

Empirical Study on the Impact of Financial Development on Regional OFDI

Shen Zhong^{1,a*}, Lei Du^{2,b}, and Jian Li^{3,c}

¹Associate Professor, School of Finance, Harbin University of Commerce, Harbin, China; 150028;

²Master graduate student, School of Finance, Harbin University of Commerce, Harbin, China; 150028;

³Master graduate student, School of Finance, Harbin University of Commerce, Harbin, China; 150028;

^aeric_zhongs@qq.com; ^bdulei-002@163.com; ^c906360119@qq.com

Keywords: Financial development; OFDI; Regional finance

Abstract: This article selects Chinese provincial panel data from 2008 to 2016, by the method of linear regression using the panel data fixed effects model, the empirical study on the impact of financial development to our country regional OFDI, the empirical results show that the financial development level of regional foreign direct investment has significant positive role in promoting, and based on the empirical results of the related countermeasures and Suggestions are put forward.

1. Research Background

Since the beginning of the 21st century, the establishment of economic development alliances among countries has been accompanied by the globalization of the world economy, which has directly led to closer links between countries and a great incentive for foreign investment. Furthermore, the development of finance is also inseparable from the continuous advancement of computer technology. In view of the development of Internet technology, the expansion of human thinking has led to the combination of traditional investment and financing and Internet technology thinking, and the efficiency of the allocation of financial resources and the economy. The higher quality of development makes an outstanding contribution, and each promotion of investment and financing forms has made a tremendous contribution to the change of human life. The level of investment is related to financial development. After years of practice, in the course of China's reform and opening up for decades, China's economic development requires a highly effective coordination of the financial system, and the need for a sound financial system to improve the liquidity of funds. The investment and financing system is also a pivotal way under the financial system. Therefore, the construction of China's investment and financing system and how funds are allocated have a vital role in the development of the economy. Therefore, the corresponding paper focuses on the relationship between the development of finance and OFDI, and analyzes how this relationship promotes the development of higher quality economy.

As China's economic development speed shifts from high-speed to medium-high speed, it is more important to emphasize high-quality development. The role of finance and the corresponding efficiency of investment and financing development are extremely important. As a tool for effective allocation of resources, to a certain extent, It plays a decisive role in the development of the economy. However, due to the development of finance, the expansion of the scale of corporate funds will further increase the OFDI. However, the corresponding financial development will make the rapid development of domestic enterprises. In the short term, the promotion of employment rate will inhibit the level of OFDI. This paper will empirically analyze the relationship between financial development and OFDI. By comparing the data in recent years, we can find that there are differences in the level of economic and financial development in different regions. Then, what is the relationship between the level of financial development in various regions of China and the situation of foreign investment?

2. Literature Review

Duuning(2015)In the field of OFDI, there is extensive and in-depth research. The view is that investment multiplier theory, international production eclectic theory and location advantages in various regions have promoted the further development of foreign direct investment activities. At the same time, the international production compromise theory was proposed. The theory of investment development cycle is also put forward on this basis. The theory of investment development cycle points out that there is a positive relationship between the high-quality economic development of a country and the foreign investment of a country.

Aliber (2015) believes that the development of a country's foreign investment is largely due to the decline in the competitiveness of domestic products in the international market when the currency depreciation occurs in the country, which in turn leads to a decline in the ability of foreign exchange earning.

Ye Yuanyuan and Chen Xiaoming (2016) used data from 48 Chinese cultural media companies listed in 2009-2015, selected effective observation samples, and then studied the relationship between financial development and cultural enterprise investment. The final research results show that due to Chinese culture There are significant financing constraints in listed companies, and the financial institutions' innovation in financial products is insufficient for this phenomenon, which makes the financial development have insufficient impact on the investment of cultural enterprises.

Chen Jiyong, Jiang Yanping and Wang Baoshuang (2017) studied the relationship between population aging, foreign direct investment and financial development in China. The main research background is based on the fact that China's current population is aging and the FDI is analyzed in areas with severe aging. Using the inter-provincial panel data of China from 2000 to 2014 for empirical analysis, the results show that FDI in the aging population has a significant negative relationship, and the degree of this negative effect is affected by the depth of financial development and regional differences.

Cheng Liwei (2017) conducted research on China's financial development and promotion of corporate innovation investment. Using the DEA index model and the threshold research model, the final research results show that both financial scale and financial efficiency have different effects on investment in innovative enterprises. Excessive expansion of financial scale is likely to be detrimental to enterprises' innovative investment.

Wang Jun (2018) used China's investment data analysis of countries along the “Belt and Road” strategy from 2003 to 2015, using fixed-effect regression and systematic GMM regression methods to invest in financial development and “One Belt, One Road” strategy. the study. The results of this study show that the efficiency of financial development has a positive impact on the investment flows of host countries, but the scale of domestic financial development is directly related to foreign investment.

