Empirical Analysis on Bank's Net Interest Margin under the Background of Interest Rate Liberation: Taking the Banking Sector in Weihai for Example

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Abstract: The market-oriented reform of interest rate in China will shorten the official basis spreads, so that it will affect the profitability of the banks. Based on the net interest spread as a measure of profitability, this paper put the four class bank in order, following by the large national funding bank, rural cooperation financial institution, the small and medium national funding bank, and village bank. The estimation of policy dummy variables shows that, under the macro-economic background with low inflation and stable growth, the continuous introduction of policies has a minor negative impact on the profitability of banks. To lighten this kind of impact, the interest policies should be introduced under low inflation and high growth, and taken into steps with more caution. For the banks, the impact can be lightened by optimizing customer structure, enhancing bargaining ability and improving the proportion of intermediate business income to show their own advantages.

Introduction

Based on the latest process of interest rate liberation, taking the banking industry in Weihai City, Shandong Province as samples, making use of quarterly panel data from 2009 to 2012, we make a cross-sectional study on the net interest margin difference among various types of banks , so as to determine their basic capabilities to response to the policy shocks; We longitudinal study microscopic effects of two reform measures in mid-2012, combining the macroeconomic factors, we propose the best time to implement the policy.

Literature Review

The outline of the interest rate liberation theories.

Keynes believed that interest rate can be used as an important tool of macroeconomic policy adjustment, while the monetary policy transmission mechanism with interest rate as its core, must rely on the market-oriented process of interest rate formation.

The study of foreign reforms: changes in the actual interest rate and the net interest margin after the reforms

Difficulties of interest rate liberation process are mainly due to the short term rise of the actual interest rate after the liberation. The interest rate liberation has a very important influence on the bank's profitability, which is mainly reflected through changes of net interest margin.

Domestic research: the relationship between the changes in deposit and loan interest rate margin and the bank's profitability.

At present, the interest rate liberation researches by Chinese scholars focus on the interest rate risk control and the strategic transformation of Chinese banking industry, and the study on the bank's profitability in the interest rate liberation is still in its infancy. Huang Jinlao (2001) divided the risks generated from the interest rate liberation into the permanent risk and the staged risk, and pointed out that the banks will be affected by a sudden increase and irregular fluctuations of interest rate resulting from the interest rate liberation, their vulnerability will be more significant, which even leads to a banking crisis.

The study design

In this paper, through the empirical method of establishing the econometric models, we study the impact of interest rate liberation policies on the bank profitability.

The basic idea

For the two reforms in 2012 mentioned in the first part, the study on the effects of the policy by setting policy dummy variables has objective feasibility.

2. The sample selection and data sources

The analysis in this paper is according to the banking quarterly data from 2009 to 2012 in Weihai. The data for this empirical research are mainly from survey of China People's Bank Weihai Central Branch, Bank of China Regulatory Commission Weihai Regulatory Branch, as well as various banks in Weihai. Given that since 2009, Chinese macro economy has gradually recovered from the bottom of the financial crisis and stabilized, which makes this empirical analysis less influenced by macro-economic cycle fluctuations; and during this period, the bank species tend to be rich in Weihai, therefore, we use the quarterly panel data from 4 categories of banks from 2009 to 2012 to analyze in this paper, the data of other areas is no longer considered.

3. The econometric model selection and the construction of model indicators.

There are many indicators measuring the deposit and loan interest rate margin in banks, in which the net interest margin (NIM) is the most commonly used, in this paper, we also use this indicator.

The specific form of the model is:

$$NIM_{it} = \alpha_i + \beta_1 sav_{it} + \beta_2 len_{it} + \beta_3 siz_{it} + \beta_4 d1 + \beta_5 d2 + u_i + \varepsilon_{it}$$

Wherein, ε is the random disturbance term; i = 1,2,3,4, 1 represents Chinese-funded national large banks, 2 represents Chinese-funded national small and medium banks, 3 represents the rural cooperative institutes, 4 represents the rural banks; when i = 1,2,3, t = 1,2, ⋯ 16; Since operation of the rural banks began from the third quarter of 2010, when i = 4, t = 7,8, ⋯, 16 .

IV. Model estimation and analysis

The model estimation and the meaning of coefficient.

The fixed effects model and LSDV method used to estimate the models, the data collated according to STATA analysis results are shown in Table 1 .

Table 1:The estimation results of bank net interest margin determination model.

Name of variable	fixed effects (the estimator within the group)		LSDV (least squares dummy variable) estimation	
	Coefficient estimate value	the value of P (T-test)	coefficient estimates	P value (T test)

sav	-0.0314	0.0027	-0.0314	0.0030
len	0.0135	0.0003	0.0135	0.0003
siz	-0.0755	0.0339	-0.0755	0.0366
bk_2			-0.0273	0.0215
bk_3			-0.0198	0.0540
bk_4			-0.0361	0.0462
d1	0.0010	0.5495	0.0010	0.5605
d2	-0.0010	0.1041	-0.0010	0.1108
cons	0.0454	0.0098	0.0646	0.0163

Next, we will explain and analyze the estimation results of the model :

(1), The proportion of deposit in total asset, sav coefficient is significantly negative , the proportion of loan in total asset, len coefficient is significantly positive , which is consistent with the impact of the actual deposit and loan balances on the bank net interest margin. However, the absolute value of the deposit proportion coefficient is much larger than the absolute value of the loan proportion coefficient, which shows the influence of deposit to the bank net interest margin is greater than the impact of the loan, further confirming the correctness of the interest rate liberation principle, " The reform must first to loan, then to deposit ".

