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An Empirical Study on the Impact of Bank Credit on Real Estate Price Fluctuations in China——A Case Study of 35 Large and Medium-sized Cities

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Abstract: Fluctuations in real estate prices are closely linked to the macro-economy, exerting a profound influence on social investment and consumption levels. As a key source of funding for the real estate market, bank credit significantly affects housing price changes in major Chinese cities. This paper explores the transmission mechanisms and pathways of bank credit on real estate prices through theoretical analysis and empirical research. It constructs a panel regression model to empirically analyze the relationship between bank credit scale and housing prices in 35 large and medium-sized Chinese cities from 2012 to 2022, assess the impact of credit on housing price fluctuations, and compare differences between first-tier and second-tier cities. Based on these findings, the paper proposes suggestions for regulating housing prices by controlling credit scale, aiming to deepen the understanding of the relationship between bank credit and housing prices and support the stable development of China's macro-economy and real estate market.

Keywords: Bank credit scale; Credit structure; Real estate prices

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1. Introduction

With the continuous development of China's market economy, the real estate market has become increasingly dependent on bank credit, and its violent fluctuations have a significant impact on the domestic and foreign economy. Therefore, it is crucial to deeply study the interactive relationship between bank credit scale and real estate prices. This helps to comprehensively understand the development direction of the real estate market and financial policy support, clarify the ways, mechanisms, and extent of bank credit's impact on housing prices, to guide banks to adjust the scale and direction of credit, and ultimately promote the healthy and sustainable development of the real estate market. Studying the impact of bank credit on real estate prices has far-reaching theoretical and practical significance.

2. Analysis of the impact mechanism and path of bank credit on real estate price fluctuations

2.1. Impact mechanism of bank credit on real estate price fluctuations

First, in terms of the liquidity effect mechanism, the expansion of bank credit will release liquidity, expand the investment scale of the real estate market, and thus promote the rise of asset prices. When the economy is ascending, individuals, enterprises, and financial institutions are optimistic about economic growth, prompting a simultaneous increase in enterprise investment, personal consumption, bank lending willingness, and credit scale. On the one hand, the growth of commercial bank credit solves the loan problems of investors, improves asset and market liquidity, and promotes the rise of real estate prices; on the other hand, real estate prices are significantly affected by consumers' expenditure budgets and preferences. Credit expansion reduces the financial pressure on homebuyers and stimulates the demand in the real estate market. However, due to the long development cycle of real estate, the supply elasticity is small in the short term, so the joint effect of expanding demand and slow supply growth will lead to the rise of housing prices.

Second, in terms of the expectation effect mechanism, expectations reflect investors' confidence in macroeconomic development. For real estate development enterprises, the growth of bank credit improves the business environment, and real estate investors expect the economy to continue to develop upward, maintain positive development expectations, enhance the industry's ability to absorb social investment, and urge enterprises to expand their scale to enhance market competitiveness. For individual homebuyers, the increase in bank credit releases more capital flows and stimulates housing purchase demand. The rise in real estate prices enhances investors' confidence. Expectations make real estate investment demand interact with the real economy, and the performance of the real economy in turn acts on real estate prices.

2.2. Impact path of bank credit on real estate price fluctuations

In terms of real estate development loans, real estate enterprises are highly dependent on the credit support from financial institutions. Bank credit runs through the entire process of real estate development, construction, and sales. Credit expansion alleviates the financial pressure and increases the liquidity of more development enterprises, which affects the supply level of the real estate market and thus influences prices. In terms of personal housing loans, they affect housing prices by changing the demand and expectations of homebuyers. The financial characteristics of real estate stimulate investment demand, further strengthening the connection between personal housing loans and housing prices. In terms of loan interest rates, changes in loan interest rates have a significant impact on real estate prices, as investment is a negative function of interest rates. An increase in interest rates raises the costs of real estate investment, financing, and development, increases the repayment pressure on homebuyers, and reduces housing purchase demand. Therefore, financial policies such as loans have a significant impact on real estate prices. When the real estate market is sluggish, measures such as lowering interest rates and reducing the down payment ratio are adopted to stimulate housing purchase demand. In the second half of 2020, in order to establish a long-term mechanism, financial regulatory authorities introduced the mortgage loan concentration management system and the "Three Red Lines" system to limit the growth of real estate loans, standardize the financing behavior of development enterprises, guide market expectations, and stabilize real estate prices. The domestic loans of development enterprises were gradually reduced, and the real estate market entered a period of in-depth adjustment.

