Determinants of Chinese Outward FDI in ASEAN

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Abstract

The objective of this paper is to examine the determinants of Chinese outward FDI in ASEAN. The data of Chinese bilateral FDI to ASEAN countries during 2003-2015 are used to test whether the host countries with rich natural resources and weak institutional environment can still attract Chinese FDI or market seeking is the motivation for Chinese FDI in ASEAN. A panel data of 10 ASEAN countries is constructed and the fixed effect model is used to test the hypothesis. The results show that determinants of Chinese outward FDI in ASEAN share some common with the motivation of Chinese investment abroad in the global market. However, some specific characteristics of determinants are summarized in this paper. First, market size is still the major factor that Chinese investors concerns, both in global market and the specific case of ASEAN. Second, the roles of natural resources and institutional environment may vary though times because of the dynamic of Chinese outward FDI pattern and the capability of the host countries. Third, Chinese outward FDI prefers to go to ASEAN countries with lower level of trade openness and with weaker currency.

Keywords: Outward FDI, Determinant, Developing Countries, China, ASEAN

JEL Classification Codes: F21, F23, O53

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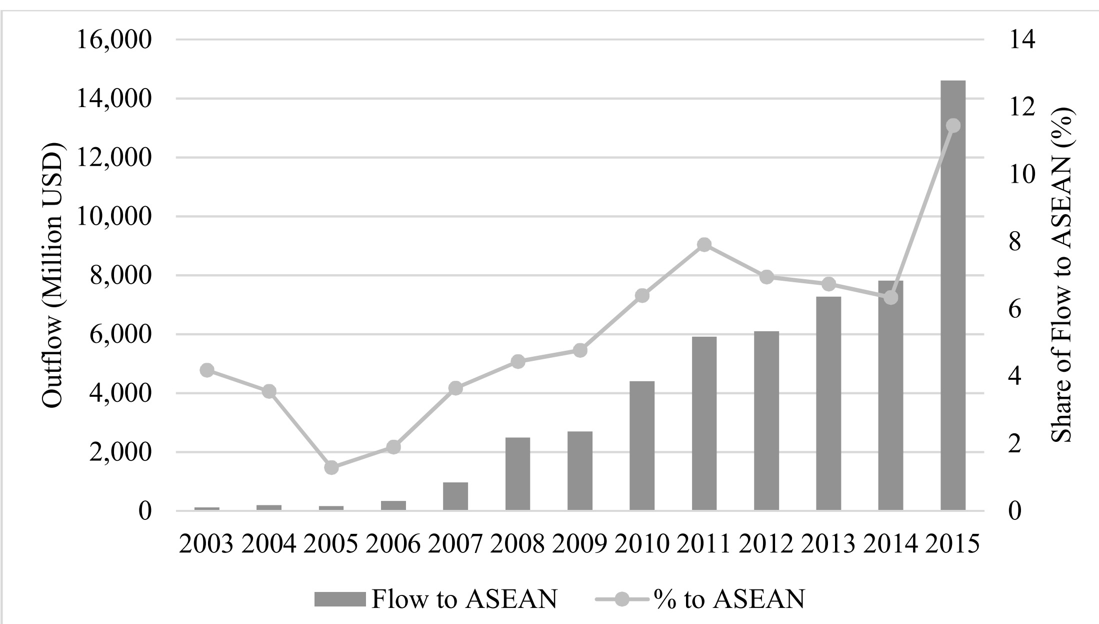
1. Introduction

During the past decade, Chinese outward FDI has increased substantially and China has become the second global largest investor with the outward FDI of USD127.56 billion in 2015 (UNCTAD, 2016). The main motivation behind Chinese outflows is the "Going Out" strategy which promotes outward FDI as a part of economic development strategy and as a way to improve competitiveness and the relaxation of the outward FDI regulation (Cheng and Stough, 2008).

China's FDI outflow to the Association of Southeast Asian Nations (ASEAN) has increases from USD119.32 million in 2003 to USD14,604.31 million in 2015. The acceleration of Chinese flow into ASEAN occurs after the global financial crisis in 2008, with the support from the investment agreement between ASEAN and China under ASEAN-China free trade agreement (ACFTA) in 2009. Even though ASEAN has received the increasing and consistent flow from China, it only accounts for 6.52 percent of Chinese outward FDI during 2009-2014. ASEAN has attracted more attention from Chinese investors in 2015, with an increase of 11.45 percent in Chinese FDI.

