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Impact of BITs on the Locational Choice of Outward Foreign Direct Investment: The Case of EMCs

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二国間投資協定（BITs）の対外直接投資への影響：アジア新興国のケース

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This paper investigates the impact of the bilateral investment treaties (BITs) on outward foreign direct investment (OFDI) as being observed in firms' FDI location choice decisions. Theoretically the BITs effect may well manifest itself, nevertheless it empirically remains ambiguous. The other vital limitation of literatures should be obviously revealed by the limited empirical research on OFDI of emerging market countries (EMCs). In this study, we propose the following features to the BITs-FDI literature: (i) using firm-level data to focus on EMCs and explore the factors including BITs that determine EMCs' OFDI; (ii) a discrete choice model implemented by mixed logit to capture discrete investment decisions. With these features, we have performed an empirical analysis using firm-level data on the location choice of EMCs' OFDI over 2003–2015. Our empirical analysis results show that BITs significantly promote the OFDI of EMCs, is robust to applying different BITs variables and using different econometric models. Meanwhile we have found that, existing BITs involved in EMCs have a significant substitutive effect on the institutional environment of host countries, consistent with literatures of developed countries.

1. Introduction

Over the past two decades, emerging market countries (EMCs) have witnessed rapid growth in their outward foreign direct investment (OFDI). Although EMCs are mainly regarded as capital-importing economies, they have employed strategic adjustments to OFDI policies and constantly increased their OFDI flows, which suggests that EMCs are shifting from recipient countries to investor countries in terms of FDI. EMCs have increased their OFDI 20 times in just 15 years, the annual OFDI average for EMCs was only $22.9 billion before 2000, and it reached to $418.7 billion in 2015. Additionally, EMCs' inward FDI increased by 9.38% annually while their outward FDI rised by 18.15% correspondingly during the same period 2000–2015 (UNCTAD Stat 2017). The comparison fully demonstrates that EMCs' OFDI has soared in the past decade. China witnesses an evidently rapid growth of OFDI with

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the fact that China was the second biggest capital-exporting country in 2015 (ranked only behind the U.S.) with an OFDI/IFDI ratio of 107.4%. Thus it can be seen, China is more likely to become a traditional capital-exporting developed country rather than a developing country. South Korea, Thailand, and India have also experienced a rapid growth in OFDI and become important capital exporters.

Bilateral investment treaties (BITs) are important agreements for FDI and play a dominant and decisive role in today's international direct investment flows (Bergstrand & Egger, 2013). Realizing the importance of BITs to FDI, EMCs began to reform the BITs system originally filled with capital-importing in the process of making elementary OFDI investment policies. EMCs underwent a series of evolution in making international investment policies from simple capital-importing countries to capital-exporting countries in around 2000 (UNCTAD, 2000). Simultaneously, the BITs system of OFDI made relevant changes so as to actively adjust itself to serve OFDI policies. To be more specific, firstly EMCs are now paying more attention to the establishment of BITs with developing countries than those with developed countries, for the purpose of guiding the overseas distribution of EMCs' OFDI. The first BIT with EMC was made between Malaysia and Germany in 1960 and the treaty went into force in 1963. In terms of the 321 BITs established by EMCs in 1994, only 108 treaties were between EMCs or developing countries, accounting for less than a third of the total. This ratio rose to 50% in 2008 when EMCs signed 607 treaties with the EMCs or developing countries. Secondly, EMCs perfects relevant clauses of some new or re-signed BITs to OFDI. For example, the BIT between China and Brunei in November 2000 absolutely mentioned several up-to-date standards of the national treatment for Chinese investors as well as for foreign investors. The similar provisions were also introduced in BITs with other countries during the same period, such as the Netherlands in 2001, Germany in 2003 and Finland in 2004. Apparently these are meaningful changes in EMCs' BITs strategy. It is undoubtedly these resilient and open BITs strategy that has promoted the expansion of EMCs' OFDI, particularly the one into developing countries.

