

The effect of outward FDI of China on the export of China to
ASEAN Countries



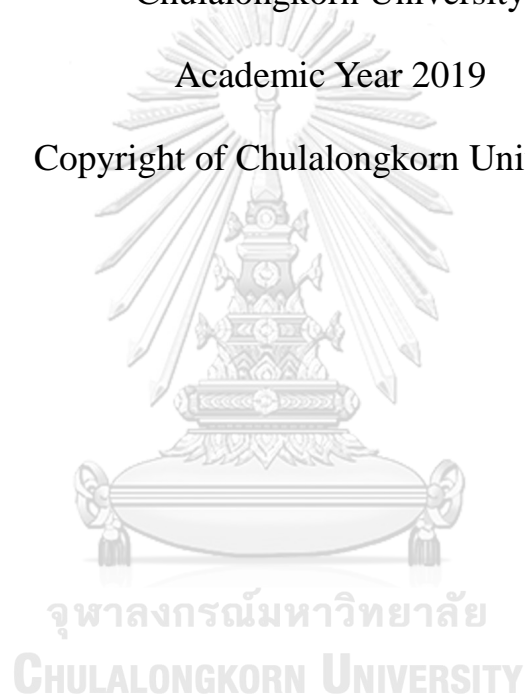
An Independent Study Submitted in Partial Fulfillment of the
Requirements
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ผลกระทบของการลงทุนโดยตรงจากต่างประเทศของจีนในการส่งออกของอาเซียน



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เจียง ลี่ : ผลกระทบของการลงทุนโดยตรงจากต่างประเทศของจีนในการส่งออกของ
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ด้วยคำแนะนำของนโยบาย "One Belt One Road" ของจีนและการพัฒนา
เขตการค้าเสรีจีน - อาเซียนทำให้การค้าและการลงทุนระหว่างจีนและอาเซียนมีมาก
ขึ้น บทความนี้เริ่มต้นจากสองขั้นตอนเพื่อวิเคราะห์ปัจจัยของการลงทุนโดยตรงจากต่างประเทศ
ของจีนสู่อาเซียนและผลกระทบของการส่งออกของจีนไปยังอาเซียนจากข้อมูลแผงจากปี
2005 ถึงปี 2018 เป็นผลให้แรงจูงใจของจีนต่อการลงทุนโดยตรงจากอาเซียนไปยังอาเซียน
มีแนวโน้มที่จะแสวงหาขนาดของตลาดมากขึ้นและจีนมีแนวโน้มที่จะลงทุนในประเทศอาเซียน
ที่มีความมั่นคงทางการเมืองและการเปิดเสรีการลงทุนโดยตรงจากต่างประเทศใน
ระดับสูง นอกจากนี้การศึกษานี้ให้การสนับสนุนสำหรับมุมมองของผลประกอบการของการ
ลงทุนโดยตรงจากต่างประเทศในการส่งออก

สาขาวิชา เศรษฐศาสตร์และการเงิน

ลายมือชื่อ

ระหว่างประเทศ

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With the guidance of the Chinese "One Belt One Road"
policy and the development of China-ASEAN Free Trade
Area, trade and investment between China and ASEAN have
become more frequent. Based on the panel data from 2005 to
2018, this paper starts from two steps to empirically analyze
the determinants of Chinese outward Foreign Direct
Investment to ASEAN and its impacts on the export of China
to ASEAN. As a result, China's motives for FDI to ASEAN
are more inclined to seek market size, and China tends to
invest in ASEAN countries with political stability and a high
degree of FDI openness. In addition, this study provides
support for the viewpoint of the complementary effect of
foreign direct investment on exports.

Field of International Students

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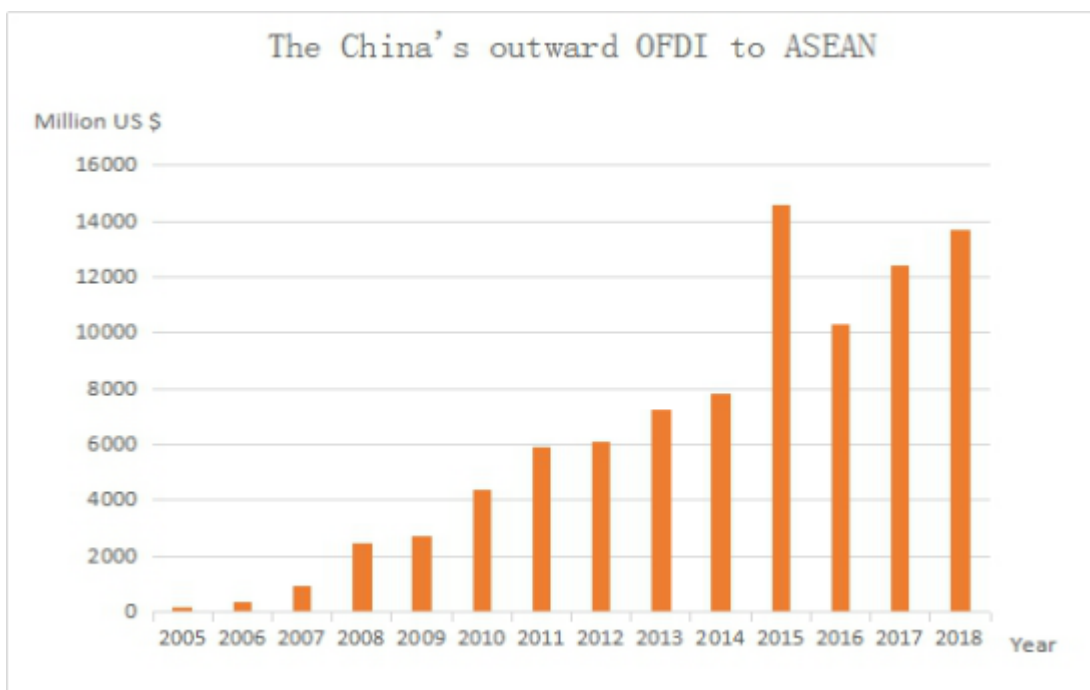


