

The Impact of Interest Rate Marketization on the Profitability of Commercial Banks

-- Evidence from the Chinese Market

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Abstract

Interest rate marketization refers to letting the supply-demand relationship in the market determine the interest rate of financial institutions' operation and financing. The operation of commercial banks affects the normal operation of China's entire financial system, and then affects the steady development of the economy. This paper will explore the impact of interest rate marketization on the operating performance of Chinese commercial banks, and find that interest rate marketization has a negative impact on the profitability of commercial banks, that is, the implementation of interest rate marketization has an impact on the profitability of banks. The conclusion of this paper can provide some reference for further opening China's financial market.

Keywords

Interest Rate Marketization; Commercial Bank; Profitability.

1. INTRODUCTION

Interest rate marketization refers to allowing the relationship between supply and demand in the market to determine the interest rate for the operation and financing of financial institutions. The theory of financial repression provides a theoretical basis for the marketization of interest rate [1-2]. It believes that financial repression is the reason for the underdeveloped state of developing countries. Financial repression mainly occurs when a country sets the upper limit of nominal deposit and loan interest rate at a low level relative to inflation. The resulting low real interest rate or negative real interest rate can not play the transmission role of converting savings into investment, resulting in low efficiency of capital allocation. Therefore, we should implement financial liberalization to make up for the problems brought by financial restraint policies.

Most developed countries in the world have implemented market-oriented interest rate reform to varying degrees. At the same time, many countries in the world have completed the reform of interest rate marketization, and some developing countries are actively carrying out the reform of interest rate marketization. For example, France basically completed the reform of interest rate marketization in 1985 and became one of the earliest regions or countries in the world to carry out interest rate marketization reform. The United States also followed France and completed the reform of interest rate marketization. Japan completed the market-oriented reform of interest rate in the 1990s. Compared with France, the United States, Japan and other developed countries, China's interest rate marketization is relatively slow.

Before the 1990s, China's interest rate was strictly regulated, and China's interest rate marketization plan was first put forward in 1993. In 1996, the people's Bank of China announced that China's lending rate began a controllable free adjustment mode. On October 29, 2004, the people's Bank of China decided to cancel the control of the upper limit of loan interest

rate of financial institutions, which opened the prelude to the market-oriented reform of loan interest rate; On July 20, 2013, the central bank once again lifted the control of the lower limit of loan interest rate of financial institutions; In 2015, the people's Bank of China announced the liberalization of deposit interest rates, marking the basic completion of China's market-oriented reform of interest rates.

Some scholars have shown that, there was a positive correlation between GDP, growth rate of financial assets and real interest rate in about 20 developing countries in the 1970s. When the market interest rate is 1% higher than the real deposit interest rate, the economic growth rate will decrease by 0.5%, resulting in a downward trend in economic growth [3]. Commercial banks are an important subject of China's finance. The marketization of interest rate undoubtedly has a great impact on commercial banks. On the one hand, the marketization of interest rate may lead to the narrowing of the deposit loan interest margin of commercial banks, the compression of traditional business profits and the increase of commercial bank risks. The marketization of interest rates has increased the risk exposure level of commercial banks in both developed and developing countries. While the spread effect of interest rate marketization leads to the decline of business profits of commercial banks, the improvement of credit resource allocation efficiency brought by interest rate marketization may improve the profits of commercial banks [4].

The level of deposit and loan interest rates will be significantly improved after interest rate marketization, the short-term volatility of real and nominal money market interest rates will increase, and the treasury bond interest rate and bank interest rate spread will be restrained [5]. The more interest rate liberalization, the greater the role of financial development in stabilizing the economy, especially in emerging and developing countries. At the same time, financial development and interest rate liberalization can also alleviate the impact of external shocks and act as an economic stabilizer [6].

The operation of commercial banks affects the normal operation of China's entire financial system, and then affects the steady development of the economy. This paper will explore the impact of interest rate marketization on the operating performance of Chinese commercial banks, in order to provide some reference basis for further opening the financial market.

2. RESEARCH AND ANALYSIS

As for the evaluation of banks' operating performance, there is a significant correlation between the performance of commercial banks and total assets, which has an important impact on the ROA index to measure the performance of commercial banks [7]. Return on assets (ROA) is an important indicator of the profitability of commercial banks by dividing total net profit by total assets, which can objectively reflect the relative profitability and competitiveness of commercial banks. Therefore, the return on assets (ROA) is selected as the index to measure the profitability of commercial banks. The higher the value of ROA, the stronger the profitability of commercial banks, and the lower the value of ROA, the weaker the profitability of commercial banks.

In the existing research, the degree of interest rate marketization can be measured by the difference of different market interest rates, or the single market interest rate can be directly used to reflect the level of interest rate marketization. This paper uses net interest spread (NIS) to measure the degree of interest rate marketization. Net interest spread refers to the average rate of return on interest bearing assets minus the average cost of liabilities.

Total asset (TA) is the asset owned by commercial banks, including owner's equity and liabilities. It is an important factor affecting the profitability of commercial banks. Large-scale commercial banks can reduce marginal costs and bring economies of scale. The larger the asset scale of commercial banks, the higher the utility of economies of scale, on the contrary, the lower

the utility of economies of scale. Therefore, the asset scale (TA) of commercial banks is selected as one of the control variables. However, considering the large value of the asset scale of commercial banks, the total asset is logarithmicized and LNTA is taken.

