

Financial Deepening, Credit Behavior and Credit Efficiency: Evidence from Urban Commercial Banks in China

Shengjie Zhou

School of Nanjing University of Science and Technology, Nanjing 210094, China

Abstract: In recent years, Chinas banking sector has experienced significant financial deepening and structural transformation. Urban commercial banks, as an important component of the financial system, play a crucial role in allocating financial resources and supporting regional economic development. This paper examines the relationship between financial deepening, bank credit behavior, and credit efficiency using data from urban commercial banks in China. The study analyzes how financial deepening influences credit allocation and improves credit efficiency through changes in banks' lending behavior. The results suggest that financial deepening significantly enhances credit efficiency by improving information transparency, strengthening competition, and optimizing credit allocation. Meanwhile, credit behavior acts as an important transmission mechanism through which financial deepening affects credit efficiency. The findings provide policy implications for improving financial reforms and strengthening the role of urban commercial banks in economic development.

Keywords: Financial deepening; Credit behavior; Credit efficiency; Urban commercial banks.

1. Introduction

Finance plays an important role in Chinas economic development by providing funds, promoting investment and innovation, and facilitating risk management. In Chinas financial system, banks act as important financial intermediaries, connecting savers and investors and allocating financial resources efficiently. In recent years, with the continuous advancement of financial reforms, the development of financial markets has accelerated, and financial deepening has become an important driving force for economic growth.

Financial deepening generally refers to the process in which governments gradually reduce excessive intervention in financial markets and promote the liberalization of interest rates and financial institutions. Through improving financial market competition, promoting financial innovation, and enhancing market transparency, financial deepening can improve the efficiency of resource allocation and reduce financing costs. As an important component of the banking system, urban commercial banks play a significant role in supporting local economic development and providing financial services for small and medium-sized enterprises. However, with the rapid development of financial markets, urban commercial banks are also facing increasing competition and challenges, such as asset quality risks and concentrated lending structures.

Existing studies have widely examined financial deepening and its economic consequences. Some scholars argue that financial deepening promotes economic growth by improving financial resource allocation and expanding financial services [1]. For example, Hua pointed out that financial deepening and digital technology have accelerated financial integration and expanded financial services to small and micro enterprises [2]. Many scholars argue that financial deepening can further influence bank performance by affecting firms' credit behavior. They suggest that differences in the degree of financial deepening across countries and regions are

important factors in explaining variations in firms' debt financing scale, maturity structure, and loan collateral. In other words, financial deepening can influence bank lending behavior by alleviating information asymmetry between banks and borrowers and by reducing the relatively high costs associated with information collection, monitoring, and default resolution for banks [3,4]. For example, Beck, find that the more developed a country's banking system and the stronger its protection of property rights, the more bank loans firms—especially small and medium-sized enterprises—are able to obtain [5]. Demirgüç-Kunt and Maksimovic further show that in countries with more developed financial systems, firms tend to obtain debt financing with longer maturities. This implies that when the judicial system can effectively protect creditors' rights, creditors are more willing to provide firms with more long-term debt financing [6].

However, most existing studies focus on large commercial banks or national banking systems, while relatively few studies examine urban commercial banks. As an important component of Chinas banking system, urban commercial banks play a key role in supporting regional financial development. Therefore, this paper focuses on urban commercial banks and examines how financial deepening affects credit efficiency and whether credit behavior plays a mediating role in this relationship.

2. Methodology

This study uses panel data from 48 urban commercial banks distributed across 31 provinces in China. The sample period covers several years of financial development and banking reform. The data are mainly collected from bank annual reports, statistical yearbooks, and relevant financial databases. These data provide important information on bank operations, credit allocation, and financial performance.

In this study, credit efficiency is used as the dependent variable to measure the efficiency of banks in allocating credit resources. Financial deepening is considered the core explanatory variable, which reflects the level of development

and openness of the financial system. In addition, several control variables are included in the model, such as bank size, capital adequacy ratio, and non-performing loan ratio. These variables help control the influence of bank characteristics and financial risks on credit efficiency.

In order to examine the impact of financial deepening on credit efficiency and the mediating role of credit behavior, this paper constructs a baseline regression model and a mediation effect model. The specific models are as follows:

$$npl = \gamma_0 + \gamma_1 dep + \gamma_2 top1 + \gamma_3 car + \gamma_4 dm2 + year + fixed \quad (1)$$

$$behavior = \alpha_0 + \alpha_1 dep + \alpha_2 top1 + \alpha_3 car + \alpha_4 dm2 + year + fixed \quad (2)$$

$$npl = \beta_0 + \beta_1 behavior + \beta_2 dep + \beta_3 top1 + \beta_4 car + \beta_5 dm2 + year + fixed \quad (3)$$

Equation (1) represents the baseline model. In the model, *npl* denotes the non-performing loan ratio, and *dep* represents the level of financial marketization. *top1*, *car* and *dm2* denote the shareholding ratio of the largest shareholder, the capital adequacy ratio, and the growth rate of quasi-money, respectively. These variables are included in the regression as control variables. The coefficient γ_1 represents the total effect of the independent variable *dep* on the dependent variable *npl*. *Year* represents the year fixed effects, and *fixed* represents the individual fixed effects.

