

An Empirical Analysis of China's OFDI in ASEAN along 'the Belt and Road Initiative'

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Universiteit Leiden

Dandan Zheng

Student ID: S1903365

Email: zhengdandan0902@gmail.com

Supervisor: Dr. PW van Wijck

Second Reader: Dr. O.P. van Vliet

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Economics and Governance

Faculty of Governance and Global Affairs

Leiden University

ABSTRACT:

This research investigates the determinants of China's Outward Foreign Direct Investment (OFDI) in the Association of Southeast Asian Nations (ASEAN) between 2010 and 2016 and makes a comparison of the determinants of 2010-2013 and 2014-2016 along the Belt and Road Initiative (OBOR). Based on Dunning's eclectic paradigm and the pulling factors, this paper thereby establishes a panel dataset covering ten countries in ASEAN over seven years. Adopting a fixed effects model, this article analyses determinants of China's Outward Foreign Direct Investment Flow (OFDIF) and Outward Foreign Direct Investment Stock (OFDIS) in ASEAN respectively. It demonstrates that China's OFDIF in ASEAN is significantly associated with trade openness, political risk and the inward Foreign Direct Investment (FDI) stock in the host country. Also, China's OFDIS in ASEAN is highly sensitive to Gross Domestic Production (GDP), political risk and host country's domestic-credits, including the exchange rate and the inward FDI stock. The extended specification suggests that the determinants of China's OFDI in ASEAN significantly differ from pre- and post-OBOR periods around 2013. The results of this study underline that the determinants of China's OFDI in ASEAN from 2010 and 2016 are with unique and regional characteristics and differ in two aspects (the flow and the stock) and two periods (2010-2013 and 2014-2016). Furthermore, it concludes that OBOR may drive unexpected signed changes of GDP and trade openness.

Abbreviations and Acronyms

ACFTA	The Association of Southeast Asian Nations –China Free Trade Area
ACIA	The Association of Southeast Asian Nations Comprehensive Investment Agreement
ADB	Asian Development Bank
AIA	The Association of Southeast Asian Nations Investment Agreement
AIF	The Association of Southeast Asian Nations Infrastructure Fund
AIIB	Asian Infrastructure Investment Bank
ASEAN	The Association of Southeast Asian Nations
ATIGA	The Association of Southeast Asian Nations Trade in Goods Agreement
CAF	China- the Association of Southeast Asian Nations Investment Cooperation Fund
FDI	Foreign Direct Investment
FEs	Fixed Effects
GDP	Gross Domestic Production
IFDI	Inward Foreign Direct Investment
IMF	International Monetary Fund
MOFCOM	Ministry of Commerce of People’s Republic of China
NDRC	National Development and Reform Commission
OBOR	The Belt and Road Initiative
OECD	Organisation for Economic Co-operation and Development
OFDI	Outward Foreign Direct Investment
OFDIF	Outward Foreign Direct Investment Flow
OFDIS	Outward Foreign Direct Investment Stock
POLS	Pool Ordinary Least Square
REs	Random Effects
SDGs	Sustainable Development Goals
TAC	Treaty of Amity and Cooperation in Southeast Asia
UNCTAD	United Nations Conference on Trade and Development
WDI	World Development Indicators
WGI	World Governance Indicators
WIR	World Investment Report
WTO	World Trade Organisation

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1. INTRODUCTION

1.1 Background

Regarding the globalisation trend, FDI has roots in recent global economic development. With the late 1970s' Chinese Open Door policies, accelerating with China's participation into the World Trade Organisation (WTO) in 2001, China's dramatic development in global economy attracted world's attention (Buckley, Clegg, Cross, Liu, Voss & Zheng, 2007). Especially for FDI from China, it has increased significantly. In 2016, China's OFDI surged to 183 billion dollars, ranking it the 2nd most abundant source of capital around the world (Zhang, 2017). On the other hand, East and South-East Asia shared the largest FDI recipient around the world. Furthermore, ASEAN remained one of the biggest recipients of global FDI inflows among all developing countries. China is also in the top five sources of FDI inflows to ASEAN recent years (Secretariat, ASEAN, 2017).

The China-ASEAN cooperative talks recall to the 1990s. Following up to China's "Going-out strategy", China's government plans to build a better platform in different specific regions around the world, including through OBOR and the foundation of Asian Infrastructure Investment Bank (AIIB) (Sutter & Huang, 2013). It demonstrates that China's OFDI has motivated by asset-, resource-, and efficiency-seeking according to "Going-out strategy" (Salidjanova, 2011). In 2010, the ASEAN-China Free Trade Area (ACFTA) had come into effect, which became the largest free trade area according to the population and nominal GDP (Gooch, 2017). In 2013, China's OBOR policy later specifying into the land-based 'Silk Road Economic Belt' and 'Maritime Silk Road' oceangoing has launched. It aims at connecting the economies of countries along the OBOR's two geographic ways through investment, trade and infrastructure three aspects, which has especially brought China's OFDI into public and academic attention (Hofman, 2017).

In face to this emergent of OBOR, most countries reposition themselves in the world's eco-political system. Recently, many scholars research host countries' situations and their positions according to China's OBOR. This paper focuses on China's OFDI to ASEAN around the time of OBOR's implementing, which is fruitful for the research of the global economic prosperity. It is due to China's status as a world's key economy. Also, ASEAN is one vital area responded China's OBOR, in light of its outset of Maritime Silk Road location advantage. The initiative may make a big difference between ASEAN and China about the deep bilateral cooperation. It mainly bases on Dunning's eclectic paradigm theory in connection with the

pulling factors to investigate China's OFDI to ASEAN along OBOR in recent developing time-period from 2010 on, at large with researching the position of OBOR in ASEAN. This study will make use of empirical regression analysis in panel data models from 2010 to 2016 among ten countries in ASEAN.

1.2 Research question

- 1) What are the determinants of China's OFDI in ASEAN from 2010 to 2016?
- 2) Along OBOR, what is the difference between the determinants of China's OFDI in the ASEAN countries over the period of 2010-2013 and 2014-2016?

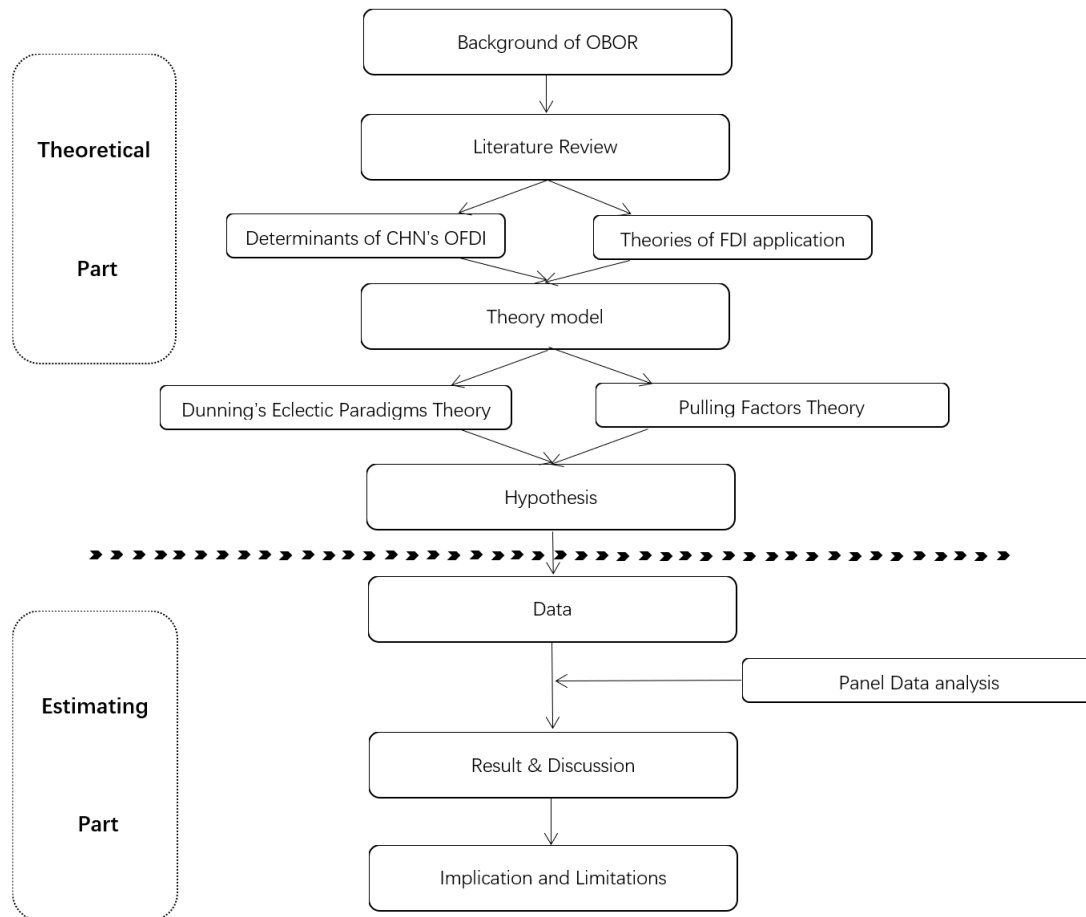
1.3 Goal

The goal of this research is to estimate and verify the determinants of China's OFDI in ASEAN from 2010 to 2016. It aims to investigate the differences of China's OFDI determinants in ASEAN around OBOR announcement in later 2013, and to study the possible influence of OBOR on the determinants of China's OFDI in ASEAN ten countries.

1.4 Structure

The structure of this thesis is as follows. In the next section, it describes the background of policies, including the pattern of OBOR and the policies in ASEAN and China related to the international economic cooperation. In Section III, it reviews the related literature of the empirical studies for the determinants of China's OFDI and general theories of FDI application. This part concludes the previous research about OBOR and the policies related to China and ASEAN countries. Later on, it utilises an analytical theory model based on the literature review. Besides, it briefly introduces the hypotheses in line with the theoretical framework. Then it gives the particular definition of key concepts in this study, including China's OFDI, ASEAN and OBOR. In Section V, it explains the data and methodology, constituting of data collection approach, variable selections, and its descriptions, as well as estimation model specification. The next part is about the results and discussion by using STATA. The final section is the conclusion of this research.

1.5 Framework



2. BACKGROUND OF POLICIES

2.1 The pattern of OBOR

The research indicates that the overseas media and Internet users have taken an increasing positive part of the overall strategy for OBOR over the past years.

Referring to the history related to the Silk Road and Maritime Silk, the ancient Silk Road could track back to the Han Dynasty (206 BC-220 AD), aiming at connecting the inter-states commercial activities and culture, which was from China to Rome. Zhang Qian was the first man to develop the relations. The Maritime Silk was between China and Nanyang from the Song Dynasty (960-1279), which nowadays was named Southeast Asia (Wong, 2014). From 2013 on, the developing process of OBOR has been pushed forward year by year. Hot issues related to OBOR increase every year from 2013 on. In 2013, Scholars' research focused on the opportunities and impacts of OBOR, the China's development, and inter-country trade. In 2014, the increasing topics added the situation of manufacture structure, national interests and cooperation of countries along OBOR. In 2015, studies paid more attention to the synergy

of strategies, the relations among states, and energy cooperation related to OBOR. In 2016, it concentrated on project cooperation, business cooperation, and even some fruitful results of OBOR (王沥慷, 2017).

The National Development and Reform Commission (NDRC) (2015) announced that the Silk Road Economic Belt and the 21st-Century Maritime Silk Road aims to link and connect China to the alongside countries, which involve more than 60 countries in the world (“One Belt One Road Initiative,” 2015). However, so far, the scholars and politicians are critical and doubting of the outcome of OBOR, taking a waiting gesture to see what OBOR can bring to China. OBOR, on the other hand, has some challenges. Researchers always take its planning on the international arena into account. From China’s side, the project is based on the Silk Road Spirit, aiming to build a global community and then to cooperate and share the interests. As the different analyses, it comes from a ‘geopolitical and diplomatic offensive’ or a ‘comprehensive strategy’ (Pop, 2016). Nowadays, observers focus on some major topics, involving China’s FDI referring to OBOR’s interest, and how OBOR facilitates unimpeded trade in different regions.

In *2013 Statistical Bulletin of China’s Outward Foreign Direct Investment -- One Belt One Road Countries* report, as for the top 10 of China’s OFDI countries, ASEAN countries accounted for six states in total (Ministry of Commerce of the People's Republic of China [MOFCOM], 2014). The 2015 report on the development of China’s OFDI and regional economic cooperation emphasised that Chinese government plays a vital role in foreign investment cooperation because of the announcement of OBOR in 2013. In 2014, Asian countries became the most significant markets for China’s FDI. The report also mentioned that the statement and implement of OBOR opened more floors to China’s FDI to Asian countries, especially to the ASEAN countries. At the same time, Asian countries’ complex political and economic environment also constructed challenges and risks to the initiative (MOFCOM, 2016). A 2016 report puts that China broke the record which China became the second rank of FDI flows. Asian developing economies are still the biggest destination of China’s OFDI. 2015 is the end year regarding China’s 12th Five-Year Plan. When facing the complex global situation, the Chinese government completed the ‘going global’ strategy and actively promoted the implementation of OBOR. The FDI flows to Asian countries raised up to 74.4% in total. It increased dramatically in ASEAN countries in 2015 by 87%. The challenges they raised up included that international markets’ lockage of needs, financial markets latent risks, the price

fluctuation, trade downturn, and some nations' traditional and untraditional risks increasing (MOFCOM, 2017).

