Real Estate, Interest Rates, and Crowding-out Effects

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Abstract

In this paper, we reveal robust findings of the co-movement of real-estate loans, real-estate booms, and market interest rates by observing Chinese data and using vector auto-regressions. We construct a two-sector credit market partial equilibrium model to explain this phenomenon. The findings show that rising real-estate prices are a cause for this co-movement. We believe that an expansion in demand for real-estate loans has brought about an increase in interest rates in the credit market since 2002, which has crowded-out credit for the non-land sector. We also find that rising real-estate prices can lead to expansion in demand for real-estate loans.

Introduction

The main purpose of this paper is to study the relationship between real-estate loans and market interest rates using vector auto-regressions (VARs) and partial equilibrium models. We discover and verify a mechanism in the credit market that produces a crowding-out effect for real-estate loans. The demand for real-estate loans affects market interest rates, which, in turn, influence credit allocations between land and non-land sectors. We also find that housing prices affect real-estate loan demand. Thus, they become a particular factor in influencing interest rates and loan allocations.

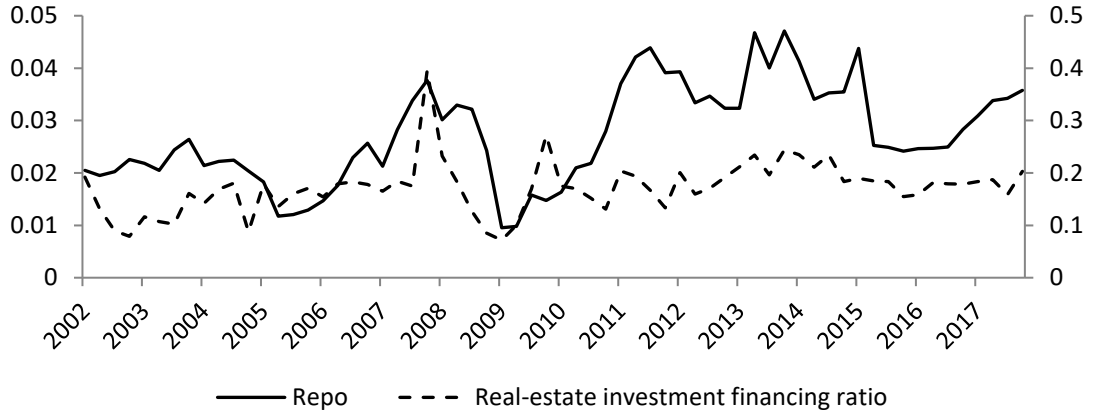

Figure 1. Real-estate investment financing ratio and interest rates

Note: Seasonally adjusted quarterly data are used. The data source is the database provided by China Economic Information Center (CEIC), now belonging to the Euromoney Institutional Investor Company. The left axis denotes the interest rate, represented by the 7-day Repo rate of interbank bonds, whereas the right axis denotes the real-estate investment financing ratio computed as the ratio of real-estate investment financing divided by total social financing.

Figures 1 illustrates trends and cycles in financing to real-estate investments and interest rates of China. The market interest rate has been systematically rising since 2002. At the same

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time, financing to real-estate investments has grown much faster than the total social financing. Hence, the ratio of the former to the latter displays a clear upward trend. Moreover, the fluctuations of this ratio and the market interest rate are almost identical between 2008 and 2014. Thus, when the interest rates rise, more financing resources are allocated to the real-estate industry from non-real-estate industries. However, this phenomenon is counter-intuitive, because most literature has shown that the interest rate can stabilize real-estate investments. For example, Dynamic stochastic general equilibrium models often use the Taylor rule as the monetary-policy reaction function. Therefore, the phenomenon in China signals three possibilities. First, interest rates cannot directly or indirectly affect the real-estate sector. Second, changes in real-estate investments have driven fluctuations in interest rates. Third, changes in some factors influence interest rates and real-estate investments simultaneously. This question is worth exploring, no matter which of the above two hypotheses is correct. Among the existing literature, the theoretical model by Chen and Wen (2017) explained this phenomenon in terms of the first possibility. They discovered that private enterprises in China had less access to the credit market. Therefore, they were induced by the high growth rate in the housing price and were forced to choose land investment as a tool for self-financing and speculation. Rises in the interest rate affect non-real-estate financing through the credit market but cannot influence real-estate investments. Hence, it can cause the phenomenon shown in Figure 1.

We want to answer this question in terms of the second and the third possibilities. This paper fits into the literature about resource misallocations caused by real-estate investments in China[1]. The existing research mainly considers characteristics of real estate. On one hand, many researchers followed Kiyotaki and Moore (1997) and found that collateral attributes of land and houses could lead to real-estate investment booms. Housing prices in China are not only high but are also sticky with a high growth rate, which reduces the risks of real-estate investments. Therefore, firms are more willing to invest in real estate to obtain credit. On the other hand, some researchers believe that real-estate investments have a speculation effect. When housing prices increase, firms tend to reduce non-land investments to support land investments.

The existing literature still has not reached an agreement on the relationship between interest rates and real-estate variables in China (Zheng, 2017). Most of these theoretical and empirical studies have treated the interest rate as a monetary-policy variable and have examined its responses to real-estate variables (Hou and Gong, 2014; Wang et al. 2017; Meng et al., 2018). However, China has been adopting a dual-track interest-rate policy for years[2]. Therefore, demand and supply in the credit market can also affect the interest rate, which has been largely ignored by the existing literature. Although some studies introduced the credit market into their analysis, the interest rate has not been affected by the market at all (Chen and Wen, 2017). Wu and Li (2016) is an exception, who set up a credit-market model and explored the interactions between real-estate investments and market interest rates. They showed that the existence of excess profits caused an expansion in demand for real-estate investments. Such an expansion raises the market interest rate and therefore reduces non-real-estate credit. However, the investment-demand expansion in their model was given exogenously, and they did not conduct any empirical analysis. We expand their analysis in this paper.

