Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

Research on Competitiveness Measurement of Commercial Banks: The Case of Listed Commercial Banks in China

Wenzhi Peng[*,#], Lei Huang[#], Lidong Zhang
School of Management and Economics,Jingdezhen Ceramic University,Jingdezhen,Jiangxi,333403,China
#Co-First Authors.
Corresponding Author.

Abstract:

Under the current complicated economic and financial situation, commercial banks are in a critical period of reform and transformation. This study investigated the competitiveness measurement of commercial banks in China. The study puts forward that the core competitiveness of commercial banks can be embodied in two aspects: realistic competitiveness and potential competitiveness. The bank competitiveness index composed of four indicators, namely solvency, operational capability, profitability and development capability, as well as and an analysis framework of bank competitiveness factors are established to build a competitiveness evaluation index system. Taking the data of 14 representative commercial banks in China from 2006 to 2015 as analysis samples, the paper analyzes the core competitiveness of commercial banks and its changing trend. The findings of the study show thatChina's banking industry has also achieved prosperous development in the past 20 years, but its development and competition model is to enhance its overall performance by improving asset size, asset quality and liquidity to obtain interest rate income. In the future, Chinese banks need to gradually realize a shift in drivers from traditional, low-end factors to high-end factors to enhance their competitiveness. Firstly, the business income structure should be transformed to a profit model that gradually relies mainly on intermediate business income; secondly, future competition should rely more on technological innovation and business innovation. Technological innovation will promote banks to achieve sustainable and benign development, and it play an increasingly important role in the future competition of banks.

Keywords: *Competitiveness measurement, Commercial banks, Listed commercial banks in China*

I. INTRODUCTION AND LITERATURE REVIEW

Mankind has entered the era of economic globalization and world financial integration. It has become an urgent topic to rapidly improve the competitiveness of China's commercial banks and make China become an economic power and a financial power. Many scholars have studied the competitiveness of commercial banks, and some institutions regularly track and measure the competitiveness of commercial banks.

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

The most important thing to study the competitiveness of banks is to measure the size of competitiveness and to identify the key factors that affect the competitiveness of banks. Some scholars use single indicators such as production efficiency, financial efficiency, operational efficiency and other alternative indicators to measure the competitiveness of commercial banks[1]. Since the competitiveness of commercial banks is a comprehensive concept, which is difficult to be measured by a single indicator, many scholars later tried to construct a the competitiveness of commercial banks index and use comprehensive indicators to measure it. For example, a few scholars integrated the input and output variables of each efficiency of commercial banks so as to measure the competitiveness of commercial banks index [2]. However, the vast majority of studies have measured the system of the competitiveness of commercial banks by integrating the influencing factors of the competitiveness of commercial banks[3-6].

The factors affecting the competitiveness of commercial banks are complex and multidimensional. Some scholars or institutions start from financial indicators, asset quality, prudent operation, bank size, operating performance, and innovation ability, realistic competitiveness and potential competitiveness, liquidity of assets, asset quality, capital adequacy, profitability, management ability, and market risk sensitivity and other perspectives to sort out and analyze the influencing factors of the competitiveness of commercial banks, generally emphasizing that factors such as market size, equity structure, management level, institutional structure, technology investment, and human resources have obvious influence on the competitiveness of commercial banks[7]. The above studies on the factors influencing the competitiveness of commercial banks have all conducted only simple statistical descriptions and qualitative analyses, lacking rigorous empirical tests.

The most representative study on the competitiveness of commercial banks in China is the study of Wang Songqi, editor-in-chief of *The Banker*. In his opinion the competitiveness of commercial banks = F (realistic competitiveness and potential competitiveness) [8]. Among them, the realistic competitiveness consists of the capital status, asset quality, profitability and liquidity of the bank; while the potential competitiveness has the corporate governance, management status, innovation and technology and business structure of the bank. Thus, a set of two primary indicators and eight secondary indicators are used to evaluate the competitiveness of commercial banks. The competitiveness index of each commercial bank is constructed using principal component analysis, and the overall index value of each bank and its ranking are given. Wang Songqi then improved the measurement and analysis of influencing factors of the competitiveness of commercial banks indices to different degrees, but still did not give a complete theoretical discussion of the mechanism of the competitiveness of commercial banks, nor did he critically prove the theoretical basis for constructing the indices. Especially, he did not conduct standardized econometric test and empirical analysis of the influencing factors of the competitiveness of commercial banks, and the composing indicator system of the index was not stable enough.