ASEAN has high potential to become a major destination for Chinese FDI for many reasons. First, ASEAN is expected to remain strong in current situation and the next step of ASEAN's economic integration to achieve AEC 2025 will boost the economic growth in this region. Second, the ACFTA has enhanced stronger and closer economic relation between ASEAN and China (Xinhua, 2015; Li et al. 2016). Third, the connection of ASEAN and China through the One Belt One Road (OBOR) Initiative and the establishment of the Asian Infrastructure Investment Bank (AIIB) also supports the Chinese investment in ASEAN.

Figure 1: Chinese Outward FDI in ASEAN



Source: Ministry of Foreign (MOFCOM)

Given the potential of ASEAN to be one of the major destinations for Chinese FDI, the question of what determine Chinese FDI in ASEAN should be addressed in order to understand the motivation of Chinese investors and for ASEAN, as the investment destination, to prepare for those economic transactions.

In the early stage of Chinese investment abroad, state-owned enterprises (SOEs) are the main force of outward FDI and the aim of investing abroad is to seek for natural resources to supply raw materials for Chinese production (Kolstad and Wiig, 2002; Cheung and Quan, 2008; Anh et al., 2016; Liu et al., 2017). The host countries with weak institutional environment also attract more Chinese FDI (Kolstad and Wiig, 2002; Amighini et al., 2011). Recently, Chinese private investors have also participated in outward FDI with the aim to tap new markets and acquire new technology. Chinese investments in ASEAN are mainly in textiles and garments, automobile parts and components, electronics, extractive and agriculture industries, and infrastructure (ASEAN Secretariat, 2014).

Thus, the purpose of this paper is to examine the determinants of Chinese outward FDI in ASEAN. The data of Chinese bilateral FDI to ASEAN countries during 2003-2015 are used to test whether the host countries with rich natural resources and weak institutional environment can still attract Chinese FDI or market seeking is the motivation for Chinese FDI in ASEAN.

The organization of this paper is as follows: the second section presents a brief literature review on the determinants of outward FDI from developing countries, especially from China. The third section provides the methodology and data. The fourth section presents the empirical results, followed by the conclusion in the last section.

2. Literature Review

The literatures on determinants of FDI are mainly based on Dunning's eclectic model, explaining that multinational enterprises (MNEs) invest abroad because of four motivations of FDI which are market seeking, efficiency seeking, resource seeking and strategic asset seeking (Dunning, 1977, 1993). Some literatures also include push and pull factors of FDI as the determinants of investing abroad. Push factors representing the cyclical and structural conditions of the home countries while the economic, social and political conditions of the host countries are included in the pull factors.

Empirical evidences of Chinese outward FDI have increased recently as China has become the major global investor. Buckley et al. (2007) examines the determinants of Chinese outward FDI to 49 countries during 1984-2001. They find that Chinese FDI are attracted to host countries with high political risk and familiarity between populations is important in the Chinese FDI flow. The host market size and geographic proximity are significant only during 1984-1991 while the natural resource is significant during 1992-2001. In Kolstad and Wiig's study (2012), they investigate the roles of institution, and natural resources in attracting Chinese FDI during 2003-2006 and find that they have an interactive effect on Chinese FDI. For the host countries with the worse institutional environment, China tends to invest more in countries with natural resources.

The role of institution and natural resources is re-examined in Anh et al. (2016) by using Chinese outward FDI data during 2003-2014. They conclude that host countries with both weak and strong institutions with rich natural resources can attract more FDI from China. Chinese investors also seek for market in the host countries, the larger the market size, the more Chinese FDI. ACFTA and cultural proximity also have a significant positive effect on Chinese FDI.

Exchange rate also plays important role in China's outward FDI. Liu et al. (2016) examine the relationship between exchange rate and Chinese outward FDI by and using the panel data of 34 developing countries in Asia during 2003-2013 and the System GMM model. Results show that both exchange rate level and volatility have significant positive relationship with Chinese FDI outflow. Recent study by Liu et al. (2017) investigates the determinants of Chinese outward FDI in countries along One Belt One Road during the period 2003-2015. They find that Chinese FDI in OBOR countries are highly sensitive to exchange rate level, market potential and openness. Host country's infrastructure facility also has a significant positive effect on FDI from China.