[1] See, for example, Wu and Li (2016); Liu et al. (2016); Chen and Wen (2017); Chen et al. (2017).

[2] See He and Wang (2012), who describe the dual-track interest rate policy of China in detail.

In summary, the existing literature has not analyzed the interactions between real-estate investments and interest rates under a unified framework. We examine this from the aspect of loans-to-real-estate investments. We use a five-variable VAR to find out this relationship. In terms of theoretical models, this article first follows Liu et al. (2015) and Wu and Li (2016) in constructing a static partial equilibrium model of a two-sector credit market. Then, we introduce speculation behavior of real-estate firms, where firms consider the growth rate of housing prices as returns of real-estate investments. We obtain two conclusions. First, the expansion of loan demand for real estate raises the market interest rate and then squeezes out non-land loans. Second, a rise in real-estate prices can lead to an expansion in loan demand of the real-estate sector.

The structure of the rest of this paper is as follows: the second section describes variables and data; the third section presents VAR impulse response functions; the fourth section sets up the basic theoretical model and introduces speculation behavior of the land sector to extend the model; the fifth section checks the robustness of empirical results; and the sixth section summarizes our main conclusions.

Variables and data description

(a) Variables

1. Interest-rate variables

We select the 7-day Repo rate of inter-bank bonds as a proxy for the market interest rate, because it is the most widely used market interest rate in China. We use other interest-rate variables in our robustness tests, including 1-day and 1-month Repo rates.

2. Variables that measure loan allocations

In previous studies on credit allocations, Wu and Li (2016) chose the ratio of real-estate investments to total social financing, and Zhang et al. (2017) used the ratio of manufacturing loans to total loans. These two articles both choose ratios, the numerator of which denotes financing of a particular industry, and the denominator denotes total financing. However, they cannot discover how the denominator and numerator influence the ratio. Therefore, we do not use ratios. Instead, we compare impulse response functions of these two variables. We select loans to real-estate investments as the numerator and total loans received by firms as the denominator. These were obtained from China's National Bureau of Statistics.

We choose loans for our VARs, because the banking system plays a decisive role in China's financial system (Chen et al., 2016; Chen et al., 2018).

3. Housing-price variables

We choose the average selling price of commercial buildings as a proxy for housing prices.

4. Monetary quantity variables

Both theoretical and empirical studies have found that the expansion of monetary quantity fundamentally gives rise to a massive influx of credit into the real-estate sector (Chen et al., 2016; Deng et al., 2011). Beyond that, the People's Bank of China sets credit quotas. Although data on credit quotas is not available, its growth rate is highly correlated with that of money supply (M2) (He and Wang, 2012). Therefore, we choose M2 as a monetary quantity variable.

5. Monetary-policy tools and rules

First, we rule out the impact of monetary policy on the market interest rate and the loan size. China still follows a dual-track interest-rate system, in which monetary policy heavily influences both the market interest rate and the loan size (He and Wang, 2012, 2013). We include the

benchmark deposit rate and the required reserve ratio in our VAR, because they are deemed as the most important monetary-policy tools. Second, we follow the previous literature in using gross domestic product (GDP) to represent output, and consumer price index (CPI) to represent the price level. We also include them in our VAR. Table 1 shows the names of the variables and their corresponding symbolic notations in VARs.

Table 1. Variables and Notations

Variable	Notation
Real-estate loans	Estateloan
Total loans	Loan
M2	M2
Housing prices	Estateprice
7-day Repo rate	Repo7d
Required reserve rate	RRR
Benchmark deposit rate	BDR
GDP	GDP
CPI	CPI
1-day Repo rate	Repo1d
1-month Repo rate	Repo1m

(b) Data

We use seasonally adjusted quarterly data to avoid this missing-data problem. The data come from the CEIC database, except for the 7-day Repo rate for inter-bank bonds and GDP, which were collected by Chang et al. (2016). We also make our time series interval as long as possible. The statistical caliber of M2 has changed since January 2018. Therefore, the sample ends in the fourth quarter of 2017. The starting point of loans-to-real-estate-investments is the first quarter of 2002, which is also the latest starting time among all variables. Therefore, the complete sample interval spans from the first quarter of 2002 to the fourth quarter of 2017.

It is worth noting that quarterly data of real-estate loans and 1-day and 1-month Repo rates were not published. We only had access to the monthly accumulate data of real-estate loans, with data in January not available, and the monthly data of two Repo rates. Hence, we obtain the quarterly data of real-estate loans from their monthly accumulate data. We also derive quarterly 1-day and 1-month Repo rates by calculating their monthly average values.

Vector autoregression

This section analyzes the impact of two different shocks: the real-estate-loan shock and the housing-price shock. We use a five-variable VAR, which includes M2, housing prices, interest rates, real-estate loans, and total loans. Some literature has assumed that M2 does not react to other variables directly (Chen et al., 2016; Chen et al., 2018). Therefore, as explained in Christiano et al. (1999), we set the order of variables as follows:

$$X_t = (M2\ Repo\ Estate\text{price}\ Estateloan\ Loan)$$

The lag order of our VAR is based on the results of the information criterion. Akaike information criterion, Bayesian information criterion, and Hannan–Quinn information criterion all show that the best lag order should be 1[3]. Furthermore, we only have a 64-quarter sample, but there are at least five VAR variables. Therefore, a small lag order also helps us avoid excessive losses of degrees of freedom.

