased, and the demand has not decreased, so the real estate bubble will not burst from the perspective of supply and demand. However, the financial risks caused by the real estate bubble in Shanghai cannot be ignored. At present, both developers and home buyers in the Shanghai real estate industry are highly associated with banks and other financial institutions, and the credit scale in the real estate market is large, and there are certain credit risks.

## **5. The Transmission Relationship and Influence of the Real Estate Bubble and the Financial Crisis**

### **5.1. Transmission Relationship**

The real estate industry has a wide range of radiation, so it has strong conductivity. The bursting of the real estate bubble could affect other related upstream and downstream industries, causing a social linkage crisis. The real estate industry's penetration into other areas means the real estate industry's directly related industries, including construction and decoration industries, are directly affected by the real estate market. The good development of the real estate market will improve related industry market demand if the real estate bubble bursts, the macroeconomic downturn, related industry layoffs, the possibility of bankruptcy, and the financial crisis at the social level The bursting of the real estate bubble will also have a direct impact on the financial sector. First of all, a large part of the government's fiscal revenue comes from land transfer. The real estate market will bring land dividends during the development. If the real estate bubble bursts, the government's fiscal revenue will decrease, which will easily lead to the situation of financial inability to repay loans.

### **5.2. Influence**

#### **5.2.1. Raised a Resource Allocation Problem**

The demand elasticity of the real estate industry is relatively small. If the real estate bubble suddenly bursts, because the basic price of commercial housing is too high, it cannot be directly sold in a short time, and it is difficult to recover the investment funds quickly. When the real estate market develops well, it obtains more social resources, and the developers will increase their personnel and capital investment in the process of commercial housing development, while the idle land in society will also tend to be sold to the developers to build commercial housing. At the same time, in order to obtain higher returns, investors in the market will also choose loans and other ways to obtain funds and

invest in real estate, rather than being willing to obtain returns by investing in the real industry. When a large amount of social funds flow into the real estate industry, it severely impedes the development and construction of other real industries. If the real estate bubble bursts and causes the financial crisis, the real estate-related industries will face excess capacity, commercial housing stock, and other entity industries that have not received more social resources for a long time. Research and development is relatively slow, and the entity industry's economic benefits can not make up for the losses of the real estate industry. This will create a market structure imbalance in the allocation of resources.

### **5.2.2. Crisis in Production and Consumption**

The real estate industry has a strong correlation and leverage. The collapse of the property market often leads to the collapse of other industries, and the production and consumption sectors will be even more likely to bear the brunt. Real estate belongs to the demand side of the construction industry. In the process of real estate construction and development, they need a lot of labor and building materials. If the real estate market bubble bursts, developers' building numbers will decrease. The demand for building materials and other production supplies will hinder the development of the production industry, causing a production crisis. At the same time, too high housing prices will also curb residents' consumption levels. Due to the pressure of the mortgage, people will increase their consumer spending for entertainment on the mortgage, disrupting the original consumption structure. If the real estate bubble bursts, the income level of residents will decline significantly, which in turn leads to the weakening of their purchasing power, and the lack of purchasing power makes the production power of related industries insufficient, resulting in production stagnation. If the government fails to manage it in time, it can lead to a massive collapse and a surge in unemployment, resulting in a production and consumption crisis.

## **6. Countermeasures**

### **6.1. Improving Financial Oversight and Limiting Speculation**

Poor supervision is one of the important reasons for the real estate bubble. For example, the real estate bubble crisis in Japan and the US subprime mortgage crisis were all caused by the government and people's having high expectations of the market and failing to oversee the real estate market in time. The government's financial regulation plays a leading role in the process of real estate bubble control. Government regulation should also be implemented in modules at the grass-roots level, and prudent control policies should be implemented to reasonably regulate the transaction behavior of financial institutions, developers, and home buyers. First of all, the government should strengthen the supervision of developers and affiliated banks to prevent their violations in the process of investment and financing and to examine the use of developers' loan funds. Secondly, it is necessary to reasonably supervise the false information in the market and the network, reduce the spread of misleading information such as speculation and false remarks, and prevent home buyers from blindly buying houses by listening to rumors and causing losses. Finally, the government should establish and improve the market supervision system, find and stop the speculation in the market in time, and punish or suppress the speculation behaviors that destroy the market rules and cause bad effects. In view of the property speculation behavior, the government should implement a purchase restriction policy, which can guarantee the chance of winning the lottery, reduce the hoarding behavior of property speculators, and reduce the housing vacancy rate.