The differences between the ancient Silk Road and Maritime Silk and the recent OBOR start at the point of the benefits along the geographic way. The modern ones insist on mutual exchange and benefits, aiming at achieving the win-win situation and form a community of interests instead of the only geographic position for the ancient ones (Bhoothalingam, 2016).

In conclusion, OBOR is not the continuation of the ancient ones but a new and creative initiative. Indeed, OBOR is creativity at the historical stage with the aim of connecting international relations along its geographic way. Finally, referring to the Maritime Silk Road in this research, it makes the history to the reality (Wang, Chen & Chang, 2016).

2.2 The policies about ASEAN and China

Besides China's side, this paper also analyses the policies in another two levels: international and regional. First, the world investment annual reports focused on the global and local trends, international and national investment policies' situations and challenges. In the global vision, more than one-half of the FDI flows went to the developing countries. In 2010, the regulation gains in the sovereign countries related to the liberation of FDI. The more balanced approach also evolved concerning rights and obligations internationally. From 2010 on, the international FDI flows witnessed the trends from the steep decrease to a slow recovery. China holds the top second host economics (United Nations Conference on Trade and Development [UNCTAD], 2010). In 2011, developing economies became the world new FDI powerhouses (UNCTAD, 2011). In 2012, the development concentrated more on the sustainable growth and emphasised that the development face to the changing policies environment (UNCTAD, 2012). In 2013, it illustrated that the overall FDI repositioned as the way of strategic divestment, foreign operations' relocation and reshoring (UNCTAD, 2013). As for 2014, the key issues of investment policy slowly shifted to the restrictive and regulatory measures. The FDI flows returned to the traditional increasing pattern. It emphasised that the actions take followed balancing liberalisation and regulation. Furthermore, the developing Asian countries, including ASEAN regions remained the world's largest recipient of FDI flows. It also showed that China's FDI outflows increased faster than its inflows. Also, the FDI growth increased slowly in the ASEAN countries, especially in some lower-income countries, constituting of Cambodia, Lao PDR, Myanmar and Vietnam. In 2014, FDI inflows and outflows in developing Asia had both ranked the highest in the world. The spotlight is that the East and South-East Asia is the one largest recipient sub-regions. Also, the sub economics'

performances differed significantly, so the international coherence investment is a major driving force for the regional connectivity (UNCTAD, 2014). In 2015 World Investment Report (WIR), it referred to the decline of FDI inflows in 2014 due to the global economic fragility, policy uncertainty and geopolitical risks. To fulfil the Sustainable Development Goals (SDGs), it highlighted the sustainable investment. Besides, this report emphasises that international tax, especially tax avoidance, and investment policies played the major roles in the global investment development aiming for more inclusiveness, mutually supportive, and greater coherence between countries (UNCTAD, 2015). In WIR 2016, the FDI showed its recovery in 2015 strongly. China's FDI Outflow broke the new records, ranking the top one as the home economics (UNCTAD, 2016). In WIR 2017, it described that the global flows of FDI declined totally in 2016, especially in developing countries. The key challenge is that the digital development influenced global economy significantly. The SDGs are the main challenging considerations to the international investment policies. Therefore, there is still one problem of the digital economy about FDI, which suggested that the government should address public concerns, such as some regulations about the data security, privacy, some protections of property, consumers, and even cultural values. The Report also showed that China remained the top investor's position. In total, FDI inflows are the main source of finance to the developing economies. It put that the ASEAN could roughly divide into two kinds of economics, high-income and low-income economies. High-income recipients' flows declined, but the low-income ones still performed well. It also mentioned that ASEAN production networks shifted from labour-intensive industries to capital-intensive ones, which impacted the FDI flows in the region. Moreover, the regional integration could contribute to and boost the regional economics and attraction (UNCTAD, 2017).

At the regional level, the policies never stop steps of the regional economic integration. ASEAN Investment Annual Reports from 2010 to 2016 provided some conclusions about FDI's situation related to ASEAN contributing to the paper. The trend of development in the ASEAN region has changed due to the different policies and global economic situation. The report from 2010 to 2011 is about how ASEAN countries to overcome the financial crisis and globalisation. In the reports, the prediction of the economy in the ASEAN countries would be returning the same trend as the pre-crisis until 2013, which can give us some explanations about the trend changes. Also, it came up with Governance Indicators: Rule of Law, Governance Effectiveness, Control of Corruption and Regulation Quality (World Bank) (ASEAN Secretariat and UNCTAD, 2011). The Report in 2012 emphasised that under the ACFTA agreement, FDI from China to ASEAN has risen. It also mentioned that the pulling factors

theory is one of the theories referring to the research FDI between China and ASEAN (ASEAN Secretariat and UNCTAD, 2012). As for the Report 2013-2014, it represented the situations of ASEAN countries' FDI development and their corresponding regional value chains. Chinese investment in ASEAN focused on the infrastructure, real estate, finance and extractive industries. It put that ACFTA motivated Chinese investments into ASEAN because the integration benefits its offers. China's government established the China-ASEAN Investment Cooperation Fund (CAF) in 2009 by the Export-Import Bank of China, which concentrated on investigating the foreign investment opportunities in ASEAN (ASEAN Secretariat and UNCTAD, 2014). In Report 2015, it focused on the infrastructure investment and connectivity in ASEAN (ASEAN Secretariat and UNCTAD, 2015). Finally, in Report 2016, it showed that FDI inflows in ASEAN as a whole had declined. Therefore, it raised some challenges in ASEAN that are the global economic fragility, geopolitical tensions' uncertainty and some major FDI source countries weak economic growth prospects (ASEAN Secretariat and UNCTAD, 2016).

There were some significant economic agreements, policy and regulations measures between ASEAN and China regarding investment. Before 2010, some negotiations between ASEAN and China had started to raise up. It recalled some agreements in ASEAN, such as ASEAN Investment Agreement(AIA) in 1998 (Secretariat, ASEAN, 1998). The Framework Agreement on Comprehensive Economic Cooperation between ASEAN and China signed in 2002(Secretariat, ASEAN, 2002). In 2004, the Agreement on trade in goods signed, which implemented the trade liberalisation (Secretariat, ASEAN., 2002). Moreover, ASEAN-China Trade in Services Agreement had signed in 2007 (Flick & Kemburi, 2012). Later on, in 2009, ASEAN-China Investment Agreement, ASEAN Comprehensive Investment Agreement (ACIA) and the ASEAN Trade in Goods Agreement (ATIGA) came into force. The essential characteristics and elements between ASEAN and China had put that the ASEAN countries are almost single markets and production based. Among these countries, they are the highly competitive economies, facilitating competition policy, protecting consumers and property rights. It is also a region of equitable economic growth, narrowing the development gap these years. It aimed to integrate into the arena of the global economy as a more dynamic, stronger, and more unified industrial community. After 2010, the most implicating policies between ASEAN and China were ACFTA, and China's OBOR policy ("One Belt One Road Initiative," 2015). It mentioned in some articles that since China put forward OBOR in 2013, it actively promoted the economic development process of both sides in China and ASEAN. Many FDI agreements, policy and regulation measures located in every ASEAN country respectively as

Table 1 shows. It reflects that FDI agreements and related so forth not only between ASEAN and China but also in ASEAN regional countries would force FDI behaviours to some extent.

Table 1

Recent FDI agreements, policy and regulations measures in every ASEAN country

Country	Foreign Direct Investment-specific measures	Foreign Direct Investment-related measures
Brunei Darussalam	2011 The Amended Companies Act	2009 the amended Land Code (Strata) Act
	2013 One BIZ, a business licensing system(BLS)	2011 the Monetary Authority Brunei Darussalam (AMBD)
Cambodia	2011 Instructive Circular No. 365	2011 Prakas No.288
	Prakas No.242	
	2013 Sub decree No. 219	
	Prakas ¹ No. 119	
	Prakas No. 001	Sub-Decree No.70
	Prakas No. 057	
	Prakas No. 073	
	Prakas No. 002	
Indonesia	Presidential Regulation36/2010	Sertifikat Bank Indonesia(SBIs)
	2010 Government Regulation(PP) no. 94/2010	2011

	2013	Regulation No. 5 of 2013			
	2014	five SEZs across the country.			
Lao PDR	2011	Tax Law No 46/OP			
	2013	The country joined the World Trade Organisation			
	2014	signed BITs with 28 countries			
Malaysia	2013	Financial Services Act 2013 Islamic Financial Services Act 2013	2011	Malaysian Trade Marks (Amendment) Regulation 2011	
	2014	a number of measures to liberalize the financial market.			
Myanmar	2011	Special Economic Zone Law			
	2012	the new Foreign Investment Law			
Philippines	2011	Executive Order(EO) No.29			
Singapore	2014	over 40 BITs in force	2010	The Electronic Transactions Act(ETA)	
Thailand	2013	Board of Investment (BOI)			
Vietnam	2011	Law on Natural Resources Tax	2011	A new Vietnamese law Decree No. 14/2011/ND-CP The Amended Law	

Source: Author's compilation from ASEAN Investment Annual Report

China already became the most crucial leading partner to ASEAN countries, especially after active policies like OBOR. However, there still existed to be tensions with some countries. Pop (2016) emphasised that Chinese government officially recognized OBOR could be the vital economic solution to the security problems with China's neighbours, including ASEAN countries. Tensions in the Neighbourhood include the Ethnic tensions, India-China border,

occupied Tibet, China-India border tensions, back to China, Island claims, separately Islands, Hong Kong, territorial claims, border dispute, the Korean DMZ, U.S. military bases, Taiwan-China tensions. Pop (2016) also mentioned that China should share the investment policy with its neighbours, and so forth (Pop, 2016). As Liu and Dunford (2016) argued that globalisation drive China to be a new and active economy in the global markets. In turn, like one of the most crucial roles in the world, its strategy will also influence future globalisation. China's OFDI grows much faster than the Inward FDI (IFDI) does since 2006. In 2014, accounting for 68% of China's OFDIS saved in Asian states (Liu & Dunford, 2016).

In conclusion, firstly, OBOR has progressed in the world's concentration, influencing the relationship among the countries along its route. Although the similar policy had been thousands of year, OBOR re-catches the eyes of 2013 President Xi's announcement. ASEAN and China have so many cooperated plans all the time. Furthermore, OBOR is the most influencing and effective cooperation policy recently years to lease the intense because of the neighbouring national sensitive issues, such as South China Sea issue. OBOR is regarded as the policy and tense's coordinating mechanism especially in ASEAN for a clam and stable maritime security and environmental cooperation. It is viewed as the new momentum for peace and stability (Wang et al., 2016).

3. LITERATURE REVIEW

This research aligns with OBOR and China's OFDI to ASEAN countries. It mainly sets out two areas of literature. One part illustrates the empirical research about determinants of China's OFDI, which laid the practical foundation of this paper's empirical research on China's OFDI determinants to ASEAN. The other section reviews the development of general theories of FDI application. It stands for this study's theories choice of China's OFDI determinants to ASEAN and guides the full analysis in this paper.

3.1 The determinants of China's OFDI

Firstly, some scholars like Jams Fairgrieve, George Bernard Cressey and others identified China as a potential great power (as cited in Pop, 2016). China's rapid springing up attracts the world's attention. Therefore, research related to the determinants of China's OFDI increases among the scholars. These papers concentrate on the empirical study of Chinese OFDI in some particular regions. It comes out from Morck, Yeung and Zhao (2008), Cheung and Qian (2009), Hurst (2011), Kolstad and Wiig (2012), and Hu (2013). Moreover, Quer,

Claver and Rienda (2015), Anh, Thi and Hung (2016), Sermcheep (2017), and Liu, Tang, Chen, and Poznanska (2017) made related analyses.

Morck, et al. (2008) illustrated some perspectives on China's OFDI, focusing on China's OFDI size, target locations, and players. The target locations of China's OFDI divided into two destinations-----the developing countries and the developed countries at the economic level and the firm level. It also found out that China's OFDI mostly went to neighbouring Asian countries and affluent resource parts (Morck et al., 2008). Furthermore, Cheung and Qian (2009) indicated that the driving factors of China's Outward Direct Investment (ODI) motivated by the market-seeking and resource-seeking, and some China's home related factors, such as international reserves. Authors emphasised that there is no unified framework or set of determinants to analyse China's OFDI so far (Cheung & Qian, 2009). Hurst (2011) used the comparative analysis to investigate China's Stated-owned ODI determinants in OECD and non-OECD countries along with Dunning's eclectic paradigm framework. Furthermore, Kolstad and Wiig (2012) introduced the Chinese outward FDI pattern and evidence, using the related variables including GDP, Trade, Inflation, Distance, Institutions (Rule of Law) and Natural resources (Kolstad & Wiig, 2012). Hu (2013) laid a foundation on the research of the country level, who analysed the determinants of China's OFDI to OECD countries during 2003 and 2010 with Dunning's motivations. In the paper, he took advantage of Pool Ordinary Least Square (POLS), Random Effects (REs), and Fixed Effects (FEs) techniques to estimate the data first. Moreover, then Hu (2013) used Hausman test is for the selection between REs and FEs. Finally, he made use of Breusch and Pagan LM test for REs (Hu, 2013).

