

# ***The Research of Real Estate Price Bubble in Case of Hengda Real Estate Company***

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**Abstract:** Real state bubble refers to a continuous process of abrupt increase of selling price which exceeds value. Therefore the economy is so full of bubbles that cannot reflect material wealth. When the price is too high to afford by consumers, the whole industry have risk to collapse. In order to research reasons lead to real estate bubble, this paper uses liner regression method to explore factors that influence real state selling price. As a result, the real state selling price is positive relative to land price and resident disposable income and negatively relative to interest rate. Additionally, this research also takes a example of Hengda to prove the result.

**Keywords:** Restate bubble, Hengda, Liner regression.

## **1. Introduction and Research Background**

With the rapid development of the real estate market in our country, the contradiction between excessively high and excessively fast growing housing prices in China brought lots of question in real state market. On the one hand, people cannot afford to buy a house because of the extreme high price aggravating the wealth gap between householders. On the other hand, the sustainably rapid rise in housing prices has led distortions in resource allocation, squeezed household consumption expenditure, and raised capital and human costs. Increasing house prices are expected to attract a lot of financial resources and society. The inflow of capital into the real estate sector is highly possible to lead systemic risks and threaten national financial security. Therefore, the study of real estate price bubble is significant for accurately analyzing and estimating the development stage of China's real estate market.

Polakowski and Wachte believe that housing price and land price will rise when land use is restricted, and the impact of land supply restriction have positive influence on land price and housing price [1]. Bernanke and Gertler found that short-term interest rate changes had a positive impact on real estate investment and a significant impact on the real estate consumption market, which was the main factor affecting real estate [2]. Dtragiache and Vogel study the impact of prudent policy tools on house prices using relevant data of quarterly frequency for 16 countries in Central, Eastern and South-Eastern Europe [3]. The results show that minimum capital adequacy ratio, maximum ratio of loans to household common capital and non-standard liquidity measures have a large impact on house prices. Using time series data from 57 countries, Kuttner and Shim examined the effectiveness of nine non-interest rate policy tools including macro prudential measures in stabilizing housing credit in house prices [4]. According to the traditional panel regression analysis, housing credit growth is

significantly influenced by changes in maximum debt service ratios, maximum loan-to-mortgage value ratios, housing sector risk constraints, and housing-related taxes.

## **2. Introduction of hengda**

Hengda Real Estate company is an international enterprise group listed on the main board of the Hong Kong Stock Exchange, integrating real estate planning and design, development construction and property management. By the end of 2020, Hengda achieved total assets of 3 trillion Chinese yuan, annual sales of 800 billion yuan, and annual profits and taxes of 150 billion yuan as a industry leader in China. However, up to today, this real estate tycoon faces over 2.39 trillion Chinese yuan debt during short three years.

First, Hengda's risky investments and over expansion led to a mountain of debt. In order to pursue higher market share and profits, Hengda Real Estate is not afraid to invest a lot of money and resources to project development, and even put money into some extremely risky areas such as tourism real estate and sports industry. These risky investments eventually led to huge debt pressures on Hengda Real Estate. With this continuous expansion of the company, management is facing a huge management challenge. The communication and coordination within the company are not smooth, and the decision-making execution is inefficient which leads to the project schedule delay and the accumulation of problems. At the same time, Hengda is lack of capital management resulting in poor capital flow and increased risk of capital chain rupture. Over the years, Hengda has been building its own brand and improving brand awareness. With a high degree of popularity and great reputation, it is naturally easy for Hengda to gain their trust and support when seeking loans from banks and other financial institutions. This is not difficult to explain why Hengda Real Estate can successfully obtain a large amount of borrowing funds. Hengda bought land from government by using money borrowed from bank and they started to sell houses to consumers before they start the building project. Then they uses the money got from consumers to interment other land investment or other industries. At the end, because of COVID-19 and poor capital management, they don't have money to finish the building projects that they already sold to consumers. Therefore, consumers bought unfinished building and cannot move in.