Although there has been a rapid growth in OFDI and drastic BITs policy shifts by EMCs, few studies analyze whether and how BITs impact the OFDI of EMCs. There are two main reasons for this gap. First, the rapid growth of EMCs' OFDI has broken the usual pattern of international OFDI. Most research still regards developed countries as the capital-exporting countries and there is a lack of in-depth research on EMCs' OFDI. Second, although BITs are very important for the FDI of EMCs, studies focusing on EMCs usually treat BITs as an important way to attract inward FDI, ignoring the role of BITs in the OFDI of EMCs. We contribute to the literature by addressing two questions in this paper. First, we focus on the important topic of the rapid growth in EMCs' OFDI and the strategic transformation of BITs by exploring the investment determinants of EMCs' OFDI and the effect of BITs on EMCs' OFDI. Second, we use firm-level data in our analysis because macro data can mask the impact of BITs on firms by aggregating offsetting impacts across firms. We use a mixed logit model, which allows us to track and identify the investment behavior of the same enterprise in different years.

The structure of the paper is as follows. Section 2 reviews the literature on the impact of BITs on

FDI. Section 3 discusses our research method, develops our hypotheses and introduces the data that we use in our empirical analysis. Section 4 presents the results of the empirical analysis. Section 5 provides concluding remarks.

2. Literature Review

Inspired by the rapid growth of OFDI by EMCs, there are many studies of the determinants of EMCs' OFDI. Theoretical perspectives that explain the patterns of FDI and multinational enterprise (MNE) activities include mainstream economic theories (Caves, 1974), internalization theories (Buckley & Casson, 1981) and Dunning's eclectic paradigm (Dunning, 1988, 2008). The most prominent are internalization theory and the eclectic paradigm. Starting from these perspectives, the FDI and international business field literatures provide explanations for the internationalization of MNEs from developed countries (Demirbag et al., 2007). There is no single theory that is used to explain EMCs' OFDI (Buckley et al., 2007; Luo & Tung, 2007). In the past, when EMCs targeted other EMCs or developing countries, it was a more resource-oriented activity (Kumar, 1982; Lall, 1980; Wells, 1983); EMCs targeted developed countries as more strategic assets (Buckley et al., 2007; Dunning & Lundan, 2008; UNCTAD, 2006). More recently, research on FDI from EMCs focuses on governance (Kelly et al., 2014; Urata, 2015). In the analysis of individual countries, such as when analyzing the determinants of Chinese OFDI, the institutional environment is still the focus (Amighini & Sanfilippo, 2013; Buckley et al., 2007; Kolstad & Wiig, 2012; Kelly et al., 2014). As a result, enterprises pay close attention to the host country's institutional environment. In this context, the host country's institutional environment is very important and how BITs directly affect the institutional environment of the host country affects the OFDI of enterprises in EMCs.

Compared with the many studies of OFDI determinants, the literature on how BITs affect EMCs is quite limited. Although studies find a significantly relationship between BITs and FDI, but the empirical results in the literature are quietly mixed. Hallward-Driemeier (2003) empirically studies the impact of BITs on FDI by examining FDI flows from 20 member countries of the OECD to 31developing countries between 1980 and 2000, by using a fixed-effects estimator she finds that BITs do not have a significant impact on FDI. Moreover, she finds that countries with weak domestic institutions do not receive FDI as a result of BITs. Based on these findings, she argues that BITs act as more of a complement than a substitute for domestic institutions. This result suggests that contrary to theoretical expectations, BITs are complements to good institutional quality and do not perform their intended function of providing guarantees to foreign investors in the absence of good domestic institutions. Tobin and Rose-Ackerman (2011) examine FDI from OECD countries to 97 developing countries between 1984 and 2007 and find no significant impact of BITs on FDI.

In contrast to these studies, several studies find significantly positive impacts of BITs on FDI flows. Salacuse and Sullivan (2005) examine the impact of BITs on FDI inflow in two ways. One way is three cross-sectional analyses of FDI inflows to 99 developing countries in 1998, 1999, and 2000. The other

way is by analyzing the bilateral flow of FDI from the U.S. to 31 developing countries between 1991 and 2000. Both methods include fixed effects and the results show that BITs with the U.S. are associated with higher FDI inflows while the number of BITs with other OECD countries is always statistically insignificant. Neumayer and Spess (2005) find that more BITs raise FDI flows to a developing country by examining FDI flows to 119 developing countries from 1970 to 2001. They find that BITs act as a substitute rather than a complement for domestic institutions, and claim that their results are robust to changes in the model specification and estimation technique. Egger and Merlo (2007) analyze both static and dynamic effects of BITs on FDI flows using bilateral FDI stock data covering 24 home and 28 host countries between 1980 and 2001. Of the 28 countries, 22 are OECD members and 10 are transition countries in Central and Eastern Europe. They find that both short-run and long-run estimates are statistically positive and the long-run estimates are significantly larger compared to the short-run estimates using a dynamic model GMM. Using a gravity model and various model specifications, Busse et al. (2010) analyze 28 OECD countries and 83 recipient developing countries from 1978 to 2004 and find a positive impact of BITs on FDI flows. They claim that BITs can substitute for weak domestic institutions. More recently, Urata (2015) examines the FDI location choice of Japanese firms using firm-level data covering 97 countries from 1980 to 2012. He argues that Japan's free trade agreements (FTAs) have comprehensive coverage as they cover not only trade liberalization in the form of tariff eliminations or reductions but also FDI liberalization and facilitation in the form of granting foreign firms national treatment. Using a conditional logit model, he finds that FTAs with BITs positively impact Japan's OFDI.