Quer et al. (2015) reviewed the previous empirical research on Chinese OFDI between 2002 and 2014. It reported the theories and methods explicitly, which can be used by this paper. First, the methodologies they chose showed that the majority of documents came from Quantitative with secondary data accounting for around 60 articles. With regards to the theoretical framework, it also emphasised the importance of Dunning's eclectic paradigm. The location decisions demonstrated the host country political risks and home countries pushing factors (Quer et al., 2015).

Anh et al. (2016) examined the panel data from 2003 to 2014, highlighting the market-seeking variables and openness impacts in aligning with institutions and natural resources situation. As for ASEAN countries, they also mentioned the China-ASEAN FTA and cultural determinants. Later on, they used the same estimation methods as Hu (2013) did to test the hypotheses (Anh et al., 2016). Sermcheep (2017) investigated the panel data concerning Chinese FDI to ASEAN from 2003 to 2015. He also used the Fixed Effect model to test his

hypotheses following up with Hausman test in the paper. As a result, he examined that Chinese OFDI to ASEAN could share the collective results of general research about Chinese Outward FDI in the world, adding some specific characteristics locally. He made use of Dunning's eclectic paradigm and pull factors together, building his research framework based on the previous research (Sermcheep, 2017).

Liu et al. (2017) studied that China's OFDI to OBOR targeted countries from 2003 to 2015, including 93 states with a panel data analysis. They found out that China's OBOR is significantly associated with the exchange rate, market potential level, trade openness, as well as the host country's extent of infrastructure development. Liu et al. (2017) also emphasised that China's OFDI to OBOR countries determinants are different with other countries outside (Liu et al. 2017).

In short, this paper lays the foundation for the previous research as well. There is still no unified determinants and methods to study China's OFDI, especially in ASEAN. However, some empirical studies pointed out and formed a set of scientific and similar approaches to investigate China's OFDI determinants, which we can choose to use in this research with the principle of reliability and validity.

3.2 General theories of FDI application

The mainstream theories on FDI built by the developed countries. However, the extension of FDI theories mostly applies on the developing countries, such as China. Before the 1960s, capital market theory severed as a tool to analyse the FDI flows. However, it was criticised by some scholars (Agarwal & Ramaswani, 1992). Later on, Vernon (1966) has raised up the production cycle theory to explain the FDI from the US to western Europe. He demonstrated the approach into four stages: innovation, growth, maturity and decline. Hymer (1976) found two main FDI determinants: the removal of competition and firm-specific advantages. However, some scholars argued that based on Hymer's theory, the competitions and firm-specific advantages were necessary conditions, but not sufficient conditions regarding FDI since the theory cannot explain why, where and how to firms directly invest to foreign markets (Dunning & Rugman, 1985; Casson, 1989). Buckley and Casson (1976) identified that the internationalisation theory could explain the motivations of FDI, and then followed by Hennart (1977), who divided internationalisation ideal into two types: the vertical and horizontal integration (Buckley & Casson, 1998).

While the previous theories only provide partial explanations of the FDI development, there is a need to call for a more comprehensive conceptual theory to explain the nature of FDI development. In this regard, it is vital to consider Dunning's eclectic paradigm.

Berning and Holtbrügge (2012) concluded 62 articles from 1986 to 2012, in which nineteen papers underlined Dunning's OLI paradigm theory. Moreover, this was also the most frequently used theory in China's OFDI research. Dunning's eclectic paradigm theory has occupied the most crucial position in FDI, which has developed for a long time. In the view of the Dunning's eclectic paradigm with the OLI theory, this paper can profit from the research by Dunning (1980; 2001), Stoiana and Filippaios (2008), Chan, Y. T. A. and Chan, S. H. (2011), Berning and Holtbrügge (2012). First, as Dunning said, eclectic paradigm OLI theory had raised up because of the international production. Dunning (1980) investigated the industrial pattern and geographical sales distribution in the US. He mentioned three aspects of the sub-paradigm----- the ownership, the locational, and the international ones. The paradigm laid the foundation on the previous internationalisation theories. Later on, Dunning (2001) emphasised that some criticisms of the model turn up leading to the extending of the eclectic paradigm. Moreover, this theory changed in the light of the international activities and global economy, but it still played the essential role of worldwide production and FDI. Stoiana and Filippaios (2008) recalled and analysed Dunning's eclectic paradigm to analyse the determinants of Greek's OFDI to find out the market size, openness, the rule of law, and high bureaucratic quality indicators. As Chan, Y. T. A. and Chan, S. H. (2011) pointed that the eclectic paradigm was also suited for China's OFDI mainly influenced by its economic interests, but it still needed to emphasize the host countries' functions and their specification. Berning and Holtbrügge (2012) illustrated deeply that the Chinese outward foreign direct investment analysis should base on the traditional internationalisation theories, like Dunning's eclectic paradigm theory, but these theories cannot be applied perfectly to explain Chinese OFDI alone. It calls for innovation regarding China's special situation. Therefore, it discussed some possible extensions and implications for the research on China's OFDI to ASEAN. Some empirical analyses also demonstrate the eclectic paradigm framework on FDI, like Pathan's research. Pathan (2013) argued that he followed the OLI three aspects of the eclectic paradigm on FDI and tested the variables from sub-paradigm firstly with pooled OLS estimation method and then used the Fixed-Effects regressions to analyse the panel data between 1970 and 2009.

Some exploration of FDI analyses happened to back up at the Dunning eclectic paradigm. In connection to China's OFDI and to meet the shortage of Dunning's eclectic paradigm framework, the extensional research gathered at the pushing and the pulling factors

to analyse China's OFDI determinants. Besides, China-ASEAN Free Trade Area(CAFTA) is also one benchmark of the international trade. Wang, J., Kong, and Wang, H. (2013) examined China's export and OFDI regarding CAFTA. They used the pooled EGLS from 2000 to 2008, taking into account the coefficient, standard error, t-statistic and probability of the variables. The result suggested that the GDP per capita, foreign exchange reserve, the territory of the ASEAN countries, and the distance can make the differences to China's FDI.

In the research field of FDI, the scholars mentioned many related theories to do their empirical analyses. However, the general theories of FDI are not entirely fit to China's specific characteristics, taking account of Chinese institutions, economy, culture, the stage of development, and so on and so forth. Chan, Y. T. A. and Chan, S. H. (2011) and Sermcheep (2017) focusing on the determinants of China's OFDI both added the host country's pulling factors. Therefore, this paper concentrates on both theories to analyse China's OFDI with its specific performance.

4. THEORY MODEL

4.1 Main concepts

CHINA'S OFDI

There is no uniform definition of FDI. The meaning of FDI from MOFCOM is defined by enterprises established by the law of China, owning businesses or obtaining ownership, management and other rights and interests of existing companies through green investment, mergers and acquisitions and other means. The World Bank made the definition of FDI as a net inflow of investment by investors to win the permanent management interest of the enterprise operating in another host country. UNCTAD defines FDI as a lasting relationship in a country or region of a firm (a foreign investment enterprise, a branch, and so forth) which has a long-term interest and control to the business (UNCTAD,1999). The definition of FDI from International Monetary Fund (IMF) is that an investor from one country has sustained income through participation in an enterprise business in other countries or regions, for an active voice in the enterprise's operation and management.

The concept of OFDI is developed by FDI, constituting of Inward and Outward FDI. In combination with ideas of MOFCOM, World Bank, UNCTAD and IMF, OFDI in this paper refers to a Chinese enterprise or group that invests in other countries to control the exogenous business management and profit-making economic activities. Here, it emphasizes Annual outflow of Chinese FDI flows and stocks (Million USD).

ASEAN

ASEAN entirely named the Association of Southeast Asian Nations, which is a regional intergovernmental organisation. The establishment of the association was on 8th August 1967, signed by Indonesia, Malaysia, Philippines, Singapore and Thailand as the ASEAN Declaration, also named Bangkok Declaration. Later on, Brunei Darussalam joined in 1984. Vietnam participated in 1995. Moreover, Lao PDR and Myanmar joined in 1997, and Cambodia in 1999. So far, ten member states of ASEAN had been made up. This association followed one fundamental principle in 1976 named Treaty of Amity and Cooperation in Southeast Asia (TAC), aiming to accelerate the prosperous and peaceful community in the aspects of economic, social and cultural development (Flores & Abad, 1997). These ten ASEAN countries here are the group of host countries, which are also balanced panel variables in STATA.

OBOR

OBOR is launched by President Xi in 2013, including the Silk Road Economic Belt and the 21st-Century Maritime Silk Road. In the speech at the Indonesian Parliament, President Xi emphasised the importance of China-ASEAN Maritime Cooperation Fund, which could jointly build 21st Century Maritime Silk Road (Xu, 2013). ASEAN countries are all in the Maritime Silk Road. It also includes two financial institutions, AIIB, and Silk Road Fund. It aims to connect the economies of countries along the OBOR's two ways through investment, trade and infrastructure. This paper emphasises FDI aspect. Although the official implementation began in 2015, this article narrowed seven years between 2010 and 2016 to track the development progress of OBOR, excluding another policies' influences as much as possible. Indeed, this study chooses 2013 as the turning point because of its published announcement and its influence in ASEAN. Therefore, this paper would compare two time-periods between 2010-2013 and 2014-2016, which aims to find the differences of China's OFDI determinants to ASEAN over these two different time along OBOR and to test hypothesis 4. In mid-2016, it officially changed this English name to 'the Belt and Road Initiative.' However, most scholars get used to calling it OBOR in the abbreviation, so this studies it also makes use of OBOR as the unification (Bērziņa-Čerenkova, 2016).

4.2 Theories

Reviewing the application of general FDI theories above, to date, this paper also uses Dunning's eclectic paradigm theory as the benchmark. Facing to China's OFDI determinants to ASEAN, general theories are not entirely fit relied on previous research's conclusions. Therefore, based on the empirical analysis of China and ASEAN, this paper chooses the pulling

Factors to supplement Dunning's eclectic paradigm, since the pulling factors also emphasize the host country's political risks and domestic-credits variables in this article. Therefore, aligning with the period of OBOR from 2010 to 2016, this paper could go straight to the topic and explore the position of OBOR in the host country.

The paradigm can be divided into three different sets of specific advantages by Dunning (1977; 1984; 1988; 2001), consisting of ownership-specific (O), location-specific (L) and internalization (I) advantages. Ownership-specific advantages more emphasise the enterprises' ability to integrate international product markets. This thesis excludes this ownership-specific dimension since it focuses on the country-level analysis instead of firm-level ones. Nevertheless, internalization (I) advantages here is also difficult to quantify the internationalisation advantages (Erramilli & Rao, 1993; Agarwal & Ramaswami, 1992; Dunning, 1979). It argued that location-specific (L) advantages are key determinants of FDI (Denisia, 2010; Chan Y. T. A. & Chan. S. H., 2011). Denisia (2010) made an order of these three conditions. FDI happens when Ownership-specific advantages are fulfilled at the beginning. The main key factors belong to the condition of location-specific advantages. Finally, when meeting the above two conditions, it produces internalisation advantages. Scholars also concluded that location-specific advantages are sufficient conditions for FDI and ownership-specific and internalization advantages are both necessary but not sufficient conditions concerning FDI (Kindleberger, 1969; Hymer, 1976; Dunning, 1980; Caves, 1996). Therefore, this research focuses on the location-specific advantages of Dunning's eclectic paradigm.

Regarding the location-specific advantages, this paper identifies it as the motivated determinants of OFDI. Researchers concluded that resource-seeking, market-seeking and efficiency-seeking are the three primary motivations (Buckley et al., 2007; Kolstad & Wiig, 2012; Chan Y. T. A. & Chan. S. H., 2011; Anh et al., 2016; Sermcheep, 2017). This paper mainly focuses on the market-seeking motivation, but it does not form a unified set of indicators according to marketing-seeking motivation. Furthermore, host countries' pulling factors include several dimensions analysing determinants of OFDI, for example, host market size, natural resources, strategic assets, political risk, and bilateral trade (Chan Y. T. A. & Chan. S. H., 2011). Aligning with the Dunning's eclectic OLI paradigm, host countries' pulling factors could take a supplement of political risks and host countries' domestic-credits variables. As for other motivations, regarding the resource-seeking motivation, scholars often use natural resources as the measuring indicators. However, based on some empirical analysis in ASEAN, natural resources are not the main significant determinants of China's OFDI regarding the

results (Sermcheep, 2017). Indeed, natural resources values missed a lot which may influence the accuracy and validity of panel data analysis in this paper. Therefore, this study also dropped this value. As for efficiency-seeking motivation aims at attaining efficient domestic and foreign assets portfolio, which remains at the firm-level, which is not a key motivation in this paper. Therefore, this paper does not mention this aspect.

In conclusion, Dunning's eclectic paradigm theory and the pulling factors theory establish the theoretical research model jointly, which make a guideline of variables selections and hypotheses landing. Also, this research makes use of panel data estimation model to analyse data later.

4.3 Hypotheses

The theoretical model based on the Dunning's eclectic paradigm OLI theory. Many scholars proved that location-specific (L) plays the crucial role to deter OFDI. This paper mainly utilises market-seeking under location-specific aspect to research the determinants of China's OFDI to ASEAN based on empirical research. This paper also makes use of the pulling factors, as well as relying on some empirical studies. It puts out political risk and host countries' domestic-credits theoretical justifications. Therefore, this research clarifies as the following kinds of hypotheses under the theoretical framework above.