Song Zhiwen (2018) used the panel data of China's 2000-2016 listed companies, used the system generalized matrix dynamic panel estimation method and KZ index, WW index to study the company's financing constraints, and explained the relationship between financial development and the company's foreign investment. The research results show that financial development can effectively alleviate the company's financing constraints and expand the scale of investment.

3. An Empirical Analysis of the Impact of Financial Development on Regional OFDI

3.1 Model Construction and Variable Selection.

(1) Model building .On the one hand, we draw on the above research ideas and research methods. On the other hand, because we want to demonstrate the intrinsic link between the scale of financial development and regional OFDI, and consider other control variables, this paper adopts the fixed effect model of provincial panel data. As the core tool of empirical analysis, based on the theory of econometrics and statistics, the multivariate linear regression model is established as follows:

$$OFDI_{it} = \beta_0 + \beta_1 FIN_{it} + \beta_2 GOV_{it} + \beta_3 LnHUN_{it} + \beta_4 LnGDP_{it} + \beta_5 INV_{it} + \varepsilon_{it} \quad (1)$$

Now, we explain the above multiple linear regression model: where β represents the regression coefficient of the parameter, β_0 represents the intercept term of the linear model, and i represents the different regions of China, namely the provinces and cities. Autonomous region, municipality, t represents the period in which the model is observed. $OFDI_{it}$ and FIN represent the explanatory variables and core explanatory variables, that is, the level of foreign direct investment flows in each region and the level of financial development in each region. The following are five related control variables: GOV represents the ratio of fiscal expenditure to GDP; $LnHUM$ represents the logarithm of human capital level; INV represents the scale of fixed asset investment; ε represents the random disturbance term.

(2) Variable Selection. The variable $OFDI_{it}$ is interpreted. Since the main research object of this paper is the influence of financial development on regional $OFDI$, the explanatory variables can be selected as the annual foreign investment flow of each region, that is, the $OFDI$ flow in the region. $OFDI$ traffic directly represents the external investment situation of a region, so this paper chooses $OFDI_{it}$ as the explanatory variable.

Explain the variable FIN . After reviewing domestic and foreign literatures, there are many ways to measure the degree of financial development in various regions. Based on a series of methods, this paper finally decides to choose the location entropy method to measure the scale of regional financial development. Many people also use location entropy to represent the scale of financial development. There are many indicators for measuring the scale of regional economic development. However, the location entropy method is chosen because it not only indicates the level of financial development in a particular region, but also the consensus of many scholars at home and abroad. It can be expressed by FIN . Its specific representation is as follows:

$$FIN = \frac{Loan}{GDP} \quad (2)$$

According to the above formula, $Loan$ represents the year-end loan balance of RMB in financial institutions in various regions, and GDP represents GDP. The ratio of $Loan$ to GDP , FIN , represents the scale of financial development in various regions of China. According to the collected and collated data, the value is 1 as the critical value, and the calculation results show that the larger the value, the better the degree of financial development, and the larger the scale of financial development.

Selection of control variables. First, financial development is affected to a certain extent by government policies and interventions in the region. This paper uses the results of the ratio of fiscal expenditure to GDP in a region, that is, GOV .

Second, the level of human capital is also one of the reasons that affects the scale of finance. It is expressed by the number of people who have obtained college education per 10,000 people, that is, $LnHUM$.

Third, the level of financial exhibitions in a region will be affected by fixed asset investment in this region at different stages, and fixed asset investment is constantly changing with the level of economic development, and the regional differences are large. Therefore, this paper also selects the ratio of fixed asset investment scale to GDP as another control variable, namely INV .

Fourth, GDP indicates the economic development of each region, and the development of economic development has a significant relationship with the scale of financial development. $RGDP$ is used to represent the per capita output of each region, and then the logarithm of $LnRGDP$.

(3) Data Sources. First of all, most of the data used in this paper are derived from China Statistical Yearbook, China Statistical Yearbook and China Foreign Investment Statistics Bulletin. Their data is relatively complete and convenient to query. Secondly, financial institutions are renminbi at the end of the year. The data of the loan balance and the relevant data of each region are derived from the China City Statistical Yearbook. The China City Statistical Yearbook contains relevant data of various provinces and cities in China, and is also relatively complete. From the

source of these sources, the authors found out the relevant foreign investment flows, GDP, and the balance of RMB loans of financial institutions at the end of each year. They also analyzed and sorted out the data collected and counted. Some data still need to be analyzed. Calculate a certain result to reflect the reality. On the one hand, the data found by the relevant national authorities are statistically organized and released with certain credibility. On the other hand, these data will be updated with the times, with the characteristics of authenticity and reliability. In the selection of samples, due to the lack of data from Tibet, Hong Kong, Macao and Taiwan, based on the availability and analysis of data, this paper selected 30 provinces, autonomous regions and municipalities directly under the central government except Tibet, Hong Kong, Macao and Taiwan from 2008 to 2016. The data of nine years was analyzed and studied.