To summarize, we have found that on the one hand, the studies of the impact of BITs on OFDI of EMCs are disappoitingly insufficient, though the OFDI of EMCs has become an important trend of OFDI; on the other hand, the existing reseaches still give priority to country-level data, which would fatally lead to BITs' real effects between different enterprises being engulfed by the analystic results of the macro data. Therefore, we make every effort to perfect the literature by following ways: first, we focus on EMCs and explore the factors that determine EMCs' OFDI; second, we use the firm-level data to carry out our analysis to solve the unclear impacts caused by the present country-level data from other researchers. We use a mixed logit model with panel data for analysis, which allows us to track the investment behavior of enterprises in different years and find out whether there are differences in their investment preferences.

3. Research Design

3.1 Dependent variable

We obtain firm-level investment information from the database of Zephyr, which is supported by Bureau van Dijk. Based on the classification system published by UNCTAD, we select 6 EMCs with high growth rates of OFDI and with available data: China, Korea, India, Indonesia, Malaysia, and Thailand. We provide the host country list in the Appendix. The dependent variable is set to 1 if firm *i*

Table 1. Trends of Emerging markets Country's Foreign Direct Investment, by Country

Country Total / Year	China	India	Malaysia	Korea	Thailand	Indonesia	Total
	1062	1305	1013	660	250	108	4398
2003	34	80	80	31	19	5	249
2004	54	64	89	54	13	3	277
2005	42	111	90	29	18	3	293
2006	60	153	57	38	10	9	327
2007	51	176	57	53	15	7	359
2008	54	198	93	54	19	17	435
2009	89	74	79	45	8	9	304
2010	70	107	100	50	24	8	359
2011	126	94	80	68	18	8	394
2012	103	67	79	73	18	11	351
2013	80	51	68	67	19	10	295
2014	101	51	83	56	27	9	327
2015	198	79	58	42	42	9	428

Source: Zephyr Database.

chooses to invest in country *j* and 0 otherwise.

Table 1 shows the investment details for each EMC between 2003[1] and 2015. From 2003 to 2008, the OFDI of EMCs increased rapidly, going from 249 to 435 in just five years. However, as a result of the American subprime mortgage crisis in 2009, OFDI dropped to 304. There was a big rebound in 2010, with the number of total cases rising to 359. The growth trend continued until 2015, when the number of investment projects reached 428. China's OFDI investment grew the fastest, from 34 in 2003 to 198 in 2015. Although the OFDI of India, Malaysia, and South Korea started early and reached 80, 80, and 31, respectively, in 2003, their OFDI was relatively stable in the latter period. The OFDI of Indonesia and Thailand maintained a steady upward trend during 2003–2015.

3.2 Explanatory variables and Hypothesis

The BITs data are from the International Centre for Settlement of Investment Disputes (ICSID). We use whether a BIT has come into force in the estimations as an explanatory variable, with the variable (BITs) equal to 1 if the BIT is in force in the given year and 0 otherwise. Because the BITs reforms in emerging economies aim to promote to OFDI, our hypothesis is that BITs encourage enterprises in EMCs to carry out OFDI in host countries.