## **3. Methodology**

In order to research the relationship between house price and factors, this research paper uses liner regression methodology. In statistics, Linear Regression is a regression analysis studying the relationship between one or more independent and dependent variables using a least square function. This function is a linear combination of one or more model parameters called regression coefficients. The case with only one independent variable is called simple regression, and the case with more than one independent variable is called multiple regression[5].

### **3.1. Factors influence real estate price**

#### **3.1.1. Land price**

The real estate's land was bought from the Land and Resources Bureau through auctions, because in China, all the land belongs to Chinese government. In order to in crease local government revenue, some local government will increase the land price and have land restriction policy. The following chart 1 shows the increasing price of land sold by government with doubled number from year 2015 to 2021. Because of the land sold system of bidding and auction, with the increasing demand of house, the supply is monopolized by the government and is relatively insufficient, which will inevitably make the land price up further. For example, Hengda bought 3300 acre land with 8.6 billion price

which is extremely high. Additionally, the money Hengda use to buy land mainly from borrowing money from bank and financial institution.

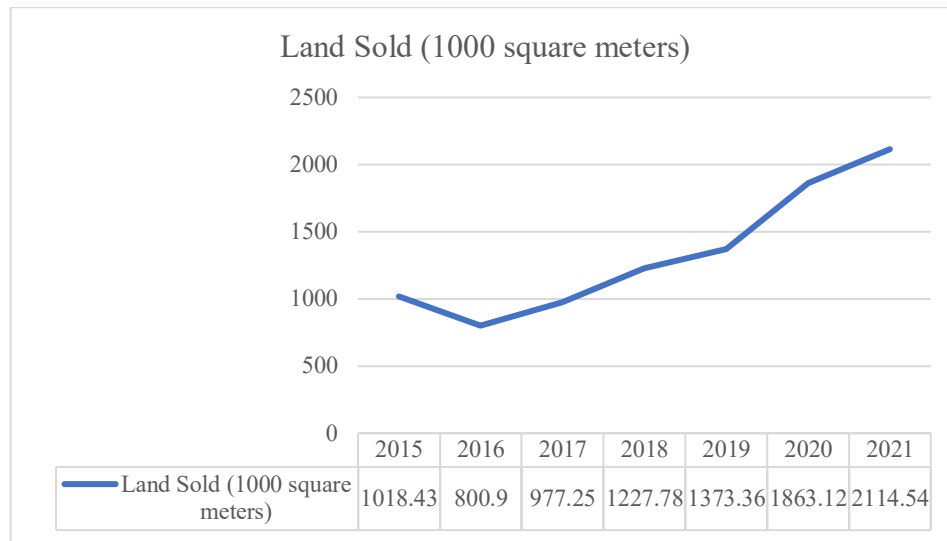


Figure 1: Land Sold in Shanghai

### 3.1.2. Money supply and interest rates.

The funds of real estate developers in our country mainly come from bank loans, and the buyers mainly buy commercial housing through mortgage. Monetary policy has a great impact on the real estate market in our country. With loose monetary policy, Under the loose monetary policy, the market has abundant liquidity. Mortgage loans transform residents' potential demand for housing into effective demand. With decreasing interest rate the cost of capital for developers and home buyers in decrease. The following chart 2 shows the Laon Prime Rate change in one year and five years[6].

For example, as an important industry of China's economy, the real estate industry has not only created huge social wealth, but also provided a way for citizens to achieve their happiness. In the past few decades, China's real estate market has experienced rapid development and great changes, creating a number of excellent real estate enterprises and leading companies. Among them, Hengda Real Estate Group and its founder Xu Jiayin are undoubtedly the most influential. However, in 2021, Hengda fell into a bottomless debt crisis, facing crises such as insolvency, default risk, declining performance, plunging stock prices, and litigation disputes. So far, Hengda currently owes 128 banks, including Minsheng Bank, Agricultural Bank, Zheshang Bank, Gunagda Bank and ICBC, a total of 2323 billion yuan. Lots of unfinished building from Hengda shut down and people who buy Hengda's real estate cannot live in their new house.