1. Introduction

With the development of economic globalization and the guidance of Chinese "One Belt One Road" policy attention from the international community, China has shown that Chinese international trade and foreign direct investment (FDI) have continued to grow. In 2018, the total of Chinese international trade amounted to 4623.04 billion US dollars, ranking the first in the world for many years (IMF, 2019). As well as that, China has shown a more open attitude and actively participated in international economic activities, while FDI is an important means to broaden international trade channels and optimize foreign trade structure (Stevens, 1974).

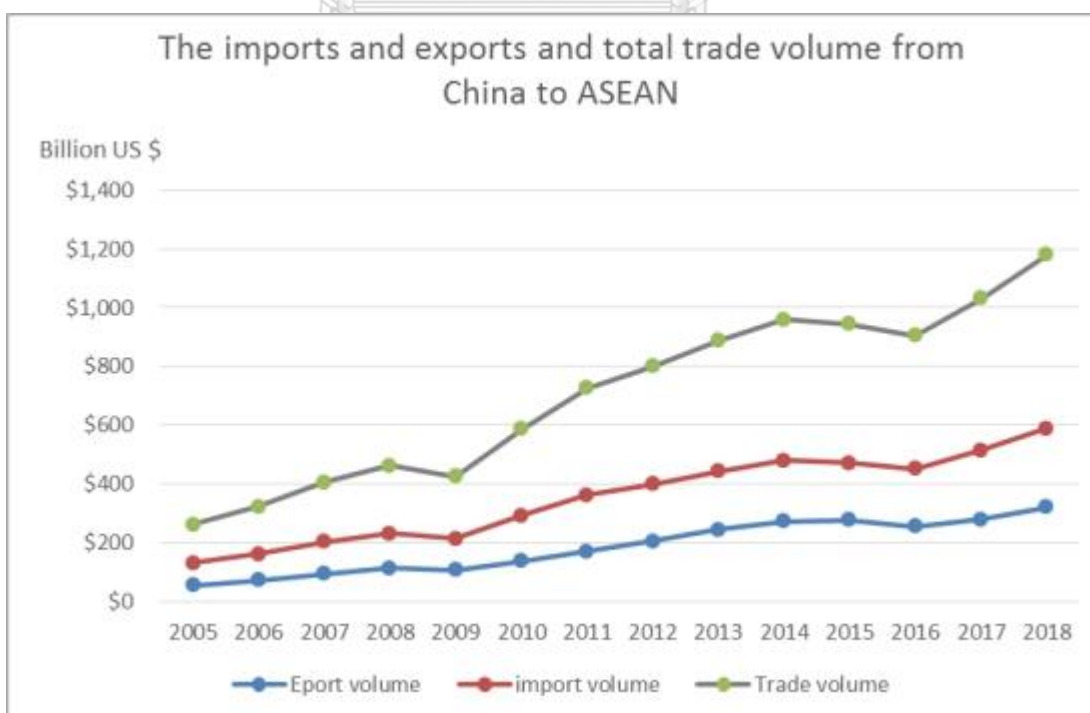
As the third largest regional economy in the world, ASEAN is the second largest trading partner of China and one of Chinese main destinations for FDI. Strengthening economic and trade ties between China and ASEAN has become an inevitable choice for the future development of both sides. In early 2010, the official establishment of the China-ASEAN Free Trade Area created a new situation in bilateral economic and trade. With the development of free trade zone, the scale of bilateral trade has expanded significantly. The scale of two-way investment has continued to grow, and results in tremendous economic and trade cooperation. Figure 1 and 2 show China's level of trade and investment with ASEAN from 2005 to 2018.

The figure 1: The outward FDI flows of China to ASEAN countries



Resource: China Foreign Investment Announcement

The figure 2: The imports and exports and total trade volume from China to ASEAN countries



Resource: UN Comtrade Database

In 2005, the total trade volume between China and ASEAN was 130.361 billion US dollars. In 2018, the bilateral trade volume increased to 589.748 billion US dollars, which is 4.5 times that of 2005, with an average annual growth rate of 14.4% (IMF, 2019). China and ASEAN have become each other's major trading partners. In terms of investment, the scale of China's OFDI to ASEAN was 157.71 million US dollars in 2005, increased to 13,693.52 billion US dollars in 2018, with an average annual growth rate of 59.33%. At present, ASEAN ranks the second in the main destinations of China's foreign investment (China Foreign Investment Announcement, 2019).

It can be seen that China's trade and foreign direct investment to ASEAN countries are growing, and it seems to be a causal relationship between foreign direct investment and export. The motivation of this study is to analyze the determinants of Chinese OFDI to ASEAN and discuss its impacts on export to ASEAN.