In summary, there are many factors affecting the competitiveness of commercial banks, but it is a difficult task to identify the main factors affecting competitiveness from them, which has not been well addressed by the existing studies. Although in general there are similarities in the factors affecting the competitiveness of commercial banks, the degree of influence of each factor on the competitiveness of commercial banks varies for different types of banks and different time periods. In view of this, in the

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

following part of this paper, firstly, on the basis of understanding the connotation of the competitiveness of commercial banks, the competitiveness index of commercial banks is constructed; secondly, the competitiveness index of 14 commercial banks and their various types of banks in China is measured; then, using the panel data of 14 commercial banks from 2006-2015, stepwise regression analysis is used to empirically test the influencing factors of the competitiveness of commercial banks; finally, the brief conclusions and policy recommendations are given.

II. CONCEPT, INDEX CONSTRUCTION AND MEASUREMENT OF THE COMPETITIVENESS OF COMMERCIAL BANKS

2.1 The Concept of the Competitiveness of Commercial Banks

The competitiveness of commercial banks is a concept that is easy to understand but difficult to grasp precisely, and scholars at home and abroad have not given a strict theoretical model to explain it, nor has a unified analytical framework been formed. On the basis of summarizing and absorbing the previous research results, this paper holds that the competitiveness of commercial banks means that a bank has stronger input-output ability and risk management ability, ability to provide better and faster services to customers, ability to create profits, ability to promote sustained and healthy growth of its own value, and ability to realize its steady and sustainable development compared with other banks. In other words, it has stronger solvency, operational ability, profitability and development ability.

2.2 Construction of the Competitiveness Index of Commercial Banks

In the field of urban competitiveness, Crasso and Singh (1995, 1999) used a composite index composed of three indicators, namely, manufacturing value added growth, retail value added growth, and professional services employment growth, to measure the level of competitiveness of a city. Inspired by the above definition of the competitiveness of commercial banks, this paper suggests that the composite index (cci) composed of four indicators, namely, solvency (dba), operating capacity (oa), profitability (pa) and development capacity (da), can more appropriately reflect the competitiveness of commercial banks. The following formula is used to express the competitiveness of commercial banks.

$$cci = e^{dba+oa+pa+da} \quad (1)$$

$$\ln(cci) = dba + oa + pa + da \quad (2)$$

2.3 Measurements of the Competitiveness Index of Commercial Banks

Considering the data collection and drawing on the common practice of previous authors, 14 representative commercial banks listed as of the end of December 2006 are selected and classified into the following categories according to their attributes: (1) listed large state-owned commercial banks, which are Industrial and Commercial Bank of China, China Construction Bank, Bank of China and Bank of

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

Communications; (2) listed joint-stock commercial banks, including Shenzhen Development Bank, Minsheng Bank, CITIC Bank, Huaxia Bank, Pudong Development Bank, China Merchants Bank and Industrial Bank; (3) listed city commercial bank, namely Bank of Ningbo, Bank of Nanjing and Bank of Beijing. They basically reflect the overall development trend of commercial banks in China.

Table I. Composite competitiveness index of various types of banks from 2006 to 2015

Various types of banks	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Large state-owned commercial banks	-2.03	-1.78	-1.99	-0.01	0.56	0.71	1.37	1.39	1.42	1.26
Joint-stock commercial banks	-0.36	-0.21	-0.6	-0.37	-0.3	-0.25	1.47	1.44	1.52	1.42
City commercial banks	-0.59	-0.28	-0.34	-0.75	-0.5	-0.24	1.79	1.9	2.01	1.87
All Banks	-0.99	-0.78	-0.85	-0.37	-0.1	0.07	1.54	1.58	1.62	1.53

Note: the data in the table is collated from the financial data of each bank by the author through the spss software

The following conclusions can be drawn from Table I: (1) Since 2006, the consolidated performance of listed banks in China has generally shown a steady upward trend. (2) In 2007, the overall consolidated performance of listed banks improved because of the dual influence of the heating up of China's macro economy and the opening up of the banking industry to the outside world. (3) Influenced by the financial crisis in 2008, the overall competitiveness of commercial banks in China was less than that in 2007. (4) Influenced by further economic downturn and more painful structural adjustment, the consolidated performance of various types of listed banks declined in 2015 compared with 2014.

