Financial Deepening, OFDI and Economic Growth: Based on the Perspectives of Both China and Host Countries

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Abstract

Based on the perspectives of both China (home country) and host countries (economies), a financial deepening indicator system and an economic growth indicator system are constructed, the mutual influence mechanism between financial deepening (FD), outward foreign direct investment flows (OFDI) and economic growth (EG) are studied. Firstly, from the perspective of China, based on Error Correction Model (ECM) and Vector Error Correction Model (VECM), the conclusions received are as follows. (i) China's financial deepening and OFDI have a long-run positive impact on China's economic growth. (ii) Further analysis also confirms that reforms related to financial deepening have positive policy effects on promoting OFDI in China. Secondly, from the perspective of the interaction between China and host countries (economies), based on Time-varying Spatial Durbin Model (TVSDM), the conclusions received are as follows. (i) In general, China's OFDI to host countries plays a positive intermediary role in the process of financial deepening for economic development in host countries. (ii) Three aspects (FD, OFDI, EG) have different degrees of spatial autocorrelation and spatial spillover effects on each other, which are positive in general. (iii) Further analysis also found heterogeneity in the above conclusions for high-income and low-income host countries individually. In a word, a comprehensive analysis framework of three aspects (financial deepening, OFDI and economic growth) is finally constructed, which has important implications for overseas investments and financial support to the real economy.

Keywords: financial deepening, outward FDI flows (OFDI), economic growth, long-term cointegration, policy effect, spatial effect, heterogeneity

1. Introduction

Financial deepening, also called financial liberalization, is a concept that studies the relationship between finance and economic growth in countries and regions. With the wave of globalization and the acceleration of the financial deepening process, the loosening of restrictions on financial institutions and financial markets in various countries, the increasing fund-raising capacity of trading entities and the rising demand for overseas investment, more and more enterprises are actively seeking opportunities for overseas development, especially in China. In recent years, the construction of multi-level capital market, the Belt and Road initiative, the reform of interest rate market and the improvement of exchange rate system have provided opportunities for domestic enterprises to “go global”, increasing the scale of OFDI. For instance, the Chinese Government has done a lot for the Belt and Road initiative. On the one hand, it funds the construction of the international passage and encourages enterprises to invest in infrastructure projects of the Belt and Road countries, including high-speed rail tracks and overseas post stations. On the other hand, it actively promotes the facilitation of trade, investment and personnel exchanges with countries involved, and strengthens cooperation with them in information exchange, customs, certification, etc., so as to create favorable foreign trade environment for enterprises. Therefore, since capital investment is an important factor for economic growth, it has important implications to study the relationship between financial deepening, OFDI and economic growth for financial support to the real economy.

2. Review of Empirical Literature

2.1 Financial Deepening and OFDI

At present, the research on the impact of financial deepening on OFDI is mainly based on the following two perspectives.

- **Home country financial deepening have impacts on home country outward foreign investment.** This mechanism can be realized through both direct and indirect channels.

Firstly, direct effects are reflected in the improvement of the external financing environment for enterprises by financial deepening. (1) The increased level of financial deepening has expanded the size of financial markets, which has relieved the financing constraints of enterprises. By studying Japanese banks, Klein et al. (2002) finds that the credit sophistication of the home country's banking system significantly affects the outward investment of domestic enterprises. Gallagher and Irwin (2014) argue that the development of the banking system in China can effectively facilitate international investment by Chinese firms. David et al. (2022) finds that credit to the private sector significantly impacts domestic investment in West Africa. (2) Financial deepening is accompanied by the abundance and diversification of financial products which enhance the diversity and flexibility of corporate financing. (3) Financial deepening has refined the overall financial structure. Companies are no longer limited to the bank-dominated form of indirect financing, but can issue stocks and bonds through the capital market for direct financing, which greatly relieves the pressure of unavailability of capital. The research of Giovanni (2003) shows that active stock markets and rebounding stock prices increase the confidence of firms seeking cross-border investment. (4) Financial deepening has given rise to the development of financial intermediation, which has reduced information asymmetry and improved the efficiency of resource allocation in the financial system. (5) Market reforms and favorable policies promote the process of financial deepening, which loosens the degree of financial disincentives and financing constraints of enterprises, in other words, the impact of financial deepening policies on enterprises' overseas investment has a "policy effect". Ashcraft (2006) argues that monetary policy can influence the investment behavior of firms through the credit channel. The research of Koivu (2009) shows that the reform of the interest rate market and exchange rate system in China has significantly changed the demand for market financing. Dwumfour et al. (2022) finds that bank credit responds to changes in monetary policy rate in Africa.

Secondly, indirect effects are also reflected in several aspects. (1) Financial deepening is an important factor driving economic growth in addition to physical capital and human capital (Levine, 2005). A favorable economic environment enhances the earnings of multinational firms in overseas markets, thus attracting more outward investment (Beck and Levine, 2004). (2) Financial deepening has improved the financing environment, effectively supporting high-investment, long-term technology projects, stimulating the motivation of technological innovation and enhancing the core competitiveness of enterprises, thus accelerating their business expansion. (3) Financial deepening enables companies to obtain accurate and timely market information, identify potentially profitable investment projects and raise funds for production, which can boost their productivity and thus indirectly promote their overseas investments.

- **Host country financial deepening have impacts on home country outward foreign investment.** This section focuses on the characteristics of host countries that influence home country outward investment.

Firstly, the Eclectic Theory of International Production suggests that the location advantage of the host country is an important factor influencing home country firms to invest abroad (Dunning, 2007), and the location advantage is reflected in several aspects. (1) The geographical location of the host country is the most direct factor, and the increased geographical distance between the home country and the host country usually discourages OFDI from the host country (Cheng and Ma, 2008). (2) The higher the tightness of bilateral trade linkages between the host country and the home country, the greater the home country's outward investment in the host country, as confirmed by the theoretical model constructed by Head and Ries (2007). (3) The resource of the host country is an important factor in attracting overseas investment, as the main reason for companies to invest across borders is to seek resources and thus profits through overseas expansion. (4) The difference between tax complexity in the home country and the host country is related with FDI outflows from home to destination (Alejandro, 2021). Higher tax rates not only reduce the investment incentives of domestic firms, but also discourage foreign investment (Huizinga and Voget, 2009). (5) The institutional factors of the host country must also be taken into consideration. Specifically, well-protected property rights mechanisms can strongly guarantee the return on investment for multinational firms (Blonigen and Piger, 2014), and a corruption-free governance environment is conducive to helping multinational companies conduct merger and acquisition transactions in host countries (Alquist et al., 2019).

Secondly, with the development of economic and financial globalization, the level of economic growth and financial

deepening of the host country has become a more important factor influencing the overseas investment of home country enterprises. On the one hand, the improvement of the host country's financial system can reduce the difficulty of local financing for multinational enterprises (Bilir et al., 2019), and the improvement of the financing environment in host countries can relieve the financing constraints faced by multinational enterprises, thus promoting the inflow of FDI (Desbordes and Wei, 2017). This effect is called the financing effect. On the other hand, financial deepening in the host country may also raise entry barriers for multinational firms and increase local market competition for multinational firms in the host country and thus discourage FDI inflows (Ju and Wei, 2011; Bilir et al., 2019). This effect is called the competition effect. In addition, several studies also find that the level of financial deepening in the host country has a threshold effect on FDI. Financial deepening below a threshold is less attractive to foreign investors (Liu et al., 2020), but financial deepening higher than a certain level tends to increase the home country's OFDI.