[3] When the lag order is 2 or 3, results of all VARs in this paper do not change.

(a) Co-integration test

Except for the Repo and M2, we take logs of all series. According to the result of the augmented Dickey–Fuller test shown in Table 2, the five variables are I(1). Then, we test whether these series are co-integrated. According to the result of the trace statistic test, there are two linearly independent co-integration vectors. Moreover, we can reject the null hypothesis of the max statistic test showing that the co-integration rank was 0. Therefore, these five series are co-integrated, and we can use them in VARs with their trends.

Table 2. ADF Test

Variables	P value of original variables	P value of differentiated variables
$\log(Loan)$	0.1428	0.0000
$\log(EstateLoan)$	0.4161	0.0000
$\log(EstatePrice)$	0.1461	0.0000
$Repo7d$	0.1968	0.0000
$M2$	1.0000	0.0245

(b) Impulse response analysis

We focus on impulse response functions of three variables: real-estate loans, total loans, and the interest rate. Therefore, we only report impulse response functions of these three variables.

First, we check the impacts of a positive real-estate-loan shock. Figure 2 shows the impulse response functions. The interest rate and real-estate loans both display positive impulse responses. However, total loans respond much less than real-estate loans during the first three periods, meaning that non-real-estate loans shrink dramatically. The results show that rising real-estate loans lead to an increase in the interest rate and that rising interest rates squeeze out non-real-estate loans. Hence, it can explain the phenomenon observed from the data.

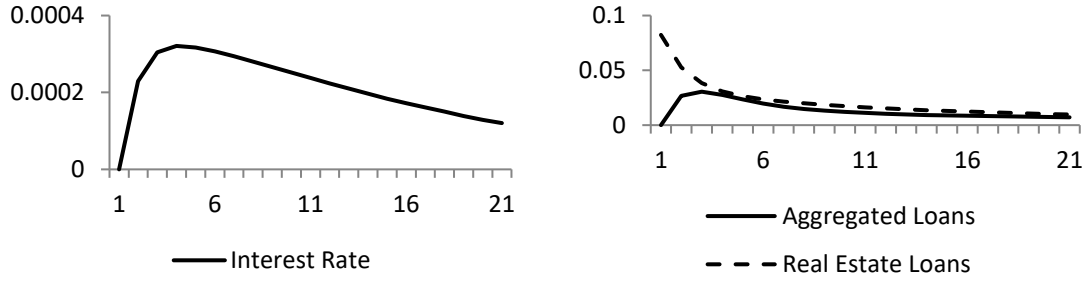

Figure 2. Impulse responses to a positive real-estate loan shock

Second, we analyze the shock of real-estate prices. Figure 3 shows the result. Real-estate loans also increase after the shock, although the expansion is weaker, whereas total loans begin to display negative fluctuations.

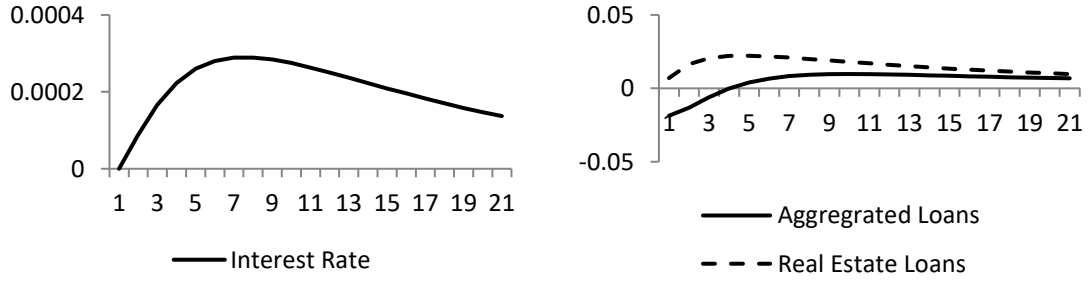

Figure 3. Impulse responses to a positive housing-price shock

We verified the second possibility mentioned in the introduction using our VARs: expansions of real-estate loans can raise the interest rate. Moreover, non-real-estate loans decrease under both shocks, which may be caused by increases in interest rates.

Theoretical model

This section constructs a partial equilibrium model of the credit market. Assumptions of the model are as follows. First, there are two sectors, one of which is the real-estate sector that makes only real-estate investments, and the other is the non-real-estate sector that only invests in the capital. Second, through real-estate investments, the real-estate sector obtains land as its production factor, while the non-real-estate sector invests to get capital for production. Third, neither sector owns initial production factors or assets. Thus, they must obtain loans[4] from the credit market to purchase their production factors (Liu et al., 2015; Wu and Li, 2016). Fourth, both sectors must bear financing costs, in addition to their loan interests (Liu et al., 2015). Finally, the credit supply is constant (Wu and Li, 2016).

We explain the last assumption in detail. On one hand, China still follows the quantitative-based monetary policy (Chen et al., 2016; Chen et al., 2018), which is also called the "credit quota." The People's Bank of China (PBC) controls the amount of credit, and it cannot grow beyond the upper limit set by the central bank. On the other, there is a tendency of over-investing in China, and the ever-growing investment demand leads to an over-demand in the credit market (Wu and Li, 2016). The above two facts show a contradiction between excessive demand and insufficient supply in the credit market. Therefore, it is natural for us to assume that China has already arrived at a state where credit supply reaches its upper bound. The money supply curve is thus vertical in our model.