3.2 Empirical Process and Results Analysis

In order to prevent the occurrence of heteroscedasticity, the following method is adopted to gradually add variables to further test the multivariate equation model. From the empirical findings in Table 1 below, we can see that there is a positive correlation between the degree of financial development (FIN) and China's foreign direct investment (OFDI), but it is significant at the level of 1%, which is consistent with the single factor test. The result is different.

As with the single factor model test results, the same three control variables have a positive impact on the financial scale, namely GOV, GDP, INV, and GOV and GDP are significant at 1%, while INV is at 5%. The level of % is significant.

On the basis of the previous theoretical analysis, this part has carried out empirical research. On the one hand, through the test of the single factor model, on the other hand, the analysis of the multi-factor model, through a series of empirical research results, the level of financial development (core). The coefficients of the explanatory variables are all positive, which indicates that the continuous improvement of the level of financial development will enhance the level of China's foreign investment to varying degrees. As can be seen from Table 4.4 above, financial development has a positive effect on OFDI and is at the level of 1% significance. There is a coefficient of 0.00411 in the table, which shows that the TODI level in the region will increase by 0.00411% for every 1% increase in the financial scale. The reason for this is mainly because when the level of OFDI needs to be supported by certain capital, and the financial development of this area is stable and the allocation of financial resources is high, there will be more favorable conditions in this area to make the enterprise more reasonable. Make foreign investment. Once people's awareness of investment development is enhanced, their awareness of more efficient use of idle resources and awareness of improving financial utilization will increase, thus promoting further economic growth. On the other hand, the foreign direct investment capability of a region is related to the economic situation of the investment entities in the region, and is also largely limited by resources, mainly including human resources, government support, and the core role of finance. Therefore, for the rational and effective allocation of resources, the improvement of OFDI requires a certain amount of capital support, and if the financial system of a region develops well, then the investment entities in this region will choose to invest more resources in foreign investment and obtain more. High incomes drive employment and regional economic development.

Among other control variables, first, the degree of government intervention refers to the ratio of fiscal expenditure to GDP. According to GOV, the amount of fiscal expenditure shows the main role played by the government in economic and social development, and the most economic development in a region. Basic support. If the degree of government intervention in a certain area is strong, it means that the government has more fiscal expenditures in this area, and the state will support more funds to flow into the real economy to promote the rapid development of enterprises. From the results, the impact of government fiscal expenditure on various regions has been positive, indicating that government intervention has played a positive role. With the improvement of the degree of financial marketization, the financial system has gradually improved, and the government has continuously increased investment in corporate foreign investment.

Secondly, the human capital level refers to the labor cost, that is, the number of college graduates

obtained per capita is taken as a logarithm. The higher the labor cost, the more abundant the human resources available to the company in the process of cross-border investment, but also reflected on the other hand. The cost will increase accordingly, but the more investment in the short term, the more the output will be relatively less, so the level of human capital is negatively related to China's OFDI.

Furthermore, fixed asset investment INV, fixed asset investment refers to the investment in fixed assets such as factories and equipment. The increase of these inputs reflects that the hardware infrastructure of an enterprise will be more and more perfect, so it will rapidly expand and adjust the scale of the enterprise. It has laid a certain foundation. Under the conditions of the second, it is conducive to the expansion of the enterprise while realizing its own rapid development, and actively utilizing the location advantages of foreign countries. In the empirical results, it is indicated that the investment promotion enterprises of fixed assets are continuously upgraded and optimized, which will positively promote the increase of OFDI traffic.

Per capita GDP itself has the meaning of social equity and equality. GDP reflects the situation of investment and consumption of a country's residents in a certain period of time. In order to reflect a concept of fairness and equality, the concept of per capita is only one. When the economic development of a country is improved, it will indirectly increase the disposable income of people. Investors will also generate the basis of foreign direct investment with the increase of income, which will have a certain degree of impact on OFDI.

The analysis results of the above empirical research show that the impact of financial development scale on regional OFDI is significantly positive, that is, the development of financial development scale promotes the development of foreign direct investment flows. The expansion of the scale of financial development can promote the transformation of the industrial structure of the region from traditional industries to emerging industries, promote the technological upgrading of regional enterprises, and further develop the economy.