2.2 OFDI and Economic Growth

Adam Smith's Wealth of Nations theory, Malthus's population theory, Ricardo's profit theory and Solow's neoclassical growth theory all emphasize the importance of capital accumulation in economic growth. While OFDI is an important way of capital accumulation and growth, therefore it has an important impact on economic growth. On the one hand, home country OFDI enables firms to produce products at a lower cost comparative advantage (Herzer, 2007), which can stimulate domestic investment and consumption (Desai, 2005; Wang, 2009), thus benefiting home country economic growth. On the other hand, home country OFDI also has a direct or indirect positive impact on the host country (Hundekar and Makandar, 2013; Liu and Wang, 2019; Ibrahim and Acquah,2021): the capital inflow increases the national savings of the host country, the introduction of technology enhances the labor productivity of the host country, and the increase in employment opportunities improves the competition environment of the host country.

2.3 Financial Deepening and Economic Growth

At present, studies on the impact of financial deepening on economic growth hold the following two perspectives. First, a part of scholars argue that financial deepening has a significant contribution to economic growth, which is first proposed by McKinnon and Shaw E (1975) and confirmed in a number of subsequent studies based on developing countries. Hasan et al. (2012) finds that the development of financial markets and the optimization of the legal environment in China can increase and strengthen economic growth rates. An empirical analysis by Murinde (2012) shows an existed significant positive relationship between financial deepening and capital market development in Kenya. Findings of Maroua and Slim (2021) support the fact that financial development reduces directly poverty in West African States. Based on the context of the big data era, Deng and Chen (2019) find that both financial development and balanced adjustment of the economic structure can promote economic growth. Second, there are also scholars believing that financial development has a limited or even inhibiting effect on economic growth, and the number of studies in this category has increased significantly after the financial crisis. Rousseau and Wachtel (2011) find that excessive financial deepening or too rapid growth of credit may lead to both inflation and weakened banking systems, which in turn gave rise to growth−inhibiting financial crises. Atahau and Robiyanto (2018) also draw a similar conclusion by studying the Indonesian capital market.

The theory of endogenous growth shows that technological advances can enable economies to achieve sustained growth independent of external forces. Therefore, with the progress of financial innovation, most scholars still agree that financial development is beneficial to economic growth and have explored the ways in which financial development acts on economic growth, mainly divided into two categories: quantitative and qualitative (Pagano, 1993). The former is also known as the capital accumulation channel: financial deepening loosens financing constraints, enabling rapid accumulation of capital in the short term and facilitating the conversion of savings to investment under accommodative policies, thus contributing to economic growth. Marina et al. (2022) finds the "finance-growth" relationship can be explained by the non-linearity of the variable responsible for the capital accumulation channel. The latter is also called the technology innovation channel: Financial deepening enables companies to access more research and development funds, stimulating their technological innovation, enhancing their core competitiveness, accelerating their business expansion and overseas investment enthusiasm, thus finally contributing to economic growth. Yang and Ni (2021) find that the influence of financial development on technological progress changes with income. Désiré et al. (2022) find that fintech diffusion have long-run effects on GDP per capita.

2.4 Summary

By summarizing literatures, several limitations in the current studies are found that need to be improved. (1) The

above three parts are currently fragmented, yet the two paths of financial deepening for economic growth require their connection: it seems that OFDI plays an intermediary role in the financial deepening for economic growth. In other words, financial deepening is the cause, OFDI is the decision, and economic growth is the result. (2) With the development of economic and financial globalization, the spatial interaction between countries cannot be ignored. Researches have studied the possible spatial autocorrelation of OFDI from home country to host countries (Hong and Goujon, 2014; Davies and Guillin, 2014; Qayyum AK et al.,2016; Liu et al.,2022). However, since there are strong links between financial deepening, OFDI and economic growth, it is worth exploring whether there is spatial spillover from financial deepening to OFDI, from financial deepening to economic growth, and from OFDI to economic growth. (3) Few studies comprehensively take both home country and host countries into consideration.

Therefore, the perspectives of both China (home country) and the host countries will be studied, and a comprehensive analysis framework for studying the mutual influence mechanism between financial deepening, OFDI and economic growth will be constructed. The following two hypotheses are proposed.

- **Hypothesis 1:** From the perspective of China (home country), there are connections between financial deepening, OFDI and economic growth.
- **Hypothesis 2:** From the perspective of the interaction between China (home country) and host countries, there are connections between financial deepening in the host countries, China's OFDI to the host countries, and economic growth in the host countries. On the one hand, OFDI has a mediating role in financial deepening for economic growth; on the other hand, spatial effects need to be taken into consideration.

3. Methods and Results

3.1 Variables Description

- **Variable 1: Financial Deepening (FD).** On the one hand, according to Giovanni (2005), a simple measure can be: **domestic credit to private sector by banks (% of GDP) (logarithm), the variable symbol is FSC.** On the other hand, an indicator system can be built for comprehensively evaluating the financial deepening level, which consists of two aspects. (1) Financial scale can be measured by: **domestic credit to private sector by banks (% of GDP), the variable symbol is FSC;** (2) Financial efficiency can be measured by: **gross capital formation (% of GDP), gross domestic savings (% of GDP) and gross capital formation (% of GDP)/ gross domestic savings (% of GDP), the variable symbols are FEC, FES and FER respectively.** Data is collected from the database of World Bank, and all of them are positive indicators. For avoiding the bias caused by subjective weighting, entropy-weighting method is used to weight the indicators for getting **Financial Deepening Index, the variable symbol is FD.** The calculation processes of entropy-weighting method are as follows.

(1) The data units of each indicator are quite different, and there are positive indicators and inverse indicators in the indicator system, which makes the dimensionless quantification of the data quite important. The calculation method is as follows:

$$f_{ij} = 60 \times e^{dij \times \ln(100/60)}, (i = 1, 2, ..., m; j = 1, 2, ..., n) \tag{1}$$

$$\begin{cases} d_{ij,positive} = (x_{ij} - x_{0j}) / (x_{1j} - x_{0j}) \\ d_{ij,inverse} = (x_{1j} - x_{ij}) / (x_{1j} - x_{0j}) \end{cases} \tag{2}$$

where m is the number of objects, n is the number of indicators, x_{0j} is the minimum value of indicator j and x_{1j} is the maximum value of indicator j.