Part (a) shows our basic model. First, we derive the credit-demand function. Because the credit supply is constant, we obtain the initial equilibrium of the credit market. Then, we derive the results of Wu and Li (2016) to analyze the impact of changes in credit demand of the real-estate sector on the equilibrium interest rate and crowding-out effects. Part (b) extends the basic model, where housing-price changes are introduced based on the speculation effect of real-estate investments mentioned by Chen et al. (2017).

(a) Basic model

(1) Solving the credit-demand curve and benchmark equilibrium

Suppose the production functions of the two sectors are

$$\mathrm{Y}_i = A_i K_i,\ \ i = e, m.$$

Subscript e indicates real-estate firms, and m indicates enterprises in non-real-estate firms; Y_i indicates output; A_i indicates production technology; K_e is the land used by real-estate firms, and K_m is the capital used by non-real-estate firms.

Referring to Liu et al. (2015), we set the financing cost function of each enterprise as a quadratic form:

$$\mathrm{c}_i = \frac{1}{2}\theta_i {K_i}^2,\ \ i = e,\ m,$$

where θ_i represents the financing cost coefficient, and $\theta_i > 0$, according to Hypothesis 2, i = e, m.

[4] In this section, loans and credits are used interchangeably.

Letting r be the net interest rate of the credit market[5], the profit function of a non-real-estate firm is

$$\pi_m = A_m K_m - rK_m - \frac{1}{2}\theta_m {K_m}^2.$$

If we set the price of capital to 1 and the land price to P_e, then the profit function of a real-estate firm is

$$\pi_e = A_e K_e - rP_e K_e - \frac{1}{2}\theta_e {K_e}^2.$$

Solving the problem to maximize profits, we get the credit-demand function of each sector. To simplify our analysis, we assume that each sector consists of only one firm. Then, we obtain the overall credit-demand curve:

$$r = \frac{A_e\theta_m + A_m\theta_e}{P_e\theta_m + \theta_e} - \frac{\theta_e\theta_m}{P_e\theta_m + \theta_e}K.$$

Assuming that the credit supply is $\overline{K}$, which is an exogenous variable, the equilibrium interest rate can be solved by $\overline{K} = K_e + K_m$:

$$\bar{r} = \frac{A_e\theta_m + A_m\theta_e}{P_e\theta_m + \theta_e} - \frac{\theta_e\theta_m}{P_e\theta_m + \theta_e}\overline{K}.$$

We can further obtain the amount of credit received by two sectors, $\overline{K}_e$ and $\overline{K}_m$.

(2) Changes in real-estate credit demand and market interest rates

Suppose there are changes in the credit demand of the real-estate sector. For example, Wu and Li (2016) believed that the Chinese government monopolized land resources. Hence, firms could obtain excess profits through real-estate investments. With more firms to launch real-estate investments, the credit demand gets expanded.

The credit supply is still $\overline{K}$, and the credit demand in the non-real-estate sector remains unchanged. We assume that the credit-demand function of the real-estate sector after the expansion is

$$r = \frac{1}{P_e}[A_e - \theta_e(K_e - \Delta k)],$$

which can be reduced exactly to the credit-demand function in our benchmark model if $\Delta k = 0$. At this point, we can find a new equilibrium interest rate:

$$\bar{r}' = \frac{A_e\theta_m + A_m\theta_e}{P_e\theta_m + \theta_e} - \frac{\theta_e\theta_m}{P_e\theta_m + \theta_e}(\overline{K} - \Delta k).$$

Next, the real-estate sector credit, K_e, is a function of Δk.

$$K_e = \Pi + \frac{\theta_e}{P_e\theta_m + \theta_e}\Delta k,$$

where $\Pi = \frac{A_e - A_m}{P_e\theta_m + \theta_e} + \frac{\theta_m}{P_e\theta_m + \theta_e}\overline{K}$. It is true that $\frac{dK_e}{d\Delta k} = \frac{\theta_e}{P_e\theta_m + \theta_e} > 0$. Therefore, compared with the initial equilibrium, when Δk>0, the credit received by real-estate firms increases, and when Δk < 0, that credit shrinks. This result shows that when the demand for real-estate credit expands, the interest rate of the credit market rises. Because credit supply and demand in the non-real-estate sector remain unchanged, a rise in the interest rate can cause the non-real-estate credit to fall. Based on the above analysis, we believe that the phenomenon shown in Figure 1 is

[5] Although the loan rate is different from the market interest rate, we believe we can still assume that firms borrow money at the market rate, which we explain in detail at the end of the section.

fundamentally caused by changes in credit demand in the real-estate sector.

In summary, the expansion of credit demand in the real-estate sector directly increases its credit scale. It also expands the overall economic credit demand, which raises the interest rate in the credit market. The rising interest rate shrinks the non-real-estate credit. For the real-estate sector, the positive impact of the expansion in demand for real-estate credit exceeds the negative effect of the higher interest rate. In part (b), we introduce housing-price changes and hence internalize changes in credit demand of the real-estate sector.