According to the existing theory, Mundell (1957) and Vernon (1966) think that FDI will replace trade, while Kojima (1978) believes that FDI will promote trade. And Markuson and Svenson (1985) consider that the two effects will exist simultaneously.

The essential reason for these different results is that investment motives are different. Therefore, the different motives of China's OFDI to ASEAN will have different effects on trade. In the existing research, many scholars use the eclectic paradigm (Dunning, 1979) to analyze export as the influencing factor of FDI.

The chapters of this study are arranged as follows: the second section is literature review, which describes the theoretical reference of this study. The third section is the

conceptual framework, which explains each variable of this study. The fourth section illustrates two models to empirically analyze the determinants of Chinese OFDI and its impacts on export to ASEAN. The fifth section is the results of regression analysis, while the last section is the conclusion.

2. Literature Review

For a long time, the analysis of the relationship between international foreign direct investment and international trade has been an important issue for many researchers. They believe that under different research backgrounds, there are mainly substitution, complementary or ambiguous relationship between FDI and international trade. At the same time, the theoretical basis of the determinants of FDI mainly comes from the eclectic paradigm proposed by Dunning (1979).

2.1. OFDI's substitution effect on international trade

The earliest research was from (Mundell, 1957), who established the "2 * 2 * 2" model based on the Heckscher–Ohlin Theory. He believed that FDI will completely replace export trade on the basis of relatively low factor conversion costs. Then, Vernon (1966) put forward the product life cycle theory, which divided the product life cycle into an introduction stage, a mature stage and a standardization stage. In the standardization stage, The home country chose to transfer production to the host country with abundant labor resources, which led to the substitution of OFDI in the

home country for its exports. Mundell and Vernon provided theoretical support for the substitution view.

In terms of empirical analysis, many scholars also support their views (Lipsey, 1981; Belderbos and Sleuwaegen, 1998; Helpman, Melitz and Yeaple, 2004; Ghironi and Melitz, 2005). In more study by Oberhofer and Pfaffermayr (2012), which was based on the data of large European companies (AMADEUS) had shown that there is an alternative relationship between export and FDI at the enterprise level. In the same year, Goh (2012) and other scholars used the gravity panel model on Malaysia's FDI and export trade to 59 countries from 1991 to 2009. They empirically found the substitution relationship between Malaysia's OFDI and export trade. Similarly, Bojnec and Ferto (2014) found that FDI reduced commodity exports of OECD countries.

2.2. The complementary effect of OFDI on exports

In the theory of marginal industrial expansion, Kojima (1978) pointed out that foreign direct investment and international trade should complement each other. Because when the home country makes FDI in sectors with relative disadvantages, it will widen the comparative cost gap between the home country and the host country, which will promote the trade between the two countries. Petri (1994); Helpman and Krugman (1985); Markusen (1995) supplemented this theory.

In empirical research, Clausing (2000); Bajo and Montero (2001); Marchant and Cornell (2002); Jung and Chung (2006); Koi and Soo (2013) used macro data, while

Mariam and Cecilio (2004); Head and Ries (2010) used micro data for analysis. Both macro and micro data provided the support for the supplementary effect of foreign direct investment on export trade.

In recent years, for example, Ahmad and Draz (2016) used the method of linear regression, unit root test and correlation test to study the impact of OFDI of some ASEAN countries on their home country exports from 1981 to 2013. The study found that the complementary effect of OFDI and home country exports of these ASEAN countries was greater than the substitution effect. Camarero (2018) and others used data from 28 countries in 1990-2013 and trade gravity model to test the relationship between FDI and export trade. It found that foreign direct investment can promote the growth of export trade.

2.3. OFDI's ambiguous relationship with exports

However, the ambiguous relationship between FDI and export was found by Pfaffermayr (1994); Gray (1998); and Carr, Markusen, and Maskus (2003). In recent researches, Swenson (2004) made an empirical analysis on the direct investment and bilateral trade data of some OECD countries to the United States from 1974 to 1994, and pointed out that substitution and complementary exist at the same time. Goh and Siew (2013) analyzed data from Malaysia and found no relationship between foreign direct investment and trade in the service sector.

2.4. The theory of determinants of FDI

Dunning (1993)'s eclectic paradigm developed comprehensively and comprehensively explains the motives of enterprise FDI activities, which clarifies that the FDI behavior of enterprises is determined by ownership, internalization and location advantage.

Ownership and internalization advantages can be examined by specific factors of the enterprise, while location advantages can be examined by specific variables of the host country. Among them, the specific location advantage determines the attractiveness of the host economy to the investment of multinational enterprises.

The eclectic paradigm shows that when investors seek low-cost locations, especially for low-cost labor, they will seek efficient FDI. Enterprises with different motivations choose locations with different location advantages. The mainstream or general theory of location problem determines three main motives of FDI, namely market-seeking, nature resource-seeking, efficiency-seeking (Dunning, 1977; Dunning, 1993).

3. Conceptual Framework

Step1. Determinants of China's foreign direct investment in ASEAN

This is based on Dunning's eclectic paradigm with some modification in the determinants, which are discussed as followed.

