Research on the Impact of Real Estate Growth on the Real Economy—Based on the Mediation Effect Model

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Abstract: Based on the time series data from 2001 to 2016, this paper studies the impact of rising housing prices on real economy investment and several internal economic mechanisms by establishing an intermediary effect model. The results show that: (1) Real estate growth is not necessarily beneficial to the growth of the real economy, and excessively high housing prices will hinder the development of the real economy. (2) Rising housing prices will affect entity investment through a partial mediating effect of company profits. (3) Stabilizing housing prices and improving the profitability of real estate companies are of great significance for ensuring the healthy development of my country's real estate industry and guiding the economy from virtual to reality.

Keywords: Real Estate; Economic Growth; Intermediary Effect Model;

1. Introduction

Since 1978, my country's economic growth has achieved world-renowned achievements. It is undeniable that real estate has played a huge driving role in it. In fact, real estate not only provides premises and venues for the development of the national economy, but also directly or indirectly stimulates the development of different upstream and downstream sectors and industries. In 2017, my country's real estate investment completed was 109.983 billion yuan, accounting for 17.38% of urban fixed asset investment; the direct contribution rate of real estate investment in economic growth was 5.32%. After the reform of the housing system in 1998, my country's real estate market developed rapidly, and the national average housing price also rose from 185.356 yuan/square meter in 1998 to 7,614 yuan/square meter in 2017. Many scholars believe that rising housing prices have promoted the development of the real estate industry, and thus promoted economic prosperity. However, it is worth pondering: Can the rapid development of my country's real estate industry continue? What is the price of economic growth brought about by the rapid development of the real estate industry? Can economic growth overly relying on real estate be sustainable?

Throughout the history of world economic development, economic growth supported by a real estate bubble is unsustainable. The bursting of a country's real estate bubble often leads to economic crises, and the financial system and national economy will suffer heavy losses. For example, after the collapse of the real estate industry in Japan in 1991, the Japanese real estate collapsed for two decades with economic downturn, unhealthy high prices, shrinking residents' wealth and long-term deflation. The economy has since fallen into a long-term depression that has not yet emerged. After the Thai real estate bubble burst in 1997, the Thai bubble economy collapsed, which triggered the Southeast Asian financial crisis; the financial crisis triggered by the subprime mortgage crisis in the United States in 2007 was also due to the bursting of the real estate market bubble. “Learning from history, we can know the rise and fall.” The Chinese government should learn from the bursting of real estate bubbles in Japan, the United States and Southeast Asian countries, and guide the rational development of the real estate industry.

2. Literature review

Regarding the impact of real estate overheating on the real economy, domestic and foreign scholars have paid more attention to it in recent years. Most scholars believe that the real estate bubble “squeezed out” investment in the real economy[1]. First, the real estate bubble has increased the financing and production costs of the real economy. Through theoretical analysis, Wang and Wen (2010) found that the real estate bubble, through the interest rate effect, increases the difficulty and cost of financing in other sectors, “squeezing out” its long-term investment and causing a country’s resource misallocation[2].

This effect has also been further verified in the study of Bleck and Liu (2011)[3]. Goodhart and Hofmann (2000) proposed that the excessively rapid rise in housing prices increased the level of inflation and the cost of enterprises and inhibited investment in the real economy[4]. Secondly, the high returns brought about from the real estate bubble directly attract enterprises to invest in real estate, and the biased support of financial credit may play a role in “fueling the flames”. Miao and Wang (2014) established a two-sector endogenous growth model and found that asset bubbles have obvious redistributive effects[5]. Attracted by asset bubbles, the real economy sector invested limited funds in the bubble sector to reduce the actual investment level of enterprises. In an underdeveloped financial system, banks always have incentives to give more credit support to real estate investments that have been overheated[6][7]. This further accelerates the process of real estate investment by entities and reduces investment in the real economy. The above conclusions are also supported by my country’s empirical data. Wu Haimin (2012) uses panel data of private industries in 12 coastal provinces in my country and found that the rapid rise in housing prices has led to the “hollowing” of private industries[8]. An empirical study by Zhang Jie et al. (2016) found that overheating of real estate has suppressed local Innovative activities, and this effect is particularly significant in the industrial economy[9]. However, some scholars pointed out that the real estate bubble can “squeeze” into the real economy investment, the main reason is the collateral effect of the real estate bubble. Farhi and Tirole (2012) proposed that asset bubbles themselves can be used as collateral to relax corporate credit constraints, allowing companies to obtain more external financing, thereby “squeezing into” real economy investment[10]. Zeng Haijian (2012) used my country’s listed company data to further verify the above point of view, and found that my country has a significant mortgage guarantee channel effect. When the price of all houses of listed companies rises, their investment will increase significantly[11].

3. Research design

In order to test the impact of rising housing prices on physical investment, this paper establishes the following model:

$$inv_t = \alpha_0 + \alpha_1 hpg_t + \alpha_2 Control + \varepsilon_t \quad (1)$$

Among them, “t” represents the year. “inv” represents the investment level of the entity sector, “hpg” represents the degree of increase in real estate prices, and is a random disturbance item.

