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Master's Thesis of Graduate School of International Studies

The Determinants of Korean Firms' Foreign Direct Investment in ASEAN

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Abstract

This study focuses on the determinants of Korean firms' Foreign Direct Investment in ASEAN. ASEAN became a significant economic market after the global financial crisis in 2008. The average growth rate of ASEAN was 5.4% from 2010 while the world average growth rate was 3.0%. With relatively high average growth rate, ASEAN became an attractive economic market for trade and investment. The share of global FDI inflows increased from 1.6% in 2000 to 11.5% in 2018 which is more than 10 times during the same period. The FDI inflow of ASEAN surpassed China's inflow in 2014 and stands compelling economic market in East Asia region. Recent economic problems with China due to the THAAD deployment issue in 2016 have raised the need for diversification of investment and the need for economic cooperation with ASEAN as an alternative market of China.

In this study, Dunning's (1977) eclectic paradigm model was used to divide the motivation of FDI into market-seeking, resource-seeking and efficiency-seeking categories. Doing business ranking from World Bank was added in the determinants as the fourth category. This study finds the differentiation of the determinants relationship with the world FDI to ASEAN and Korean FDI to ASEAN region. Moreover, this study finds the different motivations within the Korean FDI between the manufacture sector and service sector which previous literatures have not covered.

The result showed that the main determinants of world FDI was the market-

seeking variables (GDP, GDP growth, Trade openness) and Infrastructure (mobile subscribers). The determinants of Korean FDI in ASEAN were trade openness, resource-seeking variables (mobile subscribers, labor force), efficiency seeking variable (inflation) and business ranking. The difference was that the market size and the GDP growth did not have significance for the Korean firms. Between the manufacture and service sectors, the trade openness and labor force were both positively associated with the FDI. The difference motivation was that infrastructure (mobile subscribers) were significant in the manufacture sector FDI but not in the service sector FDI. And doing business ranking did have significance relation with the service FDI while it did not have significance with the manufacture FDI. For Korean firms, the market size and market growth were not attractive determinants, but the trade openness of the country mattered.

Keyword : FDI, ASEAN, Doing Business Report, Eclectic Paradigm, Korean Firms

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Table of Contents

Abstract.....	i
I. Introduction.....	1
1.1 Purpose of the Research.....	3
II. Literature Review.....	6
2.1 Foreign Direct Investment Theory.....	6
2.2 Eclectic Paradigm.....	9
2.3 Horizontal FDI.....	10
2.4 Vertical FDI	12
2.5 Previous Literature Review of FDI in ASEAN.....	14
III. FDI Trend in ASEAN	17
IV. Korean Firms' FDI Trend in ASEAN.....	24
V. ASEAN Business Environment Analysis	34
VI. Methodology	41
6.1 Model.....	41
6.2 Data and Variables.....	42
6.3 Correlation Test	46
6.4 Hypothesis	47
VII. Empirical Results	49
VIII. Conclusion	53
Bibliography	56
국문 초록(Abstract Korean).....	60
Appendix	62

List of Figures and Tables

Figure 1. ASEAN and World FDI Inflow Trend	17
Figure 2. Korea's Overall FDI Trend.....	25
Figure 3. Korea's FDI Investment by Region	26
Figure 4. Korea's Accumulate Corporations by Country	27
Figure 5. Korea's Accumulate FDI Investment Amount by Country	28
Figure 6. Korea's FDI Trend in ASEAN and China	29
Figure 7. Korea's New Corporations Trend in ASEAN and China	30
Figure 8. Change in Purpose of Investment in ASEAN	33
Table 1. ASEAN FDI Inflow by Country	19
Table 2. Monthly Minimum Wage of ASEAN, Korea and China	20
Table 3. Labor Force and LFPR of ASEAN, Korea and China(2018)	21
Table 4. ASEAN FDI Inflow by Sector(in million US\$, %)	23
Table 5. Purpose of Korean Firms' Investment in ASEAN	32
Table 6. Ease of Doing Business Indicators Summary	35
Table 7. Starting a Business and Resolving Insolvency of Index.....	36
Table 8. Dealing with Construction Permits and Getting Electricity	37
Table 9. Registering Property and Enforcing Contracts	38
Table 10. Trading Across Borders Index.....	39
Table 11. Dependent Variables	43
Table 12. Service Sector Category	44
Table 13. FDI Determinants (Independent) Variables	45
Table 14. Correlation Test.....	46
Table 15. Linear Regression Result of ASEAN FDI.....	49
Table 16. Linear Regression Result of Sectoral FDI.....	51
Table 17. ASEAN Membership and History	62
Table 18. Doing Business Ranking of ASEAN Countries	63