Market-seeking

It is generally believed that the characteristics of host market such as market size are important determinants of FDI. With the expansion of market scale, the opportunities for effective utilization of resources through FDI and the use of economies of scale and scope are also increasing (Pradhan, 2011; Iamsiraroj, 2016; Keeley and Ikeda, 2017). The large market size provides investors with more opportunities to achieve

cost savings and achieve economies of scale through local production (Anyanwu and Yameogo, 2015; Deng and Yang, 2015). Kolstad and Wiig (2012) studied the determinants of China's FDI and showed that it was attracted by large markets. Chen et al. (2016) used enterprise level data to study the positive correlation between the market size of African host countries and China's FDI inflow. They believe that like all investors, Chinese investors seek to maximize profits and therefore prefer to invest in countries with a larger market. Therefore, we also believe that the motivation for China's foreign direct investment to ASEAN for seeking its huge market size.

Nature resource-seeking

Accessing and ensuring a sustained supply of natural resources is one of the main motivations of foreign direct investment activities. Internalization theory emphasizes the importance of equity-based control in the development of scarce natural resources (Buckley and Munjal, 2017). As the rapid growth of the Chinese economy in the past few decades has increased China's urgency for energy security needs (Zweig and Bi, 2005). Therefore, China invests in resource-rich countries to improve the security of access to energy and other resources (Alon, Leung and Simpson, 2015; Zhao and Zhang, 2016; Yu, 2017). As a result, China now encourages enterprises to carry out OFDI to ensure that they can obtain necessary resources and achieve an important source of income conducive to strong economic growth (Avendano and Melguizo, 2017). Nowadays, one of the important strategic considerations of China's foreign direct investment is to seek resources (Deng, 2015).

Generally, China's outward foreign direct investment in ASEAN is not sufficient for seeking natural resources. However, the search for natural resources is part of OLI theory, which related to other two motivations. If the OLI theory is separated, it may cause deviation to the research results, so we reserve this variable for the empirical analysis in the next section. And this variable is explained by the proportion of ore and metal exports in total exports of ASEAN countries.

Efficiency-seeking

When enterprises expand overseas, they usually adjust and standardize market-oriented or resource-based FDI (Dunning, 1993). At present, Chinese enterprises have little incentive to seek production efficiency abroad (Buckley et al., 2008), because the domestic market provides an adequate supply of relatively cheap labor, land and other inputs. However, regions with lower labor costs attract more FDI flows (Hoang and Bui, 2015; Salike, 2016). Therefore, the change of factor endowments in overseas markets will affect the location choice of China's FDI (Chou, Chen and Mai, 2011). China seeks the efficient foreign direct investment may become more common.

ASEAN countries have sufficient labor force and relatively low labor costs, which may become one of the purposes of China's outward foreign direct investment in ASEAN. Therefore, the unit labor cost reflects the motivation of investors to pursue efficiency (Kang and Jiang, 2012) and is explained by the average wages of manufacturing in ASEAN countries.

Trade volume

The trade volume between China and the host country is used to measure the impact of Chinese trade related to market seeking motive. Wu and Sia (2002) shown that from the 1980s to the early 1990s, the increase in Chinese foreign direct investment, providing local support services for Chinese domestic exporters. This indicates that the export trade between the home country and the host country will have an impact on foreign direct investment in the future. The import from host country to home country also reflects the strength of the bilateral trade relationship. Therefore, trade volume has been widely used as economic variables to reflect the relationship

between the international trade and investment of home country and host country (Buckley et al., 2007).

FDI openness

Foreign direct investment is also related to the market openness of the host country, which reflects the competitiveness and investment environment of an economy. If a country is more open to international investors, the more attractive it will be as a foreign direct investment destination (Chakrabarti, 2001). Therefore, the ability of host countries to attract foreign direct investment has become an important factor in Chinese OFDI.

Political risk

Many scholars have found that higher political risks are negatively correlated with FDI inflows (Chakrabarti, 2001; Qian and Baek, 2011; Cleeve, 2012; Ramasamy et al., 2012). Since higher political risks are associated with higher levels of confiscation, this raises concerns for investors, thus reducing the attractiveness of host countries (Bü the and Milner, 2008). In the case of eventual confiscation, a high degree of uncertainty associated with an increase in foreign ownership or exposure to assets is some of the factors that may hinder FDI decisions (Brouthers, 2002; Pak and Park, 2004).

The political risks of ASEAN countries are different. From the national perspective, Singapore, Indonesia and Malaysia have relatively low political risks. China also has the most foreign direct investment in these three countries (China Foreign Direct Investment Announcement, 2019). Therefore, we take political risk into account in the

determinants of Chinese OFDI.

Cultural distance

According to the China Foreign Investment Announcement (2019), among the top 20 countries with the most Chinese FDI destinations, for example, Cayman Islands, British Virgin Islands, Singapore, Hong Kong and Australia, have the largest share of the total population in terms of immigration stock.

Due to the limited international investment experience, Chinese multinational companies usually lack the foreign market knowledge needed to conduct business abroad. Cultural differences are often a greater obstacle for developing country MNEs (Kandogan, 2016). The greater cultural distance between the two countries will lead to a reduction in foreign direct investment (Tang, 2012; Lucke and Eichler, 2016). Cultural distance has been identified as the main obstacle for MNEs to obtain regulatory legitimacy in host countries and has been found to have a significant impact on FDI location selection (Kang and Jiang, 2012). The greater the cultural distance between host country and home country, the more difficult it is for multinational companies to obtain the legitimacy of norms in the host country (Quer, Claver and Rienda, 2012). Therefore, the smaller cultural gap with the host country is an important factor affecting China's foreign direct investment (Che and Du et al., 2017). Cheng and Ma (2010) shown that countries with a large proportion of Chinese immigrants in the total population attract more Chinese FDI.