There is a long tradition of studies analyzing the effect of the institutional environment and investment risk on FDI (e.g., Wheeler & Mody, 1992; Urata & Kawai, 2000; Globerman & Shapiro, 2002). Hence, we include the institutional environment as our main explanatory variable and analyze its effect on EMCs' OFDI and how the interaction between the institutional environment and BITs influ-

[1] On the one hand, due to the limitations of the database itself, we can only use data from 2003. On the other hand, the research object of this paper, such as OFDI of China, India mainly began in 2003. Therefore, the data from 2003 can meet the requirements of the empirical analysis of this study.

ences EMCs' OFDI decisions. We measure the institutional environment of the host country with two variables. The first is inspired by Urata (2000), we use data from World Governance Indicators (WGI) which includes six indexes (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption), and synthesize a composite index (Composite political risk) that reflects the institutional quality of the host country. The second measure we use comes from Neumayer and Spess (2005), directly use the investment profile index (Investment profile) from the International Country Risk Guide (ICRG) database as an institutional environment variable.[2] Following the literature, we hypothesize that the better the host country's institutional environment, the more enterprises from EMCs will want to invest in host country. As for the interaction term between BITs and the institutional environment, we follow Neumayer and Spess (2005) and Urata (2015) in hypothesizing that BITs and the institutional environment are substitutes.

We control for variables like the ones used by Neumayer and Spess (2005) and Urata (2015). We include the natural log of per capita GDP (Ln GDP p.c.), the log of total population size (Ln population), and the economic growth rate (Economic growth) as indicators of market size and market potential. We expect the estimated coefficients on these variables to be positive. The inflation rate (Inflation) is a proxy variable for macroeconomic stability, a high value indicates that there is a high risk of an economic crisis, and the coefficient is expected to be negative. The FDI inflow ratio (IFDI/GDP Ratio) as a percent of GDP is a proxy variable for policymakers' openness to foreign investment, and we expect the coefficient to be positive. Our control variables' data are taken from the World Bank Indicators database (WBI, 2017).

3.3 Empirical methodology

The BITs effect on OFDI location choice may differ across firms. To incorporate firm heterogeneity, we use mixed logit (also called random-parameters logit) instead of conditional logit appearing FDI location choice studies. With mixed logit using panel data, we can allow for taste variation across firms as well as for unrestricted substitution patterns across choice locations. Our mixed logit model of FDI location choice is laid out as follows.

Similar to conditional logit which used in literature, the model can be associated with choice probabilities since it is derived from a standard random utility-maximizing (or profit-maximizing) model (RUM), which is based on an assumption of utility-maximizing or profit-maximizing behavior of a decision maker. The profit that firm i obtains from choosing location j in period t (corresponding to a choice situation) is

$$\pi_{ijt}=\beta_i' x_{ijt}+\varepsilon_{ijt},$$

[2] Each index varies from 0 to 100, with 100 representing a very low risk and 0 indicating a very high risk. As mentioned, the WGI index includes many items that are not strictly speaking relevant to institutional quality such as voice and accountability and control of corruption, therefore we carry out Principal Component Analysis. For the analysis, we calculate the first principal component, which is constructed as a weighted average of the six indicators with similar weights.

x_{ijt} denote a vector of observed location-specific variables. Coefficient vector β_i (i.e., parameters representing firm-specific tastes) is unobserved for each firm i and varies over firms rather than being fixed (for conditional logit), thereby firm heterogeneity is incorporated. Just as an aside, the specification here does not permit the coefficients associated with each firm to vary over time, with the assumption that firms' tastes are stable over time.

Under the assumption of profit maximization, firm i chooses location j in period t provided that $\pi_{ijt} > \pi_{ijt} \forall l \neq j$ and $\forall t$; i.e., $\beta_i' x_{ijt} - \beta_{i\,xikt}' > \varepsilon_{ikt} - \varepsilon_{ijt}$. As usual, assume that the unobserved term ε_{ijt} is an identically and independently distributed extreme value; then if we knew the value of β_i, the choice probability would be standard logit. That is, conditional on β_i, the probability that firm i chooses location j in period t is given by

$$L_{ijt}(\beta_i) = \frac{e^{\beta_i' x_{ijt}}}{\sum_l e^{\beta_i' x_{ijt}}},$$

which is the conditional logit formula (Mufadden, 1974). If we know β_i, the probability of firm i's observed sequences of choice would be the product of logit formulas:

$$L_{ijt}(\beta_i) = \prod_t \frac{e^{\beta_i' x_{ijt}}}{\sum_l e^{\beta_i' x_{ijt}}}$$

While here we do not, however, know β_i, hence the unconditional probability is the integral of the product over all possible values of β_i weighted by the density of β_i:

$$\mathrm{P}_{ij} = \int L_{ij}(\beta_i) f(\beta_i) d\beta_i$$

where $f(\beta_i)$ has parameters representing the mean and covariance of β_i. Since the integral cannot be solved analytically, the choice probabilities are simulated by drawing values of β_i from its distribution to obtain a simulated log likelihood function (SLL). The parameters are then estimated by maximizing the SLL (Train, 2009).