Marketing-seeking

Regarding market-seeking, many studies demonstrated the positive association between market size and FDI flow. It shows a more extensive market size would increase FDI activities. Market size represents the potential goods demand and economy scales' room in the market (Davidson, 1980). It here interprets as host countries' GDP (USD) (Buckley et al., 2007; Cheng & Ma, 2007; Anh et al., 2016). Also, in the market-seeking dimension, it also includes host countries' openness, explaining as exports and imports sum including goods and services aspects to the rest of the world. It often estimates as a percentage of GDP (Buckley et al., 2007; Anh et al., 2016; Sermcheep, 2017). The hypothesis:

Therefore, the first main hypotheses related to market-seeking motivation are here:

Hypothesis 1a:

China's OFDI in ASEAN is positively associated with absolute market size in the host country, which represents GDP;

Hypothesis 1b:

China's OFDI to ASEAN positively associated with host countries' openness to trade, which calculates as exports and imports sum taking goods and services into consideration to the rest of the world with the unit of a percentage of GDP.

Political risk

Accordingly, numerous studies review China's OFDI is positively and significantly related to the host country's weak institutions (Kolstad & Wiig, 2012; Anh et al., 2016; Sermcheep, 2017). The host country's political stability would introduce the uncertainty for foreign investors. Therefore, these investors would consider it seriously (Chan Y. T. A. & Chan S. H., 2011).

There are six indicators to be the proxy for the political risks from World Governance Indicators (WGI). The indicators include control of corruption, government effectiveness, political stability and absence of violence/terrorism, regulatory quality, the rule of law and voice and accountability (Chan Y. T. A. & Chan S. H., 2011). However, many scholars choose several of them to represent political risks in specific regions. For example, many researchers studied China's OFDI such as Kolstad and Wiig (2012) and Anh et al. (2016). They chose the rule of law to examine the institutional variables or transactional costs in the host country. Sermcheep (2017) supplements political stability and the absence of violence/ terrorism as the other indicator to test China's OFDI to ASEAN. However, to exclude the selection bias, in this case, the author takes advantage of the research by Chan Y. T. A. and Chan S. H. (2011). Some scholars like Loree and Guisinger (1995) also found out a significant association between FDI and political risk.

Hypothesis 2:

China's OFDI negatively associated with ASEAN countries' political risks. It calculates the average figure of Worldwide Governance Indicators'(WGI) official six indicators, ranging from the value -2.5 to 2.5. However, the higher score it accounts for, the better institution there exists to be and less political risks it has, which indicates as ASEAN countries' Political Risk in this case.

Host countries' domestic-credits

When researching China's OFDI, some scholars like Buckley et al. (2007), Chan Y. T. A. and Chan S. H. (2011), Liu et al. (2017), and Sermcheep (2017) found that China's OFDI is strongly sensitive to some control variables such as the exchange rate. Also, Buckley et al. (2007), Chan Y. T. A. and Chan S. H. (2011), and Sermcheep (2017) examined the inward FDI total stock to GDP ratio in the host countries as the control variable to explain the clustering

effect which shows the FDI success of host countries. The higher the IFDI is, the more FDI attracts from China. Therefore, the hypotheses in this theoretical justification are:

Hypothesis 3a:

China's OFDI in ASEAN is positively related to the host country's official exchange rate (LCU per CNY, annual).

Hypothesis 3b:

China's OFDI in ASEAN is positively associated with the Inward FDI Stock (Million USD).

The difference between two time periods

Lastly, concerning the second research question to investigate the significant determinants of China's OFDI in the ASEAN countries over the period of 2010-2013 and 2014-2016 along OBOR in this thesis, it argues as:

Hypothesis 4:

Along OBOR, there is a significant change of China's OFDI determinants in ASEAN during 2010-2013 and 2014-2016.

5. DATA AND METHODOLOGY

5.1 Data issue

5.1.1 VARIABLE SELECTIONS AND DESCRIPTIONS

Due to the durable and reliable principle of selecting variables, this research relied on some empirical research on China's OFDI to ASEAN countries with Dunning's eclectic paradigm and the pulling factors to narrow down the possible determinants variables which were suit for this paper. It is a need to choose those applicable estimating models during the data analysis. Therefore, this article dropped some variables which are missed or not related to the topic based on previous studies. As following, it divided into three kinds of variables, dependent variables, independent variables and the control ones.

Dependent variables:

This research highlights the OFDIF and OFDIS together to examine the Chinese OFDI determinants, since adding the stock can be more applicable and complementary for the data analysis model. Therefore, this paper adopts their studies making use of both the flow and the stock of China's OFDI instead of only flow data as dependent variables. The conclusion of the studies from Buckley et al. (2007) and Cheng and Ma (2007), as well as Cheung and Qian

(2009) and Chan Y. T. A. and Chan S. H. (2011) all illustrated the function and importance of China's OFDIS. Firstly, Buckley et al. (2007) explained the differences of the concentration of China's OFDI in both developed and developing countries with the stocks and then listed the determinants of Chinese ODI hypotheses. Later on, he analysed Chinese FDI Outflow by host countries with an annual average of ODI stock. Also, Cheng and Ma (2007) reviewed the past of China's OFDI and predicted its future. They used China's OFDIF in conjunction with OFDIS to analysed the association with the host country, examined China's FDI flow and stock the sectoral composition and geographical distribution. Cheung and Qian (2009) divided their paper into two parts, the sectoral composition, and geographic distribution, and used China's OFDIS as the dependent variable, to conclude the impacts of China's OFDI. Later on, Chan Y. T. A. and Chan S. H. (2011) investigated the determinants of Chinese OFDI during 2003-2009. They found that it is more applicable to use OFDIS data, making the explanation more reliable and comprehensive. OFDIF can represent the volatility across the time, and the stock of OFDI tends to be more stable instead of wildly fluctuations. In other words, OFDIF tends to reflect a shorter-term effect than OFDIS does. Indeed, Chinese OFDIS is always non-negative figures which can make up the limitation of the observations (Chan Y. T. A. & Chan S. H., 2011). It interprets as OFDIF and OFDIS in this study.

Independent variables:

Concerning the hypotheses in this paper, the independent variables were carefully selected. Under the theoretical framework in this article, it uses GDP to measure the host country's market size, which represents its absolute market size (Buckley et al., 2007; Chan Y. T. A. & Chan S. H., 2011; Sermcheep, 2017). As for the market-seeking motive from Dunning's eclectic paradigm, the more substantial market size, the more FDI flow attract. Hypothesis 1a makes use of this variable to test. Later on, the exports and imports sum taking goods and services into consideration to the rest of the world with the unit of a percentage of GDP in the host country (OPEN) interprets Hypothesis 1b in this research aiming at examining the impact of the host country's trade openness on China's OFDI. (Chan Y. T. A. and Chan S. H., 2011; Sermcheep, 2017).

Concerning political risk aspect, it combines the estimates of all indicators from WGI. It includes the host country's Control of Corruption: Estimate (CC.EST) and Political Stability and Absence of Violence/Terrorism: Estimate (PV.EST). What's more, it also includes Government Effectiveness: Estimate (GE.EST), Regulatory Quality: Estimate (RQ.EST); Voice and Accountability: Estimate (VA.EST), and Rule of Law: Estimate (RL.EST), all ranging from roughly -2.5 to 2.5. CC.EST estimates the degree of corruption control in the host

country. CC.EST measures the host country's level of corruption control. PV.EST measures the possibility of state power being overthrown by violence and the possibility of domestic violence and terrorist incidents. GE.EST represents the quality of host countries' public service. RQ.EST measures the ability of governmental policies and rules which benefit the private sectors. VA.EST indicates the extent to which citizens can participate in the selection and the level of expression, association and free media freedom (陈松 & 刘海云, 2012). Finally, this paper takes advantage of the average of the whole set of six indicators under political risk dimension instead of choosing several incomplete ones to test Hypothesis 2 (Chan Y. T. A. & Chan S. H., 2011). The coefficient score is higher and then represents that the host country has the better institution. In other words, the host country's political risk is less, since better institution makes the country more stable and safer. Furthermore, concerning Globerman, Shapiro and Tang (2006), better institution enlarges the profitability of business activities and has more opportunities to attract FDI. The combination of six indicators as the total average makes the results more accurate and independent (Globerman et al., 2006).

Control variables:

The control variables are used to control the level of macroeconomic situation in host countries, which is tightly related to FDI research based on the empirical studies, such as articles from Chakrabarti (2001), Buckley et al. (2007), Chan, Y. T. A. and Chan, S. H. (2011), Anh et al. (2016), Sermcheep (2017) and Liu et al. (2017). These two variables also aim to isolate explanatory variables from variables of interests (Chan, Y. T. A. & Chan, S. H., 2011). This paper chooses EXRATE and IFDI as the control variables. First control variable in this paper is EXRATE, regarding H3a. It interprets as the host country's official exchange rate as annual currency unit per CNY. Indeed, Liu et al. (2017) concluded that China's OFDI in OBOR countries is strongly sensitive to the host country's exchange rate. It is more attractive to the home country when host country currency is in depreciation since the assets in host country become cheaper (Buckley et al. 2007). It also explains as China's exchange rate appreciates, China's trade competitiveness decreases. Therefore, China would like to invest abroad to maintain the trade competitiveness. IFDI measures as the host country's total Inward FDI Stock (Million USD), indicating H3b. The higher host countries' IFDI would attract more China's OFDI. It is one kind of clustering effect, examining whether the host country has successful international production experiences or not. New FDI would like to follow existing FDI trend due to sufficient infrastructure development situation in these host countries (Sermcheep, 2017).

Shah (2014) also highlighted the essential positive influence of infrastructure on FDI inflow in developing countries.

Table 2 below describes the summary of the variables, including their abbreviation in this paper, the descriptions, their theoretical justifications, types and the data sources. This article uses the panel data to estimate because it both includes the time-series and cross-sections effects.

Table 2

List of all variables

Variables	Description	Theoretical justification	Types of variables	Data Source
OFDIF	Annual China's Outward Foreign Direct Investment Flow to host country (US Dollars at current prices in millions)		Dependent	Statistical Bulletin of China's Outward Foreign Direct Investment by MOFCOM
OFDIS	Annual China's Outward Foreign Direct Investment Stock (US Dollars at current prices in millions)		Dependent	Statistical Bulletin of China's Outward Foreign Direct Investment by MOFCOM
GDP	Host country's GDP (USD)	Market-seeking (Buckley 2007)	Independent	World Development Indicator (WDI) from World Bank
OPEN	Host country's trade openness (the ratio of the exports and imports sum of goods and services to the rest of the world as a percentage of GDP)	Market-seeking	Independent	World Development Indicators (WDI) from World Bank

RISK	Host country's political risk indicators, ranging from the value -2.5 to 2.5, where the higher value is, the better institution the host country has (the average value of Political Stability and Absence of Violence/Terrorism, Rule of Law, Control of Corruption, Government Effectiveness, Regulatory Quality, and Voice and Accountability)	Political risk	Independent	Worldwide Governance Indicators (WGI) from World Bank
EXRATE	Exchange Rate (LCU unit per CNY, annual)	Host countries' domestic-credits (Macroeconomic factors)	Control	UNCTADSTAT
IFDI	Host country Inward FDI Stock (Million USD)	Host countries' domestic-credits	Control	UNCTADSTAT

5.1.2 DATA COLLECTION

The data collection concentrates on ASEAN countries. ASEAN country is a representative union of developing nations, which attracted the high world attention. During the years, China's OFDI largest recipient has been ASEAN. Furthermore, this paper attempts to examine the determinants of China's OFDI along the OBOR initiative. Referring to the OBOR initiative, it announced in 2013, which put up to jointly create the economic belt strategy(张燕生, 2017). Furthermore, the 21st-Century Maritime Silk Road was raised up in ASEAN countries in 2013. It based on the 10th anniversary of the cooperation of China and ASEAN strategic partnership. The aim is to establish a closer community with the common destiny further and put forward a strategic plan for the well-being of both sides and even care about the people in the region at the new historical point. Especially, when the CAFTA created, China has become ASEAN's one of the largest trade partners. On the other side, ASEAN became the third most abundant trade partner to China. After 2010, the relationship between China and ASEAN has shifted to mature cooperation and a fast track. In short, ASEAN has become an essential carrier of the 21st Century Maritime Silk Road. Also, it was a priority strategy to deal with the international issues, such as the South China Sea issue(薛力, 2015).

Moreover, ASEAN countries are the first station along the economic belt road of the international cooperation.

The indicators in this paper take advantage of the theoretical framework as the benchmark to investigate the research question in this paper. The primary sources are the official FDI data reported by WDI and WGI from World Bank official website, and UNCTAD statistics. These datasets provide the objective data at the international level instead of only China's side. Also, this paper benefits from "Statistical Bulletin of China's outward foreign direct investment" by MOFCOM to collect the values of dependent variables. It defines Annual outflow of China's FDI flow and stock with the unit of US Dollars at current prices in millions. Furthermore, it wants to cut down the dummy implications from other policies and focuses on the OBOR policies impacts, so this paper chooses 2010 as the beginning year due to the ACFTA in 2010, which is also a junctural point of relations between China and ASEAN. OBOR announced in 2013, and the creation of the official documents about OBOR was taken into effect in 2015. Therefore, this paper can help to track the OBOR initiative developing process and get more reliable results.