Therefore, the regional choice of OFDI in China has a great relationship with the proportion of Chinese population, which may be due to the lower entry cost from the smaller cultural distance.

Step 2. The effects of Chinese OFDI to ASEAN on Chinese export to ASEAN

In this step, we use traditional trade gravity model with conventional variables, such as, exchange rate, market size. The different is that we add outward FDI as one of the explanatory variable.

Outward FDI

One of the most controversial issues of outward foreign direct investment (OFDI) is how it affects the competitiveness of domestic exports (Head and Ries, 2010). As Altzinger and Bellak (2000) pointed out, although significant progress has been made in theory and some econometric studies, there are still considerable differences in how OFDI affects domestic exports. Specifically, whether foreign production replaces or supplements the export of a parent company or other domestic company. Mundell (1957) believed that FDI could lead to the elimination of trade, because capital flows would eliminate the factor proportionality basis of trade. In other words, the flow of capital replaces the flow of goods. While other studies have found that OFDI is positive with home country exports. Some studies have found that the relationship between OFDI and home country exports is complementary (Helpman, 1985; Lipsey,

2004). Therefore, the effect of foreign direct investment on domestic exports is ambiguous, and the relationship can be either positive or negative. Thus, in this study, we predict,

Hypothesis 1

China's OFDI to ASEAN is positively related to China's export trade to ASEAN.

The Real Exchange Rate

The real exchange rate between two currencies is defined as the exchange rate between one currency and another. Most of the literatures supported the proposition that exchange rate volatility does indeed impede trade (Coes, 1981; Cushman, 1983; Akhtar and Hilton, 1984; Kenen and Rodrik, 1986; Maskus, 1986; Thursby, 1987). Through the analysis of 33 regression equations during the period of the flexible-rate exchange rate, Bailey, Tavlas and Ulan (1987) found a positive and significant association between exchange-rate variability and real exports. So the relationship is ambiguous between the changing of the exchange rate and real export, which can be negative and positive. Therefore, we predict,

Hypothesis 2

The real exchange rate has a negative relationship with China's export trade with ASEAN.

The Growth rate of GDP

A country's GDP growth rate is an important measure of the country's economic strength (Kuznet, 1971). According to Ricardo supply-demand theory, the economic growth of trading partners is an important factor affecting their imports, and thus an important factor affecting China's product exports. Bojnec and Ferto (2014) found a positive correlation between commodity exports and the GDP growth rate of host countries in OECD countries. Since the larger GDP growth rate means that the market has great potential, the export volume will also increase. Thus, we predict,

Hypothesis 3

The GDP growth rate of ASEAN countries has a positive relationship with China's export trade to ASEAN.

Relative price

Relative price is one of the decisive factors for a country's exports. Artus and Sosa (1978) made empirical research proves that large changes in exchange rates and relative price have a significant impact on the export volume of the Federal Republic of Germany, the United States, and the United Kingdom. Sharma (2000) suggested that demand for Indian exports increases when its export prices fall in relation to world prices. According to empirical analysis in 53 developing countries, Senhadji and Montenegro (1999) shown that the change in relative prices had a negative significant impact on exports.

As the relative price determines the export competitiveness, if the relative price of

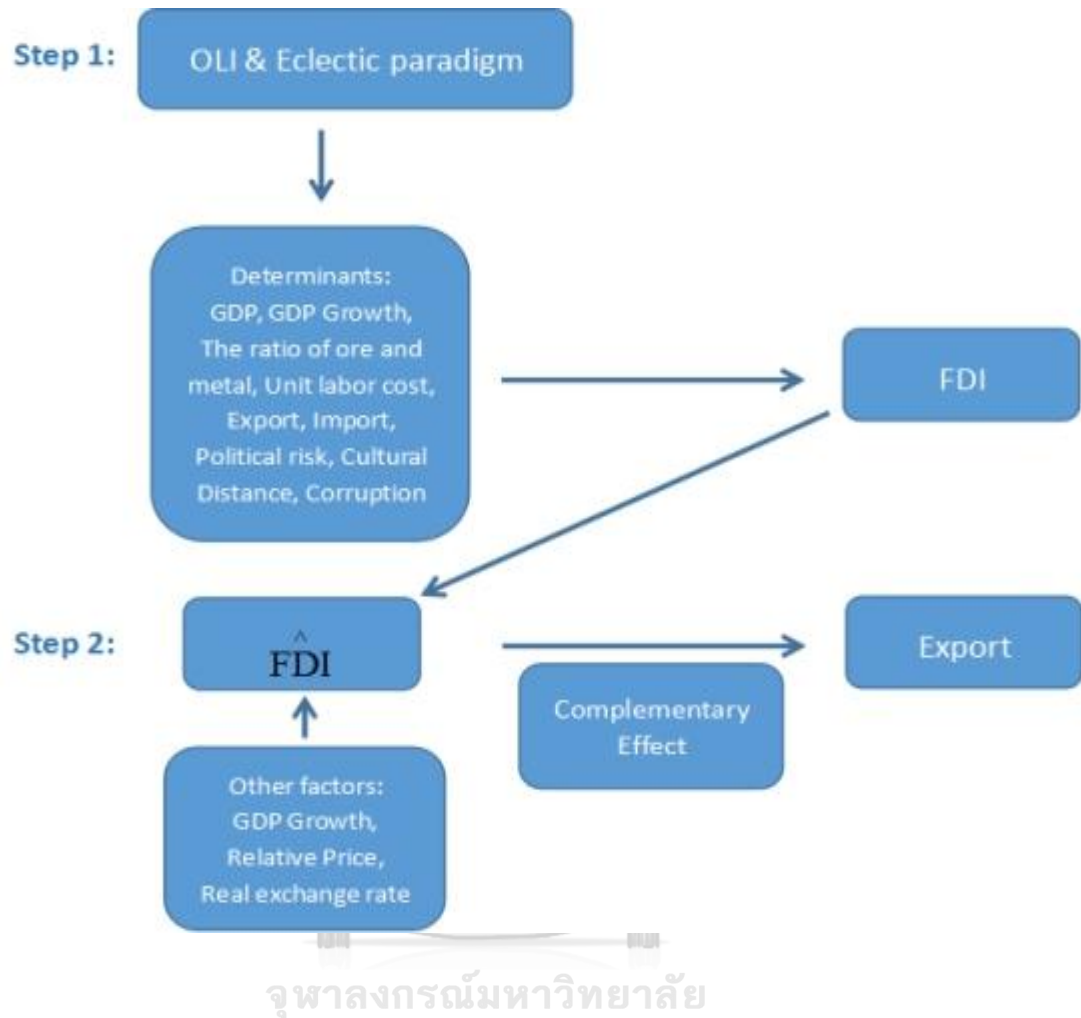
China's exports to ASEAN countries is relatively high, it means that China's exports of commodities lack market competitiveness, thus lowering the export volume. Thus, we predict,