4. Empirical Results

To mitigate potential reverse causality problems, we lag all explanatory variables by one period as in Neumayer and Spess (2005) and Urata (2015). We also carry out a comprehensive robustness test of the empirical results based on the mixed logit and conditional logit models and repeat the analysis using the BITs Quality Indicator as an instrumental variable for the BITs dummy variable. Table 2 reports summary statistics together with a bivariate correlation matrix. According to the VIF results, there is no multicollinearity problem involving the variables.

4.1 Benchmark result

Our benchmark results of mixed logit estimation are shown in Table 3. Column 1 reports the results on control variables are generally consistent with our predictions. Only the inflation variable is insig-

Table 2. Descriptive statistical variable information and bivariate correlation matrix

	I	II	III	IV	V	VI	VII	VIII	IX
I: OFDI Choice	1.000								
II: BITs	0.029	1.000							
III: ln GDP p.c.	0.056	0.212	1.000						
IV: ln population	0.080	0.115	−0.317	1.000					
V: Economic growth	−0.007	−0.076	−0.304	0.095	1.000				
VI: Inflation	0.010	0.051	0.167	0.010	−0.175	1.000			
VII: IFDI/GDP Ratio	−0.001	−0.069	0.002	−0.234	−0.005	0.021	1.000		
VIII: Composite political risk	0.060	0.175	0.745	−0.255	−0.271	0.068	0.054	1.000	
IX: Investment profile	0.054	0.136	0.696	−0.308	−0.232	−0.025	0.015	0.672	1.000
Obs.	461,790	461,790	457,786	461,790	459,636	438,643	435,153	457,392	409,014
Mean	0.010	0.307	8.873	16.315	4.260	93.853	4.909	47.211	8.872
Std. dev.	0.097	0.461	1.516	1.881	4.726	22.252	10.984	23.734	2.405
Min	0	0	5.602	10.393	−33.101	15.348	−58.326	1.946	1
Max	1	1	11.879	21.034	54.158	348.168	252.308	91.416	12
VIF		1.09	2.99	1.25	1.13	1.1	1.07	2.54	2.27

Table 3. Benchmark estimation results

	I		II		III		IV	
	Mean	STD.dev.	Mean	STD.dev.	Mean	STD.dev.	Mean	STD.dev.
BITs			0.237***	1.687***	1.255***	1.486***	3.154***	1.540***
			(0.052)	(0.119)	(0.119)	(0.136)	(0.196)	(0.125)
ln GDP p.c.	0.885***	0.669***	0.886***	0.660***	0.686***	0.604***	0.514***	0.509***
	(0.025)	(0.030)	(0.025)	(0.030)	(0.030)	(0.031)	(0.032)	(0.036)
ln population	0.646***	0.258***	0.635***	0.240***	0.614***	0.237***	0.602***	0.210***
	(0.011)	(0.017)	(0.012)	(0.018)	(0.012)	(0.018)	(0.012)	(0.019)
Economic growth	0.045***	0.003	0.047***	0.001	0.051***	0.002	0.065***	0.002
	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)	(0.007)	(0.005)	(0.007)
Inflation	0.001	0.000	0.000	0.000	0.001	0.001	0.004**	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
IFDI/GDP Ratio	0.011***	0.000	0.012***	0.001	0.011***	0.000	0.013***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Composite political risk					0.020***	0.006		
					(0.001)	(0.004)		
BITs*Composite political risk					−0.017***	0.008**		
					(0.002)	(0.004)		
Investment profile							0.454***	0.322***
							(0.024)	(0.024)
BITs*Investment profile							−0.284***	0.014
							(0.019)	(0.024)
Log likelihood	−16257.8		−16117.8		−15997.6		−15250	
Observations	405,587		405,587		405,587		360,552	

Notes: Standard errors are in parentheses. Random coefficients are specified to be normally distributed.
Asterisks denote significance levels: *** p<0.01, ** p<0.05, and * p<0.1.

nificant, which indicates that the OFDI of EMCs may not respond enough attention to a host country's high risk of economic crisis as investment decisions are not sensitive to inflation. In column 2, we report the test results of our hypothesis concerning BITs and OFDI, the estimated means of the BITs is consistent with our prediction that BITs are significantly positively correlated with EMCs' OFDI. The