I . Introduction

ASEAN became a significant economic market after the global financial crisis in 2008. The average growth rate of ASEAN was 5.4% (year 2010-18 average) while the world average growth rate was 3.0% (year 2010-18 average) after the financial crisis.¹ With relatively high average growth rate, ASEAN became an attractive economic market for trade and investment. Thus, the increment of Foreign Direct Investment (FDI) flowed into ASEAN region. Statistically, FDI inflow of ASEAN increased from 21.8 billion dollars in 2000 to 148.7 billion dollars in 2018.² In other words, the share of global FDI inflows also increased from 1.6% to 11.5% which is more than 10 times during the same period. In the early 2000s, the FDI inflow of ASEAN was around half that of China(40.7 billion)², but the inflow amount of ASEAN surpassed China's inflow in 2014 as it kept increasing. ASEAN stands compelling economic market in East Asia region.

The Association of Southeast Asian Nations (ASEAN) was established in 1967 with the founding members of the five countries: Indonesia, Malaysia, the Philippines, Singapore and Thailand. The main purpose of the association was to accelerate economic growth, social progress and cultural development by cooperating and providing a mutual assistance to each other in the region. The association expanded with the joining of the other members: Brunei

¹ World Bank

² UNCTAD

Darussalam(1984), Vietnam(1995), Lao PDR(1997), Myanmar(1997) and Cambodia(1999). With the growing importance of ASEAN after the end of cold war, further cooperation with ASEAN was created to cooperate with other countries such as ASEAN+3 ties with China, Japan and South Korea and ASEAN+6 with Australia, New Zealand and India. 16 member countries of the ASEAN+6 have made progress through the development of the Regional Comprehensive Economic Partnership (RCEP) and proposed free trade agreement among these countries. Also, ASEAN Comprehensive Investment Agreement (ACIA) in 2009 and ASEAN Economic Community (AEC) launched in 2015 promoted regional economic integration for a single market to attract FDI by making ASEAN as a single investment area. A single market with multi-economic cooperation with other countries ensures free flow of goods, services, skilled labor and capital into the region.

ASEAN is an influential region not only for Asian economic cooperation but also for South Korea's economic partner. Korea and ASEAN have maintained a cooperation since 1989. In 1990, the ASEAN-ROK Fund Cooperation was established to donate annually to ASEAN as an international organization's contribution for the development cooperation and to promote mutual understanding. It has been 30 years from the first cooperation with ASEAN and ASEAN has become South Korea's second largest trading partner after China and second largest investment destination after the United States. The proportion of trade in South

Korea is 83% in 2018³ which indicates Korea is dependent on trading with partners. In particular, the recent economic problems with China due to the THAAD deployment issue in 2016 have raised the need for diversification of South Korea's trade and investment. The need for economic cooperation with ASEAN as an alternative market and production base in China has been highlighted.

1.1 Purpose of the Research

This study focuses on finding the determinants of Korean firms' Foreign Direct Investment (FDI) in ASEAN. The starting point of this research heads back to the fundamental question of why Korean firms are investing more on ASEAN region rather than investing on China after the global financial crisis. Thus, this research will examine the investment environment of ASEAN and verify whether the economic market is attractive enough compared to China to invest. Then, this study will try to elaborate the factors that determine Korean firms' FDI in ASEAN region after reviewing existing studies and theories.

This dissertation will cover the following:

First, the existing theories of FDI and the previous literature will be reviewed. The concept of FDI has been studied and developed by various researchers and various theories have been proposed. The concept of FDI and its definition and

³ World Bank

type will be elaborated. Then, the main theories of FDI such as Horizontal FDI by Markusen et al(1984), Vertical FDI by Helpman(1984) and Dunning's (1977) Eclectic paradigm will be covered. In this thesis, the Dunning's (1977) eclectic paradigm model will be mainly used for the analysis of the research question. The eclectic paradigm divides the purpose of investment into market-seeking investment, resource-seeking investment and efficiency-seeking investment. And this will determine which type of investment works decisively for FDI in ASEAN. In addition, this section will cover the review of previous literatures of FDI that specifically focus on ASEAN region and present the differences from the existing theories.

Second, the trend of FDI in ASEAN will be analyzed in detail. The FDI inflow trend of ASEAN from the world will be shown from 2000 to 2018 and how each country accounts for ASEAN. The FDI inflow will be analyzed by sector to verify which sector accounts mainly in the region. Other factors such as monthly minimum wage, labor force and labor force participation rate in ASEAN region will be compared with Korea and China to see whether ASEAN market is attractive enough to invest as an alternative market to China.