3. Methodology and Data

To examine the determinants of Chinese outward FDI in ASEAN, this paper follows the theoretical framework of Dunning's motivation of FDI and pull factors. According to Buckley et al. (2007), Kolstad and Wiig (2012) and Anh et al. (2016), a proposed model is as follow

$$OFDI_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 NAT_{it} + \beta_3 INS_{it} + \beta_4 OPEN_{it} + \beta_5 INF_{it} + \beta_6 ER_{it} + \beta_7 IFDI_{it} + \varepsilon_{it} \quad (1)$$

The basic model of this paper is in equation (1) where the dependent variable is the outward FDI flow from China into a host "country i" and at "time t" in range of 2003 to 2015 for ASEAN countries. The main independent variables related to Chinese outward FDI to ASEAN are market size (GDP), natural resources (NAT) and institution (INS). The details are as follow:

- Host country GDP (GDP) and Host country GDP per capita (GDP_PC) are used to measure the potential market size of the host country. According to the market-seeking motive, host country with larger market size tends to attract more FDI flow. The market size is generally recognized as a significant determinant of FDI flow. It represents the growth in demand from host country which usually induces market-oriented, horizontal FDI (Buckley et al., 2007; Kolstad and Wiig, 2012). Previous literatures mention that China invests in ASEAN because they want to access to seek for market, especially after the progress in AEC 2015. The positive relationship between the market size and the Chinese outward FDI is expected.

- Natural resource abundance in the host country is measured by the total natural resources rents (NAT) which is a sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents, calculated as % of GDP. The existing literatures show that Chinese outward FDI tends to be resource motivated. Chinese government uses the outward FDI to seek for natural resources in order to supply them to the fast growing demand in Chinese economy (Buckley et al., 2007; Liu et al., 2016). This paper want to examine whether Chinese outward FDI in ASEAN is still motivated by the natural resources.

- Institutional environment is also the important determinant of outward FDI. When firms decide to invest abroad, they will consider the institutional conditions of the host countries. Host countries with better institution will have lower risk and costs of doing business and higher productivity. Thus, the host countries with strong institution tend to attract more FDI. However, Chinese investors may response differently from other host countries. Chinese outward FDI may be attracted by the weak institution because they are predominated by the SOEs and decisions are based on political objectives. Moreover, Chinese companies can have competitive advantages in host countries with weak institution given the unique institutional environment of China (Buckley et al., 2007; Kolstad and Wiig, 2012). This paper uses two indicators from the Worldwide Governance Indicator (WGI) from World Bank as the proxy for institutional environment: political stability and absence of violence indicator (INS_1) and rule of law indicator (INS_2) to test whether Chinese outward FDI is attracted to ASEAN countries with weak institution.

For control variables of this model, the macroeconomic variables related to international investment, trade openness of host country, host country's inflation, exchange rate and inward FDI stock are used.

- Openness (OPEN) of the host country is measured by the sum of exports and imports of goods and services to the rest of the world as a share of GDP. Trade openness stands for economic and trade links between the host countries and the world market. This variable represents the capacity of host country's economic integration to the rest of the world (Anh et al., 2016). This paper examine the Chinese investment in ASEAN has significant positive relationship with capacity to integrate to the world market.

- Inflation (INF) is measured by the growth rate of GDP deflator. The host countries with high inflation may signal the uncertainty and high economic instability. This will make it difficult for the investor from abroad to make a long-term investment plan. In addition, high inflation rate may result in domestic currency devaluation and reduce the value of their domestic currency sales (Buckley et al., 2007).

- Exchange rate (ER) is defined as the host currency unit per Chinese yuan. The depreciation of the host country currency may increase profitable opportunities for China because Chinese investors can invest in host countries with cheaper costs. Thus, the weaker host country currency can encourage more Chinese outward FDI (Buckley et al., 2007). The alternative expected sign is that the weak host country currency may result in more FDI flow from the homes country. This can be explained by the fact that in that situation, Chinese yuan appreciates and this reduce the trade competitiveness of China. Thus, they may decide to maintain their competitiveness by investing abroad instead.

- Inward FDI Stock (IFDI) is measured from the total stock of inward FDI to the host country. This variable is also known as the clustering effect. FDI tends to go to countries which have experiences in international production. The inward FDI stock is a summary of the success host countries. New FDI has tendency to follow the existing FDI because those host countries have good or sufficient infrastructure development. Then ASEAN countries with higher inward FDI stock tend to attract more FDI from China.