Table 4. Robustness check with conditional logit

	I	II	III	IV
BITs		0.264***	1.202***	3.051***
		(0.032)	(0.095)	(0.176)
ln GDP p.c.	0.691***	0.691***	0.484***	0.449***
	(0.015)	(0.015)	(0.020)	(0.021)
ln population	0.625***	0.628***	0.609***	0.617***
	(0.010)	(0.010)	(0.010)	(0.010)
Economic growth	0.048***	0.050***	0.055***	0.066***
	(0.004)	(0.004)	(0.004)	(0.004)
Inflation	−0.000	−0.000	0.000	0.001
	(0.001)	(0.001)	(0.002)	(0.002)
IFDI/GDP Ratio	0.014***	0.014***	0.013***	0.015***
	(0.001)	(0.001)	(0.001)	(0.001)
Composite political risk			0.023***	
			(0.001)	
BITs*Composite political risk			−0.015***	
			(0.001)	
Investment profile				0.360***
				(0.017)
BITs*Investment profile				−0.273***
				(0.017)
Log likelihood	−16554.28	−16520.88	−16353.929	−15621.891
Observations	405,587	405,587	405,587	360,552

Notes: Standard errors are in parentheses.
Asterisks denote significance levels: *** p<0.01, ** p<0.05, and * p<0.1.

estimated standard deviation of the BITs is also significant, indicating that the influence of BITs on investment decisions differs significantly across enterprises. The estimate results of the composite political risk and investment profile in columns 3 and 4 are significant positive respectively, mean that a favorable institutional environment in the host country significantly promotes FDI from EMCs. Moreover, the estimated results of the interaction between BITs and the institutional environment variables are significantly negative, which mean that BITs have a substitution effect on the host country's institutional environment, consistent with the OFDI analysis results for developed countries of Neumayer and Spess (2005) and Urata (2015).

4.2 Robustness check

In Table 4, we report the results of a robustness test using a conditional logit model instead of a mixed logit model. Column 2 shows the result for the BITs and OFDI relationship, columns 3 and 4 report the results for the impact of the institutional environment and the interaction term on OFDI decisions. The results are all consistent with the benchmark estimation results, indicating that our estimation results are robust to different econometric models.

In Table 5, we report the results of a robustness test using the BITs Quality Indicator as the independent variable. The original BITs quality indicator comprises of 11 different indexes which constructed

Table 5. Robustness check with alternative BITs variable

	I		II		III		IV	
	Mean	STD.dev.	Mean	STD.dev.	Mean	STD.dev.	Mean	STD.dev.
BITs Index			0.131***	0.890***	0.708***	0.737***	1.737***	0.821***
			(0.029)	(0.063)	(0.071)	(0.081)	(0.112)	(0.066)
ln GDP p.c.	0.885***	0.669***	0.881***	0.654***	0.687***	0.601***	0.508***	0.482***
	(0.025)	(0.030)	(0.025)	(0.030)	(0.030)	(0.032)	(0.031)	(0.034)
ln population	0.646***	0.258***	0.634***	0.243***	0.614***	0.240***	0.603***	0.211***
	(0.011)	(0.017)	(0.012)	(0.018)	(0.012)	(0.018)	(0.012)	(0.020)
Economic growth	0.045***	0.003	0.047***	0.001	0.051***	0.002	0.065***	0.005
	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)	(0.007)	(0.005)	(0.006)
Inflation	0.001	0.000	0.000	0.000	0.001	0.001	0.004**	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
IFDI/GDP Ratio	0.011***	0.000	0.012***	0.000	0.011***	0.000	0.013***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Composite political risk					0.019***	0.006		
					(0.001)	(0.004)		
BITs Index*Composite political risk					−0.010***	0.006***		
					(0.001)	(0.002)		
Investment profile							0.445***	0.325***
							(0.024)	(0.024)
BITs Index*Investment profile							−0.156***	0.015
							(0.011)	(0.011)
Log likelihood	−16257.8		−16134.4		−16024.8		−15295.7	
Observations	405,587		405,587		405,587		360,552	

Notes: Standard errors are in parentheses. Random coefficients are specified to be normally distributed.
Asterisks denote significance levels: *** p<0.01, ** p<0.05, and * p<0.1.

by Chaisse Julien and Bellak Christian (2011),[3] we employed the mean value of the above indexes as the BITs quality indicator in this study. The higher the number, the more open the BITs. The estimation results using BITs Quality Indicators as the independent variable are consistent with the benchmark estimation results, indicating that our estimation results are robust to using different BITs variables.