Secondly, in order to further verify whether profit has a significant mediating effect between rising house prices and physical investment, this article will use the mediation effect test method, the test form is as follows:

$$inv_t = \alpha_0 + \alpha_1 hpg_t + \alpha_2 Control + \varepsilon_t \quad (2)$$

$$qylrl_t = \beta_0 + \beta_1 hpg_t + \beta_2 Control + \varepsilon_t \quad (3)$$

$$inv_t = \mu_0 + \mu_1 hpg_t + \mu_2 qylrl_t + \mu_3 Control + \varepsilon_t \quad (4)$$

In the above mediating effect model, "inv" is the dependent variable, "hpg" is the independent variable, and "qylrl" is the intermediate variable representing the profit rate of the enterprise. α1, α2 represent the overall impact of rising housing prices on entity investment; β1, β2 represent the impact of rising housing prices on corporate profits; M3 represents the impact of corporate profit rate on entity investment; μ1 and μ2 represent the impact of rising housing prices on entity investment after controlling for intermediate variables direct impact.

4. Empirical analysis

In terms of the channels for the impact of rising housing prices on tangible investment, we will focus on analyzing the intermediary effect of corporate profitability, referring to the intermediary test method proposed by Wen Zhonglin and Ye Baojuan (Models 2, 3, 4) (2014).

Variable	Outcome variable(inv)			
	(1)	(2)	(3)	(4)
L.hpg	-0.205	2.922***	1.973	2.638**
	(-3.00)	-1.94	-0.62	-2.41
Controls			-1.874**	-2.874*
			(-3.57)	(2.88)
Method	FE	FE	FE	FE
N	15	15	15	15
R^2	0.1962	0.1006	0.1965	0.2786

Table 1. The basic relationship between rising house prices and physical investment.

Table 1 reports the regression results of the first step of the recursive model, and Table 2 shows the regression results of the second and third steps of the mediation effect. First of all, equations (5) and (6) are mainly used to test the impact of rising house prices on the profitability of industrial enterprises. Empirical results show that excessive house price increases have a restraining effect on the company's profitability. The reason may be that moderate house price increases can promote economic prosperity and reduce corporate investment and financing costs, thereby promoting the improvement of corporate profit margins; excessive house price increases will increase the company's operating costs and weaken the company's profitability.

Variable	Mediating variable(l.qylrl)		Outcome variable(inv)	
	(5)	(6)	(7)	(8)
l.hpg	0.015***	0.403**	7.60***	5.391***
	(-4.05)	(-2.32)	(-1.51)	(-3.03)
L.srlr			4.930*	0.810**
			(-2.81)	(-1.832)
Controls	NO	YES	NO	YES
Method	FE	FE	FE	FE
N	15	15	15	15
R^2	0.3812	0.1803	0.1937	0.4938

Table 2. Rising house prices, corporate profitability and physical investment.

5. Conclusions

This article uses time series data from 2001 to 2016 as a research sample to study the relationship between real estate growth and actual investment, and further analyze the impact of real estate growth on the real economy from the mediating effect of corporate profits. The empirical results show: (1) The growth of real estate is not necessarily conducive to the growth of the real economy, which is mainly reflected in the inverted U-shaped impact of rising housing prices on real estate investment and the excessive increase in housing prices will inhibit the growth of the real economy. (2) Excessive growth of house prices will increase the company's operating costs and reduce the company's profitability. (3) The increase in the company's profit rate can promote the growth of entity investment. Therefore, rising housing prices can affect entity investment through part of the intermediary effect of corporate profits.

There are research conclusions of the policy implications. On the one hand, although the growth of real estate has a certain promotion effect on the real economy, the excessive rise in housing prices will have a crowding out effect on investment in the real economy. Therefore, in order to effectively guide the economy from "virtual to reality" and avoid the economy from over-relying on real estate, the government should carefully formulate real estate-related policies based on local actual conditions to achieve real estate control goals for stabilizing land prices, housing prices and expectations. Specifically: first, the relevant departments should speed up the construction of the real estate price statistics mechanism, and enhance the government's understanding of the real estate market, the ability to research and judge; secondly, the government should adhere to the principle of "living without speculation". While formulating reasonable land supply and real estate planning strategies based on local conditions, it should also limit real estate speculation and avoid excessively rapid housing prices. Finally, government departments should also actively promote the reform of the land system, housing security system and fiscal and taxation systems, and establish a long-term mechanism for the stable and healthy development of the real estate market. On the other hand, the "mediation effect" of corporate profit rates is considered in the impact mechanism, that is, an excessively rapid rise in housing prices will curb physical investment by reducing the profits of physical enterprises. In addition to stabilizing housing prices, the government should also actively take measures to encourage tangible enterprises to develop entities and improve their profitability, such as actively guiding entity enterprises to enhance their professional capabilities, improve production efficiency and operation level and implement corresponding policies to reduce the financing cost, land cost and labor cost of physical enterprises. In short, stabilizing housing prices and increasing the profitability of the physical sector are of great significance for ensuring the healthy development of my country's real estate industry and guiding the economy from "virtual to reality".

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