Table 1: Variables, Measurement and Data Sources, Expected Sign and Data Source.

Variable	Measurement	Expected sign	Data source
Dependent variable			
OFDI	Annual Chinese FDI outflow (Million USD)		MOFCOM
Independent variables			
GDP	Host country GDP (USD)	+	World Development Indicator (WDI) from World Bank
GDP_PC	Host country GDP per capita (USD)	+	World Development Indicator (WDI) from World Bank
NAT	Total natural resources rents (sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents) (% of GDP)	+	World Development Indicator (WDI) from World Bank
INS_1	Political Stability and Absence of Violence Indicator, range 0-5 where the higher is the better institution	- /+	Worldwide Governance Indicator (WGI) from World Bank
INS_2	Rule of Law Indicator, range 0-5 where the higher is the better institution	- /+	Worldwide Governance Indicator (WGI) from World Bank
OPEN	Openness (sum of exports and imports of goods and services to the rest of the world/ GDP) (% of GDP)	+	World Development Indicator (WDI) from World Bank
INF	Inflation (GDP deflator) (annual %)	-	World Development Indicator (WDI) from World Bank
ER	Exchange Rate (Host country currency unit per CNY, period average)	- /+	World Development Indicator (WDI) from World Bank
IFDI	Inward FDI Stock (Million USD)	+	UNCTAD

This paper uses two methods to estimate the panel data model including fixed effect and random effect models to capture the nature of determinants of FDI flow. Hausman test is used to choose between fixed effect and random effect.[1]

[1] This paper also concerns on endogeneity problem since there are macroeconomic factors in this model. A Hausman test is used to test for endogeneity and the result rejects the null hypothesis that the regressor is exogenous. However, the instrumental variable estimation strategy may not be better than the biased OLS since there are small samples. Thus this paper continues using the fixed effect and random effect.

Robustness check is done by adding GDP per capita to the baseline model and using the lagged of GDP, instead of current GDP. Moreover, instead of the political stability and absence of violence indicator, the alternative institutional variable: rule of law indicator is used in the model.

4. Empirical Results

The main results from regressing the annual Chinese outward FDI flows on the explanatory variables during 2003-2015 are in Table 2. Model 1 is a baseline equation to test whether the Chinese FDI is attracted by host country with rich natural resources and weak institution for the specific case of ASEAN. Another hypothesis is that Chinese investors decide to focus more onto accessing and expanding market in ASEAN.

Table 2: Estimation Results

Dependent Variable: FDI Outflow

	Model					
	(1)	(2)	(3)	(4)	(5)	(6)
	FE	FE	FE	FE	FE	FE
GDP	1.298*** (0.476)	11.327*** (3.221)		1.565*** (0.449)	11.984*** (3.161)	
GDP_PC		-10.324*** (3.282)			-10.790*** (3.243)	
GDP (-1)			1.711*** (0.496)			1.917*** (0.465)
NAT	0.172 (0.296)	-0.054 (0.291)	0.159 (0.287)	0.114 (0.297)	-0.115 (0.290)	0.120 (0.287)
INS_1	-0.462 (0.466)	-0.269 (0.450)	-0.369 (0.453)			
INS_2				-1.255 (1.480)	-1.519 (1.409)_	-1.056 (1.430)
OPEN	-1.638** (0.621)	-1.142* (0.614)	-1.482** (0.611)	-1.526** (0.614)	-1.047* (0.601)	-1.396** (0.603)
INF	0.039 (0.117)	0.111 (0.114)	0.133 (0.117)	0.032 (0.116)	0.118 (0.114)	0.139 (0.118)
ER	1.554** (0.646)	1.102* (0.635)	1.316** (0.642)	1.480** (0.640)	1.059* (0.621)	1.258* (0.635)
IFDI	0.379 (0.386)	-0.140 (0.404)	0.096 (0.394)	0.185 (0.324)	-0.262 (0.336)	-0.053 (0.336)
Constant	-29.548*** (8.896)	-195.101*** (53.319)	-36.837*** (9.177)	-33.857*** (8.644)	-205.975*** (52.382)	-40.098*** (8.842)
Number of observations	112	112	112	112	112	112
Number of groups	10	10	10	10	10	10
Hausman test	45.97***	35.82***	47.85***	55.41***	40.15***	57.71***

Note: Figures in the parenthesis is represent standard errors: *** p<0.01, ** p<0.05, * p<0.10.

