

Empirical Analysis on Anshan Financial Competitiveness

Yunli Ling

School of Economics and Law of University of Science and Technology Liaoning, China

Lingyunli@163.com

Abstract: First, evaluation index system of Anshan financial competitiveness including 12 indexes such as financial institutions' loans and deposits and introducing foreign capital is constructed with the research results of domestic and overseas scholars about urban financial competitiveness evaluation. Second, using principal component analysis, by comparing the sample data of 13 cities in Liaoning Province, the financial competitiveness of each city is analyzed and ranked. The result is that, Anshan is in third place in Liaoning Province, whether it is integrated financial competitiveness or total financial competitiveness and structure financial competitiveness. Finally, combined with the actual situation of Anshan, suggestions to improve the competitiveness of financial industry are proposed.

Keywords: Financial industry; Urban competitiveness; Principal component analysis.

1. INTRODUCTION

Finance is the core of urban resource allocation. The financial market exerts a significant important role in guiding the flow of urban production factors. The stronger the financial competitiveness, the powerful the guiding force of the optimal allocation of resources. The financial market plays the role in guiding the flow of production factors mainly through promoting conversion of savings to investment and capital formation, on this account, the scale of capital and the optimization of capital structure are promoted, and the strength of the urban financial competitiveness often directly determines the size of these driving forces. The enhancement of financial competitiveness can provide a good financing environment for enterprise upgrading and creation, and good financing environment will often upgrade and optimize the enterprise structure and product structure, in order to achieve good corporate benefits.

Anshan is an old industrial city, which has exerted great influence on the construction of new China. But today Anshan has lost former glory, upgrading Anshan financial competitiveness to form financial agglomeration by conforming to the requirements of Liaoning's economic development and regional financial development, which is not only the need of regional financial development, but also the need of national strategic development. The research on financial competitiveness is a new method and new direction; it is a resource commonly possessed by cities. However, this resource is not innate, it can be created. Compile a scientific, reasonable and feasible plan for Anshan to advance urban financial competitiveness, can promote a good interactive relationship between urban finance and

economic and social development, and promote the urban' sustainable development.

2. INDEX SYSTEM OF ANSHAN FINANCIAL COMPETITIVENESS

2.1 Establishment of principles

1. The principle of scientific nature

When constructing the evaluation index system, it must be scientific, which is the most fundamental requirement. This requires having certain scientific basis when selecting indicators; it is necessary to link theory with practice, which has both theoretical basis and practical feasibility. Scientific basis is needed in the selection of data processing methods and evaluation methods, in this way, scientific index system can be constructed, and evaluation results are credible.

2. Principle of comprehensiveness

Regional financial competitiveness reflects the financial operation of a region comprehensively, and its size is affected by many factors. Therefore, when designing the regional evaluation index of financial competitiveness, the impact of all aspects should be taken into consideration, including not only the financial scale factor and financial efficiency factor, but also consider the influence of urban economic strength, degree of economic openness and other financial ecological environment factors on the regional financial competitiveness. In this way, one-sided or even false evaluation results obtained by omitting some factors that have important influence on regional financial competitiveness can be avoided, therefore the scientific evaluation results can be guaranteed, and fully reflects the strength size and quality of regional financial competitiveness.

3. Principle of operability

In the design process of index system, the operability of indicators should attach great importance. An inoperable index system without practical feasibility is meaningless while theoretically feasible. The principle of operability is mainly considered from two aspects. Firstly, the availability and credibility of the data, try to acquire data from the official website of the financial supervision and management institutions, such as national statistical yearbook, regional statistical yearbook, financial statistical yearbook, China Securities Regulatory Commission, China Banking Regulatory Commission, etc., to ensure data availability and credibility; secondly, Quantifiable data, this is also due to the consideration of data credibility. Since the data of qualitative indicators are not easy to be quantified, with strong subjectivity, so the index system should be constructed with less qualitative indexes.