5.2 Estimation

Many papers made use of quantitative research according to China's OFDI determinants. In this thesis, it could investigate the there are no "zero" figures of China's OFDI flows and stocks as the calculation premise. Furthermore, it is short-term research over the period of seven years. Therefore, regarding the panel data analysis, this estimation is applied to OFDIF and OFDIS data after Hausman test. Finally, it makes use of two estimations tests to prove the analysis's validity and reliability. This research is about China's OFDI to ASEAN countries over seven years. It uses the macro-data with short-term series, so it is not an issue to check the cross-sectional dependence in this estimation with Pasaran CD test (Judson & Owen, 1999; Hsiao, Pesaran & Tahmiscioglu, 2002; Kezdi, 2003; Torres-Reyna, 2007). Furthermore, this study chooses standard root unit test to prove the validity of estimations actively again. Then it takes the heteroscedasticity test under the FEs model, which aims to measure the variability of variables. The null hypothesis is homoscedasticity. In consequence, the estimation results can prove the first three hypotheses. As for the last hypothesis, it also uses dummy variables to run the two-time periods data due to reducing the bias of the estimation. Therefore, it can more accurately see the difference between two-time periods determinants, *ceteris paribus*.

Firstly, this research contracts two general linear-equation models :

(1) The OFDI flow form is:

$$OFDIF_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 OPEN_{it} + \beta_3 RISK_{it} + \beta_4 EXRATE_{it} + \beta_5 IFDI_{it} + \varepsilon_{it}$$

(2) The OFDI stock form is:

$$OFDIS_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 OPEN_{it} + \beta_3 RISK_{it} + \beta_4 EXRATE_{it} + \beta_5 IFDI_{it} + \varepsilon_{it}$$

In these two equations, *i* means the host country and *t* is the year. α represents all host countries' common intercept, and β indicates the corresponding coefficient for the variables. Indeed, $\varepsilon(it)$ is the random error (i.d.d.) in the estimations.

Second, when it aims to analyse whether the determinants of China's OFDI in ASEAN from 2014 to 2016 differ from the determinants between 2010 and 2013 about hypothesis 4, it sets the time dummy variables to estimate. Assuming time dummy variable in STATA, it defines that is equal to "0", if the year is from 2010 to 2013, and refers to "1" when the year is between 2014 and 2016. It generates the dummy variables formations in STATA first. Later on, it runs the F-test to check whether the statistics are both independent and identical in this case. Therefore, the equations in line with dummy variables extend to be:

(3) The OFDI flow extended form is:

$$OFDIF_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 OPEN_{it} + \beta_3 RISK_{it} + \beta_4 EXRATE_{it} + \beta_5 IFDI_{it} + \beta_6 DGDP_{it} + \beta_7 DOPEN_{it} + \beta_8 DRISK_{it} + \beta_9 DEXRATE_{it} + \beta_{10} DIFDI_{it} + \varepsilon_{it}$$

(4) The OFDI stock extended form is:

$$OFDIS_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 OPEN_{it} + \beta_3 RISK_{it} + \beta_4 EXRATE_{it} + \beta_5 IFDI_{it} + \beta_6 DGDP_{it} + \beta_7 DOPEN_{it} + \beta_8 DRISK_{it} + \beta_9 DEXRATE_{it} + \beta_{10} DIFDI_{it} + \varepsilon_{it}$$

In these two equations, it assumes $DGDP_{it}$ stands for dummy * GDP_{it} ; $DOPEN_{it}$ means dummy * $OPEN_{it}$; $DRISK_{it}$ represents dummy * $RISK_{it}$; $DEXRATE_{it}$ is for dummy * $EXRATE_{it}$; and $DIFDI_{it}$ shows dummy * $IFDI_{it}$. From β_6 on, the coefficient β assumes as the effects of the change between 2010-2013 and 2014-2016. The dummy variables estimations aim at estimate the differences between these two periods.

The implement of OBOR initiative is the sharp and significant positively turning point under above determinants, which covers seven years between 2010 and 2016 including ten countries in ASEAN region. This research provides more observations than other empirical analyses in ASEAN, generating more reliable conclusions.

Since the database refers to a relatively short-term period, this paper chooses to use the simplest estimating models to examine the study. This research firstly uses FEs and REs estimation methods with panel data analysis to choose the appropriate test model in STATA 14.0. Hausman test was used to determine the durability of the FEs and REs for this study. Under the condition of a 95% confidence level, it will reject the null hypothesis since the p-value in the result is smaller than 0.05. R-square explained the percentage of the variation among the variables (Kolstad & Wiig, 2012; Hu, 2013; Anh et al., 2016; Sermcheep, 2017). Huber White robust standard errors are used in all estimations (Chan, Y. T. A. & Chan, S. H., 2011).

Table 3

Regression estimates for FEs and REs

Explanatory Var.	FEs	REs	FEs	REs
	(1) OFDIF	(2) OFDIF	(4) OFDIS	(5) OFDIS
GDP	- 2.24e-09 (3.61e-09)	- 1.18e-09** (5.56e-10)	- 1.88e-08** (8.13e-09)	- 1.06e-08*** (1.97e-09)
OPEN	- 16.10863* (7.688715)	- 6.935638*** (2.628699)	- 43.67986 (38.74378)	- 59.53654*** (7.620198)
RISK	710.6908** (314.0147)	- 141.8958 (185.9127)	4388.325** (1843.596)	179.5728 (688.4366)
EXRATE	0.5331103 (0.3334706)	0.1867472* (0.1106301)	4.950265*** (1.224916)	1.653344*** (0.4259627)
IFDI	0.007816*** (0.000886)	0.0066189*** (0.001004)	0.0497803 (0.0046264)	0.0423923 (0.0026502)
Cons	1992.05 (1441.885)	733.5276** (332.2923)	4206.534 (5908.354)	6223.664*** (1188.228)
Observations	70	70	70	70
Countries	10	10	10	10
Overall R ²	0.4764	0.6112	0.726	0.8946

Note: Robust standard errors in the parenthesis. ***, ** and * represent that the coefficient of the variable shows the significant effect at 1%, 5% and 10% levels respectively.

In Table 3, it conducts using FEs and REs. Hausman test firstly determines which model to take advantage of for the OFDIF and OFDIS data respectively. When it assumes the FEs, it controls the bias of time-invariant characteristics effect and ensures those characteristics are unique to each country, such as culture, religion, and gender. (Torres-Reyna, 2007). The null hypothesis for the Hausman test is that REs model is appropriate. Otherwise, the alternative theory is that FEs model is suitable. In this paper, the result of OFDIF and OFDIS respectively

rejects the null hypothesis. Therefore, both OFDIF and OFDIS use the FEs to be the estimation model.

6. RESULTS AND DISCUSSION

6.1 Data results

6.1.1 THE SUMMARY OF REGRESSION ESTIMATES

Firstly, getting rid of heterogeneity bias could make the results confident, which needs to control the effects of unobserved variables during the time (Hsiao, 2014).

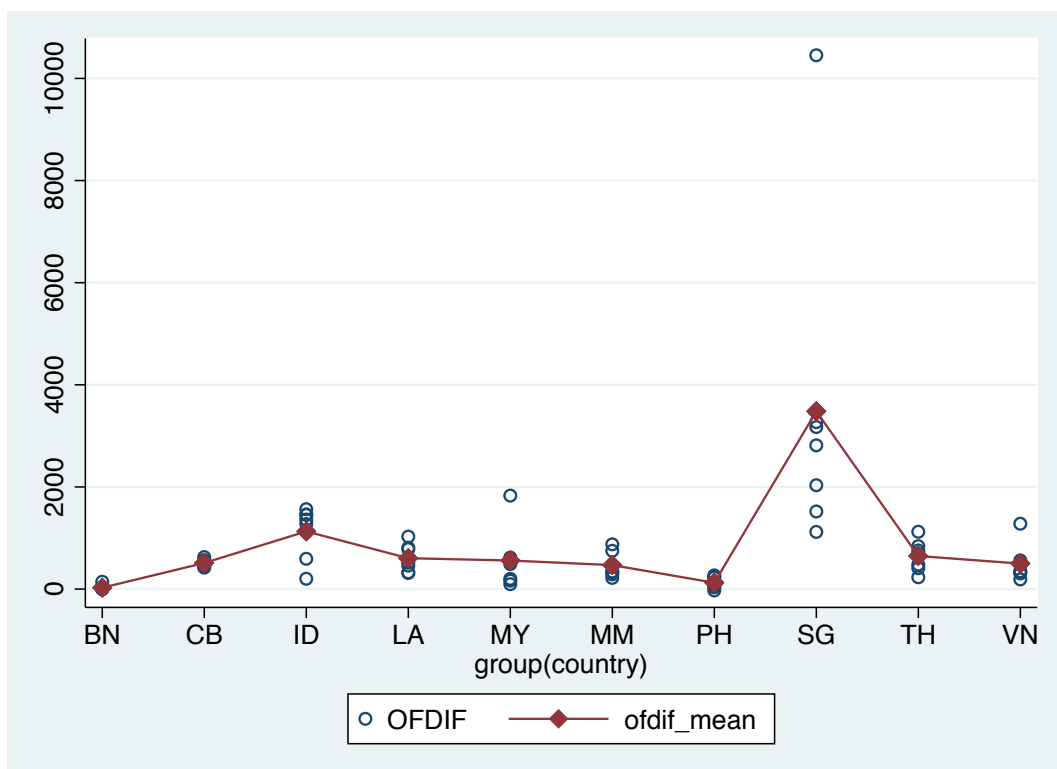


Figure 1 FEs: Heterogeneity across ten countries

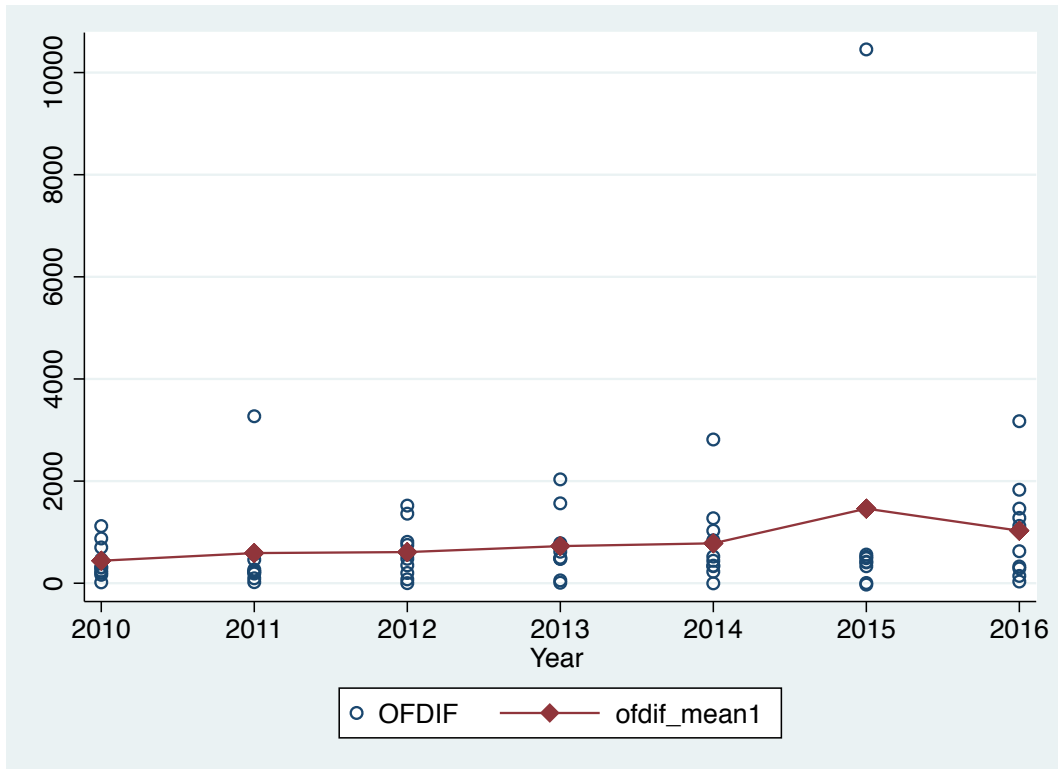


Figure 2 FEs: Heterogeneity across seven years

As two graphs show, China's OFDIF for six different countries are ordinarily similar except Indonesia, Malaysia, Singapore, and Vietnam. Indonesia accepted China's OFDIF is slightly higher than five other nations, and Singapore accepted far more China's OFDIF than other six countries, especially in 2016. Malaysia and Vietnam show the unique characteristics in the above graphs because of the significant increase of China's OFDIF in 2016. According to the second graph, China's OFDIF towards ASEAN countries are stable with a little bit increase. During the seven years, 2011 and 2015 show that there were two times some states have a far different OFDIF with other countries. What's more, according to the different OFDIF's variation tendency, heterogeneity is stable which means unobserved variables' effects are insignificant over time.