III. THE EMPIRICAL ANALYSIS OF FACTORS INFLUENCING THE COMPETITIVENESS OF COMMERCIAL BANKS

Constructing and measuring the competitiveness index of commercial banks can provide a visual understanding of the competitiveness of various commercial banks. Nevertheless, the core is to identify the main factors affecting the competitiveness of banks and measure the degree of influence of each factor on the competitiveness of banks, and then provide a theoretical basis for banks to improve their competitiveness.

3.1. Construction of the Theoretical Model of Bank Competitiveness

Bank competitiveness is a complex chaotic system with many elements and environmental subsystems that exist in different ways and jointly influence the overall competitiveness of commercial banks. Claudia & Phili (2004) consider asset size, capital strength and the number of non-performing loans as the main factors affecting the competitiveness of commercial banks; Chen Huimin, Xu Yunbao et al. (2011) consider financial indicators such as earnings per share, return on net assets and asset-liability ratio as the key indicators affecting the competitiveness of commercial banks. Deng Nan (2012) believes that salary level

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

is an important factor affecting the competitiveness of banks. It can be said that these scholars understand the factors affecting the competitiveness of commercial banks from different perspectives, and all of them are reasonable to a certain extent. However, there are some shortcomings in these studies in general. Perhaps their analyses of the factors influencing the competitiveness of commercial banks have some omissions respectively, and most of them are only simple qualitative judgments without rigorous empirical tests or difficult to conduct rigorous empirical tests.

In response to the definition of the connotation of the competitiveness of commercial banks earlier in this paper, based on the comprehensive analysis of domestic and foreign scholars, especially drawing on Wang Songqi's summary of the main factors affecting the competitiveness of commercial banks over the years, we can divide the competitiveness of commercial banks into realistic competitiveness and potential competitiveness, where the realistic competitiveness of a bank is mainly influenced by liquidity, profitability, asset quality and capital adequacy, and the potential competitiveness is mainly influenced by corporate governance, management status, innovation and technology and business structure. Based on this understanding, combined with data availability, completeness and continuity, we propose a simple and more comprehensive and specific model of the competitiveness of commercial banks.

Bank competitiveness (CCI) = F(realistic competitiveness + potential competitiveness)

Realistic competitiveness = F (liquidity, profitability, asset quality, capital adequacy)

Potential competitiveness = F (corporate governance, management profile, innovation and technology, business structure)

3.2 Assumptions about Model Variables and Selection of Indicators

Based on comprehensive analysis of previous studies, Wang Songqi (2002) summarized the main factors affecting bank competitiveness into the above 2 major items and 8 minor items. However, he did not conduct a normative econometric test on these influencing factors, so this paper intends to further conduct an empirical test on these factors by first making the following hypotheses and selecting alternative indicators for these factors.

(1) Liquidity refers to the ability of commercial banks to meet the cash withdrawals of depositors, payment of maturing debts and normal loan demands of borrowers. Liquidity is positively correlated with bank competitiveness. In this paper, the liquidity ratio, liqui, is used to reflect the high or low liquidity quality of banks.

(2) Profitability refers to the ability of commercial banks to make profits and maximize shareholders' interests. The stronger the profitability, the stronger the competitiveness of the bank. This paper selects the indicator of return on capital, retur, to test the influence of profitability on the competitiveness of commercial banks.

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

(3) Asset quality refers to the quality of the role of a given asset in the system managed by the bank, as expressed by the quality of its realization, the quality of its utilization, and the quality of its value added in combination with other assets. The higher the quality of a bank's assets, the more competitive the bank will be. In this paper, the nonperforming loan ratio, nonper, is chosen to test the impact of asset quality on the competitiveness of commercial banks.

(4) Capital adequacy can be used to monitor a bank's ability to withstand risk. This article assumes that the higher the capital adequacy is, the more competitive the bank is. The article uses the capital adequacy, adequa, to test the effect of capital adequacy on bank competitiveness.

(5) Corporate governance refers to the ability of a contributor to maximize the return on its investment and a company to maximize the return to its shareholders, given the separation of ownership and management. The higher the corporate governance, the better the level of competitiveness of the bank. In this paper, equity concentrationownership, owner, is chosen to portray the effect of corporate governance on the competitiveness of banks.

(6) Management status includes institutional settings, management system, management process, management system, cooperation status and environment, which can reflect the operational efficiency of the bank's organizational system. We believe that the bank's management status capability is positively related to the bank's competitiveness. In this paper, we select the degree of internal control and management standardization, contro, to test the influence of management status on the competitiveness of banks.