(b) Model extension

(1) Introducing housing-price changes and solving credit-demand curves

The basic model assumes an exogenous variation in the credit demand of the real-estate sector. This section relaxes this assumption by introducing housing prices to the model. The real-estate investment is an important speculation and financing tool (Chen and Wen, 2017; Chen et al., 2017), and the growth rate of land prices is the net return of real-estate investments. The profit function of non-real-estate firms is unchanged, but that of real-estate firms now includes revenues of speculation. Hence, the new profit function of real-estate firms is

$$\pi_e = A_e K_e + \frac{\Delta P_e}{P_e} P_e K_e - r P_e K_e - \frac{1}{2}\theta_e {K_e}^2,$$

where $\frac{\Delta P_e}{P_e}$ is the growth rate of land prices. Solving the first-order condition, we get the credit-demand curve for the real-estate sector:

$$r = \frac{1}{P_e}[A_e + \Delta P_e - \theta_e K_e].$$

We calculate the credit-demand curve for two sectors and the total credit-demand curve:

$$r = \frac{A_e\theta_m + A_m\theta_e}{P_e\theta_m + \theta_e} + \frac{\Delta P_e \theta_m}{P_e\theta_m + \theta_e} - \frac{\theta_e\theta_m}{P_e\theta_m + \theta_e} K.$$

Assuming the credit supply is $\bar{K}$, the equilibrium interest rate level is

$$\tilde{r} = \frac{A_e\theta_m + A_m\theta_e}{P_e\theta_m + \theta_e} + \frac{\Delta P_e \theta_m}{P_e\theta_m + \theta_e} - \frac{\theta_e\theta_m}{P_e\theta_m + \theta_e} \bar{K}.$$

(2) Changes in housing prices, the crowding-out effect, and interest-rate fluctuations

Next, we analyze the impact of a rise in land prices. Assuming that the initial equilibrium interest rate is the same as the $\bar{r}$ in part (a):

$$\tilde{r} = \frac{A_e\theta_m + A_m\theta_e}{P_e\theta_m + \theta_e} - \frac{\theta_e\theta_m}{P_e\theta_m + \theta_e} \bar{K}.$$

If land prices increase, then the equilibrium interest rate will also rise, as follows:

$$\tilde{r'} = \frac{A_e\theta_m + A_m\theta_e}{P_e\theta_m + \theta_e} + \frac{\Delta P_e \theta_m}{P_e\theta_m + \theta_e} - \frac{\theta_e\theta_m}{P_e\theta_m + \theta_e} \bar{K}.$$

At this time, $\tilde{r'} - \tilde{r} = \frac{\Delta P_e \theta_m}{P_e\theta_m + \theta_e} > 0$.

With rising land prices, real-estate firms tend to expand their investment, thus expanding their demand for credit. Again, the expansion of credit demand raises the market interest rate and squeezes out non-real-estate sector's credit.

(c) Model summary

According to the results of the basic model, the expansion of credit demand in the real-estate sector raises the interest rate and squeezes out the non-real-estate credit. After

introducing housing prices, we conclude that a rise in housing prices will lead to the expansion of credit demand in the real-estate sector.

In the end, it is worth noting that we ignore an important feature of China's economy to simplify the model. In China, firms obtain their loans at the loan rate instead of the market rate, and the latter is different from the former. However, the lending rate faced by firms in the economy is higher than that set by PBC. Therefore, we cannot know the loan rate of China unless we explore the loan rate accepted by each firm of China, which is impossible. However, according to He and Wang (2012, 2013), increases in the market interest rate can raise the loan rate and the financing cost of firms, because the market rate is the opportunity cost of banks when lending money to firms. Beyond that, when the expansion in loan demand raises the loan rate, the market interest rate will increase because of the arbitrage of financial institutions. Therefore, it is reasonable for us to ignore the loan rate and regard the market interest rate as the borrowing rate of firms in our model.

Robustness test

(a) The credit quota

As we explained in the data description section, the credit quota is set by PBC at the start of each year. Our theoretical model also includes credit quotas by setting the credit supply as constant. Although data on credit quotas is not available, we know that its growth rate is highly correlated with that of M2 (He and Wang, 2012). Thus, we have already solved the potential problem of the credit quota by introducing M2 in VARs.

(b) Interest-rate liberalization

China has been gradually liberalizing its interest rate, which raises the market interest rate (He and Wang, 2012). But we do not remove the upward trend in the basic VAR. Therefore, the reform may influence our impulse response functions through these trends. We eliminate such an influence via two steps. First, we want to remove the impacts of the Repo rate's trends, so we replace five variables in our basic VAR with their differentiated values. Second, we discover that there is a 28-quarter sub-sample where China did not introduce any interest-rate liberalization policy[6]. We then select this sub-sample and perform the VAR using detrended data. Figure 4 shows the result. It is the same as that of the basic VAR.

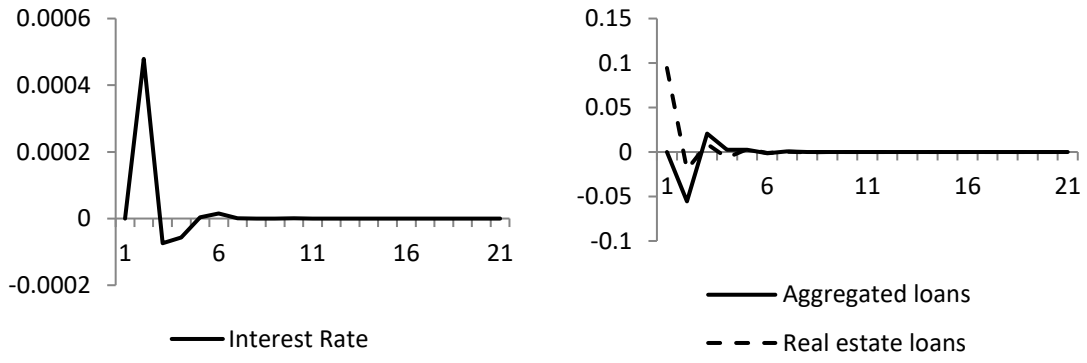

Figure 4(a). Impulse Responses to a Positive Real Estate Loan Shock

[6] The inter-bank deposit rate was liberalized in March 2005, and the deposit-rate ceiling was raised to 1.1 times the benchmark deposit rate set by PBC in June 2012.