Hypothesis 4

The relative price has a negative relationship with China's export trade with ASEAN.

To summarize, in this study, we use the following two-step structure to analyze the impact of Chinese OFDI on its exports to ASEAN. The first step, we use OLI and Eclectic paradigm to estimate the volume of OFDI. The second step, we use the estimated OFDI as a determinant to avoid the simultaneity bias problem that could occur. The model for the second step is the conventional panel gravity model. The framework of this study is as follows:

The figure 3: The framework of this study



4. Methodology CHULALONGKORN UNIVERSITY

Based on the panel data from 2005 to 2018, this paper uses panel OLS regression to analyze the determinants of China's FDI to ASEAN and the impact of OFDI on China's exports to ASEAN.

Among them, the home country is China, which the host countries are ASEAN countries that include Singapore, Thailand, Malaysia, Indonesia, Philippines, Vietnam, Lao PDR, Myanmar, Brunei. Since some data for Laos PDR and Brunei are not available, we redefine the host country as eight ASEAN countries.

4.1. Model

In order to eliminate the influence of dimensionality and heteroscedasticity, this paper uses natural log of variables, as $\ln OFDI$, $\ln GDP$, $\ln OME$, $\ln ULC$, $\ln TV$, $\ln FDIO$, $\ln PL$, $\ln CD$, $\ln EXP$, $\ln GDPG$, $\ln ER$ and $\ln RP$.

Step 1. In order to study the determinants of China's outward foreign direct investment in ASEAN, we establish the following equation:

$$\ln OFDI_{it} = \alpha_i + \beta_1 \ln GDP_{it} + \beta_2 \ln OME_{it} + \beta_3 \ln ULC_{it} + \beta_4 \ln TV_{it} + \beta_5 \ln FDIO_{it} + \beta_6 \ln PL_{it} + \beta_7 \ln CD_{it} + \varepsilon_{it} \quad (1)$$

Step 2. In order to study the influence of China's OFDI to ASEAN on China's export to ASEAN, we establish the following equation:

$$\ln EXP_{it} = \alpha_i + \beta_1 \ln OFDI_{it} + \beta_2 \ln GDPG_{it} + \beta_3 \ln ER_{it} + \beta_4 \ln RP_{it} + \varepsilon_{it} \quad (2)$$

Where, i is the i -th country, t is the year, α is the constant term, β is the coefficient of each variable, and ε is the error term. In the next section, we describe the selection of variables in two models and how to calculate these variables.

4.2. Selection of variables

First of all, in the analysis of the determinants of China's OFDI in ASEAN, we choose the following variables:

The GDP of the host country (GDP) is used to explain the market size of the host country, and the data are derived from World Bank Development Indicator. The ore metal export rate (OME) is used to explain the motivation of seeking FDI for natural resources. The data for this variable also comes from World Bank Development Indicator. The unit labor cost (ULC) is used to explain the labor cost of the host country, measuring the average wage of the host country's manufacturing industry. The data comes from International Labour Organization (2020). The trade volume (TV) is calculated as the ratio of the total import and export trade of the host country to GDP. And the data is from UN Comtrade Database. The FDI Openness (FDIO) represents the degree of openness of ASEAN countries to attract foreign investment, measuring the ratio of inward FDI of the host country to GDP. The data is obtained from World Bank Development Indicator. The host country's political risk (PL) represents the host country's political risk level. The highest level is 100. The higher the value, the lower the political risk, and the more stable the political. The data comes from the Regional Political Risk Index (2013; 2015; 2016; 2019). Cultural distance (CD) represents the proportion of Chinese people in the total population of the host country. The data comes from International Labour Organization and official data released by governments.