(7) Technological innovation refers to a bank's ability to continuously develop new products and improve the convenience and efficiency of its system. Technology provides strong productivity; therefore, we assume that the stronger a bank's technological innovation is, the stronger its competitiveness will be. In this paper, we choose the indicator keywor, the ratio of core technical staff to all employees, to test the impact of technological innovation on bank competitiveness.

(8) At present, competition among banks is becoming increasingly intense, and business development is seriously homogenized. To maintain an advantageous position in competition, it is necessary to optimize and adjust business structure. We assume that the business structure of a bank is positively related to its competitiveness. In this paper, we choose the indicator of intermediate business income ratio, center, to test the influence of business structure on bank competitiveness.

3.3 Setting of the Measurement Model

Based on the above theoretical model hypothesis analysis, it is clear that there are many factors affecting the competitiveness of commercial banks. In this paper, we construct the following econometric model in an attempt to measure the contribution of each factor to the competitiveness of commercial banks.

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

$$\ln(CCI_{it}) = \phi_j \sum \ln(X_{it}) + \alpha_t + \mu_i + \varepsilon_{it} \quad (3)$$

In equation (3), the subscript i denotes commercial banks, and t denotes time. This paper uses panel data of 14 representative listed banks in China from 2006 to 2015. α_t is the time effect, μ_i is the individual effect, and ε_{it} is the error term. X_{it} denotes a set of explanatory variables affecting the competitiveness of banks, and ϕ_j is the coefficient of the explanatory variables. The data of each bank indicator are obtained from Bankscope database.

In the measurement model of the panel data, a key issue to be noted is to clarify the basic steps of panel data analysis. Firstly, the stationarity of the data should be analyzed. Namely, the unit root test should be performed; secondly, cointegration test or model correction should be performed; furthermore, the panel data model selection and regression should be performed.

3.3.1 Unit root test

Combining the characteristics of the sample data, this paper uses IPS, LLC, ADF, and PP tests to perform unit root tests on each variable. The results are shown in Table II.

Table II. Unit root test for panel data

Variable statistics	LLC	lPS	ADF	PP
ln(cci)	-12.11***	-12.33**	209.55***	224.55**
ln(liqui)	-14.34**	-15.58***	445.32**	301.42**
ln(retur)	-3.55**	-4.57**	118.42**	215.65**
ln(nonper)	-14.25**	-5.62**	129.56**	189.71***
ln(adequa)	0.489**	5.23***	18.77***	32.15***
ln(owner)	-10.55***	-12.34**	210.25***	225.33***
ln(contro)	-2.88**	-2.425**	62.82**	70.58**
ln(keywor)	-22.48***	-20.13***	365.42***	659.45***
ln(center)	-10.45***	-8.42**	210.33***	205.34**

Note: ***, **, and * indicate significant at levels of 1%, 5%, and 10%, respectively. The critical value is the same as below for the significance level of the test value.

The results of the stationarity show that all the variables selected in this paper pass the significance test at least at the level of 10%. That is, they all have no unit root and are stationary. Therefore, no cointegration test is required for these panel data.

3.3.2 Model estimation and result analysis

Using STATA 11.0 econometric software, the results of each model are tested by WaldFTest (WaldFTest) and HousmanTest (HousmanTest) successively. The results are shown in Table III, which

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

indicate that a fixed effects model should be used.

Table III. Model selection and testing

Contrast model	Test results	Conclusion
Mixed model VS fixed effect model andrandom effect model	WaldFTestt: $F=17.49>F_{0.05}(13, 94)$	Fixed effect model or random effect model
Fixed effect model VS random effect model	HausmanTest: $H=18.45>\chi^2_{0.05}(4)$	Fixed effect model

The generalized least squares estimation method can avoid the problems of autocorrelation and heteroskedasticity. To make the estimation results more accurate, the following five fixed-effects models are tested empirically using generalized least squares estimation (GLS), respectively. The regression results of each model are shown in Table IV.