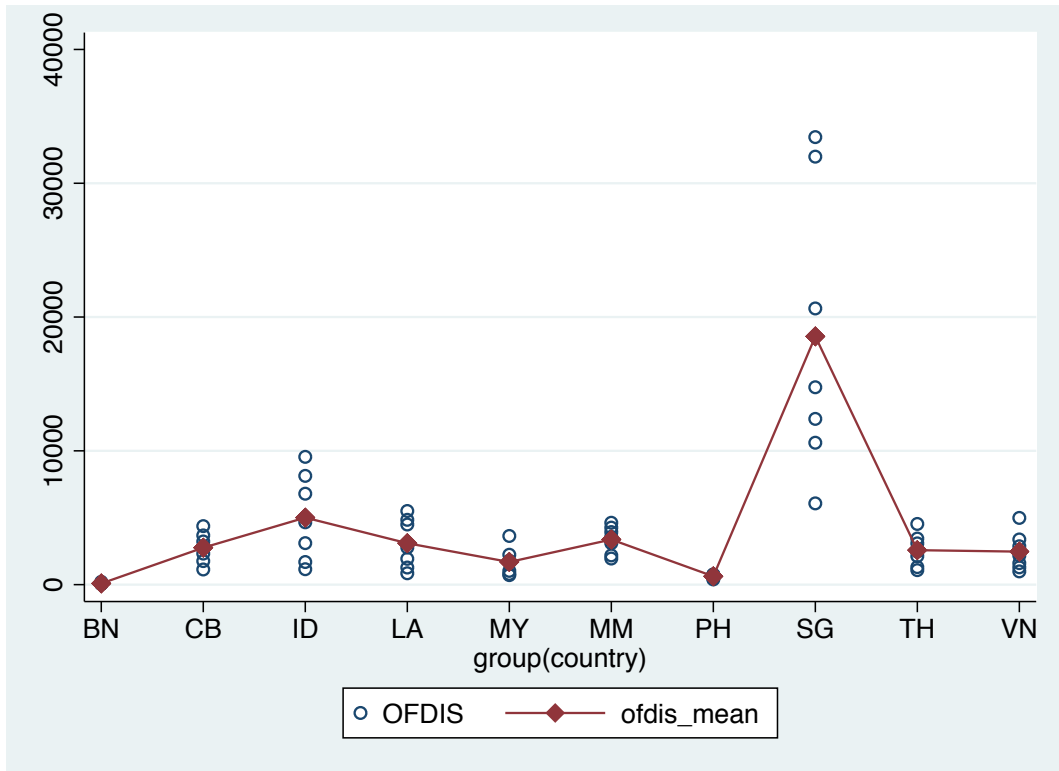


Figure 3 FEs: Heterogeneity across ten countries

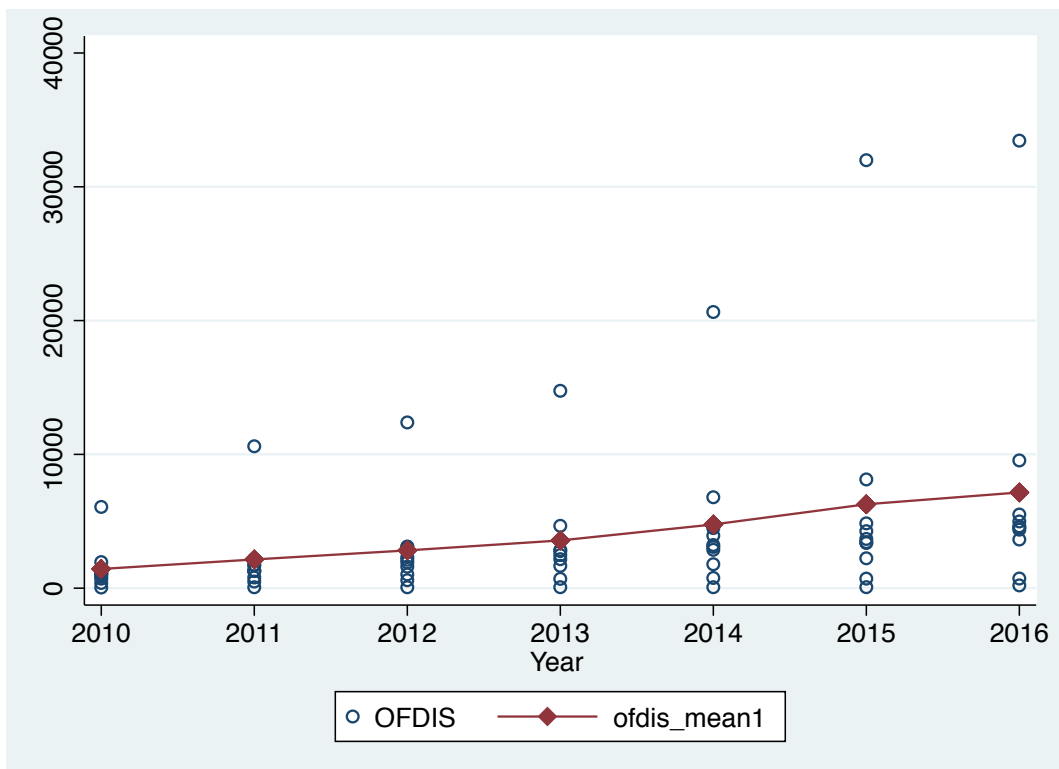


Figure 4 FEs: Heterogeneity across seven years

According to the first graph, Indonesia and Singapore are still different with other eight countries because of the significant increase of OFDIS for each year. Especially for the last

two years of Singapore, the growth is both higher and quicker than other nine countries. The figures of Indonesia concerning China's OFDIS do not increase as quickly as Singapore, but more rapidly than other eight states. According to the second graph, China's OFDIS towards ASEAN countries is stable and slightly increasing except one country. This country is very likely to be Singapore because of the first figure. However, the difference between ten countries' different variation tendency is not as clear as OFDIF. What's more, according to the different OFDIF's variation tendency, heterogeneity is stable which means the effects of unobserved variables are insignificant during the time.

This paper runs in the panel data model. Firstly, when set in the panel data frame, it makes the dataset strongly balanced, meaning that all countries have sufficient data for all years. Then, it can run the model.

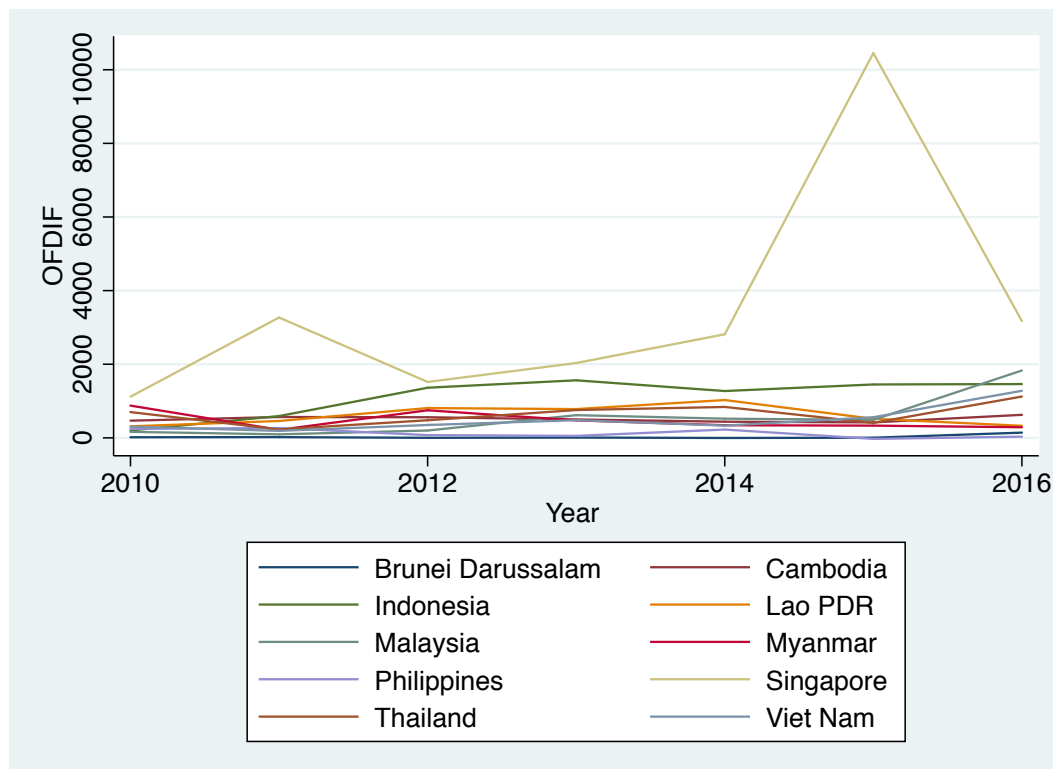


Figure 5 Overlay of the China's OFDIF in ASEAN over seven years

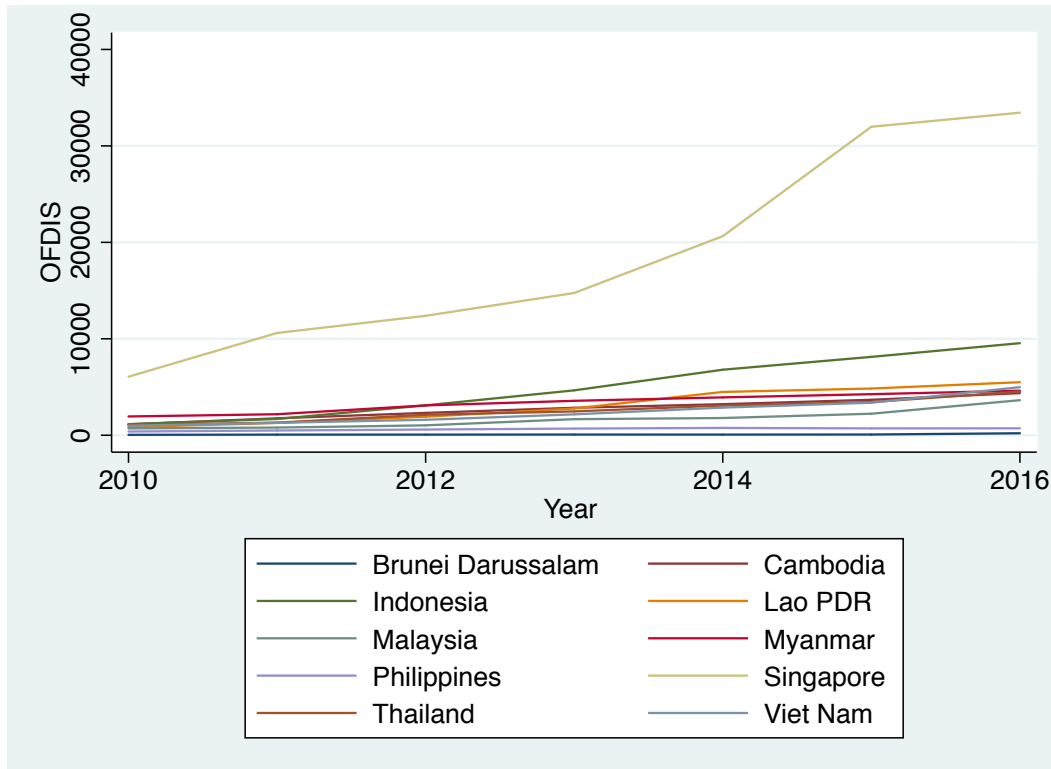


Figure 6 Overlay of the China's OFDIS in ASEAN over seven years

These two figures above illustrate that the OFDIF and OFDIS trend is changing between 2010 and 2016 among ten countries. As for OFDIF perspective, besides Singapore, other countries do not have much significantly changes. Referring to Singapore, the most prominent investment destination among ten states, the independent variable OFDIF firstly increases from 2010 to 2011. Later on, it dropped in 2012. Then, it raised up to the summit in 2015 quickly. After 2015, the OFDIF decreased dramatically again. It shows that in 2014, most of the countries got the highest percentage of the OFDIF compared to the previous years since 2010. It was a turning point year for some countries in 2015. As for Lao PDR, Philippines and Singapore, there was downhill in the graph of OFDIF after 2015. According to China's OFDIS, it is interesting to see that most countries have an increasing trend during these seven years. Singapore also shows the most significant change among ASEAN. Notably, there was a steady growth before 2013. After 2013, the growth trend is steeper and steeper up to 2015. However, the increasing trend became steadier in 2016. Except for Singapore, other ASEAN countries represent the flat growth over these seven years. Singapore represents significant because of its liberalized growth environment, which has led to an easily accessible market.

Since the results based on the Fixed Effect model both for OFDIF and OFDIS, so the regression results are below in Table 4.

Table 4

Estimates for OFDIF and OFDIS

	FEs	FEs
Explanatory	(1)	(4)
Var.	OFDIF	OFDIS
GDP	- 2.24e-09 (3.61e-09)	- 1.88e-08** (8.13e-09)
OPEN	- 16.10863* (7.688715)	- 43.67986 (38.74378)
RISK	710.6908** (314.0147)	4388.325** (1843.596)
EXRATE	0.5331103 (0.3334706)	4.950265*** (1.224916)
IFDI	0.007816*** (0.000886)	0.0497803*** (0.0046264)
Cons	1992.05 (1441.885)	4206.534 (5908.354)
Observations	70	70
Countries	10	10
Overall R ²	0.4764	0.726

Note: Robust standard errors in the parenthesis. ***, ** and * show that the coefficient of the variable has the significant performance at 1%, 5% and 10% levels respectively.

OFDIF

According to table 4, the coefficients of RISK, OPEN, IFDI is significant at 5%, 10% and 1% level respectively to OFDIF. So OPEN, RISK and IFDI are significant determinants of China's OFDIF to ASEAN between 2010 and 2016.