(2) The specific gravity matrix is determined and the information entropy is calculated:

$$y_{ij} = f_{ij} / \sum_{i=1}^{m} f_{ij}; e_j = -\frac{1}{\ln m} \sum_{i=1}^{m} y_{ij} \ln y_{ij} \tag{3}$$

(3) The utility value and the entropy weight of indicator j are calculated:

$$d_j = 1 - e_j; w_j = d_j / \sum_{j=1}^{n} d_j \tag{4}$$

(4) The fitted value of object i can be finally obtained:

$$X_i = \sum_{j=1}^{n} w_j f_{ij} \tag{5}$$

• **Variable 2: Outward Foreign Direct Investment Flows (OFDI). It could be measured by Chinese Foreign direct investment, net outflows (BoP, current US$) (Logarithm), the variable symbol is LNOFDI, the unit is 10 thousand$.** Data is collected from the database of World Bank and Statistical Communique on China's Foreign Investment. Moreover, using the following calculation method to deal with negative values:

$$LNOFDI = \begin{cases} \ln(OFDI), & OFDI > 0 \\ -\ln(-OFDI), & OFDI < 0 \end{cases} \tag{6}$$

• **Variable 3: Economic Growth (EG).** On the one hand, a simple measure can be: **GDP per capita (current US$) (Logarithm), the variable symbol is LNGDPP.** On the other hand, an indicator system can be built for comprehensively evaluating the economic growth level, which consists of three aspects. (1) Economic Vitality can be measured by: **GDP per capita (current US$) and GDP growth (annual %), the variable symbols are GDPP and G respectively;** (2) Economic stability can be measured by: **inflation, consumer prices (annual %), the variable symbol is IF;** (3) Economic opening can be measured by: **trade (% of GDP), the variable symbol is TR.** Data is collected from the database of World Bank, and all of them are positive indicators. Similarly, entropy-weighting method is used to weight the indicators for getting **Economic Growth Index, the variable symbol is EG.**

3.2 Hypothesis 1: From the Perspective of China (Home Country)

3.2.1 Data Description

In order to satisfy the premise of large sample (number of periods≥30), time series data available in the World Bank database (spanning 36 years from 1985 to 2020) is used to explore the connection between **FD, OFDI and EG.** Since the research object is only one country, it is hard to construct indicator systems, so simple measures of financial deepening and economic growth are used **(FSC and LNGDPP).** Descriptive Statistics as shown in Table 1.

Table 1. Summary statistics of the variables

Variables	FSC	LNOFDI	LNGDPP
Unit	%	10thousand$	$
Mean	112.20	13.867	7.335
SD	29.584	1.951	1.293
Max	182.868	10.714	5.529
Min	65.331	16.890	9.250
Observations	36	36	36

3.2.2 Unit Root Tests

Results of unit root tests in Table 2 show that all the three variables are integrated of order one I (1), indicating that the original sequences are not stationary but the first-order difference sequences are stationary.

Table 2. DF tests

Variables	DF Statistic	Critical value			Order of Integration
		1%	5%	10%	
FSC	0.553	-3.682	-2.972	-2.618	-
dFSC	-4.992***	-3.689	-2.975	-2.619	I (1)
LNOFDI	-0.741	-3.682	-2.972	-2.618	-
dLNOFDI	-7.381***	-3.689	-2.975	-2.619	I (1)
LNGDPP	0.616	-3.682	-2.972	-2.618	-
dLNGDPP	-3.339**	-3.689	-2.975	-2.619	I (1)

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

3.2.3 Granger Causality Tests

Table 3 show that **dFSC** and **dLNOFDI** are the one-way joint Granger cause of **dLNGDPP.**

Table 3. Granger causality tests

Null Hypothesis	chi2	Prob> chi2
dFSC does not Granger Cause dLNGDPP	0.350	0.554
dLNOFDI does not Granger Cause dLNGDPP	4.492**	0.034
dFSC and dLNOFDI do not Granger Cause dLNGDPP	**5.197***	**0.074**
dLNGDPP does not Granger Cause dFSC	0.004	0.951
dLNOFDI does not Granger Cause dFSC	1.837	0.175
dLNGDPP and dLNOFDI do not Granger Cause dFSC	1.838	0.399
dLNGDPP does not Granger Cause dLNOFDI	0.771	0.38
dFSC does not Granger Cause dLNOFDI	0.021	0.885
dLNGDPP and dFSC do not Granger Cause dLNOFDI	0.902	0.637

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

3.2.4 Error Correction Model (ECM)

Firstly, based on analysis of 3.2.1, Error correction model (ECM) could be built. It explains the behavior of variables in the short run following the presence of a long-run relationship (Okafor et al., 2021). In addition, based on analysis of 3.2.3, in the model, **LNGDPP** is the dependent variable while **FSC** and **LNOFDI** are the independent variables.

Secondly, the ordinary least squares (OLS) regression results are shown in Table 4, and it can be seen that the coefficients are all statistically significant at the 10% level.

$$LNGDPP_t = \alpha_1 + \alpha_2 FSC_t + \alpha_3 LNOFDI_t + \mu_t \quad (7)$$

Table 4. Regression results

LNGDPP	Coefficient	SD	t	P>t
FSC (α_2)	0.007*	0.004	1.94	0.061
LNOFDI (α_3)	0.549***	0.056	9.8	0.000
_cons (α_1)	-1.08**	0.431	-2.51	0.017

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

Thirdly, DF test is used to test the stationarity of the residuals. The DF statistic rejects the null hypothesis at the 1% level of significance, indicating that the residuals are stable.

Table 5. DF test of the residual

Variable	DF Statistic	Critical value		
		1%	5%	10%
μ	-3.673***	-2.644	-1.950	-1.604

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

Fourthly, the long-run equilibrium equation can be modeled as follows, indicating that both the level of Chinese financial deepening and Chinese OFDI have long-term positive effects on Chinese economic growth.

$$LNGDPP_t = -1.08 + 0.007FSC_t + 0.549LNOFDI_t \quad (8)$$

Fifthly, after obtaining the form of long-run equilibrium equation, an Error Correction Model can be constructed, where d represents first order difference, l represents first order lag and ecm represents the error correction item. As shown in Table 6, the coefficient of *ecm* is smaller than 0 (-0.046), indicating that the error correction item has a long-term correction effect, and the model estimation meets the former expectation.

$$\begin{cases} dLNGDPP_t = \beta_1 + \beta_2 l.dLNGDPP_t + \beta_3 dFSC_t + \beta_4 dLNOFDI_t + \beta_5 ecm_{t-1} + v_t \\ ecm_{t-1} = l.\mu_t = LNGDPP_{t-1} - \alpha_1 - \alpha_2 FSC_{t-1} - \alpha_3 LNOFDI_{t-1} \end{cases} \quad (9)$$

Table 6. Summary of Error Correction Model (ECM) result

dLNGDPP	Coefficient	SD	t	P>t
ldLNGDPP (β_2)	0.640***	0.104	6.15	0.000
dFSC (β_3)	-0.007***	0.001	-5.5	0.000
dLNOFDI (β_4)	-0.011	0.022	-0.51	0.616
ecm (β_5)	-0.046	0.041	-1.13	0.269
_cons (β_1)	0.062***	0.015	4.21	0.000

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

Finally, the correlation between explainable variables could be further examined. Table 7 shows that the correlation coefficients are small, and the mean variance inflation factor is only 1.32, so there's no multicollinearity problem, indicating that the conclusions are robust.