4. Principle of comparability

In order to be persuasive in comparison, data must be comparable. The principle of comparability is considered from two aspects: firstly, the same index should be comparable at different time points, this requires to select uniform data with sample delivery, enable the data comparable in the longitudinal direction; secondly, the same index should be comparable in different regions, this requires indicators should be different in different regions with sample delivery, some very important indicators should be included in the index system even with small difference, which makes the data comparable in the transverse direction.

2.2 Financial competitiveness evaluation index system

1. Loan balance of financial institutions X1: Specifically refers to the total amount of loans released by financial institutions up to a certain time point. Loan volume is not only an important asset index of financial institutions, but also reflects the extent of financial institutions' support for local economic development in the region.
2. Deposit balance of financial institutions X2: The index is a stock concept, it refers to the amount of deposits of all financial institutions, including central banks, commercial banks, non bank financial institutions and Chinese-foreign joint venture financial institutions in a specified area at a certain time point, which reflected the ability to absorb deposits in the region, it also embodies a region's support for economic development.
3. Financial intermediation efficiency X3: $\text{Financial intermediation efficiency} = \frac{\text{Loan balance of financial institutions at the end of the year}}{\text{Deposit balance of financial institutions at the end of the year}}$, since majority loans flow into specific investment projects, the index can reflect the efficiency of saving translate into investment indirectly.
4. Premium income X4: that is, the premiums charged to the policyholders by the financial institutions of the insurance industry equivalently on the basis of the agreed items in the insurance contract, the direct economic effect brought in is the injection of cash flow and become the source profit of insurance institutions, it is also an important indicator to measure the development level of insurance industry in a region.
5. Insurance depth X5: that is, the ratio of premium income to GDP in a region, it is a directly reflection of the economic development and the popularity of insurance in the region.
6. Insurance density X5: refers to the amount of the per capita premium in a certain area, which indirectly shows the extent of the development of the insurance industry, while reflecting the strength of the residents' consciousness on insurance in the region. From 334 financial services industry competitiveness evaluation in Henan.
7. Financial contribution rate X7: expressed as $\frac{\text{loan balance of financial institutions}}{\text{GDP}}$, reflecting the contribution of the development of financial industry in a region in the economic development.
8. Financial correlation rate X8: presented as the ratio of the total value of deposits and loans to the total economic volume of financial institutions, which can be intuitively drawn that the proportion of their financial services industry in the economy.
9. The number of listed companies X9: the sum of the listed companies in a certain area, the listed company reflects the openness of the financial market in the region and its position in the competition of the regional financial market to some extent.
10. The use of foreign capital X10: measure the degree of openness in a city, at the same time, it indirectly reflects the level of comprehensive transaction cost in a region and investment scale and confidence of transnational corporations in the region.
11. Population X11: population refers to the sum of social subjects. To some extent, it reflects the degree of popularity for financial activities.
12. GDP X12: reflecting the scale of currency gains in a region, and the economic scale and overall level of the region.

3. EMPIRICAL ANALYSIS

3.1 Data source

According to the indexes in the financial competitiveness evaluation system, the sample data are obtained by searching the 2017 statistical yearbook of statistics bureau of Liaoning province and the statistical bureau of each city, the national economic and social development statistical bulletin, and China statistical information web, East money web, etc.

3.2 Factor analysis method

There are relatively more statistical indicators describing the Anshan City financial competitiveness, and there is a certain correlation between these indicators, which brings great inconvenience to the research. Factor analysis is an ideal multivariate statistical tool for the solution. Factor analysis method is used in this paper to perform empirical analysis on Anshan City financial competitiveness and obtain the results.

3.3 Research process

1. The relationship between the indicators of the evaluation system is tested, and the corresponding KMO statistics and Bartlett tests are shown in Table 1. It can be seen that there is a relatively strong partial correlation between variables in the financial competitiveness evaluation system, at the same time, Bartlett spherical test rejects the hypotheses of various independent variables, the correlation matrix between variables is not a unit matrix, but with strong correlation, therefore, the applicability test of factor analysis is passed.