As for Hypothesis 1b, China's OFDI to ASEAN is positively associated with trade openness. It demonstrates that the coefficient of OPEN is significantly negatively associated with China's OFDIF in ASEAN, which rejects the hypothesis 1b. It is interesting to see that this result runs counter to the hypothesis 1b and at the same time, it is different from some empirical research. It interprets as when the host country's values of the exports and imports sum of goods and services increase, China would invest less. Some scholars raised up that host countries' imports and exports, to some extent, open up the international market for home country's OFDI. The negative relationship may emphasize the process of internationalisation was shifting more from international trades to FDI recently. On the other side, it proves that

sometimes China's OFDI is one behaviour of avoiding trade barriers passively and defensively to protect the host countries' markets (Dunning, Kim & Lin, 2001). It is mostly because of the agreements, policies or regulations forcing influence. During the period, the most significant policy is OBOR. So maybe the introducing of OBOR produces this unusual result.

As for hypothesis 2, it assumes in this paper that China's OFDIF to ASEAN is negatively related to political risk in the host country. The result indicates the coefficient here is significantly positively related to China's OFDIF, which means the host country with less political risk would attract more China's OFDIF. It supports hypothesis 2.

Regarding hypothesis 3, the coefficient of IFDI shows in table 4 column (1) that it is significantly positively related to China's OFDIF to ASEAN. Therefore, higher IFDI stock markedly attracts more China's OFDIF, supporting hypothesis 3b at OFDIF aspect.

OFDIS

Regarding OFDIS, GDP, RISK, EXRATE, and IFDI are examined to be significantly related to OFDIS, which means they are significant determinants of China's OFDIS to ASEAN. As for hypothesis 1a, it rejects the hypothesis in the result. Firstly, it is interesting to see that GDP is significantly negatively associated with China's OFDIS to ASEAN at 5% level. GDP in this paper represents the performance of the host country's absolute market size. It explains larger absolute market size in host countries may attract less China's OFDIS. It is because host country's GDP not only represents economic scale but also reflects population size (Root & Ahmed, 1979). Although it rejects the hypothesis 1a, the coefficient of GDP regarding OFDIS is relatively small. It interprets that for every 1% increase of GDP in ASEAN's host country, China's OFDIS would reduce by as much as 0.0000000188%. It differs from the hypothesis and general analysis about the relationship of GDP and FDI, maybe because China's OFDI is related to political aspect to a considerable level, including policy or institution's performance. Based on some empirical studies, ASEAN countries are the starting of the Maritime Silk Road; sometimes it takes more consideration of the geographic location or China and these host countries' distance (Buckley et al. 2007). Also, China's OFDI decreases the sensitivity of the host country's GDP, since China's OFDIS sometimes inclines more to other indicators, such as natural resources, the geographic distance between China and the corresponding host country, policy and relationship between two countries.

Concerning hypothesis 2, the result in table 4 shows that it is accepted in this case. Political risk, in this case, is also one crucial determinant of China's OFDIS to ASEAN, the result shows that less political risk in the host country would attract more China's OFDIS. To some extent, China's OFDIS tends to more stable and well-organized destinations which could

reduce the potential cost from China. When the institution gets better, China is willing to pour more money in OFDI stock to ASEAN.

Regarding hypothesis 3, exchange rate (EXRATE) and inward FDI stock (IFDI) are highly significantly positive for OFDIS, which partly supports H3a and H3b. They are both significant determinants of China’s OFDIS to ASEAN. The figures of EXRATE show that depreciation in host countries’ currency and higher inward FDI stock in the host country attract more China’s OFDIS in a long span instead of a short time.

The overall R² aims to measure the fitness. In this paper, the dependent variable, China’s OFDIS’s overall R² is higher than China’s OFDIF’s. It means the higher explanatory power for China’s OFDIS in lines with the theoretical framework comparing to China’s OFDIF (Cheng & Ma, 2007; Chan, Y. T. A. & Chan, S. H., 2011).

6.1.2 THE REGRESSION RESULTS FOR SEVEN YEARS

It is a possible way to interpret the difference in the results from the time-period estimate. To investigate the position of OBOR in 2013 and test the second research question in this paper, the difference between the determinants of two-time periods, 2010-2013 and 2014-2016, this study makes use of the dummy variables to limit the bias of the two-time periods estimating interaction. Indeed, when it measures the determinants from 2010 to 2013, it set the whole variables between 2014 and 2016 as the time dummy variables and nominated as 1, which shows in the extended analysing equation to limit the influences of other factors during the other-time period; vice versa. Finally, the following table 5 illustrates the changes of China’s OFDIF and OFDIS determinants across two periods. Dummy variables’ values represent the relationship between explanatory variables and dependent variables from 2014 to 2016.

Table 5

Estimates for seven years “2010-2013” VS “2014-2016”

Explanatory Var.	(1) OFDIF	(2) OFDIS
gdp	1.74e-09 (2.88e-09)	- 5.14e-09 (8.58e-09)
open	- 15.88405* (7.412189)	- 47.69548 (30.22798)
risk	895.6405* (481.0217)	1903.448 (1209.628)

	0.7417528	1.765879
exrate	(0.7451925)	(1.1777)
	0.0000531	0.0306846***
ifdi	(0.0012918)	(0.0041759)
	- 1.27e-09	- 6.38e-09
Dgdp	(1.02e-09)	(3.54e-09)
	- 1.326083	- 37.60777*
Dopen	(5.262927)	(18.59241)
	22.09617	- 999.5522
Drisk	(209.225)	(895.3068)
	0.101306	1.206917**
Dexrate	(0.1547747)	(0.4792986)
	0.0034671*	0.0183568**
Difdi	(0.0018566)	(0.0063502)
	- 7.163995	3457.529*
dummy	(444.0353)	(1629.555)
	2053.273	5052.609
Cons	(1137.706)	(3571.97)
Observations	70	70
Countries	10	10
Overall R ²	0.0051	0.8767

Note: Robust standard errors in the parenthesis. ***, ** and * show that the coefficient of the variable is significant at 1%, 5% and 10% levels respectively.

The results of Table 5 test hypothesis 4, which illustrate that a significant change of China's OFDI to ASEAN happened between the periods of pre- and post- OBOR. Here, it divides into two aspects to analyse according to the independent variables category. It examines the figures during seven years, which separates into two different periods, 2010-2013 and 2014-2016, naming as pre-OBOR and post-OBOR in the following article, by the announcement of OBOR in 2013. As for Hypothesis 4, in total, there is a significant difference between these two periods for OFDIF and OFDIS respectively. Therefore, it concluded that a significant change happened for China's OFDI in ASEAN between pre- and post-OBOR. The conclusions are proved by F-test at the end since both estimating tests show that $Pro > F$ is equal to 0. Hence, it supports H4 that there is a difference of China's OFDIF to ASEAN determinants over these two periods.

OFDIF

According to the results of OFDIF in column (1) shown in Table 5, it shows the dummy variable IFDI is significantly different from the position of IFDI in the pre-OBOR period and also significantly positively related to China's OFDIF in the post-OBOR period. It means IFDI as a determinant of China's OFDIF is more significantly positively related to China's OFDIF in the time of post-OBOR. That is to say, in the period of post-OBOR, more IFDI stock in host countries attract more China's OFDIF with a more significant performance. It is since OBOR evolves three main aspects, investment, trade and infrastructure. It relies more on host countries' infrastructure development extent in the post-OBOR (Hofman, 2017). To enhance the infrastructure establishment, Asian Development Bank (ADB) and ASEAN members jointly initiated ASEAN Infrastructure Fund (AIF) to meet the development needs ("ASEAN Infrastructure Fund (AIF)", 2012), which represents ASEAN actively develop the regional infrastructure. IFDI figure reflects the situation of infrastructure development in ASEAN. Furthermore, the annual plan concentrated on the infrastructure investment and connectivity in ASEAN in 2015 (ASEAN Secretariat and UNCTAD, 2015). Therefore, along OBOR, it supports IFDI changes during two periods.

The summary of China's OFDI flow to ASEAN estimating results are as follows:

Table 6

Summary of estimations results for China's OFDIF to ASEAN

Hypothesis	Benchmark	2010-2013 vs 2014-2016
H1a	N/A	N/A
H1b	NO	N/A
H2	YES	N/A
H3a	N/A	N/A
H3b	YES	YES

Note: "YES" shows the results' signs in the estimations are the same as the expected ones with the significance at 10% significant level or lower. "NO" indicates the hypothesis is rejected. "N/A" means the hypothesis is not rejected.

OFDIS

Firstly, the coefficient of dummy variables in the period of post-OBOR is significantly different from explanatory variables in the pre-OBOR stage. Therefore, it proves that there is a significant change between two periods. It checked by the F-test among dummy variables in

STATA, which also shows differences happening in these variables. Therefore, it supports H4 concerning OFDIS.

In details, it shows that one of the significant change is the variable openness of the host country. In the period of pre-OBOR, OPEN is an insignificant determinant of China's OFDIS to ASEAN. However, it became a significant determinant after 2013. OPEN here measures trade openness in the host country. On the one hand, it stands for the host country's capacity of economic integration performance to the global market (Anh et al., 2016). On the other hand, it emphasizes the relationship of trade openness to the world market. In the post-OBOR period, it still shows negative relations between OPEN and China's OFDIS at a significant 10% level. It is contradictory comparing to most of the other empirical research related to China's OFDI. Owing to considerable changes in the situation, it may lead to a significant difference even in the expected sign of the relationship. It is interesting to explain this anomalous figure of OPEN, especially around 2013, which shows more trade openness would attract less investment stock from China. It must belong to the significant influence of OBOR around 2013. As author Pop (2016) researched, OBOR faces a more complex geopolitical relationship, cultural differences, high investment risk along the implementing process. Aiming at accomplishing China's "Going Global" strategy at the end of 2015, Chinese government occupied a vital and active role in OFDI, especially it actively pushed on OBOR and intensively increased China's OFDI to ASEAN, not only because of host countries' location-specific advantage and the pulling factors. Also, there exist to be many investment agreements between ASEAN and China, such as AIA, ACIA, ATIGA, ACFTA, which influence obviously China's OFDIS destination to some extent. What's more, Pop (2016) emphasised that OBOR could lease some tension between China and its neighbours, especially during 2010 and 2016, because of South China Sea Disputes in 2015. OBOR as a coordination mechanism in the region, it urgently forced China increases OFDIS to ASEAN to protect a clam and stable maritime security and environmental cooperation.

Besides, the determinants of China's OFDIS that this paper concluded above including both EXRATE and IFDI change significantly at 5% level. As for Exchange rate, it would lead to more China's OFDIS to ASEAN with a more significant determinant after 2013, comparing the pre-OBOR period. OBOR also emphasises the importance of trade competitiveness of China. When the exchange rate appreciates in China, the Chinese government will take more measures to prevent it from decreasing trend of trade competitiveness actively. Most importantly, OBOR is an essential strategy of the trade from 2013 on as well. Therefore, OBOR promotes more China's OFDIS to ASEAN in a very significant way in the post-OBOR period.

The OFDIS's IFDI changes similarly as the difference concerning OFDIF. Indeed, the figure of IFDI relying on OFDIS exceeds the change's significance of OFDIF, which is at 5% level. It is because the infrastructure development correspondent effects would act on a longer-term effect. Therefore, it is more evident in OFDIS. The summary of China's OFDI flow to ASEAN estimating results are below:

Table 7

Summary of estimations results for China's OFDIS to ASEAN

Hypothesis	Benchmark	2010-2013 vs 2014-2016
H1a	NO	N/A
H1b	N/A	YES
H2	YES	N/A
H3a	YES	YES
H3b	YES	YES

Note: "YES" shows the estimation results' signs are the same as the expected ones with the significance at 10% significant level or lower. "NO" indicates the hypothesis is rejected. "N/A" means the hypothesis is not rejected.

The overall R² of China's OFDIS is higher than China's OFDIF's. Therefore, it also means the results of China's OFDIS is more explanatory power in this paper. All in all, since there existed to be a significant initiative of OBOR in 2013 among ASEAN countries, it shows a possible influence of the significant difference between pre- and post-OBOR periods. The results show more obviously for OFDIS because OFDIS plays a longer-term effects comparing to OFDIF.

6.1.3 ESTIMATION TESTS

Test for the unit roots

There are a variety of ways testing for unit roots running the panel data. The existing of unit roots means there is not only one trend in the series. Based on this short-term and several cross-sectional research, it chooses the simple and most common test for the unit roots. The null hypothesis here is a unit root in the series. Otherwise, the panel data is stationary (Torres-Reyna, 2012). After running the Dickey-Fuller test of every independent variable in Stata, it examines that all p-value is below 0.05, so they all reject the null hypothesis. Therefore, the dataset is steady, which means it avoids the pseudo-regression problem.

Test for heteroscedasticity

As for the macro data panels for this short-term in this case, there should be a test of heteroscedasticity (Stock & Watson, 2008). In Stata, it obtains the heteroscedasticity-robust standard errors, also calls for the Huber/White or sandwich estimators. The result of probability $> \chi^2$ is equal to 0.0000, which means there is the presence of heteroscedasticity rejecting the null hypothesis of homoscedasticity. As for OFDIF and OFDIS, it could run the test of heteroscedasticity in Stata. Consequently, both of the results of probability $> \chi^2$ are equal to 0.0000, which means it shows the presence of heteroscedasticity rejecting the null hypothesis of homoscedasticity in this study.