Table IV. Summary of the results of the regression analysis (GLS) for each model (Explained variable: CCI of the competitiveness index of commercial banks)

Explanatory variables	Model 1	Model 2	Model 3	Model 4	Model 5
ln(liqui)	0.215** (0.423)	0.278*** (0.415)	0.203** (0.398)	0.309*** (0.452)	0.296*** (0.428)
ln(retur)	0.324*** (0.432)	0.345*** (0.508)	0.329*** (0.523)	0.338*** (0.554)	0.346*** (0.498)
ln(nonper)		-0.112* (0.033)	-0.123** (0.042)	-0.134*** (0.054)	-0.151** (0.062)
ln(adequa)	0.103*** (0.431)	0.114*** (0.423)	0.098*** (0.443)	0.142*** (0.502)	0.153* (0.521)
ln(owner)	0.153* (0.104)	0.127*** (0.105)	0.125* (0.112)	0.136*** (0.121)	0.142** (0.108)
ln(contro)				0.047** (0.028)	0.054** (0.029)
ln(keywor)			0.0508*** (0.64)	0.0548** (0.74)	0.0602** (0.68)
ln(center)					0.079*** (0.111)
c	-1.232*** (0.765)	-1.427*** (0.727)	-1.534*** (0.764)	-1.789*** (0.745)	-2.143*** (0.766)
Adj.R2	0.654	0.621	0.598	0.587	0.556
DW	1.915	1.899	1.908	1.921	1.957
Hausman test value	25.44	28.67	25.42	32.43	38.76
P value	0.0001	0.0000	0.0002	0.0000	0.0001
Number of samples	112	112	112	112	112

Note: (1) Values in parentheses are standard deviations; (2) The null hypothesis of the Hausman test is that the estimated coefficients of the fixed-effects model (FE) and the random-effects model (RE) are not systematically different.

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

The five models presented in Table IV are derived following the steps of the panel data. Model 1 reports the explanatory variables to reflect the liquidity capacity of the variable liquidity ratio liqui; return on capital retur for profitability; capital adequacy ratio adequa for capital adequacy; equity concentration owner for the strength of corporate governance; model 2 adds the non-performing loan ratio nonper, which measures the quality of capital on top of model 1. Model 3 is on top of model 2, adding the ratio of core technical staff to all employees, keywor, which reflects the ability of technological innovation; Model 4 adds the degree of internal control and management standardization, contro, which reflects the ability of management status, on top of Model 3; Model 5 adds the intermediate business income ratio, center, which reflects the business structure, on top of Model 4.

3.3.3 Description of model estimation results

The effect of liquidity ratio (liqui), which reflects the liquidity factor of banks, on the competitiveness of commercial banks is positive and significant, with an elasticity coefficient between 0.203 and 0.309. It indicates that liquidity is an important aspect in preventing banks from runs and affecting their competitiveness in China.

The variable return on capital (retur), which reflects profitability, has a significant positive correlation with bank competitiveness with an elasticity coefficient value between 0.324 and 0.326. It indicates that the impact of profitability on bank competitiveness is critical.

The variable non-performing loans ratio (nonper), which reflects asset quality, has a negative relationship with bank competitiveness. For each 1% increase in the nonperforming loan ratio, the corresponding bank competitiveness decreases by 0.112% to 0.151%. Obviously, the higher the NPL ratio, the lower the asset quality and, therefore, the higher the NPL ratio, the lower the bank competitiveness. Thus, it is concluded that asset quality is positively correlated with bank competitiveness. It indicates that asset quality is also an important factor affecting the competitiveness of banks.

The variable capital adequacy (adequa) is positively related to bank competitiveness with an elasticity coefficient ranging from 0.098 to 0.153. This indicates that capital adequacy has a positive contribution to the improvement of banks' competitiveness.

The variable equity concentration, owner, which reflects corporate governance, is also positively related to bank competitiveness with an elasticity coefficient between 0.125 and 0.153. This indicates that the stronger the corporate governance is, the stronger the bank competitiveness is.

The variable keywor, the proportion of core technicians to all employees, which reflects technological innovation, plays a significant positive role in promoting the competitiveness of banks. That is: every 1% increase in the proportion of core technicians to all employees will make a contribution between 0.508 and 0.0602 to the promotion of bank competitiveness.

The degree of variable internal control and management standardization, contro, which reflects the

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

management status, also has a positive driving effect on the competitiveness of banks. However, the effect on bank competitiveness is not very significant, with elasticity coefficient values ranging from 0.047 to 0.054.