To test whether credit behavior plays a mediating role, Equations (2) and (3) are constructed based on Equation (1) to examine the mediation effect. In Equation (2), the coefficient α_1 represents the effect of the independent variable *dep* on the mediating variable *behavior*. In Equation (3), the

coefficient β_1 represents the effect of the mediating variable *behavior* on the dependent variable *npl* after controlling for the independent variable *dep*, while β_2 represents the direct effect of the independent variable *dep* on *npl* after controlling for the mediating variable *behavior*. The product $\alpha_1 \times \beta_1$ represents the mediating effect.

3. Empirical Results

The mediating effect of related lending is examined based on the models constructed in the previous section. In Model (1), the regression coefficient of *dep* is -0.1574339 , which is significant at the 5% level. In Model (2), the coefficient of *dep* is -0.5957 , which is also significant at the 5% level. In Model (3), the coefficient of *dep* is -0.1681444 , and the coefficient of *gldk* is 0.0091143 , both of which are significant at the 5% level. These results indicate the existence of a mediating effect.

The findings suggest that financial deepening has both direct and indirect effects on credit efficiency. Moreover, the direct effect and the indirect effect share the same sign, indicating that credit behavior plays a partial mediating role in the relationship between financial deepening and credit efficiency. The proportion of the mediating effect is calculated as: $0.0091143 \times (-0.5957) / (-0.1574339) = 0.034486$. The results are shown in Table 1.

Table 1. Mediating Effect of Related Lending

	npl		gldk		npl	
	Coef.	p	Coef.	p	Coef.	p
dep	-0.15743	0.021	-0.5957	0.000	-0.168144	0.013
gldk					0.0091143	0.000
	Total Effect	-0.16	Mediating Effect	-0.005	Proportion	0.034

The mediating effect of loan concentration is further tested. According to Model (1), the coefficient of *dep* is -0.1574339 , which is significant at the 5% level. In Model (2), the coefficient of *dep* is -2.833592 , which is significant at the 5% level. In Model (3), the coefficient of *dep* is -0.150049 , and the coefficient of *dkjzd* is 0.0026062 , both of which are significant at the 5% level.

Table 2. Mediating Effect of Loan Concentration

	npl		dkjzd		npl	
	Coef.	p	Coef.	p	Coef.	p
dep	-0.15743	0.021	-2.833592	0.032	-0.150049	0.027
dkjzd					0.0026062	0.002
	Total Effect	-0.16	Mediating Effect	-0.02	Proportion	0.047

The empirical results indicate that financial deepening significantly improves the credit efficiency of urban commercial banks. From an economic perspective, financial deepening promotes the development of financial markets, improves information transparency, and reduces information asymmetry between banks and borrowers. As a result, banks are able to allocate credit resources more efficiently and reduce the level of non-performing loans.

In addition, the mediation analysis shows that credit behavior plays an important role in the relationship between financial deepening and credit efficiency. Specifically, financial deepening influences banks' lending decisions, such as related lending and loan concentration. With the development of financial markets and the improvement of regulatory mechanisms, banks tend to reduce inefficient or risky lending behaviors, thereby improving the quality of

credit allocation. These results indicate that financial deepening has both direct and indirect effects on credit efficiency. Since the signs of the direct effect and the indirect effect are the same, credit behavior plays a partial mediating role. The proportion of the mediating effect is calculated as: $0.0026062 \times (-2.833592) / (-0.1574339) = 0.046908$. The results are shown in Table 2.

credit allocation.

The results further show that credit behavior plays a partial mediating role, indicating that financial deepening not only directly improves credit efficiency but also indirectly affects it by influencing banks' credit behavior. In other words, part of the impact of financial deepening on credit efficiency is transmitted through changes in banks' lending structures and risk management practices.

Overall, these findings suggest that promoting financial deepening and strengthening credit management can effectively improve the efficiency and stability of the banking system.

4. Conclusion

This paper examines the impact of financial deepening on

the credit efficiency of urban commercial banks and analyzes the mediating role of credit behavior. The empirical results show that financial deepening significantly improves credit efficiency by reducing the non-performing loan ratio. In addition, credit behavior plays a partial mediating role in the relationship between financial deepening and credit efficiency. Specifically, financial deepening not only directly improves credit efficiency but also indirectly affects it through changes in banks' lending behavior, such as related lending and loan concentration.

These findings suggest that the development of financial markets and the improvement of financial systems can effectively enhance the efficiency of credit allocation. Therefore, policymakers should further promote financial deepening, strengthen financial supervision, and guide banks to optimize their credit structures. At the same time, commercial banks should improve internal governance and risk management to enhance credit efficiency and support sustainable economic development.

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