For estimation method, this paper uses a Hausman test to examine whether the fixed effect (FE) or the random effect (RE) should be used. In all model, the F value is large enough to reject the null hypothesis of preferring RE. Thus, FE is used in this analysis.

In first model, the result shows that only one main variable (GDP) and two control variables (trade openness and exchange rate) are significant. From this case of ASAN countries, the coefficient on the market size is positively significant. Thus result is consistent with the results of determinants of Chinese outward FDI in general (Buckley et al., 2007; Kolstad and Wiig, 2012).

For natural resources and institutional factors, this study cannot find evidence to support that China seeks for ASEAN country with rich natural resource and weak institution as mentioned in Buckley et al. (2007) and Kolstad and Wiig (2016). However, some studies recently find that country with good institution can also attract Chinese FDI (Anh et al., 2016) or the Chinese FDI is indifferent with institutional environment. These mixed results may happen because of the dynamic of motive and level of generalization of the host country. From this model, we can conclude that natural resources and institution are not the significant determinant of Chinese FDI in ASEAN, whereas, the market size remain the very important and significant factor.

The results of the control variables in model 1 show that Chinese investors prefer to invest in ASEAN countries with relatively low level of trade openness. This is opposite to the expected sign mentioned above. However, many of Chinese FDI decisions are influenced by government policy, thus this can happen. Another determinant is the exchange rate where Chinese investors tend to invest more in ASEAN countries with weaker exchange rate, or stronger yuan. Under that situation, they may not be competitive through the international trade but FDI outflow gives them opportunity to have more profit from investing with low cost. This finding is in line with the result from Liu et al. (2016) which find that yuan appreciation stimulate Chinese investment in OBOR countries.

According to all the significant variables in model 1, this study finds that Chinese investors are seeking to invest in ASEAN countries with large market size, lower level of trade openness and depreciated domestic currency.

When do the robustness check by adding the GDP per capita or replacing GDP with the lagged term, the results are robust with additional information that the coefficient of GDP per capita is significantly negative. This implies that Chinese investors tend to invest in ASEAN host country with lower income per person which also represents country level of development too. The control variables' results are in the same direction with the baseline model.

Additional robustness check is done by applying the alternative institution factor. Like when using political stability and absence of violence, the model with rule of law indicator (Model 4-6) shows the same pattern of significance.

In sum, determinants of Chinese outward FDI in ASEAN share some common with the motivation of Chinese investment abroad in the global market. However, some specific characteristics of determinants are summarized in this paper. First, market size is still the major factor that Chinese investors concerns, both in global market and the specific case of ASEAN. Second, the roles of natural resources and institutional environment may vary though times because of the dynamic of Chinese outward FDI pattern and the capability of the host countries. Third, Chinese outward FDI prefers to go to ASEAN countries with lower level of trade openness and with weaker currency.

5. Conclusion

China has become a largest investor from the developing world recently. Even though Chinese FDI to ASEA has increased rapidly and increasing, ASEAN only receives a small share of total Chinese outward FDI. Given the closer and deeper economic integration through ACFTA, the new institution (AIIB) and new initiative (OBOR), and the closer integration of ASEAN under AEC 2025, ASEAN has high potential to become the major destination for Chinese FDI in the near future. Thus, the objective of this paper is to examine the determinants of Chinese outward FDI in ASEAN. The data of Chinese bilateral FDI to ASEAN countries during 2003-2015 are used to test whether the host countries with rich natural resources and weak institutional environment can still attract Chinese FDI or market seeking is the motivation for Chinese FDI in ASEAN. A panel data of 10 ASEAN countries is constructed and the fixed effect model is used to test the hypothesis.

The results show that determinants of Chinese outward FDI in ASEAN share some common with the motivation of Chinese investment abroad in the global market. However, some specific characteristics of determinants are summarized in this paper. First, market size is still the major factor that Chinese investors concerns, both in global market and the specific case of ASEAN. Second, the roles of natural resources and institutional environment may vary though times because of the dynamic of Chinese outward FDI pattern and the capability of the host countries. Third, Chinese outward FDI prefers to go to ASEAN countries with lower level of trade openness and with weaker currency.

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