Table 7. Correlation coefficients and Variance Inflation Factors

	ldLNGDPP	dFSC	dLNOFDI	ecm	VIF
ldLNGDPP	1				1.09
dFSC	0.132	1			1.09
dLNOFDI	0.063	-0.075	1		1.47
ecm	0.269	0.182	0.535	1	1.61
Mean					1.32

3.2.5 Vector Error Correction Model (VECM)

Firstly, since multiple long-term equilibrium relationships may exist between the time series, it will be biased if only the ECM model is used. Therefore, it is better to build a Vector Error Correction Model (VECM).

Secondly, cointegration rank could be determined, which means how many linearly independent cointegration vectors exist. Trace statistics in Table 8 show that there are two linearly independent cointegration vectors. This finding is consistent with the previous expectation (there are multiple equilibrium relationships), confirming the correctness of constructing a VECM.

Table 8. Johansen cointegration tests (Trace statistic)

Rank	Params	LL	Eigenvalue	Trace Statistic	Critical Value (5%)
0	15	-70.148	-	50.442	34.550
1	20	-54.847	0.593	19.840	18.170
2	**23**	**-45.437**	**0.425**	**1.019***	**3.740**
3	24	-44.927	0.030		

Thirdly, the lag order of the VAR representation could be determined. According to the AIC criteria, the optimal lag order is 2.

Table 9. Lagging orders (AIC criteria)

Lag	LL	LR	p	FPE	AIC	HQIC	SBIC
0	-189.229			33.141	12.014	12.060	12.152
1	-59.868	258.720	0.000	0.018	4.492	4.674	5.041
2	**-44.214**	**31.307**	**0.000**	**0.012***	**4.076***	**4.395***	**5.038***
3	-39.443	9.542	0.389	0.016	4.340	4.796	5.714
4	-27.670	23.487*	0.005	0.015	4.169	4.761	5.955

Fourthly, using Johansen's MLE method to estimate the model (the number of cointegration ranks is 2, and the lag order is 2), two cointegrating equations (denoted by _cel1 and _cel2 respectively) are gained, which can be modelled as follows (the coefficient of FSC in _cel1 is too small, so it can be ignored). It can be seen from Table 10 that there are long-term positive effects among the three series, which is consistent with the results of ECM.

$$\begin{cases} LNGDPP_t = 0.665 LNOFDI_t - 2.005 \\ FSC_t = 18.550 LNOFDI_t - 147.235 \end{cases} \tag{10}$$

Table 10. Cointegration equations

_cel1	beta	Coefficient	SD	z	P>z
	LNGDPP	1	.	.	.
	FSC	4.34E-19	.	.	.
	LNOFDI	-0.665***	0.026	-25.410	0.000
	_cons	2.005	.	.	.
_cel2	**beta**	**Coefficient**	**SD**	**z**	**P>z**
	LNGDPP	0	(omitted)		
	FSC	1	.	.	.
	LNOFDI	-18.550***	3.227	-5.750	0.000
	_cons	147.235	.	.	.

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

Finally, the robustness of VECM is tested. **(1) Autocorrelation test of the residuals:** the null hypothesis (no autocorrelation) cannot be rejected at a 5% level of significance. (2) Due to the small sample size and the non-normality of the residuals has little effect on the estimation of the VECM model, the normality of the residuals is not tested here. **(3) Robustness test of the models:** it can be seen from Figure 1 that all eigenvalues of the adjoint

matrix fall within the unit circle except the unit root assumed by the VECM model itself. These findings all indicate that the above conclusions are robust.

Table 11. Autocorrelation test

Lag	chi2	Prob > chi2
1	15.743	0.072
2	2.424	0.983

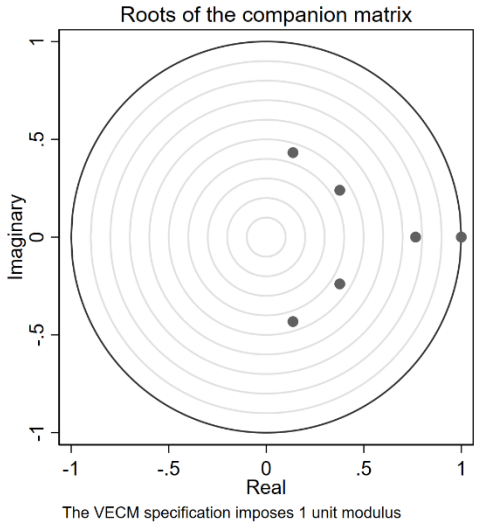

Figure 1. Stability test

3.2.6 Further Analysis: Policy Effect

According to the above review of literatures, market reforms and the introduction of favorable policies promote the process of financial deepening, which will have policy effects on overseas investment of enterprises. For example, the Belt and Road Initiative, the deregulation of loan interest rates in 2013, the deregulation of deposit interest rates in 2015 and the "8.11" reform of the foreign exchange rate system are all beneficial to financial deepening and loosing corporate financing constraints, providing opportunities for overseas development of enterprises. Hence, three years (2014, 2015, and 2016) are used as the starting points to explore whether policy effects exist in Chinese OFDI. Regression Discontinuity Design (RDD) is an econometric method suitable for researching policy effects. The basic formula is as follows:

$$\begin{cases} LNOFDI_i = \beta_1 + \beta_2(TIME_i - c) + \alpha D_i + \gamma(TIME_i - c)D_i + \varepsilon_i, (i = 1, ..., n) \\ D_i = \begin{cases} 1, TIME_i \geq c \\ 0, else \end{cases} \end{cases} \tag{11}$$

Where *(TIME-c)* is the normalization of *TIME* (*c* takes 2014, 2015, 2016 respectively), making the breaking point *(TIME-c)* equals to 0. Introduce in the interaction term γ*(TIME-c)D* to allow different slopes on both sides of the breakpoint, this equation can be performed OLS regression and the obtained α is the estimator of the Local Average Treatment Effect at *TIME=c*. If α is significant, then policy effects exist.

The regression results of the three time points (2014/2015/2016) are shown in Table 11. It can be seen from Table 12 that the estimated coefficients of the dummy variable in 2014 and 2015 are significant at a 1% level of significance, indicating the existence of policy effects in Chinese OFDI, which verifies the previous assumptions.

Table 12. Regression results (total OFDI)

c =2014	Coefficient	SD	t	P>t
β_2	0.182***	0.008	22.600	0.000
α	**0.622****	**0.282**	**2.200**	**0.035**
γ	-0.190***	0.069	-2.760	0.010
β_1	15.944***	0.138	115.600	0.000
c =2015	**Coefficient**	**SD**	**t**	**P>t**
β_2	0.184***	0.008	24.050	0.000
α	**0.541***	**0.296**	**1.830**	**0.076**
γ	-0.240***	0.087	-2.760	0.009
β_1	16.177***	0.136	119.120	0.000
c =2016	**Coefficient**	**SD**	**t**	**P>t**
β_2	0.187***	0.007	25.050	0.000
α	**0.272**	**0.319**	**0.850**	**0.400**
γ	-0.256**	0.118	-2.180	0.037
β_1	16.425***	0.137	120.040	0.000

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

3.2.7 Further Analysis: Heterogeneity Analysis

In recent years, a large part of the increase in OFDI has been driven by investment in manufacturing, especially the expansion of the pharmaceutical and automotive industries. **On the one hand,** the continuous increase of the elderly population, people's continuous attention to health issues, and the guidance of national policies all contribute to the growth of Chinese pharmaceutical market. In order to obtain higher profit, pharmaceutical companies are no longer satisfied with internal development, and begin to carry out epitaxial OFDI. **On the other hand,** slowing economic growth and overcapacity in traditional markets also promote OFDI in the automotive industry. Therefore, it is better to separately examine whether the above-mentioned policies have policy effects on OFDI in Chinese manufacturing industry. Similarly, the regression results based on Regression Discontinuity Design (RDD) are shown in Table 13. It could be seen that the response of manufacturing OFDI on financial deepening policies from 2013 to 2015 is not obvious (compared with the total OFDI in Table 12). One possible explanation is that the manufacturing industry is more significantly affected by recent policies (especially in the past 3 years), so it is difficult to identify policy effects due to the lack of enough data.