6.2 Discussion

The theoretical framework of this paper is built on Dunning's eclectic paradigm theory and the pulling factors. As for the Dunning's eclectic paradigm, it shows that this theory has been criticised by the scholars in the progress of examining the FDI determinants. Some scholars find other ways to explain the FDI determinants with the Gravity model, but still without a unified solution. However, this study laid a foundation on the previous research to ASEAN countries mostly using Dunning's eclectic paradigm theory with some empirical research. Therefore, it chooses the Dunning's eclectic paradigm combining with the pulling factors as the theoretical benchmark although it is still in discussion.

After data analysis, it concludes that the determinants of China's OFDI are significantly different from OFDIF and OFDIS. As for OFDIF, OPEN, RISK and IFDI are the significant determinants during 2010 and 2016. Concerning OFDIS, GDP, RISK, and IFDI act as the significant determinants from 2010 to 2016. Regarding the result of Table 6 and Table 7, both for OFDIF and OFDIS, Hypothesis 4 that the difference happens between pre- and post-OBOR periods are supported. Intensely, the individual differences for OFDIF are different from OFDIS's. For OFDIF, only IFDI has changed significantly. However, as for OFDIS, OPEN, EXRATE and IFDI all significantly changed in the post-OBOR period comparing the pre-OBOR ones. To some extent, it could own the reason mainly to the implementing process of OBOR.

6.3 Implication

Regarding the theoretical perspective, it takes a new series of indicators and two comprehensive dependent variables into account based on the previous research about China's OFDI and ASEAN countries investment in this paper. This study adds the analysis of OFDI

stock, which was often ignored by other scholars in the ASEAN research. Besides, the results of OFDIF are significant. Finally, it clarifies the reason why it uses Dunning's eclectic paradigm and the pulling factors as the combination of the theoretical framework. In the data estimation process, it assures the data analysis systematics, adding the comparative estimation method and robustness checking procedure, which makes the results more scientific and credible.

At the practical level, it tracks China's OFDI flow and stock in ASEAN from 2010 to 2016 along the OBOR initiative. It measures China's OFDI situation in ASEAN countries in a more specific way. It examines the differences in the determinants when the periods of pre- and post-OBOR changed in the panel dataset with the policy comparing to the previous research. This term also excludes the central policies interactions such as CAFTA in 2010. The results are fruitful for the policymakers in China and even in ASEAN countries. It also can roughly see the different investing situations among ASEAN countries.

6.4 Limitation

Firstly, the most critical limitation in this study is that the relevant small dataset, since it narrows the time periods from 2010 to 2016 to exclude other significant policies between China and ASEAN, such as ACTFA in 2010. Nevertheless, there are just five explanatory variables selected in this paper to make a targeted analysis. Therefore, it limits the observations at 70, which reduces some extent of validity of the research.

Secondly, the dataset in this study combines with four official data sources. Different data sources organise every database with different calculating measurement. Therefore, this study cannot avoid the data bias. What's more, using these official data may lead to the biased results because of the underestimated figures.

Thirdly, some indicators have some overestimated bias, such as GDP. Taking the pulse of GDP estimating, it measures as GDP with the US Dollars at current prices, which may include both economic scale and population size in the host country. Therefore, it is the possible reason for the results as it mentioned before.

Fourthly, the variables in this paper are selected under the theoretical framework and some empirical analyses in recent years. Every theory in this field was criticised by some scholars, even some famous theory, like Dunning's eclectic paradigm theory. So far, researchers have yet developed one general theory to analyse China's OFDI and little literature which relates to China's OFDI to ASEAN and OBOR. This study concludes by pointing out five explanatory variables based on some empirical analyses results alongside the theoretical

framework. However, some uncertain factors may influence the five explanatory variables and even the results, which thereby produce some bias of analysis. Therefore, this research is more targeted for the specific regions of ASEAN and the specific short-time period; its conclusion cannot be generalised for all the ASEAN countries.

6.5 Suggestions for future research

Firstly, this study suggests that future research can be done in a more focused way. This research focused on the macro-level (national-level) data analysis. However, there exist some sub-indicators in every explanatory variable, some even exist to be latent instrumental variables in the analysis process, which needs more examination in the future.

Besides, considering that the FDI content was often analysed through the two aspects: sectors and industries, future research could go deep into details to discern the different influences of the two. While the previous research found that market size influences China's OFDI to ASEAN the most, future research could investigate economic integration on the market side.

Indeed, research could focus on each country in the future. This paper regarded the ASEAN countries as a whole. After data analysis, it found that there are significant differences among these ten countries. For instance, Singapore is a most prominent country among these. It may be an excellent way to research the political relativity and other aspects in Singapore in a specific period. ASEAN countries are roughly divided into several income levels. Singapore is in the high-income ASEAN countries and is an outlier as a special status in many aspects. It occupied the most important transit and trade geographic site. Also, Singapore invests substantially in China not only as China's OFDI's key destination country. As Figure 7 shows, as of the end of 2016, Singapore occupied the fifth place in the world for the stock of China's FDI, with a stock of 34335.64 million U.S. dollars, accounting for 4.4% of China's global OFDIS (MOFCOM, 2016). As for China's OFDIS in Singapore, it attracts both many enterprises and individuals (Salidjanova & Koch-Weser, 2015). Therefore, the figures of Singapore may mostly affect the determinants of China's OFDI to ASEAN. Weakening the influences of other ASEAN countries is possible. Given that weakening the influences of other ASEAN countries is possible, it is a way to conduct a single case study on China's OFDI to Singapore in the future.

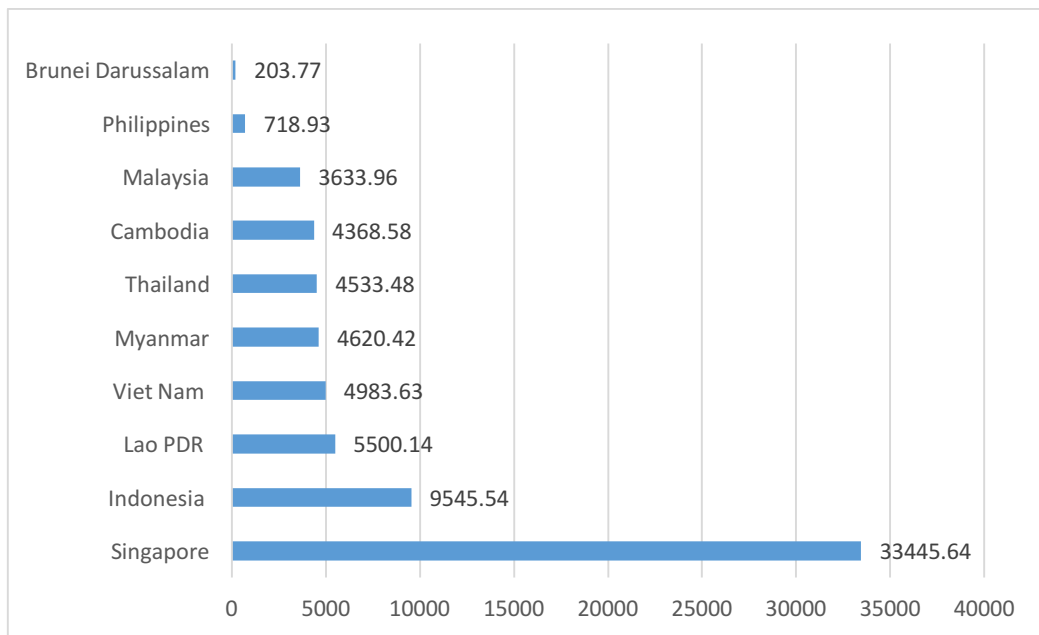


Figure 7 China's OFDI to ASEAN at the end of 2016 (USD million)

Source: Statistical Bulletin on China's Outward Foreign Direct Investment 2016

Additionally, some international political events could be added into research in the future. Regarding the OBOR policies, there is still limited research conducted by scholars. This paper argues that researchers could continue to analyse the OBOR's impacts on China's OFDI determinants in the future. Besides, some international political events influence both OBOR and the relations and agreements between China and ASEAN countries, such as the South China Sea issue. It happened among the period of these seven years in 2015 (Salidjanova & Koch-Weser, 2015), which still caused a series of uncertain adverse effects. Therefore, this paper asserts that researchers could analyse more and more in-depth about the relationship between political risks and China's OFDI to ASEAN, which has attracted many attentions currently.

According to the result of this study, around the announcement of OBOR in 2013, it produced a significant difference in China's OFDI to ASEAN as a result. However, the future research still needs to face up challenges and risks along OBOR. Since the dramatically increasing OFDI from China, researchers should concentrate more on China's OFDI risk monitoring somehow in the future.

7. CONCLUSION

Along OBOR, China paid more attention to OFDI. ASEAN is a major destination of China's OFDI, especially with Maritime Silk Road. This thesis attempted to investigate the determinants of China's OFDI in the ten countries in ASEAN from 2010 to 2016, along with

OBOR. The other objective was to examine the differences of its related determinants between the pre-OBOR period from 2010 to 2013, and the post-OBOR period during 2014 to 2016.

This paper concluded a new set of variables built on the mainstream theory named Dunning's eclectic paradigm and the pulling factors, as well as most China's OFDI common determinants explanations and some unique experiences in ASEAN. Concerning the validity and credibility of the dataset, this study summarised five explanatory variables in three theoretical motivations: market-seeking, political risk, and host country's domestic credits. It also divided China's OFDI into two aspects: the flow and the stock.

First of all, as for market-seeking motivation, trade openness is the determinant of China's OFDIF in ASEAN. At the same time, GDP as the proxy of the host country's absolute market size is the determinant of China's OFDIS in ASEAN. This study found out that market-seeking motivation is driven by China's OFDI in ASEAN with both the flow and the stock aspects during 2010 to 2016. However, both the figures of GDP and OPEN showed the unexpected negative sign due to the particular characteristics of China's OFDI in ASEAN along the process of OBOR.

Secondly, the extent of the host country's political risk was another main motivation for China's OFDI in ASEAN. The paper found that when the host country has a better institution, China would like to invest more in ASEAN both in the flow and the stock aspect.

Thirdly, the host country's domestic credits would actively drive China to invest more in ASEAN with both the flow and the stock, which is the most significant motivation along OBOR in this case. This paper asserted that higher inward FDI stock of the host country would attract more China's OFDIF in ASEAN. Furthermore, exchange rate and inward FDI stock are both highly sensitive to China's OFDIS in ASEAN.

Fourthly, going more rooted in the analysis of the differences of the determinants between pre-and post-OBOR periods around 2013, this paper contributed to the expected hypothesis 4. It concluded that there exists a significant change between 2010-2013 and 2014-2016 for both China's OFDIF and OFDIS, regarding the year of 2013 as one break year of regression analysis. Indeed, some different changes happened in the OFDIF and OFDIS aspects. As for OFDIF, IFDI as a determinant became more critical to China's motivation. On the other hand, trade openness, exchange rate and IFDI also affected more significantly in the post-OBOR period comparing the effects of the pre-OBOR period for China's OFDIS in ASEAN. This study concluded that it was mostly because of the OBOR announcement in 2013.

Furthermore, this research adds a new and comprehensive understanding and explanation of China's OFDI, including both OFDIF and OFDIS, in ASEAN along OBOR

process during 2010 to 2016 with a panel data analysis. The outcomes suggest both theoretical and practical implications henceforth. Moreover, it could go deep into micro-data analysis and focus on every country and even countries' connections among the ten countries in ASEAN in the future. According to the results of China's OFDI in ASEAN, the study also calls for China's new supplement measures, such as risk monitoring, to bring more interests and benefits to China and achieve win-win cooperation between China and ASEAN.

APPENDIX I

Summary of panel data

Variable		Mean	Std. Dev.	Min	Max	Observations
ofdif	overall	805.2823	1362.404	-27.59	10452.48	N = 70
	between		986.5992	26.98429	3482.407	n = 10
	within		983.5688	-1558.625	7775.356	T = 7
ofdis	overall	4023.134	6099.1	45.66	33445.64	N = 70
	between		5291.584	85.15714	18553.76	n = 10
	within		3410.721	-8461.526	18915.01	T = 7
gdp	overall	2.39E+11	2.54E+11	7130000000	9.32E+11	N = 70
	between		2.65E+11	11600000000	8.8E+11	n = 10
	within		26700000000	1.14E+11	2.91E+11	T = 7
risk	overall	-0.3510176	0.8439655	-1.73936	1.592235	N = 70
	between		0.8698218	-1.316564	1.541991	n = 10
	within		0.1465549	-0.7738133	0.1368567	T = 7
open	overall	124.0617	89.63373	0.1750032	379.5938	N = 70
	between		93.05474	28.06304	357.2325	n = 10
	within		11.3134	85.24877	146.423	T = 7
exrate	overall	704.5813	1047.749	0.19466	3484.165	N = 70
	between		1089.031	0.2044129	3270.364	n = 10
	within		122.1445	183.4279	1146.08	T = 7
idfi	overall	156219.9	262392.9	1888	1096320	N = 70
	between		268115.9	3355.286	890277.7	n = 10
	within		56699.85	-101297.8	362262.2	T = 7

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