Table 1 List of Tests for Multivariate Equations

| | Model(1) | Model(2) | Model(3) | Model(4) | Model(5) |
|----------|------------------------|----------------------|-----------------------|-----------------------|------------------------|
| FIN | 0.0209*** (0.00411) | 0.0180*** (0.353) | 0.0174*** (0.350) | 0.0173*** (0.0346) | 0.0160*** (0.00345) |
| GOV | | 0.190*** (0.0202) | 0.129*** (0.0320) | 0.153*** (0.0332) | 0.125*** (0.0346) |
| INV | | | 0.0189** (0.00769) | 0.0179** (0.00762) | 0.0065 (0.00869) |
| lnhum | | | | 0.0229** (0.0931) | 0.0279*** (0.0939) |
| lnRGDP | | | | | 0.0952*** (0.0364) |
| C | 0.0343*** (0.00449) | 0.0109* (0.00614) | 0.0110* (0.00608) | 0.0343*** (0.0112) | 0.125*** (0.0363) |
| Obs | 270 | 270 | 270 | 270 | 270 |
| R-square | 0.398 | 0.343 | 0.359 | 0.375 | 0.393 |

Note: ***, **, and * indicate significant levels of significance at 1%, 5%, and 10%, respectively.

4. Policy Suggestion

The process of economic high-quality development adjustment requires the government's corresponding policies to guide, and the government should introduce a series of policies to promote the coordination of financial development in various regions and allow more financial capital to flow to the physical industry sector. In some cases, the profit-seeking nature of financial markets will make it impossible for entities to obtain financial support. This requires the government to introduce a series of policies to support the development of enterprises and improve

financial efficiency. At the same time, the government can expand the fiscal expenditure to a certain extent by reviewing the situation, implement the basic education-related reform policies, focus on improving the overall level of talents, appropriately relax the thresholds for various industries, appropriately reduce the financing costs of enterprises to reduce financing constraints, and correspondingly The backward areas give economic support and provide a more effective and complete service system for enterprise development in the region.

The corresponding elimination of the delisting mechanism in the financial market is the efficient use of funds, and the expansion of the scale of financial development is of great significance. The government should gradually strengthen the guidance of the market. It should strengthen supervision and management of violations of capital markets, expand the scope of financial information disclosure, formulate comprehensive information disclosure standards, improve information asymmetry in financial markets, and improve the investment efficiency of financial markets. Provide large-scale private enterprises in China with green channels to go global, refine the specific principles, objectives, and implementation details of government-supported enterprises, prevent the emergence of unfair competition, and provide a reasonable and legal policy system for enterprises' foreign investment. Enterprise development is more healthy and efficient, making social development more stable.

Acknowledgements

General Project of the National Social Science Foundation, "Research on Innovation and Risk Control of Rural Financial Services in the Context of Rural Reform" (item number: 16BJL037)

Heilongjiang Province ordinary undergraduate colleges and universities young innovative talents training plan. Research on the Development of New Rural Cooperative Financial Organizations in Main Grain-producing Areas from the Perspective of Farmers (item number: UNPYSCT-2017203)

Heilongjiang Philosophy and Social Science Research Planning Project: Research on the Construction of Comprehensive Inclusive Financial System in Heilongjiang Province Based on Precision Poverty Alleviation Orientation (item number: 17GLB024)

Harbin University of Commerce graduate student innovation research project. Research on the promotion of total factor productivity in manufacturing industry from the perspective of spatial spillover from financial agglomeration (item number: YJSCX2018-493HSD)

References

- [1] Dunning J. H. and S. Multinational Enter-prise and Global economy [M]. Edward Elgar Publish-ing,2015. (62): 541-555.
- [2] WEINSTEIN D, YAFEH Y. On the Costs of a Bank-Centered Financial System: Evidence from the Changing Main Bank Relations in Japan [J]. Journal of Fiance, 2015(2): 635-672.
- [3] Keuschning C. Venture Capital B acked Growth [J]. Journal of Economic Growth, 2013, (2): 239-261.
- [4] TykvovaTereza, Schertier Andera. When Do Inexperienced Venture Capitalists Overcome Distance via Syndication with Local Partners [J]. Working Paper, 2011.
- [5] Chowdhury R, Maung M. Financial market development and the effectiveness of R&D investment: Evidence from developed and emerging countries [J]. Research in International Business and Finance, 2013, 26(2): 258-272.
- [6] Magnus Blomstrom, Gunnar Fors and Robert Lipsey. Foreign Direct Investment and Employment: Home Country Experience in The United States and Sweden[J].The Economic Journal,2016,(107):466-471.
- [7] Nie Minghua, Xu Yingjie. Foreign Direct Investment, Financial Development and Economic Growth [J]. Research on Financial and Economic Issues, 2016(12):110-113.