Table 13. Regression results (OFDI in manufacturing)

c =2014	Coefficient	SD	t	P>t
β_2	0.257***	0.041	6.230	0.000
α	**0.319**	**0.362**	**0.880**	**0.395**
γ	-0.165*	0.082	-2.010	0.065
β_1	13.949***	0.256	54.410	0.000
c =2015	**Coefficient**	**SD**	**t**	**P>t**
β_2	0.249***	0.031	7.990	0.000
α	**0.547***	**0.318**	**1.720**	**0.109**
γ	-0.256**	0.084	-3.040	0.010

β_1	14.142***	0.212	66.750	0.000
c =2016	**Coefficient**	**SD**	**t**	**P>t**
β_2	0.263***	0.028	9.530	0.000
α	**0.314**	**0.327**	**0.960**	**0.354**
γ	-0.325***	0.108	-3.000	0.010
β_1	14.514***	0.203	71.340	0.000

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

3.3 Hypothesis 2: From the Perspective of the Interaction Between China (Home Country) and Host Countries

3.3.1 Data Description

Panel data can be used to explore the relationship between the financial deepening of the host country, China's OFDI to the host country, and the economic growth of the host country. In order to ensure data integrity of the host countries, the data of the past 10 years from 2010 to 2019 are obtained from the World Bank database. The number of host countries (economies) is 48, they are distributed in different continents of the world, including high-income economies and low-income economies (the numbers are 19 and 29, respectively), so the sample as a whole is representative. Since the research objects are more than one country, the index system of financial deepening and economic growth can be constructed based on entropy-weighting method **(FD and EG).** Descriptive Statistics as shown in Table 15. Due to the attribute of short panel (N>T), the information content of T is insufficient, so there is no need for a stationarity test.

Table 14. List of the host countries (economies)

Catagories	**Countries (Economies)**
Relative high-income	Hong Kong SAR, China; Macao SAR, China; Chile; Japan; Korea, Rep.; Singapore; United Arab Emirates; Hungary; Romania; Denmark; France; Germany; Italy; Netherlands; Spain; Sweden; United Kingdom; United States; Australia
Relative low-income	Bangladesh; Brazil; Cambodia; Colombia; Ecuador; India; Indonesia; Kazakhstan; Kyrgyz Republic; Malaysia; Mexico; Mongolia; Myanmar; Nepal; Niger; Nigeria; Pakistan; Peru; Philippines; Russian Federation; South Africa; Sri Lanka; Sudan; Thailand; Togo; Turkiye; Uganda; Zambia; Zimbabwe

Table 15. Summary statistics of the variables

Variables	**FD**	**LNOFDI**	**EG**
Unit	-	10thousand$	-
Mean	73.446	8.405	73.107
SD	4.980	5.725	6.196
Max	87.874	16.251	93.733
Min	60.076	-12.433	60.031
Observations	480	480	480

The weight changes of each sub indicator in the financial deepening index **(FD)** and economic growth index **(EG)** are shown in the table 16 below. On the one hand, in terms of relative weight, **FSC** has the highest weight in **FD**, and **G** has the highest weight in **EG**, which is in line with previous expectations. On the other hand, in terms of weight changes, the weight of **FSC** is gradually decreasing, while the weight of **FEC** is on the rise, indicating that capital formation is gradually becoming an important factor to measure the level of financial deepening. Moreover, the

weight of **IF** shows a downward trend, indicating that high-quality economic growth can gradually overcome the adverse effects of price level fluctuations.

Table 16. Weight changes of each sub indicator

Financial Deepening (FD)		**2011**	**2013**	**2015**	**2017**	**2019**
Financial Scale	FSC	0.508	0.477	0.412	0.352	0.315
Financial Efficiency	FER	0.089	0.140	0.102	0.121	0.184
	FEC	0.189	0.207	0.259	0.295	0.252
	FES	0.215	0.176	0.227	0.231	0.248
Economic Growth (EG)		**2011**	**2013**	**2015**	**2017**	**2019**
Economic Openness	TR	0.184	0.229	0.216	0.198	0.238
Economic Stability	IF	0.173	0.098	0.231	0.098	0.089
Economic Vitality	GDPP	0.146	0.273	0.090	0.301	0.218
	G	0.497	0.399	0.463	0.403	0.455

3.3.2 Spatial Autocorrelation

With the development of economy and finance, traditional geographical adjacency matrix cannot well measure the spatial effect. Therefore, the economic distance is used to describe the spatial matrixes, where *i* and *j* represent countries, and the average value of GDPP from 2010 to 2019 is used, so that the spatial matrixes will not change over time. The Moran's index for each variable can be calculated to test for spatial autocorrelation. It can be seen from Figure2–4 that the spatial autocorrelation effect of **LNOFDI** is not significant and small, while the spatial autocorrelation effect of **FD** and **EG** is significant and high.

$$\overline{W} = \begin{cases} 1 - \left| \dfrac{\overline{GDPP_i} - \overline{GDPP_j}}{\overline{GDPP_i} + \overline{GDPP_j}} \right|, i \neq j \\ 0, \quad i = j \end{cases} \tag{12}$$

Table 17. Moran's I

LNOFDI	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Moran's I	-0.034	0.026**	0.013	-0.023	0.022**	0.020*	0.014	-0.026	0.021*	0.033**
Z-Statistic	-0.782	2.390	1.629	-0.055	2.258	1.844	1.614	-0.213	1.942	2.553
FD	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Moran's I	0.235***	0.336***	0.291***	0.239***	0.038***	0.176***	0.171***	0.078***	0.021*	0.030**
Z-Statistic	11.349	15.877	13.923	11.664	2.679	8.845	8.553	4.422	1.875	2.287
EG	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Moran's I	0.517***	0.512***	0.477***	0.236***	0.225***	0.453***	0.378***	0.236***	0.251***	0.363***
Z-Statistic	23.768	23.647	22.255	12.003	11.026	21.010	17.726	11.968	12.525	17.226