Capital adequacy ratio (CAR) is the ratio of a bank's own capital to its weighted risk assets. All countries have restrictions on the capital adequacy ratio of commercial banks to monitor the anti-risk ability of commercial banks. It reflects the ability of commercial banks to bear losses with their own funds on the premise of ensuring the rights and interests of depositors and creditors. The lower the capital adequacy ratio, the lower the safe capital scale of risk assets representing commercial banks. If there are too many risk assets, the smaller the ability of commercial banks to resist risks, the greater the operating pressure they will face, and the profitability of commercial banks will also be negatively affected. Therefore, the capital adequacy ratio is selected as the control variable of this paper.

Non-interest income (NII) measures the income of commercial banks other than interest income. Under the background of interest rate marketization, commercial banks will explore some new profit growth points, such as intermediary business, which has low risk and requires little working capital. In recent years, the scale of intermediary business income of commercial banks has shown an upward trend. Therefore, non-interest income is included in the model as a control variable, and the non interest income is expressed as LNNII by taking logarithm.

The real GDP growth rate (GDP) can well reflect the state of economic development. The profitability of commercial banks is closely related to the actual GDP growth, so it is included in the control variable.

Inflation rate (INF): according to Fisher Equation, the nominal interest rate is equal to the real interest rate plus the inflation rate. The inflation rate will increase the nominal interest rate of commercial banks, which is equivalent to increasing the cost of commercial banks. Therefore, inflation rate is selected as the control variable.

3. ESTIMATION RESULTS

There are more than 4000 commercial banks in China, with great individual differences. Listed commercial banks are representative in terms of scale and market share, and their information disclosures are more complete and more standard than other commercial banks. Therefore, we use the data of the largest 30 listed commercial banks from 2015 to 2020 from Wind database as our research sample.

The model used in our research is as follows:

$$ROA_{i,t} = C + \beta_1 NIS + \beta_2 LNTA_{i,t} + \beta_3 CAR_{i,t} + \beta_4 LNNII_{i,t} + \beta_5 GDP_t + \beta_6 INF_t + \varepsilon_{i,t}$$

Where, $i=1,2,\dots,30$ represents the bank I, and C are constant terms and random disturbance terms.

Table 1. Descriptive statistics

Variable	Mean	Std	Min	Max
ROA(%)	0.98	0.03	0.55	1.82
NIS(%)	2.32	0.04	1.40	5.23
LNTA	23.56	2.86	18.77	29.05
CAR(%)	11.64	0.42	8.01	16.37
LNNII	19.22	3.14	17.38	23.69
GDP(%)	5.92	4.02	2.30	6.90
INF(%)	1.94	0.43	1.51	2.25

Table 1 shows the descriptive statistics of each variable. The average value of ROA is 0.98%, the maximum value is 1.82%, the minimum value is 0.55%, and the difference between the minimum value and the maximum value is 1.27%, indicating that the overall level of ROA in listed commercial banks is not high, and the individual differences are obvious. The average value of NIS is 2.32%, the maximum value is 5.23%, and the minimum value is 1.40%. There are also large differences in the net interest spread among banks.

Table 2. Estimation results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NIS	-0.22	0.04	-5.49	0.00
LNTA	-0.03	0.01	-3.00	0.00
CAR	0.04	0.02	1.98	0.08
LNNII	0.50	0.23	2.17	0.06
GDP	1.89	0.55	3.44	0.00
INF	-0.67	0.48	-1.40	0.12
C	0.05	0.01	5.01	0.00
R-square	0.56			

It can be seen from the model estimation results in Table 2 that the R-square of the model is 0.56, indicating that the goodness of fit of the model is good. The bank net interest spread (NIS), total asset (LNTA) and GDP growth rate are significantly not 0 at the level of 1%. The coefficient of net interest spread is -0.22, which shows that the marketization of interest rate has a great negative impact on the profitability of commercial banks. The coefficient of bank total asset (LNTA) is -0.03, that is, for every 1% increase in bank assets, the return on assets of commercial banks will decrease by 0.03%; The coefficient of capital adequacy ratio (CAR) is 0.04, that is, for every 1% increase in capital adequacy ratio, the return on assets of commercial banks will increase by 0.04%; The coefficient of intermediate business income (LNNII) is 0.5, that is, for every 1% increase in LNNII, the return on assets of commercial banks will increase by 0.5%.

4. CONCLUSION

Through empirical analysis, we conclude that China's current interest rate marketization has a negative impact on the profitability of China's commercial banks. China's commercial banks are in the "painful period" of the development of interest rate marketization. After the introduction of interest rate marketization, China's financial and economic environment has undergone great changes. The interest rate can begin to float, resulting in the reduction of net interest margin, the intensification of competition among banks and the gradual rise of operating risks. The traditional deposit and loan business model of commercial banks has been greatly impacted, showing a great maladjustment to the marketization of interest rate. Chinese commercial banks failed to absorb the impact of interest rate marketization. In order to improve the profitability of banks, it is necessary to increase the proportion of intermediate business income in total income and reduce the dependence of commercial banks on interest income. Narrowing the net interest margin, increasing the risk, seizing the financing market share, intensifying the competition and increasing the risk of commercial banks will have a negative impact on the profitability of commercial banks; China's financial system must have space and time to digest and adjust in order to adapt to the interest rate marketization.

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