

Research on the Impact of China's OFDI on Manufacturing Industry Security

Chunyang Guo¹

School of Finance and Economics, Jiangsu University, Zhenjiang, China

Abstract: With the development of China's economy, OFDI has affected the safety of manufacturing industry. This paper empirically studies the relevant data of 31 provinces in China from 2011 to 2019. The study found that OFDI can significantly improve the security level of manufacturing industry. The government should adopt appropriate policies to guide enterprises to reasonably OFDI to improve the safety of manufacturing industry.

Keywords: OFDI, industrial security, fixed effect panel model.

I. INTRODUCTION

With the rapid development of China's economy, more and more enterprises are becoming enthusiastic about outward direct investment (OFDI). According to data from the National Bureau of Statistics, China's OFDI has achieved relatively rapid growth for at least 13 years; As of December 31, 2019, the total scale of China's OFDI has exceeded \$2 trillion, ranking third in the world. It is foreseeable that China's OFDI will achieve greater growth, and more and more manufacturing enterprises will embrace a new global market. However, the global OFDI market also has its opportunities and challenges, requiring manufacturing enterprises to reasonably consider whether to conduct corresponding OFDI: On the one hand, appropriate OFDI can enhance the overall strength of enterprises, help enterprises learn advanced foreign technology and management experience, gain a larger market, and obtain more benefits; On the other hand, a large number of OFDI will also occupy some enterprises' already insufficient funds and resources, and have a negative impact on remaining domestic businesses, which is not conducive to the overall safety improvement of the industry.

Some scholars have studied the influencing factors of industrial security, and their views are as follows: Cao Ping et al (2017) [1] studied the impact of dominant comparative advantage on industrial security; Castellacci et al (2016) [2] and Huang et al (2015) [3] believed that innovation contributes to the improvement of industrial security; Jinjarak et al (2007) [4] found that FDI by transnational corporations may cause macroeconomic risks in the host country, but Solomon et al (2011) [5] and Fang Hui et al (2012) [6] believed that FDI could promote the development of industrial security. In addition, scholars have also studied the impact of OFDI on industrial security: Advanula et al (2000) [7] and Chen et al (2012) [8] found that OFDI can significantly promote the development of local industrial structure and contribute to the improvement of industrial security; However, Davis and Davis et al (1992) [9] and Barrell et al (1997) [10] believed that OFDI is prone to "hollowing out the industry", which has a negative impact on local industrial security.

The mechanism analysis is as follows: (1) OFDI can improve the safety degree of manufacturing industry by

improving the dominant comparative advantage: improving OFDI can promote enterprises to produce highly competitive export products to improve the safety degree of manufacturing industry. (2) OFDI can improve the safety degree of manufacturing industry by improving its R&D capability: enterprises can produce innovative products through OFDI, expand the domestic share, and improve the safety degree of manufacturing industry. (3) OFDI can improve the security of manufacturing industry by improving the openness: improving OFDI can promote the inflow of foreign capital, and then drive the upgrading of domestic industries, and ultimately improve the security of the industry. Therefore, hypothesis 1: China OFDI can improve the safety of manufacturing industry through its dominant comparative advantage, R&D capability and openness.

This paper will use the data of 31 provinces in China from 2011 to 2019 to conduct empirical research. The following contents are arranged as follows: The second part is empirical analysis, that is, building models and empirical testing; The third part is the research conclusion and suggestions, that is, summarize the research results and put forward relevant suggestions.

II. MODELS AND METHODS

In order to study the specific impact of China's OFDI on manufacturing security, this paper constructs the following fixed effect panel model (FE):

$$\ln trade_{i,t} = \alpha_0 + \alpha_1 \ln ofdi_{i,t} + \alpha_2 X_{i,t} + u_{i,t}, \quad (1)$$

$$\ln tech_{i,t} = \beta_0 + \beta_1 \ln ofdi_{i,t} + \beta_2 X_{i,t} + v_{i,t}, \quad (2)$$

$$\ln fdi_{i,t} = \gamma_0 + \gamma_1 \ln ofdi_{i,t} + \gamma_2 X_{i,t} + w_{i,t}, \quad (3)$$

where $\ln trade_{i,t}$, $\ln tech_{i,t}$, $\ln fdi_{i,t}$ respectively refer to the dominant comparative advantage, R&D capability and openness of the i -th province in the t -th year; $\ln ofdi_{i,t}$ refers to the outward direct investment of manufacturing industry in the t -th year of the i -th province; $X_{i,t}$ refers to the control variables related to the safety of manufacturing industry in the t -th year of the i -th province; $u_{i,t}$, $v_{i,t}$, $w_{i,t}$ refer to the residuals related to manufacturing safety in the t -th year of the i -th province.

In this paper, the degree of manufacturing safety is measured by dominant comparative advantage, R&D capability and openness; OFDI is measured by the logarithm of OFDI stock; In addition, this paper sets (1) the degree of

specialization ($LQ_{i,t}$): measured by the ratio of the manufacturing GDP of a province to the national GDP; (2) Per capita capital investment ($K_{i,t}$): measured by the natural logarithm of per capita fixed asset investment stock; (3) Per capita income level ($inco_{i,t}$): measured by the natural logarithm of the actual consumption level of urban and rural residents; (4) Government fiscal expenditure level ($gov_{i,t}$): measure the four control variables by the logarithm of local fiscal expenditure to further study how OFDI affects the safety of manufacturing industry.