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

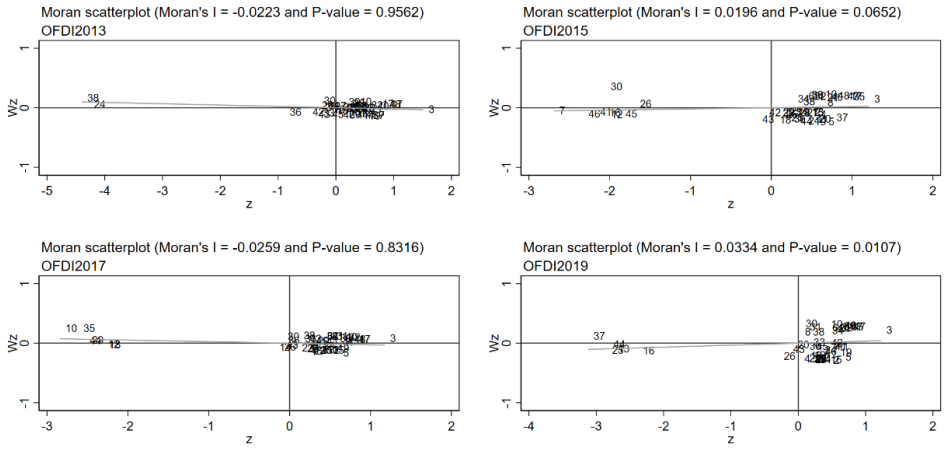

Figure 2. Moran's I scatterplots (LNOFDI)

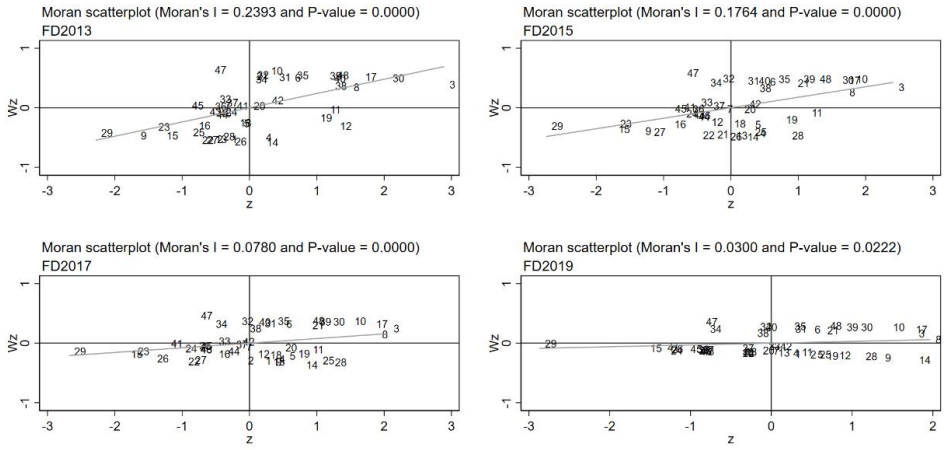

Figure 3. Moran's I scatterplots (FD)

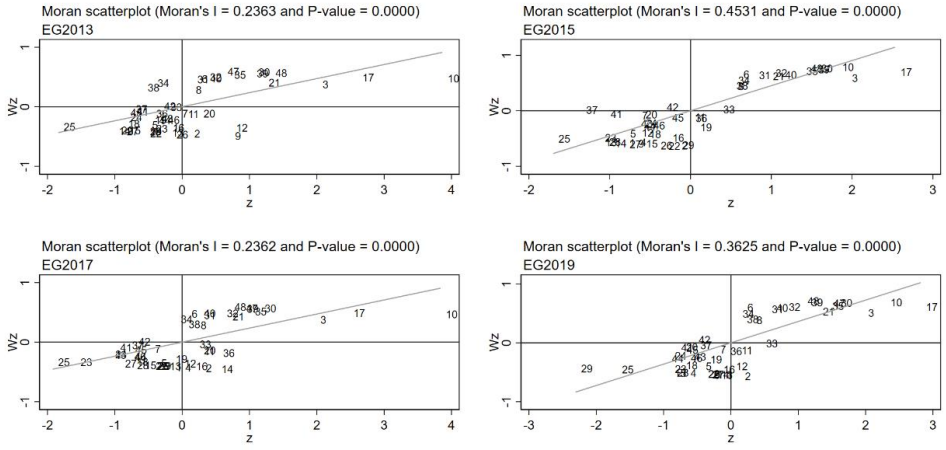

Figure 4. Moran's I scatterplots (EG)

3.3.3 Spatial Dubin Model (SDM)

The general expression of the spatial Durbin model is as follows, where W is the invariant space matrix, X is the independent variable, y is the dependent variable.

$$y = \lambda \overline{W} y + \rho X + \theta \overline{W} X + \varepsilon \tag{13}$$

$$\begin{cases} Model_1 : LNOFDI = \lambda_1 \overline{W} LNOFDI + \rho_1 FD + \theta_1 \overline{W} FD + \mu \\ Model_2 : EG = \lambda_2 \overline{W} EG + \rho_2 FD + \theta_2 \overline{W} FD + \mu \\ Model_3 : EG = \lambda_3 \overline{W} EG + \rho_{31} FD + \rho_{32} LNOFDI + \theta_{31} \overline{W} FD + \theta_{32} \overline{W} LNOFDI + \mu \end{cases} \tag{14}$$

By constructing the above models, the relationship between the financial deepening of the host country **(FD)**, China's OFDI to the host country **(LNOFDI)**, and the economic growth of the host country **(EG)** can be studied on the basis of considering the spatial effect. Specifically, if $\rho_1, \rho_2, \rho_{32}$ are all statistically significant, indicating that LNOFDI has mediating effect. Meanwhile, if ρ_1 and $\rho_2 \times \rho_{32}$ have different signs, the mediating effect is competitive mediating effect, otherwise it is complementary mediating effect. What's more, If the coefficient of ρ_{31} is also statistically significant, the mediating effect is partial mediation effect, otherwise it is complete mediating effect. The estimated results of the model are shown in Table 18 below.

Table 18. Regression results

$Model_1$	**LNOFDI**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_1)	0.105*	0.062	1.700	0.089
	_cons	-13.579	8.710	-1.560	0.119
$\overline{W}$	LNOFDI (λ_1)	0.132	0.157	0.850	0.398
$\overline{W}$	FD (θ_1)	0.179	0.145	1.230	0.218
$Model_2$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_2)	0.310***	0.041	7.640	0.000
	_cons	-40.531***	5.652	-7.170	0.000
$\overline{W}$	EG (λ_2)	0.851***	0.024	36.030	0.000
$\overline{W}$	FD (θ_2)	0.393***	0.096	4.080	0.000
$Model_3$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	LNOFDI (ρ_{32})	0.076**	0.030	2.550	0.011
	FD (ρ_{31})	0.288***	0.039	7.330	0.000
	_cons	-35.112***	5.571	-6.300	0.000
$\overline{W}$	EG (λ_3)	0.841***	0.027	31.060	0.000
$\overline{W}$	FD (θ_{31})	0.264***	0.098	2.700	0.007
$\overline{W}$	LNOFDI (θ_{32})	0.680***	0.159	4.290	0.000

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

Firstly: (1) The impact of **FD** on **LNOFDI** in $Model_1$ is positive (0.105) at a 10% level of significance, indicating

that overall financial deepening of the host countries is conducive to attracting Chinese OFDI. (2) The impact of **FD** on **EG** in *Model₂* is positive (0.310) at a 1% level of significance, indicating that financial deepening of the host countries is conducive to their economic growth. (3) The impact of **FD** and **LNOFDI** on **EG** in *Model₃* are positive at a 1% level of significance (0.288 and 0.076, respectively). The above three points confirm the mediating effect of **LNOFDI**, which is partial and complementarity.