Table 1 KMO and Bartlett test

KMO sampling the appropriate quantity.		.544
Bartlett spherical test	Approximate Chi-square	368.930
	Degree of freedom	66
	Significance	.000

Table 2 Total variance interpretation

Component	Initial eigenvalue			Extraction of load square sum			Square sum of rotational loads		
	Total	Percentage of variance	Cumulative %	Total	Percentage of variance	Cumulative %	Total	Percentage of variance	Cumulative %
1	8.214	68.451	68.451	8.214	68.451	68.451	7.800	64.998	64.998
2	2.155	17.955	86.406	2.155	17.955	86.406	2.569	21.408	86.406
3	.812	6.763	93.169						
4	.358	2.985	96.154						
5	.314	2.614	98.768						
6	.127	1.062	99.830						
7	.009	.076	99.906						

8	.007	.057	99.963					
9	.003	.026	99.989					
10	.001	.011	100.000					
11	4.926E-5	.000	100.000					
12	9.567E-6	7.973E-5	100.000					
Extraction method: principal component analysis.								

2. When selecting the common factor, on the one hand, the corresponding eigenvalues of factors that are greater than 1 should be considered, and on the other hand, to achieve the purpose of simplifying the structure of variables, the cumulative variance contribution rate of the selected common factor should be over 85%, the eigenvalues before and after rotation, the contribution rate of variance and the cumulative variance contribution rate are shown in Table 2.

As can be seen from table 2, the cumulative variance contribution rate of the 2 factors is over 85%, which reflects the most information of the original data and is representative.

3. After the maximum variance rotation of financial competitiveness index, the component matrix after rotation of Table 3 and factor score matrix of Table 4 are obtained.

Table 3 The component matrix after rotation a

	Component	
	1	2
X12GDP	.993	.085
X2 Deposit balance	.979	.180
X9 Number of listed companies	.974	.192
X1 Loan balance	.971	.218
X4 Premium income	.970	.198
X10 Use of foreign capital	.947	.003
X5 Insurance depth	.889	-.111
X11 Population	.857	.314
X3 Financial intermediation efficiency	.508	.465
X8 Financial correlation	.189	.906
X7 Financial contribution rate	.408	.876
X6 Insurance density	-.373	.700
Extraction method: principal component analysis.		
Rotation method: Kaiser normalization maximum variance method. a		
a. The rotation has been converged after 3 iterations.		

It can be seen that the load values of the first principal component F1 in X1, X2, X4, X5, X9, X10, X11 and X12 are all larger, which are closely related to these indexes, can be called the aggregate

index of the financial industry. The load values of the second principal components F2 on X6, X7 and X8 are relatively large, and are closely related to these indicators, which can be called financial industry structure indicators. The two principal factors evaluate their competitiveness from two perspectives of the whole and structure of financial industry development. Combing the variance of two principal components in Table 2, comprehensive competitiveness of urban finance Z is obtained:

$$Z = \frac{0.64998}{0.86406} \times F1 + \frac{0.21408}{0.86406} \times F2$$

$$F1 = 0.122X_1 + 0.127X_2 + 0.034X_3 + 0.124X_4 + 0.139X_5 - 0.115X_6 - 0.016X_7 - 0.051X_8 + 0.125X_9 + 0.137X_{10} + 0.097X_{11} + 0.137X_{12}$$

$$F2 = 0.012X_1 - 0.005X_2 + 0.161X_3 + 0.004X_4 - 0.126X_5 + 0.341X_6 + 0.351X_7 + 0.383X_8 + 0.001X_9 - 0.08X_{10} + 0.064X_{11} - 0.049X_{12}$$

Table 4 component score coefficient matrix

	Component	
	1	2
X1 Loan balance	.122	.012
X2 Deposit balance	.127	-.005
X3 Financial intermediation efficiency	.034	.161
X4 Premium income	.124	.004
X5 Insurance depth	.139	-.126
X6 Insurance density	-.115	.341
X7 Financial contribution rate	-.016	.351
X8 Financial correlation	-.051	.383
X9 Number of listed companies	.125	.001
X10 Use of foreign capital	.137	-.080
X11 Population	.097	.064
X12GDP	.137	-.049

Extraction method: principal component analysis.
 Rotation method: Kaiser normalization maximum variance method.
 Component score.

