Research on Regional Differences of Financial Agglomeration in China

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ABSTRACT

Financial agglomeration is the inevitable trend of financial industry. Its balanced development is of great significance to promote the coordinated of regional economy. This research analyzes the current situation of regional differences in financial agglomeration by measuring the level of financial agglomeration in various provinces in China from 2008 to 2019, with the highest level is the East, followed by the West and the lowest is the Middle. The level of financial agglomeration in China and the three regions show significant β convergence, the West has the highest near convergence level and the most obvious progress, with "advantage of backwardness" in backward regions. It is suggested to further increase industrial agglomeration in the Middle and West regions, strengthen support for financial industry development in the Middle and West regions, attract more talents and capital to gather in the Middle and West regions, promote the level of financial agglomeration and the balanced development of inter-regional financial agglomeration.

Keywords: Financial Agglomeration, Regional Differences, Convergence

1. INTRODUCTION

Finance is the core of modern economy and plays an important role in the distribution of social resources, which directly affects the development of economy and society. Financial agglomeration is also called financial industry agglomeration, refers to the concentration of financial enterprises and institutions in a certain region to a specific region. The agglomeration of financial industry in geographical space is the inevitable result of the development of financial industry to a certain extent [1].With the deepening of economic globalization, liberalization and informatization, the financial industry, as the core of modern economy, has appeared various forms of financial agglomeration. Internationally, it has formed three major financial centers: New York, London and Tokyo. Domestically, Beijing Financial Street, Shanghai Lujiazui, Shenzhen Financial Center and unique fund towns are typical representatives of financial agglomeration areas. For our country, the regional imbalance of financial agglomeration has obviously had an important impact on economic development. It is of academic value and practical significance to explore this

2. PROBLEM PRESENTATION AND LITERATURE REVIEW

Scholars at home and abroad have done a lot of research on financial agglomeration from different angles. In terms of concept and connotation, Kindleberger (1974) put forward the concept of financial agglomeration earlier [2], believing that financial industry also has scale agglomeration in geographical space. Domestic scholars Huang Jieyu and Yang Zaibin (2006) put forward the concept of financial agglomeration earlier, believing that financial agglomeration is a process of financial industry agglomeration in a certain regional space. In terms of the formation motivation of financial agglomeration, the main viewpoints are that the formation of financial agglomeration is caused by economies of scale [2] [3] [4], information flow [5] [6], spatial externality [4], industrial agglomeration [7], economies of scale [8]. In the measurement of financial agglomeration, there are mainly single index method and comprehensive index method. The most commonly used single indicator method is the location entropy method. Gan Xing, Liu Chengkun (2021), Yu Binbin (2017), Zhu Jian et al. (2020) all adopt the location entropy method [9] [10] [11]. In the comprehensive index method, the index

system of financial agglomeration is mainly constructed and calculated by principal component analysis, factor analysis, entropy method and other methods. CAI Qingqing et al. (2021) calculated the measure of financial agglomeration by constructing the index system [12]. In terms of relevant influencing factors of financial agglomeration, they mainly focus on the relationship between financial agglomeration and economic growth [13] [14] [15], between financial agglomeration and scientific & technological innovation[16], between financial agglomeration and development of circulation industry [17].

It can be seen that financial agglomeration has attracted the attention of scholars. At present, the main social contradiction in China has been transformed into a contradiction between the people's ever-increasing needs for a better life and unbalanced and inadequate development. Unbalanced regional development is the basic basis for the emergence and existence of the main social contradiction in the new era in China. Regional differences have become an important aspect of studying the imbalance of regional development and a hot issue in the academic community. At present, there is a wide range of research on regional differences, but the research on regional differences of financial agglomeration is rarely involved. The research in this field is obviously of practical significance for promoting balanced development of financial industry and better promoting economic growth.

Therefore, this paper adopts quantitative methods to calculate the level of financial agglomeration in various provinces in China, analyzes the differences between different regions, better studies the current situation of financial agglomeration in China, puts forward suggestions for regional coordinated development.

3. RESEARCH METHODS AND DATA

3.1. Measurement of financial agglomeration

The previous content discusses the methods of financial agglomeration calculation in the existing research. This paper adopts the widely used location entropy method for calculation, draws lessons from the research of Gan Xing, Liu Chengkun (2021) [9], with the scale of the regional financial industry level and specialization to represent financial agglomeration level, the larger the value, the higher the degree of financial agglomeration. The calculation formula is as follows:

$$Agg_{it} = \frac{f_{it}}{p_{it}} / \frac{F_t}{P_t} \qquad (1)$$

f_{it} and p_{it} represent the value added of financial industry and all industries in the year t of a certain region respectively. F_t and P_t respectively represent the total value added of financial industry and all industries in all

regions in the year t. The larger Agg_{it} is, the higher the level of financial agglomeration.

3.2. Research data

Taking 31 provinces of China as the research object. In terms of data, since China has adopted a new statistical caliber since 2008, it is more comparable to use the data from 2008 after for quantitative analysis. Therefore, this paper collects data from 2008 to 2019 for empirical study. The data comes from China Statistical Yearbook and EPS global statistical data analysis platform.