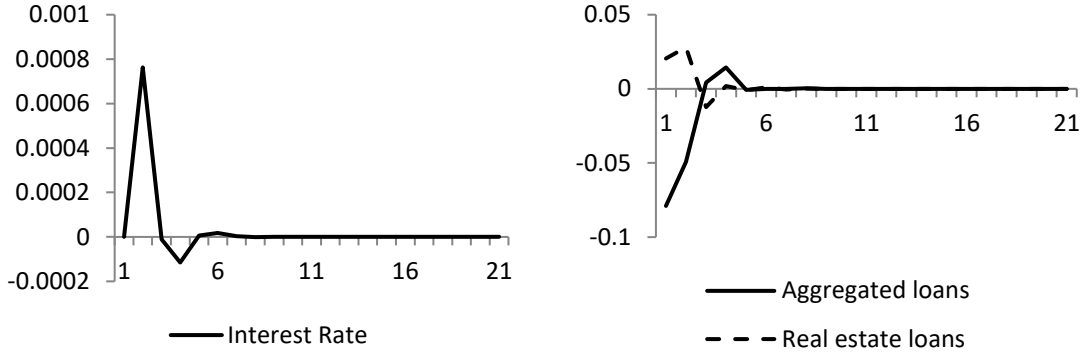

Figure 4(b). Impulse Responses to a Positive Housing price Shock

Note: All variables are differentiated. The sample is from the second quarter of 2005 to the first quarter of 2012.

(c) Monetary-policy tools and rules

According to He and Wang (2012, 2013), the market rate and loans are highly correlated with China's monetary policy tools, including the required reserved rate and the benchmark deposit rate. Furthermore, China's monetary policy aims to stabilize the currency and ensure GDP growth. Therefore, we introduce all four variables in our VARs, and the conclusion does not change. Figure 5 shows the result.

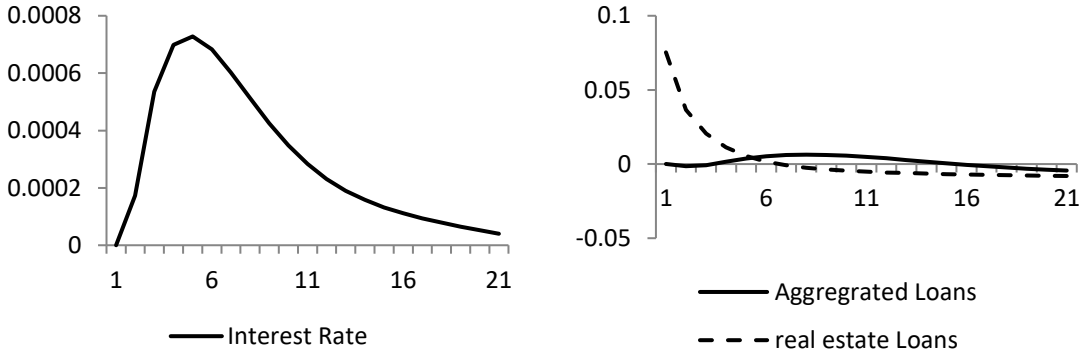

Figure 5(a). Impulse Responses to a Positive Real Estate Loan Shock

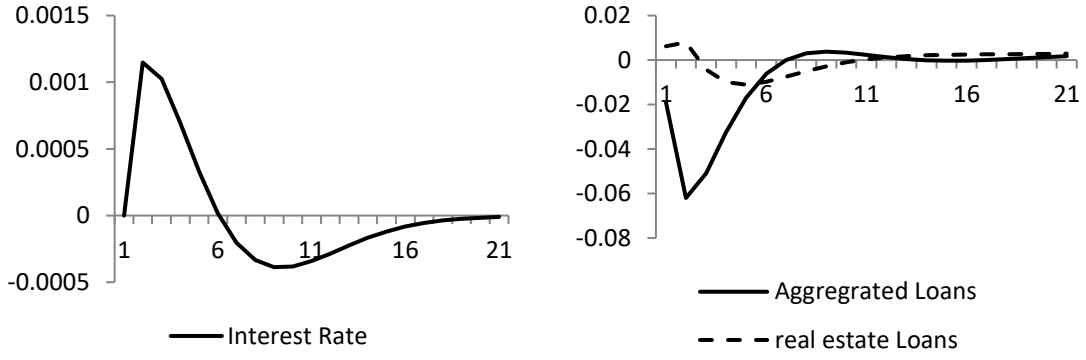

Figure 5(b). Impulse Responses to a Positive Housing price Shock

Note: RRR, BDR, GDP and CPI are all included.

(d) Market interest-rate variables

Replacing the 7-day Repo rate with the 1-day or 1-month Repo rate does not change the result. Figures 6 and 7 show the result.