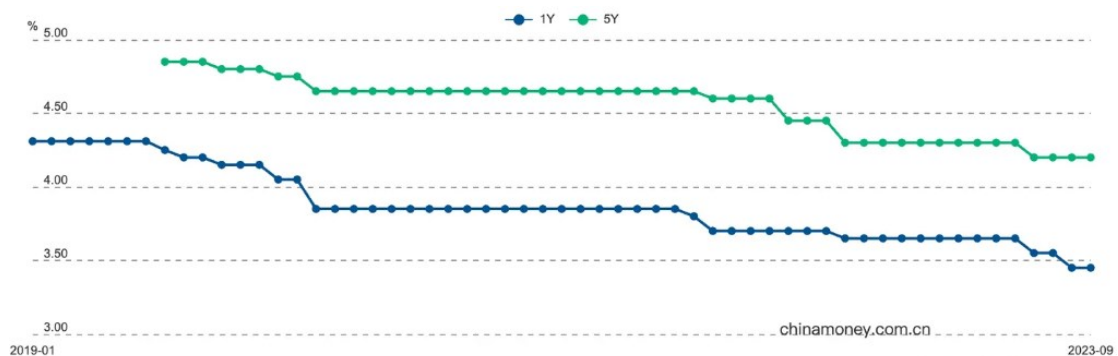


Figure 2: Loan Prime Rate in 1 year and 5 years

### 3.1.3. Resident disposable income

Urban population change is the most fundamental factor affecting the demand for real estate. First of all, the increase in population will lead to an increase in the demand for real estate, pushing up the price of real estate. Secondly, with the improvement of population quality, people's requirements for quality of life, public service facilities and living environment will also increase accordingly. In order to meet people's expectations, real estate developers will increase their investment in quality and taste, increase the cost of real estate development and push up the real estate price.

Location is the most important feature to determine real estate demand and housing price. First-tier cities have large demand and high housing prices, while the core areas of the same city such as: business centers, education centers, medical centers, convenient transportation areas have large demand and high housing prices. At the same time, housing construction structure, developer brand effect also have a greater impact on real estate demand and prices. And people of first tier cities have higher disposable income and live standards.

Disposable income is the most important factor that affects residents' consumption behavior. With the increase of residents' disposable income, the Engel coefficient decreases, and the ability to buy a house increases accordingly. In addition, the house is a special commodity, with both investment characteristics, after the increase of residents' income, real estate can be used as a hedge or investment channel, in the meanwhile increasing the demand for real estate [7].

### 3.2. Building linear regression model relationship

In order to study the dynamic relationship between real estate price and factors affected real estate price, furthermore to study macro economy, credit support and bubble price of real estate, this research constructs a four variables linear regression model including real estate price, land price, benchmark interest rate of medium and long-term loan of financial institutions and resident disposable income.

Based on this, the linear regression model is set as:

$$y = B_0 + B_1x_1 + B_2x_2 + B_3x_3$$

y = real estate selling price of Hengda

x<sub>1</sub> = interest rate

x<sub>2</sub> = disposable income of residents

x<sub>3</sub> = land price

The disposable income of residents is collected from 12 month in year 2020 to 2022. The Land price is collected from Hengda real estate selling price from year 2020 to 2022. The interest rate is obtained by taking the actual rate statistic from People's Bank of China, weighted by the 90 days period of the quarter and deflated by the inflation rate. All the above variables except Rate were seasonally adjusted. Last the land price is collected from Land and Resources Bureau selling price from year 2020 to 2022. The final equation of liner regression module is set as:

$$y = 151.271 - 0.081 x_1 + 0.089 x_2 + 0.098 x_3$$

## 4. Result and Recommendation

According to the equation, the disposable income of residents has significant positive effect on real estate price, which shows that the rise of per capita disposable income improves residents' ability to buy houses and investment, while increasing the rigid demand and investment demand for real estate. However, it takes a certain amount of time for people to make the decision to buy a house from income growth, so the short-term effect of income growth on the housing price bubble is not obvious, but the long-term effect is very significant. On the other hand, the land price will increase real estate

selling price in a short term. And the interest rate is negatively influencing the real estate price in a long term.