3.3. Current situation of regional differences in China's financial agglomeration

According to Formula(1), the financial agglomeration level of all provinces in China from 2008 to 2019 is calculated. According to the commonly used division method of the East, Middle and West regions, the financial agglomeration level of the whole country and the three regions from 2008 to 2019 is calculated, as shown in Figure 1.
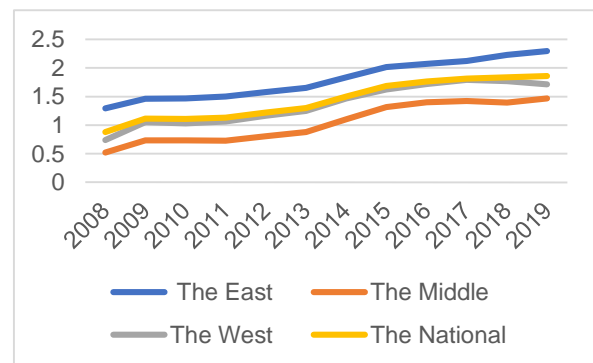

Figure 1 Financial agglomeration levels of the National and the East, Middle, West regions from 2008 to 2019.

It can be seen that the level of financial agglomeration in China continues to rise, the East, Middle and West regions also show the same trend. From the regional level, the East, Middle and West regions also show obvious differences. The East is the highest, the West is the second, the Middle is the lowest. From the provincial level, the financial agglomeration level of Beijing, Shanghai and Tianjin are high, while that of Hunan, Inner Mongolia and Henan are low. Taking the financial agglomeration level in 2019 as an example, using SPSS 25.0 software and Wald clustering method for cluster analysis, the financial agglomeration level of 31 provinces can be divided into three categories. The first category is Beijing, Shanghai and Tianjin. The second category is Zhejiang, Ningxia, Liaoning, Guangdong, Chongqing, Qinghai and Gansu. The third category is the remaining provinces. This reflects obvious regional differences.

4. CONVERGENCE OF FINANCIAL AGGLOMERATION LEVEL

In order to further investigate whether the difference of financial agglomeration level among the three regions and 31 provinces is further enlarged, this paper makes a convergence analysis. Generally, the gap measurement methods mainly include α convergence and absolute β convergence. In this paper, the more commonly used absolute β convergence method is adopted to measure the convergence of financial agglomeration level. Based on the research of Wang Qunwei et al. (2010) [18], the absolute β convergence model is constructed as follows:

$$\ln(\frac{AGG_{it}}{AGG_{i0}}) = \alpha + \beta \ln(AGG_{i0}) + \varepsilon_{it} \qquad (2)$$

AGG_{i0} and AGG_{it} represents the financial agglomeration level of Province I in the base period and t period respectively, $\ln(\frac{AGG_{it}}{AGG_{i0}})$ is the growth rate of financial agglomeration level of Province I in the t period. α is the intercept item, β is the coefficient of financial agglomeration level in the base period, ε_{it} is the random disturbance term. If the coefficient β is negative, it indicates that the growth rate of the financial agglomeration level is opposite to its initial value and there is convergence, otherwise, there is no convergence.

The panel data is used to estimate the model(2). Hausman test shows that the fixed-effect model is more appropriate. We can see the specific results from Table 1. It can be concluded that the coefficient β of the National and the East, Middle and West regions is negative at the 1% significance level, indicating that there is absolute β convergence, indicating that there is a phenomenon of obvious progress in backward regions, growth is higher than that in developed regions, there is a "catch-up effect". The absolute value of β also indicates that the convergence level is different in the three regions of the East, Middle and West. The convergence level of

financial agglomeration in the West region is the highest and the East is the lowest, indicating that the West region has obvious "late-comer advantage" in financial agglomeration, which is consistent with the previous research.

5. CONCLUSIONS

This paper attempts to empirically explore the regional heterogeneity of financial agglomeration, which is less concerned by scholars, carries out cluster analysis and convergence analysis, which enriches the research depth of financial agglomeration and the research breadth of regional differences to a certain extent. Through this study, the following conclusions can be drawn: First, the level of financial agglomeration in China is constantly improving. With the development of China's economy, finance plays an increasingly important role, the level of financial agglomeration is constantly improving, not only in various provinces, but also in different regions in the East, Middle and West, which also reflects the synchronicity of financial agglomeration and economic development. Second, the level of financial agglomeration shows regional differences. Like the regional imbalance, financial agglomeration also shows regional imbalance. The level of the East region is the highest, followed by the West region, the Middle region is the lowest. The third, the difference trend is shrinking. Through the calculation of convergence model, it can be seen that there is absolute β convergence in the financial agglomeration of the National and in the East, Middle and West regions. Which indicates that the trend of regional differences is shrinking, the backward regions have made more obvious progress, that is "advantage of backwardness" as we know. Especially in the West region, the convergence level of financial agglomeration level is higher and the progress is more obvious in recent years.