3. Empirical analysis of the impact of bank credit scale on real estate price fluctuations

3.1. Sample selection and data source

This paper selects the annual statistical data of 35 large and medium-sized cities across the country from 2012 to 2022 (**Table 1**). The data sources are as follows: the sales prices of commercial housing, urban GDP, and permanent population in each city are from the National Bureau of Statistics, the China Economic and Social Big Data Research Platform, and urban statistical yearbooks; the bank loans and personal housing loans of real estate development enterprises are from the China Real Estate Statistical Yearbook and the China Economic Network Statistical Database.

Table 1. Classification table of 35 major and medium-sized cities in the country

Classification	Cities
First-tier cities	Beijing, Shanghai, Guangzhou, Shenzhen
Second-tier cities	Shijiazhuang, Harbin, Xining, Urumqi, Fuzhou, Changsha, Chengdu, Tianjin, Jinan, Chongqing, Xiamen, Ningbo, Guiyang, Dalian, Yinchuan, Haikou, Changchun, Nanning, Shenyang, Wuhan, Hangzhou, Xi'an, Hefei, Kunming, Qingdao, Hohhot, Taiyuan, Lanzhou, Nanchang, Zhengzhou, Nanjing

3.2. Index description and model setting

To study the impact degree of the total real estate loans in each region on housing prices, the following model is constructed in this paper:

$$Yit = A + BXit + CZit + \varepsilon it \quad (1)$$

Among them, i represents 35 cities, and t represents the year; Yit is the explained variable, that is, the commercial housing price (P); A represents the intercept term; B and C are coefficients; εit is the disturbance vector; Xit is the explanatory variable, the total real estate Loan, where Loan = Loan1 + Loan2; Zit are control variables, namely urban GDP and urban permanent population (POP). There are many factors affecting real estate prices, among which the economic development level of each region is very important. This paper selects the urban GDP to measure the economic development level, and the population is also selected as one of the control variables. In terms of data processing, this paper eliminates the impact of inflation through the consumer price index, and adopts logarithmic processing of data to eliminate the problem of heteroscedasticity, making the data more smooth.

3.3. Stationarity test

In order to avoid the problem of spurious regression, this paper first detects the stability of the variables. The original hypothesis (H0): It is assumed that the data of each variable sequence is not stationary. The LLC test method is used to carry out the stationarity test on the data of the two types of cities, respectively (the results are shown in **Table 2**).

It can be seen from the results that the *P*-values of all variables are less than 0.1, indicating that the results are significant, that is, the original hypothesis that the variable sequence data is not stationary is rejected. Therefore, after the LLC test, the variable data of first-tier cities and second-tier cities are both stationary.

Table 2. LLC test results of variables

City	Variable	Adjusted t-statistic	*P*-value	Result
First-tier cities	LNP	-1.5362	0.0622	Stationary
	LNLoan	-3.9386	0.0142	Stationary
	LNLoan1	-5.4214	0.0050	Stationary
	LNLoan2	-2.8595	0.0021	Stationary
	LNGDP	-4.2158	0.0000	Stationary
	LNPOP	-3.4082	0.0002	Stationary
Second-tier cities	LNP	-9.1125	0.0005	Stationary
	LNLoan	-7.9764	0.0356	Stationary
	LNLoan1	-9.5863	0.0017	Stationary
	LNLoan2	-7.8752	0.0002	Stationary
	LNGDP	-8.6367	0.0000	Stationary
	LNPOP	-6.9929	0.0427	Stationary

3.4. Correlation analysis

Table 3 shows the correlation between variables. Housing price (LNP) is positively correlated with total bank credit (LNLOAN) (coefficient 0.132, significant at the 5% level). GDP (LNGDP) is positively correlated with housing price (0.682, significant at the 1% level). Permanent population (LNPOP) is positively correlated with housing price (0.389, significant at the 1% level).

Table 3. Results of correlation analysis

	LNP	LNLoan	LNLoan1	LNLoan2	LNGDP	LNPOP
LNP	1					
LNLoan	0.136**	1				
LNLoan1	0.242***	0.761***	1			
LNLoan2	0.185***	0.733***	0.648***	1		
LNGDP	0.681***	-0.288***	-0.335***	-0.323***	1	
LNPOP	0.387***	0.411***	-0.421***	0.433***	0.783***	1

Notes: *** and ** indicate significance at the 1% and 5% levels, respectively.