The variable reflecting the business structure of banks, intermediate business income ratio center, positively contributes to bank competitiveness at 1% significance level. However, the contribution to bank competitiveness is not significant, and its elasticity coefficient is about 0.079. The reason for the small contribution may be related to the fact that the current profit income of commercial banks in China still mainly depends on interest rate income. But with the gradual intensification of bank competition, the business development of banks is facing a transformation, and the intermediate business income of banks plays an important role in the factors that enhance bank competitiveness in the future.

In general, the factors such as liquidity and profitability of current Chinese banks contribute more to their competitiveness, while factors such as technological innovation and business structure contribute less to the competitiveness of commercial banks.

IV. CONCLUSIONS AND POLICY RECOMMENDATIONS

Until now there is no significant consensus on either the concept or the model of bank competitiveness. Based on the previous studies, this paper defines the competitiveness of banks, constructs a bank competitiveness index composed of four indicators, namely solvency, operating capacity, profitability and development capacity, and analyzes the framework of bank competitiveness factors. The paper also measures and analyzes the current competitiveness status of Chinese banks in terms of factors. It is found that:

First of all, the pattern of and changes in the competitiveness of Chinese banks. In terms of time dimension, the comprehensive competitiveness of individual banks (except Huaxia Bank) shows a steady growth. After joining the WTO, China's financial industry also gradually opened up to the outside world, which resulted in the slow growth of individual banks' consolidated performance in 2006. In terms of spatial dimension, state-owned commercial banks have improved their competitiveness after divesting a large amount of non-performing assets, but there is still a gap with joint-stock banks and urban commercial banks.

Second, the factors influencing the competitiveness of Chinese commercial banks. In the past 20 years, the factors that significantly affect the competitiveness of Chinese banks are mainly focused on some traditional aspects: liquidity capacity, profitability, corporate governance capacity, and capital adequacy. Advanced factors such as technological innovation and business structure have contributed to the improvement of bank competitiveness but not to a great extent. The NPL ratio is negatively correlated with bank competitiveness, indicating that the banks should control their own loan quality to enhance their competitiveness.

In conclusion, although China's banking industry has achieved prosperous development since the

Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
May-June 2022 Page No. 1624 – 1634
Article History: Received: 24 February 2022, Revised: 05 April 2022, Accepted: 08 May 2022, Publication: 30 June 2022

opening up of China's financial sector to the outside world, the pattern of development and competition in China's banking industry is still: achieving enhancement by improving the overall performance based on interest rate differential income obtained from increasing asset scale, asset quality and liquidity.

In the future, Chinese banks will have to improve their competitiveness and gain a competitive edge over foreign banks. In general, it is necessary to gradually realize the shift of driving factors from traditional and low-end elements to high-end factors. To this end, first, banks should accelerate the transformation of their own business structure, change the income model that relies mainly on earning interest rate differential as the main source of profit, and truly shift to a profit model that gradually relies mainly on intermediate business income. Secondly, high-end core technical talents are both the carrier of technology and the source of innovation. Therefore, banks must vigorously recruit and cultivate a large number of outstanding talents to stand out in the increasingly fierce competition in the future. Technological innovation will promote banks to achieve sustainable and healthy development, and it will play an increasingly important role in the future competition of banks.

REFERENCES

[1]SatheMilind.Efficiency of Banks in a Developing Country:theCase of India.Journal of Banking & Finance,2003,(148).

[2]Song Han,Peng Jiang. A Study ON Chinese Commercial Bank Competitiveness AND Factors Analysis,Economic Theory AND Business Managemane,2011,(7).

[3]W. Cooper, L. Seiford, K. Tone. Data Envelopment Analysis: A Comprehensive Text with models, Applications,References and DEA-Solver Software.Dordrecht: Kluwer Academic Publishers,2000.

[4]Gao Yuan,Li yang. An empirical analysis of the competitiveness of China's large commercial banks -- Also on the impact of the competitiveness improvement of Agricultural Bank of China,Wuhan Finance,2011,(6).

[5]Lou Yushen. Research on evaluation method of competitiveness of commercial banks, Zhejiang University Press,2007.

[6]Wang Jiquan,Liu Quansheng,Zhang Xiaoyan,An Empirical Analysis of the Competitivence of Listed Banks in Chian, Journal of Financial Research,2005,(12).

[7] Chen Huimin,Xu Yunbao etc.Competitiveness evaluation of Listed Commercial Banks Based on Financial Perspective, Statistics & Decision,2011,(01).

[8]Wang Songqi,Report on Competitiveness of China’s Commercial Banks, Social Science Literature Press,2004-2018.