Secondly, for the impact of China's OFDI to ASEAN on China's export to ASEAN, we choose the following variables:

The outward foreign direct investment (OFDI) is explained by China's OFDI flow to

ASEAN, and the data comes from China Foreign Direct Investment Announcement (2009; 2015; 2018). The GDP growth rate of the host country (GDPG) is used to explain the market development potential of the host country. The data comes from World Bank Development Indicator. The real exchange rate (ER) is the official real exchange rate calculated as the annual average based on the monthly average (relative to the local currency unit of the US dollar), and the data comes from the IMF. The relative price (RP), measuring the ratio of unit prices of China exports US\$ (PX) to the unit price of ASEAN exports in US\$ (PA). The data comes from World Bank Development Indicator. China's exports to ASEAN (EXP) are from UN Comtrade Database. And table 1 shows that all variables in model.

Table 1. The determinants of Chinese OFDI and the factors effect on China export to ASEAN

Variables	Explanation	Expected sign
Market size (GDP)	Host country GDP	+
Market growth (GDPG)	Annual percentage increase in GDP	+
The ore metal export rate (OME)	The ratio of ore and metal exports to merchandise exports of host country	+
Unit labour cost (ULC)	The average wage in the manufacturing industry of the host economy	-

Trade volume (TV)	The ratio of trade volume of the host country to GDP	+
FDI openness (FDIO)	The ratio of inward FDI of the host country to GDP	+
Political risk (PR)	Host country's political risk rating (higher values indicate greater stability)	+
Cultural distance (CD)	The percentage of ethnic Chinese in total population	+
Relative Price (PR)	The ratio of unit prices of China exports US\$ (PX) to the unit price of ASEAN exports in US\$ (PA)	-
Real exchange rate (ER)	The official real exchange rate calculated as the annual average based on the monthly average (relative to the local currency unit of the US dollar)	-
Outward FDI (OFDI)	The outward foreign direct investment from China to ASEAN	+

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5. Results

This paper uses OLS panel data analysis to draw the following conclusions. Table 2 is the regression results of the samples.

Table 2 : The regression results

	Equation (1)	Equation (2)
Variables	Dependent variable(LNOFDI)	Dependent variable(LNEXP)
LNOFDI		0.312812*** (5.196346)
LNGDP	0.523547** (2.481978)	
LNGDPG		-0.173440 (-1.207552)
LNOME	-0.570535*** (-2.838386)	
LNULC	0.631038** (2.210829)	
LNTRADE	-0.576484*** (-3.448307)	
LNIFDI	0.409422** (2.177944)	
LNPL	5.085152** (2.171685)	
LNCD	-0.402857** (-2.384158)	
LNER		-0.070355** (-2.214231)
LNRP		-0.664272 (-1.622067)
C	-17.87879** (-2.125792)	17.88734*** (14.19817)
R-squared	0.411608	0.306668
Adjusted R-squared	0.370829	0.279478
F-statistic	10.09348	11.27890
Prob(F-statistic)	0.0000	0.0000
Observations	109	107

(Note: *, **, *** indicate the significance level of 10%, 5%, and 1% respectively, and the *t* statistic in brackets.)

From the analysis results of regression equation (2), OFDI and real exchange rate have significant effects on China's export to ASEAN. The most important conclusion

of this study is that with the increase of OFDI between China and ASEAN, China's export trade to ASEAN is also increasing. Therefore, hypothesis 1 is established. It also supports the view of Kojima (1978) that exports and FDI play a complementary role. In terms of real exchange rate, there is a significant negative relationship with exports, which proves the establishment of hypothesis 2. Obviously, the gradual depreciation of the real equilibrium exchange rate of RMB against the US dollar in the data period is one of the most important factors to promote exports, especially to stimulate economic growth.

With the increase of the relative price of China's exports to ASEAN, the volume of China's exports to ASEAN will decrease. This is also a common sense, because China's export prices have risen, so China's exports to ASEAN will have no market competitiveness. Therefore, China's export enterprises to ASEAN may make strategic transfer and choose FDI to ASEAN countries. Although the relationship between them is negative, we found that there is no significant negative relationship between relative price and export. We also found that there is no significant negative relationship between GDP growth rate and export, which means that China's export to ASEAN is not due to the GDP growth rate of ASEAN countries. Therefore, the hypothesis 3 cannot be proved.

From the analysis results of regression equation (1), all seven variables have a significant effect on Chinese OFDI. Among them, GDP, unit labor cost, FDI openness and political risk are positively correlated with OFDI; ore and metal exports, trade

volume and cultural distance are negatively correlated with OFDI.

In the market seeking motivation of China's OFDI to ASEAN, the GDP factor has become an important consideration for China's OFDI to ASEAN. It can be seen from the analysis results that China prefers OFDI to the countries with higher GDP in ASEAN region. We also found another conventional phenomenon that is the higher the degree of openness of the host country's inward FDI, the more Chinese OFDI will increase, which is consistent with our expectations.