4.3 Results for different host country's feature

In this part we can distinguish host countries' feature whether they are developed countries or developing countries, and analysis the impact of BITs on defining different host countries feature. In Panel A of Table 6 we report the estimation results of our parameters associated with OFDI from EMCs to developed countries. As seen in column 2, BITs are not significant, which means that EMCs' BITs system has no significant impacts on OFDI from EMCs to developed countries. In Panel B of Table 6 considering the OFDI of EMCs to developing countries, the results for BITs are significantly positive (column 2), which means that BITs actively promote OFDI by EMCs when the host country is a developing country. As mentioned, BITs established by EMCs began to positively influence developing countries at an accelerating pace after 2000, which led to more attention being paid since then to

[3] The BITs Quality Indicator is constructed by Chaisse Julien and Bellak Christian (2011) and included 11 different index, named: Definition of investment, Admission establishment, National treatment, Most favored nation clause, Fair and equitable treatment, Direct and indirect expropriation covered, free transfer of investment-related funds, Non-economic standards, Investor-State dispute mechanism, Umbrella clause, Temporal scope of application, respectively. Each index ranges from 0 to 2, with 2 representing a very open BITs and 0 indicating an insufficiently open BITs.

Table 6. Results for different host country's feature

	I		II		III		IV	
	Mean	STD.dev.	Mean	STD.dev.	Mean	STD.dev.	Mean	STD.dev.
A: Developed Countries								
BITs			0.056	1.924***	1.328**	1.872***	1.913***	1.575***
			(0.086)	(0.195)	(0.519)	(0.210)	(0.656)	(0.265)
ln GDP p.c.	1.257***	0.022	1.285***	0.03	0.923***	0.143	1.364***	0.031
	(0.084)	(0.142)	(0.092)	(0.141)	(0.123)	(0.184)	(0.097)	(0.125)
ln population	0.814***	0.179***	0.833***	0.175***	0.891***	0.194***	0.833***	0.176***
	(0.018)	(0.037)	(0.022)	(0.044)	(0.028)	(0.053)	(0.023)	(0.045)
Economic growth	0.082***	0.134***	0.088***	0.129***	0.066***	0.165***	0.098***	0.106**
	(0.017)	(0.029)	(0.018)	(0.035)	(0.018)	(0.032)	(0.018)	(0.043)
Inflation	−0.035***	0.022	−0.033***	0.013	−0.038***	0.033**	−0.033***	0.032**
	(0.007)	(0.024)	(0.008)	(0.044)	(0.008)	(0.015)	(0.008)	(0.015)
IFDI/GDP Ratio	0.008***	0.002	0.008***	0.002	0.008***	0.002	0.006*	0.005
	(0.003)	(0.005)	(0.003)	(0.004)	(0.002)	(0.004)	(0.004)	(0.004)
Composite political risk					0.050***	0.030***		
					(0.008)	(0.006)		
BITs*Composite political risk					−0.017***	0.005		
					(0.007)	(0.005)		
Investment profile							0.056	0.156**
							(0.051)	(0.068)
BITs*Investment profile							−0.165***	0.100***
							(0.058)	(0.027)
Log likelihood	−5623.499		−5556.11		−5507.315		−5547.551	
Observations	55,978		55,978		55,978		55,978	
B: Developing Countries								
BITs			0.746***	1.649***	2.273***	1.502***	3.255***	1.641***
			(0.077)	(0.204)	(0.208)	(0.209)	(0.257)	(0.179)
ln GDP p.c.	0.880***	0.792***	0.833***	0.738***	0.673***	0.713***	0.527***	0.552***
	(0.035)	(0.047)	(0.037)	(0.048)	(0.036)	(0.058)	(0.039)	(0.065)
ln population	0.719***	0.221***	0.656***	0.179***	0.664***	0.172***	0.735***	0.086**
	(0.017)	(0.023)	(0.017)	(0.030)	(0.018)	(0.029)	(0.018)	(0.034)
Economic growth	0.019***	0.000	0.020***	0.002	0.013**	0.003	0.035***	0.006
	(0.005)	(0.006)	(0.005)	(0.007)	(0.005)	(0.008)	(0.006)	(0.009)
Inflation	0.005***	0.000	0.006***	0.000	0.009***	0.001	0.011***	0.001
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
IFDI/GDP Ratio	0.077***	0.001	0.081***	0.001	0.077***	0.002	0.074***	0.001
	(0.003)	(0.005)	(0.003)	(0.005)	(0.003)	(0.005)	(0.004)	(0.005)
Composite political risk					0.025***	0.009		
					(0.002)	(0.008)		
BITs*Composite political risk					−0.035***	0.027***		
					(0.005)	(0.006)		
Investment profile							0.471***	0.406***
							(0.028)	(0.033)
BITs*Investment profile							−0.281***	0.015
							(0.028)	(0.024)
Log likelihood	−7302.013		−7142.18		−7019.096		−6355.594	
Observations	146,018		146,018		146,018		122,258	