The improvement of residents' income is first reflected in the increase of working capital and bank deposits, which directly improves the loan supply capacity of financial institutions, and then promotes the issuance of short-term and long-term loans. The rise in housing prices is usually accompanied by the booming development of related industries, which promotes credit issuance. In addition, the mutual promotion mechanism of real estate prices and credit will also lead to the continuous expansion of credit scale under the background of rising housing prices. The change of interest rate means that the repayment cost of consumers and the borrowing cost of real estate developers change, which has a concurrent impact on the scale of credit. Finally, the adjustment of money supply has a direct impact on the credit scale from the perspective of policy support and economic regulation[8].

Because the impact of the COVID-19 epidemic outbreak in early 2020, the real estate industry did not expect and unprepared. In the early stage of the new coronavirus epidemic, many housing enterprises stopped production in order to prevent and control the epidemic, and housing sales were almost at a standstill. In Hengda's case, People's disposable income decrease while the housing price decrease. However, Hengda bought land before COVID-19 epidemic outbreak when the land price is extremely high. Therefore, when COVID-19 epidemic end, they cannot sell their house mostly and then they don't have money to finish projects that already started many years ago. More importantly, Hengda don't have money to pay their debt borrowing from financial instructions. In conclusion, learning from Hengda's case, the real estate bubble is significant in China.

How to save Hengda and improve real estate bubble in China is a very important issue in China. First, Chinese government should control the land selling price and supply for real estate developer. The shortage of land supply is an important factor pushing up the housing price bubble. It is suggested to establish a "permanent closing system" of land supply, that is, a land supply system positively linked with real estate prices, which slows down the pace of land supply when the housing price falls and speeds up the pace of land supply when the housing price rises, so as to keep the housing price within a reasonable operating range. At the same time, recovering economy development from COVID-19 is extremely urgent. Expanding oversea collaboration and simulated local economic development can increase unemployed rate and disposable income.

## 5. Conclusion

It is significant to control real estate bubble by knowing factors influencing housing price. After this research, it is known that interest rate is negative influencing house prices. The decrease of interest rate and the degree of getting loans from bank and financial institution can easily increase the house selling price. The instrument of credit tools to regulate housing prices are not good, while the use of interest rates and money supply tools to regulate the real estate market is more targeted and effective, which can have a significant impact on the trend of real estate. If only interest rate tools or money supply tools are used for regulation, the short-term adverse policy effect is relatively significant. It is possible to consider both interest rate policies and monetary policies, which not only offset most of the short-term adverse policy effect, but also achieve better regulation effect in the long run. When the real estate price is inflated and a bubble may appear, it can be controlled by tightening the money supply and raising the loan interest rate. Of course, the use of money supply tools and credit tools to control housing prices must be accompanied by land policies, tax policies and fiscal policies which is the only way to effectively regulate real estate prices. Accordingly, interest rate tools have a negative impact on tax income disposal income of citizens. Therefore it has to take care of use interest rate control tools.

According to land price policy, the implementation of strict land policies has played a positive and far-reaching impact on restraining the excessive real estate market. But the implementation of these

policies has to be done by local governments. Some local governments have introduced preferential land policies for short-term interests, attracting investment with cheap land, which has led to the deterioration of the long-term investment environment. Local government should strengthen land management and strictly control the annual and long-term total land supply of each city and steadily increase the supply of affordable housing land year by year, waive land transfer fees and control the area, supply area and house price of each house. Additionally, it is effective to develop low-cost land supply for low-priced commercial housing. On the other hand, when local governments bid or list for all kinds of commodity housing land, they should determine the high limit of the sale price in the bidding bottom to prevent the surging land price. Extremely higher land price will lead to "disaster" to the whole national economy and people's livelihood. Therefore, it is significant to prevent the acquisition of excessive profits, formulate a higher land transfer tax and land value-added progressive tax, because more land transfer means more tax, the final acquirer will be speculators. For example. Hengda bought a land of Hainan province in China with triple price from first bidder of the land which extremely increase Hengda's investment and price their house.

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