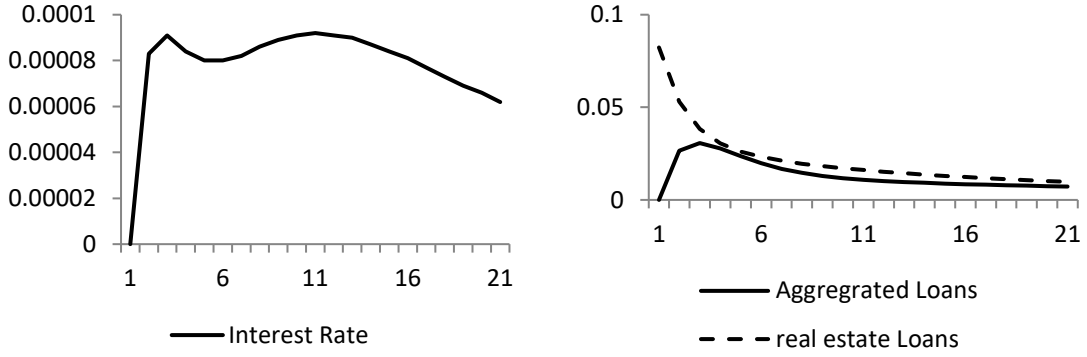

Figure 6(a). Impulse Responses to a Positive Real Estate Loan Shock

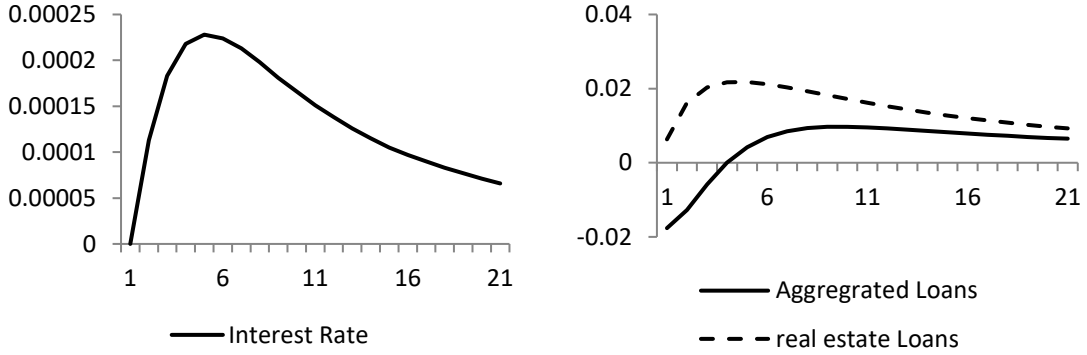

Figure 6(b). Impulse Responses to a Positive Housing price Shock

Note: The interest rate variable is Repo1d.

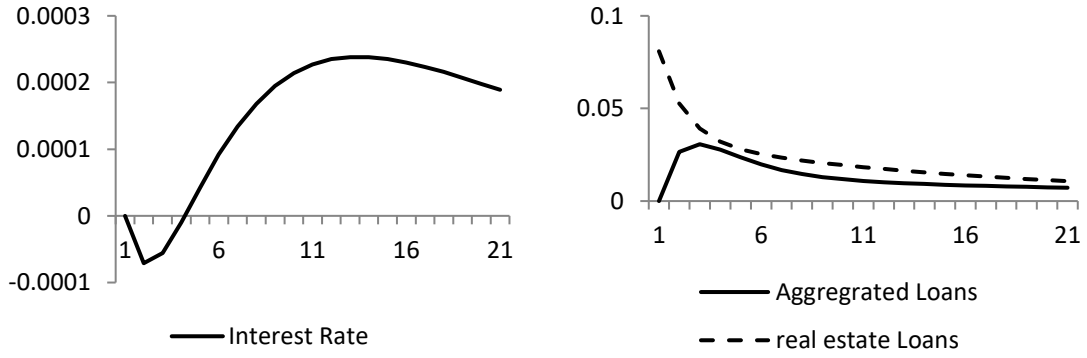

Figure 7(a). Impulse Responses to a Positive Real Estate Loan Shock

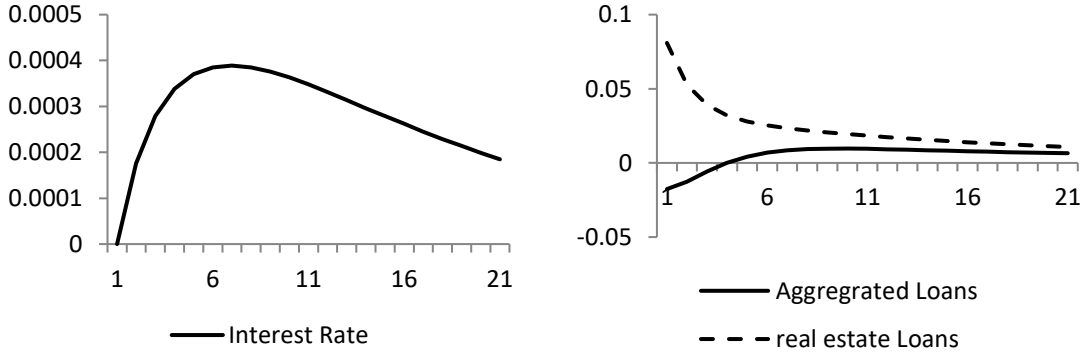

Figure7(b). Impulse Responses to a Positive Housing price Shock

Note: The interest rate variable is Repo1m.

Furthermore, we also introduce monetary-policy tools and rules. Results are shown in Figures 8 and 9, and they are the same as that of the basic VAR.