Table 1 Convergence level of financial agglomeration of the National and the East, Middle and West Regions

	The National	The East	The Middle	The West
βcoefficient	-0.1645***	-0.0332***	-0.0437***	-0.0875***
	（-8.54）	（-3.51）	（-3.88）	（-6.08）
Constant term	0.3064***	0.0678***	0.0859***	0.1526***
	（11.03）	（4.98）	（5.29）	（7.34）
The adjust R^2	0.1910	0.0383	0.0466	0.1067

Note: ***、 **、 * represents the significance level of 1%, 5% and 10% respectively, the T statistic is in parentheses

The balanced development of financial industry is also an important aspect of regional coordinated development. Therefore, realize the balanced development of financial industry is an important way for the coordinated development of regional economy. Through this research on the current situation of China's financial agglomeration and the analysis of regional differences，the following suggestions can be put forward from the perspective of coordinated development of the East, middle and West. For the Middle and West regions

themselves, they should accelerate the promotion of industrial agglomeration, so that can provide support for financial agglomeration. From the National perspective, in terms of financial talents and financial policies, the central government should increase more support for the development of the financial industry in the Middle and West regions, so as to attract more talents and capital to gather to promote the level of financial agglomeration，to achieve the goal of continuously narrowing the regional gap, promoting balanced and coordinated

regional development and promoting high-quality economic development

REFERENCES

[1] Zhao Hui. Study on the relationship between financial agglomeration and regional economic growth. Financial and economic, 2019(16), pp. 152-153. DOI:10.14057/j.cnki.cn43-1156/f.2019.16.064.

[2] Kindleberger C P . 1974. The Formation of Financial Centers: A Study in Comparative Economic History. Princeton: University Press,102.

[3] Park Y.S.,Essayyad M.1989.International Banking and Financial Centers. Boston: Kluwer Academic Publishers.

[4] Huang J Y. Analysis on the internal causes of financial agglomeration. Regional finance research, 2011(3), pp. 26-30. DOI ： CNKI:SUN:GHZJ.0.2011-03-019.

[5] Palmberg J.Spatia Concentration in the Financial Industry. Ratio Working Paper,188.

[6] Zhao X B. The Centennial competition of global financial centers: Factors determining the success or failure of financial centers and the rise of Financial centers in China. World Geography Studies. 2010(2), pp. 1-11. DOI ： 10.3969/j.issn.1004-9479.2010.02.001.

[7] Wang D, Ye S J. Research on the motivation of financial agglomeration. Journal of Shanxi University of Finance and Economics, 2012(4), pp.22. DOI：CNKI:SUN:SXCJ.0.2012-S4-014.

[8] Che xinwei, Bu Hui, Liang Xiaozhen, Wang Shuohong, Wang Shouyang. A theoretical model of financial agglomeration drivers. Journal of Management Science, 2012(3), pp. 16-29. DOI：CNKI:SUN:JCYJ.0.2012-03-00.

[9] Gan X, Liu C K. Spatial spillover effect and heterogeneity of financial agglomeration in guangdong-Hong Kong-Macao Greater Bay Area. Journal of Financial Economics, 2021(01), pp.151-160.

[10] Yu B B. Does financial agglomeration promote industrial structure upgrading: from the perspective of spatial spillover: Based on the dynamic spatial panel model of Chinese cities. Journal of International Finance,2017(02), pp.12-23. DOI：CNKI:SUN:GJJR.0.2017-02-002.

[11] Zhu J, Chen N J, Liu M Z. Financial agglomeration, spatial externalities and cultural industry development: based on the provincial spatial panel model in China. Economic problems, 2020(5), pp. 45-52.

[12] CAI Qingqing, Fu Juan, Ke, Zhang Wenzhong. Spatial disequilibrium and dynamic evolution of provincial financial agglomeration in China. Financial Theory & Practice,2021(03), pp.40-50.

[13] Gong Q L, Song M W. Research on regional economic growth effect of financial agglomeration: an empirical analysis based on provincial panel data. Journal of Yunnan University of Finance and Economics. 2021(4), pp. 61-74.

[14] Zhang T G, Sun Y J. Financial agglomeration and regional economic growth: a comparative study based on sub-provincial cities. Macroeconomics research, 2018(1), pp. 82-93.

[15] Pan Hui, RAN Guanghe, Zhang Bing, Li Jun. Research on regional differences in the relationship between financial agglomeration and real economic growth. Exploration of Economic Issues,2013(05), pp.102-107. DOI ： 10.3969/j.issn.1006-2912.2013.05.019.

[16] Xu X, Dong H C.Asymmetric spillover effects of financial agglomeration on scientific and technological innovation in urban agglomeration. Exploration of Economic Problems,2021(04), pp.80-91.

[17] Li Yunpeng, Hao Meiyan. The impact of financial agglomeration on the green development of China's distribution industry and regional heterogeneity: an empirical study from the perspective of spatial spillover. Journal of Business Economics,2021(04), pp.167-170.

[18] Wang Q W, Zhou P, Zhou D Q. Dynamic change, regional difference and influencing factors of carbon dioxide emission performance in China. China Industrial Economics, 2010 (1), pp.45-54. DOI：CNKI:SUN:GGYY.0.2010-01-005.