Secondly: (1) The spatial spillover coefficient of **LNOFDI** in is not significant, indicating that LNOFDI to a certain host country does not significantly influence the **LNOFDI** to its neighboring countries. (2) The spatial spillover coefficient of **FD** to **LNOFDI** in *Model₁* is not significant, indicating that financial deepening of a certain host country has no obvious impact on the FDI of neighboring countries. (3) The spatial spillover effect of **EG** in *Model₂* is significantly positive (0.851), indicating that economic growth of a certain host country is conducive to promoting the economic growth of neighboring countries. (4) The spatial spillover of **FD** to **EG** in *Model₂* is significantly positive (0.393), indicating that financial deepening of a certain host country is conducive to promoting the economic growth of surrounding countries. (5) The spatial spillover effect of **LNOFDI** on **EG** in *Model₃* is significantly positive (0.680), indicating that the increase of Chinese OFDI to a certain host country will promote the economic growth of neighboring countries. The above points confirm that there are spatial interactions among relevant variables, which is consistent with the expectations.

3.3.4 Stability Test: Time-varying Spatial Dubin Model (TVSDM)

It is convenient for calculation if assuming that the spatial weight economic matrix W is constant. However, real economic conditions of the host countries will change over time, so it is necessary to put time variables into the spatial matrix. Time-varying space matrix and time-varying space Durbin model can be constructed by changing W to W_t. The nwxtregress command proposed by Zekhnini (2021) can efficiently handle data with time-varying spatial attributes.

$$W_t = \begin{cases} 1 - \left| \dfrac{GDPP_{it} - GDPP_{jt}}{GDPP_{it} + GDPP_{jt}} \right|, i \neq j \\ 0, \quad i = j \end{cases} \tag{15}$$

$$y = \lambda W_t y + \rho X + \theta W_t X + \varepsilon \tag{16}$$

$$\begin{cases} Model_1 : LNOFDI = \lambda_1 W_t LNOFDI + \rho_1 FD + \theta_1 W_t FD + \mu \\ Model_2 : EG = \lambda_2 W_t EG + \rho_2 FD + \theta_2 W_t FD + \mu \\ Model_3 : EG = \lambda_3 W_t EG + \rho_{31} FD + \rho_{32} LNOFDI + \theta_{31} W_t FD + \theta_{32} W_t LNOFDI + \mu \end{cases} \tag{17}$$

After re-estimating the models, results are obtained as Table 19. It can be seen that main conclusions of the original model are basically unchanged, indicating that the spatial models are robust and stable. However, the intensity of the spatial spillover varies (reflected in the coefficients), indicating that the time-varying nature of the spatial weight matrix cannot be ignored.

Table 19. Regression results

$Model_1$	**LNOFDI**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_1)	0.106*	0.062	1.720	0.085
	_cons	-13.632	8.691	-1.570	0.117
W_t	LNOFDI (λ_1)	0.117	0.158	0.740	0.459
W_t	FD (θ_1)	0.180	0.145	1.250	0.212
$Model_2$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_2)	0.309***	0.040	7.680	0.000
	_cons	-40.666***	5.605	-7.260	0.000
W_t	EG (λ_2)	0.851***	0.023	36.350	0.000
W_t	FD (θ_2)	0.395***	0.095	4.150	0.000
$Model_3$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	LNOFDI (ρ_{32})	0.076***	0.030	2.580	0.010
	FD (ρ_{31})	0.285***	0.039	7.350	0.000
	_cons	-35.183***	5.509	-6.390	0.000
W_t	EG (λ_3)	0.841***	0.027	31.310	0.000
W_t	FD (θ_{31})	0.263***	0.097	2.720	0.007
W_t	LNOFDI (θ_{32})	0.717***	0.158	4.540	0.000

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

3.3.5 Further Analysis: Heterogeneity Analysis

Furthermore, all the host countries (economies) can be divided into two categories (high-income and low-income) according to the income levels (Table 14), and different spatial weight matrixes and time-varying spatial Durbin models can be constructed to examine the spatial heterogeneity of financial deepening of the host countries **(FD)**, Chinese OFDI to the host countries **(LNOFDI)** and economic growth of the host countries **(EG)**. Regression results are shown in Table 20 and Table 21 respectively.

Firstly: (1) In *Model₁*, **FD** of both the high-income group and the low-income group have positive effects on **LNOFDI** (0.067 and 0.093). This phenomenon is consistent with the overall regression results, indicating that financial deepening of the host country is conducive to attracting Chinese OFDI. (2) In *Model₂*, **FD** of both the high-income group and the low-income group have positive effects on **EG** at a 1% significance level (0.500 and 0.152). This phenomenon also matches the overall regression results, indicating that financial deepening of the host country is conducive to the economic growth of the host country. (3) In *Model₃*, the effects of **FD** and **LNOFDI** in the high-income group on **EG** are both significantly positive (0.484 and 0.192, respectively), indicating that for the high-income group, **LNOFDI** has a partial and complementarity mediating effect. (4) In *Model₃*, the effect of **FD** on **EG** in the low-income group is significantly positive, while the effect of **LNOFDI** on **EG** is not significant, indicating that the mediating effect of **LNOFDI** is not obvious for the low-income host countries. One possible explanation is that, for the low-income group, there are other paths and mechanisms that are more significant for financial deepening to promote economic growth.

Secondly: (1) In *Model₁*, the spatial spillover effect of **LNOFDI** in both the low-income group and the high-income group is negative but not statistically significant. One possible explanation is that, the total OFDI of Chinese to the two groups is limited. Therefore, an increase in OFDI to a certain host country may have a crowding-out effect on the FDI of neighboring countries, which is not obvious yet. (2) The spatial spillover coefficients of **FD** to **LNOFDI**

in *Model₁* are not significant for both the high-income group and the low-income group, the coefficients of **EG** in *Model₂* are significant positive for both the two groups. These findings are consistent with the conclusion of the former research. (3) In *Model₃*, **LNOFDI** of the low-income group has no significant spatial spillover effect on **EG**, while **LNOFDI** of the high-income group has positive spillover effect on **EG** at a 5% significance level (0.847), indicating that the increase of Chinese OFDI to a certain high-income host country is conducive to promoting its economic growth, and the country's capital accumulation and technological progress will stimulate its OFDI, thereby driving the economic growth of neighboring countries and forming a positive driven effect. The above findings all indicate that there is heterogeneity in the spatial interaction between relevant variables in different groups.

