The Influence of Internet Finance on the Profitability of Traditional Commercial Banks

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Abstract: In recent years, the rapid development of Internet finance has brought significant influence to commercial Banks. Using the data of 10 large commercial banks in China from2009 to 2018, using the existing data to establish a panel model to empirically analyze the relationship between the two, the results show that Internet finance, as a strong competitor of commercial banks, has impacted the profitability of commercial banks. For traditional commercial Banks, actively exploring diversified development models is an effective strategy to cope with the impact of Internet finance.

1. Introduction

The definition of Internet finance is a direct financing mode and different from traditional commercial banks in essence [1].From the perspective of the operation mode of Internet finance, Internet finance is the integration of Internet technology and financial business [2]. In recent years, with the continuous development and improvement of China's financial market and mutual penetration with Internet, Internet finance has been rapidly developed, which has put forward new challenges to the main business of traditional commercial banks[5].In the years of strong development of the Internet, Internet finance has become a strong competitor of commercial Banks on the one hand, and on the other hand, with the development of Internet finance technology, commercial Banks have spillover benefits. Therefore, the impact of the Internet on the profitability of commercial Banks is inevitable. The purpose of this paper is to clarify the effect of Internet financial development for the commercial bank profitability and the influence of the structure. This to our country commercial Banks toimprove profitability, improve the profit structure has an important value and significance, especially in the age of the Internet financial, build the Internet financial enterprises and traditional business benign competition system, and ensure the healthy development of financial industry continued.

2. The influence of Internet finance on commercial Banks

A large number of foreign scholars have paid attention to the simultaneous development of Internet finance and commercial Banks and conducted a large amount of research. Some people think that the profitability of Internet Banks exceeded that of non-inter-net Banks. Others believes that the combination of Internet and finance has advantages and disadvantages, bringing cost advantages and increasing market risks at the same time, and believes that a large number of investors tend to choose online financial products with higher yields, so the deposit business of commercial Banks will be greatly impacted [3].

Domestic scholars began to pay attention to the impact of Internet finance on commercial Banks earlier. The liability business of commercial Banks is greatly impacted by Internet finance[5].Some scholars hold the completely opposite view, because Internet finance can greatly reduce the degree of information asymmetry, so the entire assets, liabilities and intermediate business of commercial Banks will be squeezed, so Internet finance has a far reaching impact on commercial Banks[4].

On the one hand, Internet finance will bring technology spillover, which is beneficial to the profitability of commercial Banks; on the other hand, in some aspects of business, Internet finance and commercial Banks are substitutes, so Internet finance will occupy part of the market of commercial Banks. As a financial intermediary, the basic profits of commercial Banks are generated from deposit and loan spreads. To sum up, the hypothesis is put forward that the development of Internet finance has a negative correlation with the profitability of commercial Banks in China.

3. Variable

3.1 Sample selection and data sources

The annual statistical data of 10 commercial Banks from 2009 to 2018 were selected, and the sample time range included the first year of Internet finance,2013,The data of Internet finance index refer to the practice of Huang Xinlei (2020), baidu index is adopted, and principal component analysis method is used to obtain Internet finance index[6].The growth rate of the third-party payment transaction scale is obtained from iresearch, and the P2P online loan scale is obtained from the home of online loan and the tianyan research center of online loan. In view of the availability of data, the growth rate of third-party payment scale is the annual data from 2009 to 2018, the Internet finance index is the annual data from 2011 to 2018, and the p2p lending scale is the annual data from 2014 to 2018.

3.2 Variable definition

The return on total assets (roa) was used as the explained variable in this paper. In order to investigate how commercial Banks' non-interest income is affected by Internet finance, the index of non-interest income (per) is added to the explained variable. With the help of baidu index, the word frequency of the lexicon from 2011 to 2018 was found out, and the Internet finance index was synthesized with the help of main component analysis. At the same time, the growth rate of the third-party payment transaction scale, he scale of online loans as the proxy indicators of Internet finance.