(2), the size coefficient of industry status indicators is significantly negative, indicating that along with the increase of certain bank total asset proportion in the total industry asset, the net interest margin of this bank is gradually decreasing. The estimate value of this indicator appears counter-intuitive feature, which is not consistent with most researches.

(3), List the individual difference items represented the net interest margin of four categories of banks (bk_1 - bk_4) in the descending order. As can be seen from the results, the largest banks also have the largest net interest margin, the remaining three categories of smaller banks have smaller net interest margin. The specific problem is that, the order of the last three categories of banks is not consistent with the order of their size. According to the calculation of model estimation, the net interest margin of the rural cooperative institutions is 75 basis points higher than the net interest margin of smaller and medium banks, from which it can be seen, the rural cooperative institutions can get a better profitability by playing their own advantages in the countryside and towns.

(4), For estimation of the policy dummy variable coefficients d1 and d2, 95% of significance can be tested, which means that on the a extent of significance, the effectiveness of policy is not obvious. But we should note the fact that the significance of the fixed effects and LSDV to the estimation results of coefficient d2 is close to 90%, although the estimate coefficient is -0.001 (ie, 10 basis points of negative impact of), this negative impact should be considered to be real.

Next, we will analyze 2 aspects, targeting on the non-significant policy effects and some degree of negative effects.

The effect analysis of the policy in the interest rate liberation.

For the issue that the estimate results of policy dummy variables are not very significant, we must comprehensively explain 2 aspects of the macroeconomic factors and the sustainability of policies. Of course, the initiative adjustment of banks in this process is also an important reason that can not be ignored.

Here, we use the year-on-year quarterly GDP growth to examine the macroeconomic level, and use of the year-on-year monthly CPI change rate to indicate the level of inflation, use one-year SHIBOR monthly average to represent the interest rate in the money market. The study found that, from the history of interest rate liberation measure implementing, the measure to measure to narrow the benchmark interest margin usually selects the time with low inflation to complement, and these two reform measures examined herein also took place during the period when CPI continued to decline and be stable at around 2%, and the corresponding CPI in Weihai had the same situation, in a downward trend. Then from the perspective of sustainability in terms of policy, although since 2009, the first five of seven interest rate policy implementations by People's Bank of China have not changed the benchmark interest margin, but they adjusted the medium and long-term deposit and loan rate, making the medium and long-term deposit and loan interest margin stay in narrowing state. This long-term gradual but continuous approach to reform, not only reduces the passive impact on the economy caused by the reform, but also makes the banks gradually adapted to the policy environment with narrowing interest margin. At the same time, banks are also trying to increase the proportion of intermediary business revenue, while actively developing SME customers, making the profit sources more diverse. Such policy sustainability enhances the banks ability to cope with the adverse effects caused by the policy. For the negative effects of policy shocks, we still need to combine the macro-economic background to understand.

Conclusion and Recommendation

Based on the above analysis, we can get the following conclusion: First, according to the estimate coefficients of differences in net interest margin of 4 categories of banks in Weihai, we can sort the basic capacity of 4 categories of banks to withstand the impact of the benchmark margin policy from strong to weak : Chinese-founded national large bank, the rural cooperative financial institution, Chinese-founded national medium and small bank, and the rural banks. In the four categories of banks, the scale proportion of medium and small Chinese-founded national banks increased significantly, but its net interest margin is low, and its ability to withstand the impact of policy is worth concerning. Second, the policy implemented in mid-2012 in the interest rate liberation didn't cause a significant impact on the net interest margin of the banking industry in Weihai. Third, since these two reform policies were almost implemented simultaneously, they still had a negative effect on the net interest margin of the banking sector.

Based on the conclusion of analysis, we propose the following policy recommendation:

First, the time to implement the policy should be selected during the period with low inflation, steady growth or high growth. Second, for the banking sector, Chinese-funded national large banks should base on original scale advantage, and further improve their management and service capabilities. For Chinese-founded national medium and small banks, in the process that they make efforts to expand their own local business, they should also focus on increasing the overall service level and the bargaining power, play their competitive advantages, and achieve the balanced growth between the scale and the profitability. The rural cooperative financial institutions should particularly emphasize management of assets and liabilities maturity structure and quantity structure and raise the level of interest rate risk management and asset-liability comprehensive management. For the rural banks which are still in the early stages of development, we must seize the opportunity that current market competition for deposit and loan in rural areas is very intense, deepen the rural areas, seize the rural market to a greater extent, and enhance their competitiveness and profitability by taking advantage of small banks to create the stable customer base.

References:

[1] Saatchi , International Experience of the Relations between the Interest Rate Liberation and High Interest Rate [J]. International Financial Research, 1996 (1).

[2] Zhong Wei, Shen Wenyi , The International Comparison and Empirical Analysis of Banking Net

Interest Margin of China [J]. Management World, 2006 (9).
[3] Huang Jinlao, The Interest Rate Liberation and Commercial Bank Risk Control
The Interest Rate Liberation and Commercial Bank Risk Control [J]. Economic Research, 2001 (1).