Table 20. Regression results (relative high income)

$Model_1$	**LNOFDI**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_1)	0.067	0.075	0.890	0.373
	_cons	12.724	14.215	0.900	0.371
W_t	LNOFDI (λ_1)	-0.284	0.257	-1.100	0.269
W_t	FD (θ_1)	-0.066	0.193	-0.340	0.734
$Model_2$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_2)	0.500***	0.076	6.580	0.000
	_cons	3.700	14.44	0.260	0.798
W_t	EG (λ_2)	0.606***	0.095	6.370	0.000
W_t	FD (θ_2)	-0.143	0.202	-0.710	0.478
$Model_3$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	LNOFDI (ρ_{32})	0.192**	0.074	2.580	0.010
	FD (ρ_{31})	0.484***	0.075	6.47	0.000
	_cons	-8.410	14.772	-0.570	0.569
W_t	EG (λ_3)	0.584***	0.098	5.930	0.000
W_t	FD (θ_{31})	-0.084	0.196	-0.430	0.670
W_t	LNOFDI (θ_{32})	0.847**	0.420	2.020	0.044

Table 21. Regression results (relative low income)

$Model_1$	**LNOFDI**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_1)	0.093	0.091	1.020	0.307
	_cons	24.242	16.155	1.500	0.133
W_t	LNOFDI (λ_1)	-0.056	0.192	-0.290	0.772
W_t	FD (θ_1)	-0.322	0.237	-1.360	0.173
$Model_2$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	FD (ρ_2)	0.152***	0.040	3.790	0.000
	_cons	11.279	7.525	1.500	0.134
W_t	EG (λ_2)	0.520***	0.093	5.590	0.000
W_t	FD (θ_2)	0.156	0.117	1.340	0.182
$Model_3$	**EG**	**Coef.**	**SD**	**z**	**P>z**
	LNOFDI (ρ_{32})	0.011	0.027	0.430	0.667
	FD (ρ_{31})	0.151***	0.040	3.750	0.000
	_cons	14.150*	7.777	1.820	0.069
W_t	EG (λ_3)	0.499***	0.097	5.140	0.000
W_t	FD (θ_{31})	0.153	0.118	1.310	0.192
W_t	LNOFDI (θ_{32})	-0.157	0.128	-1.22	0.222

Description: *, ** and *** denotes rejection of the null hypothesis at the 0.01 level, 0.05 level and 0.1 level.

4. Summary, Conclusions and Recommendations

Based on the perspectives of both China (home country) and host countries (economies), a financial deepening indicator system and an economic growth indicator system are constructed, and the mutual influence mechanism between financial deepening (FD), outward foreign direct investment flows (OFDI) and economic growth (EG) are studied. **Firstly,** from the perspective of China, based on Error Correction Model (ECM) and Vector Error Correction Model (VECM), the main research conclusions received are as follows. (i) There is a long-term cointegration relationship between the above three aspects, that is, China's financial deepening and China's OFDI have a long-run positive impact on China's economic growth. (ii) Further analysis also confirms that reforms related to financial deepening (e.g., Belt and Road, interest rate marketization, exchange rate reform, etc.) have positive policy effects on promoting OFDI in China. **Secondly,** from the perspective of the interaction between China and host countries (economies), based on Time-varying Spatial Durbin Model (TVSDM), the main research conclusions received are as follows. (i) In general, China's OFDI to host countries plays a positive intermediary role in the process of financial deepening for economic development in host countries. (ii) Three aspects (FD, OFDI, EG) have different degrees of spatial autocorrelation and spatial spillover effects on each other, which are positive in general. (iii) Further analysis also found heterogeneity in the above conclusions for high-income and low-income host countries individually. The summary of the research framework is shown below (Dash lines represent spatial effects).

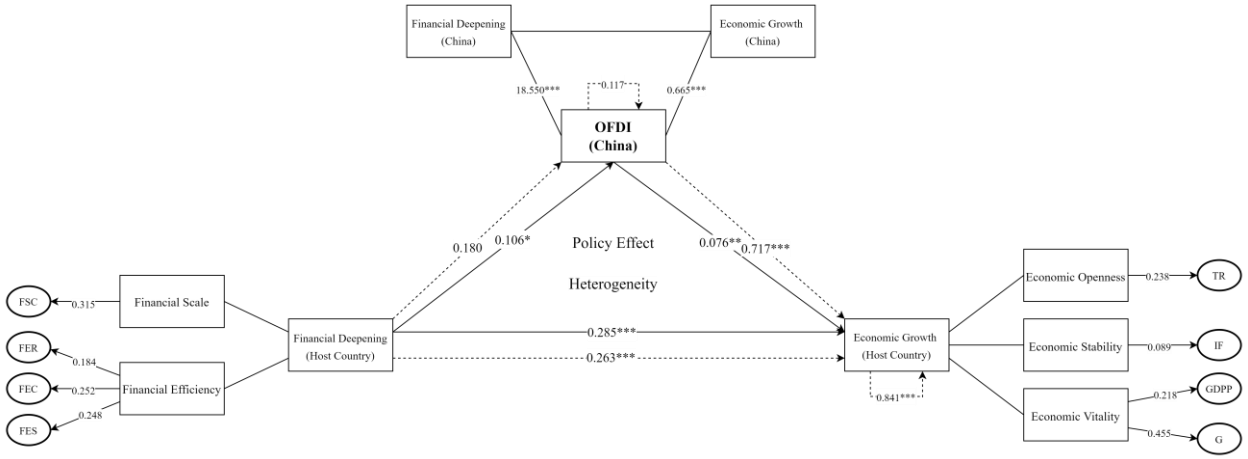

Figure 5. Summary of research framework

Following these findings, following recommendations are made.

From the perspective of financial markets: It is necessary to increase bank credit for expanding financial scale, improve the efficiency of savings conversion for enhancing financial efficiency, and increase the proportion of direct financing for optimizing financial structure, which can enhance the overall level of financial deepening in China, loosen corporate financing constraints, and ultimately promote China's economic growth through capital accumulation and technological innovation.

From the perspective of government: Firstly, policy protection and support should be provided for Chinese enterprises to make OFDI and international deals (minor stake increase, management buyout, capital increase, cross-border M&As, etc.), such as giving tax concessions and refining risk-sharing mechanisms for overseas investments. **Secondly,** financial market reforms should be continued deepening, such as keeping on promoting the marketization of interest rates and the internationalization of the RMB, which can provide strong support for Chinese enterprises to make OFDI and international deals. **Thirdly,** since generally China's OFDI to the host country has facilitation (positive mediating effect) in the process of financial deepening for economic development in host countries, cooperative and supporting relationships should be built and maintained with the host countries, including oil and gas exploration with Russia and Central Asian countries, maritime resources and port construction with South Asian countries, intelligent equipment and digital economy with European countries, infrastructure construction supports with African countries, etc., so as to increase the domestic OFDI and the enthusiasm of making international deals, eventually promoting the economic growth of both China and the host countries to achieve a win-win situation. Finally, considering the existence of the spatial effect of resource allocation, it is of great significance to develop bilateral relations into multivariate relations, thus forming an organic cooperation network among host countries and making outward investment activities more effective. Meanwhile, overseas investments should emphasize a balanced allocation of assets and be appropriately tilted to low-income country (region) groups for avoiding negative spatial spillover and competitive resource crowding which will bring negative impacts to host countries.

From the perspective of enterprises: On the one hand, various financing methods should be flexibly used to increase the proportion of direct financing (such as issuing stocks and bonds, etc.) for enhancing the availability of funds. On the other hand, they should enhance their ability to carry out overseas business, actively make OFDI and international deals, strengthen healthy competition, exchange and cooperation with enterprises in host countries, learn from others' successful experiences, so as to promote their innovation and progress.

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