3.3 Regression model

$$ROA_{it} = a0 + a1IFI_{it} + a3CAR_{it} + a4CRR_{it} + a5LDR_{it} + \varepsilon_{it} \quad (1)$$

$$PER_{it} = a0 + a1IFI_{it} + a3CAR_{it} + a4CRR_{it} + a5LDR_{it} + \varepsilon_{it} \quad (2)$$

Wherein,α、β are the estimated coefficients of equation 1 and equation 2,I =1,2,3,N represents the number of Banks, and t=1,2,3,t represents the time, and is the random disturbance term.

4. Empirical analysis

OLS regression was used, and both the random effect model and the fixed effect model were used for estimation, as shown in table 1.

Among explanatory variables, the regression coefficient of Internet finance development index is negative under both models, indicating that Internet finance has impacted the profitability of commercial Banks, which is consistent with the expectation above. The exponential coefficient of development of explanatory variable Internet finance was positive, indicating that it promoted the growth of non-interest income of commercial Banks, but the regression results of fixed effect model showed that it was not statistically significant.

Table 1 Panel regression results

variable	random effect	Fixed effect	random effect	Fixed effect
	Roa	Roa	Per	Per
Ifi	-0.00397***	-0.00304***	0.000599**	0.000271
	(-0.000495)	(-0.0005)	(-0.0002)	(-0.0002)
Car	3.068***	0.624	0.151	-0.668
	(-0.934)	(-1.757)	(-0.439)	(-0.527)
Crr	0.098	0.656	0.652***	-0.48
	(-0.418)	(-0.949)	(-0.197)	(-0.306)
Ldr	0.270**	-0.071	0.373***	0.341***
	(-0.127)	(-0.255)	(-0.0598)	(-0.0487)
Ggdp	-0.0626	-0.037	-0.0557**	-0.0264**
	(-0.0596)	(-0.0227)	(-0.028)	(-0.0112)
Constant	0.715***	1.073**	-0.294***	0.178*
	(-0.209)	(-0.349)	(-0.0981)	(-0.0849)
Observations	80	80	80	80
Number of code	10	10	10	10
R-squared		0.734		0.571

5. Robustness test

In this paper, the growth rate of third-party payment and p2p lending scale are selected as proxy variables of the development index of Internet finance for robustness test.

Table 2 Influence of Internet finance on the profits of commercial Banks (robustness test)

	Roa	Per	Roa	Per
Tp	-0.192***	0.0150*		
ln_p2p	(-0.0504)	(-0.00792)	-0.0963*** (-0.00448)	0.0119** (-0.00383)
Car	2.970*	-0.877***	3.569**	-0.179
	(-1.368)	(-0.184)	(-1.367)	(-0.321)
Crr	0.2	-0.795***	1.320*	0.283
	(-0.862)	(-0.228)	(-0.607)	(-0.222)
Ldr	-0.565	0.314***	-0.420***	0.166***
	(-0.365)	(-0.0572)	(-0.101)	(-0.0412)
Ggdp	-0.325***	0.00324	-0.109***	-0.0151**
	(-0.05)	(-0.0118)	(-0.0176)	(-0.0055)
Constant	1.327*	0.312**	1.462***	-0.0637
	(-0.619)	(-0.0999)	(-0.302)	(-0.0759)
Observations	100	100	50	50
Number of code	10	10	10	10
R-squared	0.334	0.585	0.87	0.57

As can be seen from table 2 and, the main conclusions obtained are consistent with the impact of Internet finance index on commercial Banks' profitability, and the results are robust.

6. Conclusion

Internet finance has brought great influence to the traditional financial institutions represented by commercial Banks. Based on the development of Internet financial enterprises, on the one hand, has a negative impact on the profitability of commercial Banks, which is dominated by interest margin

income; on the other hand, it forces commercial Banks to transform their profit models and promote the improvement of their profit structure. The development of internal Internet finance in commercial Banks not only promotes the growth of non-interest business income and the diversification of profit structure, but also improves the overall profitability of commercial Banks by improving efficiency and reducing costs.

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