Unexpectedly, there is a positive relationship between average labor cost and China's OFDI. It means that China is willing to invest more even though the wage cost in the host country is high, which is contrary to our prediction. According to the announcement of China's foreign direct investment, China's investment in Singapore has been ranked first for consecutive years. However, Singapore's average labor cost is the highest among ASEAN countries, but China is still willing to invest in Singapore. The possible explanation is related to Singapore's geographical location and tariff. Located in the Strait of Malacca, Singapore is a very important transportation hub. As well as that, Singapore is a tax-free country. The convenience and speed of transportation and non-tariffs make China decide to invest in Singapore, which can cover labor costs.

We also found that China prefers OFDI to countries with lower political risks. Specifically, for every 1% increase in the political risk factor, China's OFDI increases by 5.09%. As Buckley (2007) said, generally, OFDI of developed countries will avoid

regions with high political risks. However, China's OFDI was opposite to that of developed countries. This may be related to the capital market defects of China's FDI. The main force of China's OFDI is state-owned enterprises. However, the Chinese government will provide a large amount of financial support to state-owned enterprises so that they compete with other firms in international market.

With the continuous improvement of China's capital market, the main force of OFDI are not only state-owned enterprises, but also many private enterprises have gone internationalization. They began to seek external expansion and make a lot of overseas investment. For example, famous private enterprises such as Alibaba, JD.com and Xiaomi have invested a lot in the ASEAN region, and their products have penetrated into each market segment.

The negative correlation between ASEAN's ore and metal exports and China's OFDI shows that China's OFDI to ASEAN is not driven by the motivation to seek natural resources. As well as that, our initial expectation is that China's OFDI towards ASEAN will increase due to cultural similarities. From the analysis results, cultural distance has achieved the opposite result. The possible reason is that China's OFDI to ASEAN may be due to geographical distance rather than cultural similarity.

Finally, it is worth noting that with the increase of ASEAN trade volume, China's OFDI to ASEAN is becoming less and less, which is contrary to our expectation. The possible reason is that most of the enterprises invested by China in ASEAN are to expand the overseas market, and ASEAN has a very large consumer group, and the

deep market potential is the target of these investors. The other part of the investment is large-scale engineering projects, for example, the high-speed rail project between China and Thailand, etc. The purpose of these investments is not to set up factories in the host country or use cheap labor to produce and then export. It is a political investment, a series of infrastructure investment in order to achieve the goals of the "One Belt One Road" policy.

6. Conclusion

This paper is divided into two steps to analyze the determinants of Chinese OFDI to ASEAN and the effect of Chinese OFDI on the export of China to ASEAN.

The most important conclusion of this study is that as Chinese OFDI to ASEAN increases, Chinese exports to ASEAN have gradually increased as well, which not only proves Kojima (1978)'s view, but also conforms to the "Early Harvest Plan" of China and ASEAN. Since January 1, 2004, more than 500 kinds of products have been reduced to zero tariffs in 2006. This measure has greatly enhanced trade between China and ASEAN. In 2010, the establishment of China ASEAN Free Trade Area has greatly promoted investment and trade between China and ASEAN.

We also found that exchange rate fluctuation has an impact on trade. Another conclusion of this paper is that China's export to ASEAN will increase with the decreasing of exchange rate. However, the sharp fluctuation of the exchange rate in the short term will hinder trade and investment. Therefore, the Export and Import

Bank of China, which was established in 1994. The purposes are to promote enterprises with comparative advantages to undertake foreign contracted projects and overseas investment, to promote the development of foreign relations and international economic and trade cooperation, and to provide financial services. In 2009, during the Sixth China ASEAN Expo, the China ASEAN Investment Cooperation Foundation sponsored by the Export and Import Bank of China was established in Nanning. In 2016, Asian infrastructure investment bank was established in Beijing. These financial institutions have created a stable environment for trade and investment between China and ASEAN, and strengthened the economic integration between China and ASEAN and even the integration of Asia as a whole.

On the other hand, we found that the GDP of ASEAN countries is one of the decisive factors for Chinese OFDI to ASEAN, which is consistent with the viewpoint of Kolstad and Wiig (2012) and Chen et al. (2016).

Generally, the purpose of Chinese OFDI in ASEAN is to seek labor and raw materials, but our research results are contrary to Alon, Leung and Simpson (2015) and Avendano and Melguizo (2017). The possible reason is that China's energy demand for ASEAN is mainly crude oil. Therefore, in future research, we can replace the export of ore and metal of ASEAN with the export of crude oil.

In addition, in the trade between China and ASEAN, e-commerce has become one of the main forms of bilateral transactions. With the development of cross-border e-commerce in China, such as Alibaba and JD.com, the trade cost has been greatly

reduced and the trade efficiency has been improved. This may also be one reason why Chinese OFDI is negatively correlated with the import and export trade of ASEAN.

Among the 10 ASEAN countries, there are not only emerging industrialized countries such as Singapore, but also the least developed countries such as Myanmar, Laos and Cambodia. There are great differences in the level of economic development and political environment. With the continuous improvement of Chinese capital market, like other developed countries, China has begun to seek FDI to countries with low political risk, instead of blindly expanding overseas by state-owned enterprises supported by the government. This is also consistent with the views of these scholars (Qian and baek, 2011; Cleeve, 2012).

Finally, there are some deficiencies in this study. Due to the particularity of Chinese FDI, Chinese institutional factors can take into account in future research. Then, Chinese seeking-resources is mainly crude oil in ASEAN areas, so this factor can be added to the future study. In future research, we can further subdivide and use industry or enterprise data for analysis.

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