The research data comes from the *Statistical Bulletin of China's Foreign Direct Investment (2011-2019)* and the *Statistical Yearbook of China (2011-2019)* of 31 provinces in China.

III. RESULTS AND DISCUSSION

The benchmark regression study is as follows (see Table 1): OFDI has significantly improved the safety degree of manufacturing industry in general, that is, the growth of OFDI in China has promoted the increase of dominant comparative advantage of domestic enterprises, the improvement of R&D ability, and the acquisition of advanced experience of foreign capital, and the improvement of competitiveness and the enhancement of manufacturing safety degree.

S. No.	Benchmark regression of China's OFDI and manufacturing safety model		
	Dominant comparative advantage	R&D capability	Openness
<i>lnofdi</i>	0.446*** (0.0471)	0.178*** (0.0392)	0.334*** (0.0429)
<i>LQ</i>	3.436*** (1.239)	1.035 (1.031)	1.542 (1.129)
<i>K</i>	0.321*** (0.0721)	0.567*** (0.0600)	0.582*** (0.0657)
<i>inco</i>	1.627*** (0.262)	1.465*** (0.218)	1.485*** (0.238)
<i>gov</i>	0.863*** (0.123)	0.989*** (0.102)	0.278** (0.112)
<i>cons</i>	-22.76*** (3.387)	-30.69*** (2.819)	-21.05*** (3.085)
<i>Time control</i>	YES	YES	YES
<i>Individual control</i>	YES	YES	YES
<i>N</i>	279	279	279
<i>R2</i>	0.853	0.880	0.841

The following is the robustness test: this part uses the two-stage least squares method (2SLS) to test the robustness of the data (see Table 2), and the results are consistent with the benchmark regression (see Table 1).

S. No.	Robustness Test of China's OFDI and manufacturing safety model		
	Dominant comparative advantage	R&D capability	Openness
<i>lnofdi</i>	0.458*** (0.0913)	0.201*** (0.0534)	0.330*** (0.0827)
<i>Time control</i>	YES	YES	YES
<i>Individual control</i>	YES	YES	YES
<i>N</i>	279	279	279
<i>R2</i>	0.465	0.771	0.483

IV. CONCLUSION

Reasonable use of OFDI is very important to improve the safety of manufacturing industry. This paper empirically tests the data of 31 provinces in China from 2011 to 2019. The conclusions are as follows: OFDI can significantly improve the safety of manufacturing industry in general. The result of robustness test is also valid.

The suggestions are as follows: The government should encourage enterprises to vigorously increase the export volume and carry out technological innovation to enhance the dominant comparative advantage and R&D capability of the industry; At the same time, the government should also encourage foreign investment to participate in the domestic market competition, so as to optimize the economic structure and improve the safety of the manufacturing industry. This paper will provide some guidance for promoting the reasonable development of OFDI and improving the safety of manufacturing industry.

This paper focuses on empirical research, but theoretical research is shallow. I hope other scholars can further study it.

ACKNOWLEDGMENT

At this point in writing, I would like to express my sincere gratitude to my mentor and roommates for their great help. It was with your help that I was able to complete such an article with certain academic value. Your help is my greatest motivation! Thank you!

REFERENCES

- [1] Cao Ping, Zhang Jian, and Xiong Yan "Empirical study on factors affecting the safety of high-tech industries." *Management Review* 29.12 (2017): 50-61.
- [2] Castellacci, Fulvio, and José Miguel Natera. "Innovation, absorptive capacity and growth heterogeneity: Development paths in Latin America 1970 - 2010." *Structural Change and Economic Dynamics* 37 (2016): 27-42.
- [3] Huang, Kun-Huang, Tiffany Hui-Kuang Yu, and Wenhsiang Lai. "Innovation and diffusion of high-tech products, services, and systems." *Journal of Business research* 68.11 (2015): 2223-2226.
- [4] Jinjark, Yothin. "Foreign direct investment and macroeconomic risk." *Journal of Comparative Economics* 35.3 (2007): 509-519.
- [5] Solomon, Edna Maeyen. "Foreign direct investment, host country factors and economic growth." *Ensayos Revista de Economia* 30 (2011).
- [6] Fang Hui, Lu Jing, and Duan Guorui "Empirical study on the upgrading effect of industrial structure of China's international transfer of service industry." *World Economic Research*. 06 (2012): 58-63+88-89 .
- [7] Advincula, Rossel V. "Foreign direct investment, competitiveness and industrial upgrading The case of the Republic of Korea." (2000).
- [8] Chen, Jen-Eem, and Shaliza Azreen Mohd Zulkifli. "Malaysian outward FDI and economic growth." *Procedia-Social and Behavioral Sciences* 65 (2012): 717-722.
- [9] Davis, Joe C., and John H. Huston. "The shrinking middle-income class: A multivariate analysis." *Eastern Economic Journal* 18.3 (1992): 277-285.
- [10] Barrell, Ray, and Nigel Pain. "Foreign direct investment, technological change, and economic growth within Europe." *The economic journal* 107.445 (1997): 1770-1786.