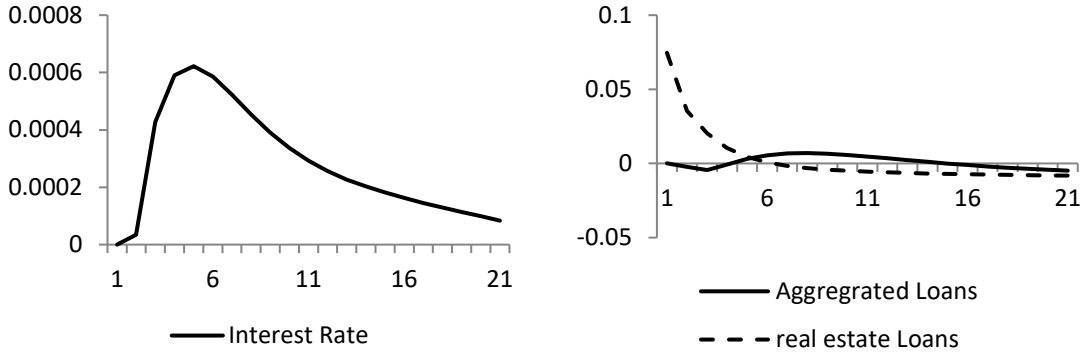

Figure 8(a). Impulse Responses to a Positive Real Estate Loan Shock

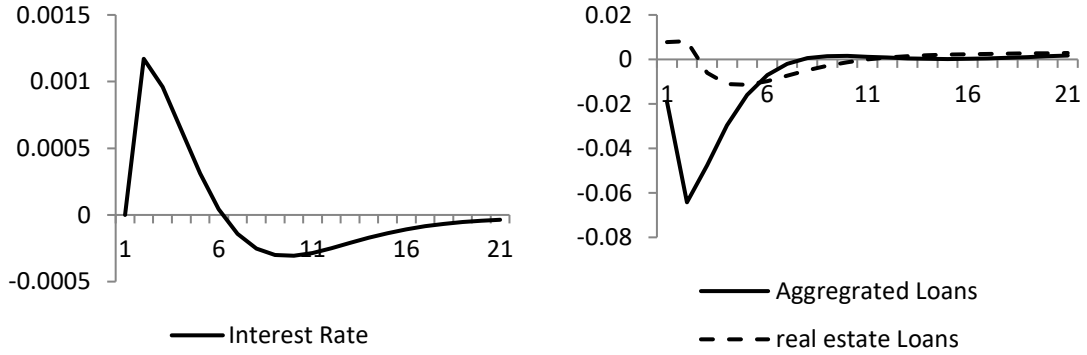

Figure8(b). Impulse Responses to a Positive Housing price Shock

Note: The interest rate variable is Repo1d. RRR, BDR, GDP and CPI are all included.

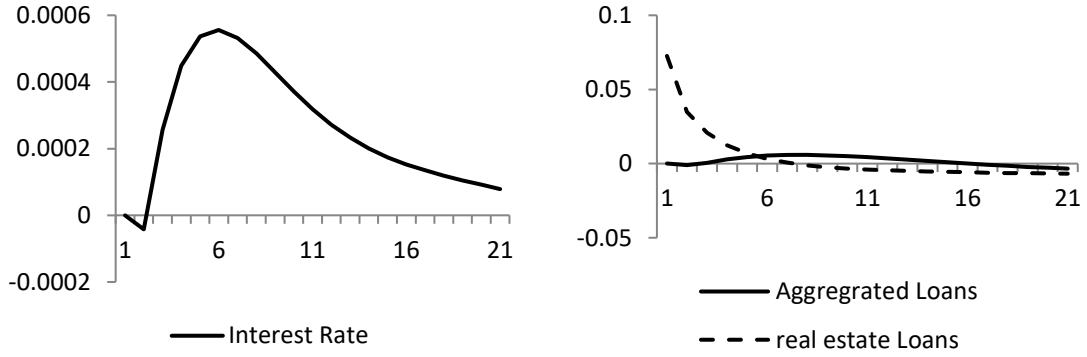

Figure 9(a). Impulse Responses to a Positive Real Estate Loan Shock

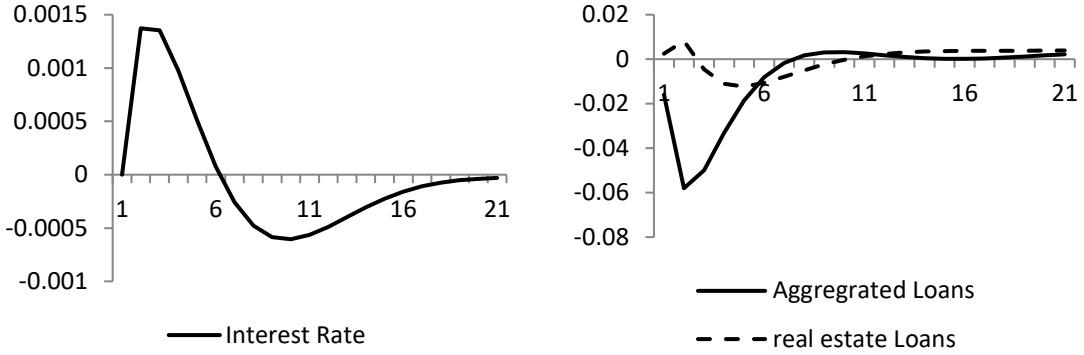

Figure9(b). Impulse Responses to a Positive Housing price Shock

Note: The interest rate variable is Repo1m. RRR, BDR, GDP and CPI are all included.

Conclusion

When the interest rate rises, real-estate investments also rise in China. We explain this phenomenon from the aspect of real-estate loans. From both empirical and theoretical perspectives, we find interactions between real-estate loans and interest rates. After an expansion in demand for real-estate loans, the market interest rate will rise, which will then enable the non-real-estate loans to shrink substantially. Furthermore, the rise in real-estate prices is an important factor that leads to the expansion of real-estate loan demand.

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