Notes: Standard errors are in parentheses.
Asterisks denote significance levels: *** p<0.01, ** p<0.05, and * p<0.1.

the promotion effect of BITs on OFDI. Therefore, our results, in response to EMCs' BITs strategy adjustments, confirm the effect of EMCs' BITs reform. However, our results also indicate that the existing BITs system has little effect on EMCs' OFDI in developed countries. Therefore, EMCs needs

to establish a more open and flexible BITs system that is conducive to OFDI to developed countries to meet the its rapid growth.

5. Concluding Remarks

FDI is of great importance to one's home country as well as the host country (Neumayer & Spess, 2005; Urata, 2015). With the rapid growth of OFDI of EMCs, EMCs is widening its fields in participating the world economy via OFDI. Under such circumstances, it seems more important to deeply study OFDI of EMCs. Howerver, the existing researches are relatively limited, especially the lack of detailed affecting factors of OFDI of EMCs. In view of above, this paper analyzed the impacts of EMCs' BITs on foreign direct investment of EMCs' firms by examining the data covering 105 countries during the 2003–2015 period. The main empirical results are as follows. First, as an important factor affecting FDI, BITs significantly promote the OFDI of EMCs and this estimation result is robust in using different BITs variables and different econometric models. Second, existing BITs of EMCs have a significant substitution effect on the institutional environment of host countries, which is consistent with literatures of developed countries. Third, the impact of BITs on OFDI is different from host countries' feature, our estimation results show that BITs significantly promote EMCs' OFDI to developing countries, which barely influences a developed country.

The empirical results of this paper supported EMCs'active and open BITs strategic adjustments played a significant role in promoting OFDI, especially the EMCs'OFDI to developing countries. Therefore, in terms of policies suggestions, EMCs need to make further efforts to perfect BITS with developed countries, so as to meet to rapid growth of OFDI as well as its reasonable global distribution. At last, although we analyze the determinants of OFDI by EMCs and examine how BITs affect EMCs' OFDI, there is still issues for further study. With the deepening of EMCs' reform of BITs, more attention is being paid to the effect of BIT heterogeneity on OFDI, though we do not distinguish heterogeneity between different BITs in this paper. In addition, the differentiation of enterprises' heterogeneity could bring variant effects on BITs' locational choice to OFDI. Therefore, it needs further study in considering the impact of BITs heterogeneity and investing firm heterogeneity on OFDI locational choice.

Appendix

Table A-1. List of the destination (105 Countries)

Angola	Colombia	India	Maldives	Russian
UAE	Cyprus	Ireland	Mexico	Saudi Arabia
Argentina	Czech Republic	Iran	Myanmar	Senegal
Australia	Germany	Iraq	Mongolia	Singapore
Austria	Denmark	Israel	Mozambique	Solomon Islands
Belgium	Dominican	Italy	Mauritius	Sweden
Bangladesh	Algeria	Jamaica	Namibia	Swaziland
Bahrain	Ecuador	Jordan	Niger	Thailand
Bahamas	Egypt	Japan	Nigeria	Trinidad and Tobago
Belize	Spain	Kazakhstan	Netherlands	Turkey
Bolivia	Finland	Kenya	Norway	Tanzania
Brazil	Fiji	Cambodia	New Zealand	Uganda
Barbados	France	Korea	Oman	Ukraine
Brunei	Gabon	Kuwait	Pakistan	Uruguay
Bhutan	United Kingdom	Lebanon	Panama	United States
Canada	Ghana	Liberia	Peru	Uzbekistan
Switzerland	Greece	Sri Lanka	Philippines	Venezuela
Chile	Guatemala	Luxembourg	Papua New Guinea	Vietnam
China	Honduras	Macao	Poland	South Africa
Cote d'Ivoire	Hungary	Monaco	Qatar	Zambia
Cameroon	Indonesia	Madagascar	Romania	Zimbabwe

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