## 6.2. Improving the Land Management System and Expanding Effective Supply

As a necessity for developers to develop real estate, the decrease in land supply will indirectly lead to an increase in the sales price of commercial housing, thus affecting the real estate market price. At present, developers are bidding for land with increasing fierceness but have failed to properly develop the land after acquiring it and are waiting for land appreciation to raise the price of commercial housing. In response to such land hoarding, the government may take the following regulatory measures: First, a regular sampling inspection of the use and progress of the real estate land; and second, a field test to determine whether the land is standardized development. Next, create a transparent and equitable land trading system. Management of land supply by means of information technology, Establish a land reserve database to calculate reasonable indicators of land supply. In the process of land management, the government should scientifically plan the land layout. Prevent the over-concentration of land. Finally, the government should develop a reasonable bidding method in the process of land transfer, changing from the original way of getting the higher price to the benefit evaluation of the bidding scheme. At the same time, the inflow and outflow of land should be strictly controlled, the land use approval process should be supervised, and the media and other platforms should be combined to prevent the occurrence of corruption, ensure the reasonable and normal operation of the land management system, and reduce the behavior of "land sale finance".

## 6.3. Increasing Policy Assistance for Low-income Housing

The price of affordable housing is lower compared with ordinary commercial housing, so it is more favored by middle and low-income people. Some studies have shown that the supply of low-income housing is inversely proportional to the price of commercial housing, and the increase in low-income housing supply has a certain inhibitory effect on the price of commercial housing. Therefore, the government should increase its policy support for low-income housing. First of all, the government should appropriately increase the coverage of low-income housing, encourage developers in some areas to carry out the construction of low-income housing, give tax incentives to enterprises building low-income housing, and focus on solving the housing problem of residents. Secondly, in the implementation of affordable housing, we should improve the corresponding policies and regulations, set up supervision links for the construction and distribution of such housing, strengthen the guidance of buyers' consumption concept, and encourage buyers to buy houses rationally. When planning the scale of low-income housing, the government should keep track of the composition of residents in each area in advance, understand the income of residents in the area, and put forward a plan for the construction of low-income housing suitable for the area. Finally, the government should apply for affordable housing personal qualification review for the record, to prevent some speculators from using low-income identity to seek affordable housing purchase qualification, and ensure affordable housing personnel follow-up access, clear affordable housing application and exit mechanism, to maximize affordable housing.

## 7. Conclusion

Through the empirical study of the Shanghai real estate bubble and the theoretical analysis of the relationship between the real estate bubble and the financial crisis, the following conclusions are obtained:

First of all, the real estate industry in Shanghai has developed too fast in recent years. The investment in the real estate industry is greater, and there is the phenomenon of excessive development. The index method and the formula method can reflect the existence of a large real estate bubble in Shanghai at present. After 2016, the real estate bubble degree has gradually increased, and there is a possibility of further deterioration. Among them, the housing price to income ratio and the

proportion of real estate investment have a greater impact on the bubble degree. Through the comprehensive analysis of the Shanghai real estate market, the American subprime mortgage crisis and the Japanese real estate bubble crisis, the real estate bubble and the financial crisis are transmitted together. The factors that caused the bursting of the real estate bubble and the financial crisis include excessive speculation in the real estate market and the expansion of bank credit scales; excessive speculation by home buyers; and the high debt ratio in the market, leading to the accumulation of corresponding financial risks in the real estate bubble, which then led to the financial crisis. But on the whole, Shanghai's real estate development still has potential for development. It is hoped that in the future, Shanghai's real estate can find a development strategy that suits itself, prevent financial bubbles in time, and promote the sustainable development of the industry.

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