3.5. Regression result analysis

The regression estimation results show (**Table 3**) that the coefficients of LNLoan in first-tier cities and second-tier cities are 0.1907 and 0.1218, respectively, indicating that bank credit has a positive impact on housing prices in both places, and the impact in first-tier cities is stronger. Because the housing prices in first-tier cities are high, the demand for residential mortgages is large, and real estate loans and personal housing loans account for a high proportion in the total bank credit, the impact of credit in large cities on housing prices is greater than that in medium-sized cities, providing a theoretical basis for implementing policies tailored to different cities.

The coefficients of LNGDP show that it is 1.3377 in first-tier cities and 0.7668 in second-tier cities, indicating

that GDP has a significant positive impact on housing prices in both types of cities, indicating that the economic development level has a significant impact on housing prices. The coefficients of LNPOP show that the permanent population in both types of cities also has a significant positive impact on housing prices.

Table 3. Classification panel regression results for first and second-tier cities

	First-tier cities	Second-tier cities
LNLoan	0.190*** (4.050)	0.122** (0.748)
LNLoan1	0.058** (2.642)	0.02** (1.251)
LNLoan2	0.142*** (3.556)	0.077*** (3.681)
LNGDP	1.337*** (21.159)	0.767*** (14.210)
LNPOP	0.0721** (0.087)	0.550** (0.083)
Adjusted R-squared	0.9691	0.9023
F-statistic	173.4638	79.6058
Prob.	0.0000	0.0000

Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

4. Policy recommendations

4.1. Adjust the scale and structure of banks' real estate credit

The development of China's real estate industry is closely related to the scale of bank loans, and the capital demand of the real estate industry has also promoted the rapid development of bank credit business in reverse. Therefore, commercial banks should timely adjust the credit scale and structure according to the real estate market conditions to prevent loan risks. In loan approval, banks should strengthen loan review and identify potential risks in advance; reasonably adjust the proportion of development loans and personal housing loans to avoid excessive concentrated investment. Bank credit should play a core role in promoting the structural improvement of the real estate market.

4.2. Implement policies tailored to different cities and increase the effective supply of housing in hotspots

As a regional market, the characteristics of the real estate market determine that there is a significant regional imbalance in China's urban real estate market, and the policy of "implementing policies tailored to different cities" should be effectively implemented. Under the premise of "housing is for living in, not for speculation", ensure the housing supply in large cities and urban agglomerations from the supply side to meet the housing demand brought by urban development. The supply of real estate in hot cities and regional urban agglomerations can be appropriately increased, land resources can be scientifically and reasonably allocated, and the supply of residential land in first-tier and second-tier hot cities and urban agglomerations can be increased according to the trend and law of population flow. For cities with a serious surplus of real estate supply, the newly added construction land should be strictly controlled, focusing on the transformation of old residential areas and improving the quality of housing, so as to avoid the impact of cliff-like decline in housing prices on the local economy and people's livelihood stability.

4.3. Gradually cancel administrative real estate control measures

The empirical study in this paper shows that the impact of bank credit on real estate prices in first-tier cities is greater than that in second-tier cities, and the real estate prices in small and medium-sized cities are less affected by bank credit control and are mainly affected by the relationship between supply and demand. Excessive administrative restrictions may affect the normal development of the real estate industry in small and medium-sized cities. Before the implementation of the real estate loan concentration management policy, in order to achieve the goal of "stabilizing land prices, housing prices, and expectations", hot cities adopted administrative control measures such as purchase restrictions, loan restrictions, and sales restrictions to suppress market demand; for real estate development enterprises, policies such as the "three red lines" were implemented to prevent development enterprises from excessive leverage and debt expansion risks. These measures were necessary before establishing a long-term real estate regulation mechanism, but after the implementation of the real estate loan concentration system, trial orderly cancellation of administrative control measures can be carried out to release reasonable improved consumption demand and investment demand and prevent the risk of "hard landing" in the real estate market.

5. Conclusion

Establishing and improving a long-term mechanism, continuously implementing the management of real estate loan concentration, guiding the steady development of the real estate industry and the stable operation of the real estate market, and thus promoting the healthy development of the economy should become the focus of long-term work.

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