4. According to the data, regional factors F1, F2 and the ranking of comprehensive competitiveness Z is obtained, as shown in Table 5 below:

Table 5 The ranking of F1, F2 in the region and Z

	F1	Ranking	F2	Ranking	Z	Ranking
Shenyang	2.0222	2	1.5106	1	1.8954	1
Dalian	2.5687	1	-0.2793	10	1.8631	2
Anshan	-0.0412	3	-0.0657	8	-0.0473	3
Fushun	-0.3251	8	-1.4909	13	-0.6140	14

Benxi	-0.2132	6	-0.7410	12	-0.3439	9
Dandong	-0.5462	10	0.4713	5	-0.2941	7
Jinzhou	-0.2728	7	-0.5127	11	-0.3322	8
Yingkou	-0.1847	5	-0.1005	9	-0.1638	4
Fuxin	-0.7015	14	1.4287	2	-0.1737	5
Liaoyang	-0.6156	12	1.1468	3	-0.1789	6
Panjin	-0.0444	4	-1.9575	14	-0.5184	13
Tieling	-0.6301	13	0.4862	4	-0.3535	10
Chaoyang	-0.4685	9	-0.0592	7	-0.3671	11
Huludao	-0.5477	11	0.1632	6	-0.3715	12

3.4 Result analysis

From the ranking of F1, F2 and Z, it can be seen that the change of financial competitiveness in every city of Liaoning province, Anshan is ranked third in the overall financial competitiveness and overall competitiveness, and has the same economic strength compared with Anshan. But it has a remarkable gap compared with first city Shenyang and second city Dalian, and has no distinct difference with the fourth city, and even the gap between the city ranked fourteen is not particularly significant. However, it only ranked eighth in the ranking of the competitiveness of financial institutions, which is obviously lagging behind the level of economic development, fall behind Shenyang, Liaoyang, Fuxin, Tieling, Dandong, Huludao and Chaoyang.

4. RECOMMENDATIONS TO PROMOTE ANSHAN FINANCIAL COMPETITIVENESS

The promotion of financial competitiveness in a region has enormous importance in the development of the real economy and even the connection of the industrial chain.

Enhance the competitiveness of financial scale

In terms of overall financial indicators, Anshan has a bigger difference compared with Shenyang and Dalian. Therefore, Anshan actively carries out the training of financial transfer personnel, such as increasing cooperation and exchange with financial institutions, turn it into a base for training financial talents in Liaoning province. Secondly, creating a good financial ecological environment. Improve the ability of reform and innovation of financial industry, change the low level of actual utilization of foreign capital in Anshan and expand the attractiveness of society to Anshan investment.

Improve financial efficiency

The special attention should be paid to optimizing the structure and scale of the deposit and loan of financial institutions and the rate of financial non-performing loans in Anshan. Enhance the transformation efficiency of financial assets and play the part in the driving force of social and economic development. From a more profound level, the top priority is establishing a multi-level capital market system. Promote capital integration and improve financial efficiency with the appropriate market system, at the same time, the improvement of financial efficiency is conducive to inject vitality and force into market development, ultimately enhance the efficiency of Anshan capital allocation and maximize the financial support to the real economy, to achieve a win-win situation

between the development of financial industry and the real economy.

ACKNOWLEDGEMENTS

Project source: Results of the project of Anshan philosophy and social science research in 2017 (the key project: as20172001).

REFERENCES

- [1] Jia Zhongzheng, Li Weiping, Sui Jia. 2014(2). Urban financial competitiveness [J]. Financial theory and practice.
- [2] Liang Xiaozhen, Yang Fengmei, Bu Hui. 2011(10). Multi level financial center system based on urban financial competitiveness evaluation [J]. Theory and practice of system engineering.
- [3] Wang Guiyin. 2012. Research on urban financial competitiveness in Shandong [D]. Qingdao: Ocean University of China.
- [4] Wang Gang. 2015(2). New normal, new economy and new finance - challenges and strategies for China's financial industry in the future [J]. Western finance.