Third, the trend of FDI of Korean firms will be discussed in this section. Using the data from the Export-Import Bank of Korea, the trend FDI of Korean firms will be analyzed by region and motivation. Also, this paper will show how Korean firms' investment situation has changed over time by comparing the trends of FDI between China and ASEAN.

Fourth, this business environment of ASEAN will be analyzed using the Ease of Doing Business report from the World Bank. World Bank has published annual report of Doing Business report since 2004 and ranked over 190 countries using 10 major indicators that determine the business environment. The countries of ASEAN will be analyzed with these 10 indicators from the recent 2018 report to show the current status of business environment of each country of ASEAN.

Lastly, the main analysis of this dissertation will be covered. The determinants of Korean firms' FDI in ASEAN will be analyzed using Dunning's eclectic paradigm model. The FDI determinant variables will be divided into market-searching, resource-seeking and efficiency-seeking. In addition, the ranking of Ease of Doing Business report from World Bank will be used to see whether the overall ranking does have a correlation with FDI inflow of the country. This paper will use Panel Data Analysis with time period from 2000 to 2018. The analysis will be divided into two parts. The first linear regression will show the comparison of the ASEAN FDI determinants from World and Korea. The second linear regression will show the comparison ASEAN FDI from Korea by manufacture sector and service sector. The empirical results of the analysis will be discussed in the section and some of the limitations and the concluding mark will be elaborated for further development of the research in this field.

II. Literature Review

2.1 Foreign Direct Investment Theory

OECD interprets Foreign direct investment (FDI) as a cross-border investment in which investors in one economy establishes a lasting interest in and a significant impact on companies in another economy. Owning more than 10 percent of the voting power of an enterprise is another evidence of such a relationship. FDI is a key element in international economic integration because it creates stable and long-lasting relationship between countries. FDI promotes international trade through access to foreign markets and allows transfer of technology between the markets which fastens the economic development. FDI is often divided into the type of business and the type of investment. The type of expansion is either Wholly-Owned Subsidiaries (WOS) or the Joint-Venture (JV). A joint venture is a type of firm that is owned and operated by two or more firms. Wholly owned subsidiary is owned by a single company. The type of investment is either Greenfield Investment or Merge and Acquisition (M&A). The greenfield investment is a direct investment by establishing a new corporation with WOS or JV. The M&A investment is acquiring the management rights by securing the equity of existing companies.

The theory of FDI can be traced back to MacDougall(1960) who created the differential return theory based on the assumptions of perfect competition or

perfect market. Later Kemp(1964) elaborated the model that international capital movements occur due to the differences in the marginal productivity of capital between home and host countries. Capital movements raise the national income level of both home country and host country. Capital moves from low interest rate of capital abundant countries to high interest rates of capital shortages countries. Thus, capital movements continue until the marginal productivity of the capitals of the two countries become equal.

Hymer (1976) was the first one to approach the FDI theory in the assumption of the imperfect market. Under Kindleberger(1969) advisory, Hymer(1976) developed the Monopolistic advantage theory to explain the phenomena of the United States firms investing in Europe region. The main theory of Monopolistic Advantage points out that local firms have advantages over foreign firms because of indigenous knowledge of local environment. Foreign firms must have some advantages that can offset the disadvantage of operating firms in the foreign country in order to compete with the local enterprises. And this advantage refers to firm-specific assets which differs from the conventional factor endowment theory that the advantage is based on the country-specific or location-specific characteristics. And these firm-specific assets are usually knowledge-based assets as the knowledge-based assets have advantage of ease of transfer internationally.

Buckley & Casson(1976) and Rugman(1981) developed internalization theory of FDI. The basic assumption of the internalization theory is that external market is expensive and inefficient, so the firm will choose to internalize the investment. In

other words, if a company can make a transaction at a low cost within a company to reduce the cost with external market, the company replaces the market function within the company and performs internal transactions. As a result, internalization is the process of creating an internal market to eliminate or reduce transaction costs in response to market imperfections. The incompleteness of market is resulted from the possible four cases. First, the inventor cannot be protected by patents or trademarks and the person who uses the invention cannot be charged. Second, the economies of scale are still valid. Third, there is no restriction on using other people's knowledge. Fourth, there is a difference between private costs, revenues and public costs, and profits from government intervention. As such, when the external market is incomplete, the incentive for internalization is strong. Therefore, companies with a monopoly advantage of a company internally use it by foreign direct investment. It is to internalize the management technology, the movement of raw materials, financial functions and research and development by limiting the activities of subsidiaries through foreign direct investment. In other words, incompleteness exists in financial market, factor production, knowledge market and technology market, so the company maximizes the profit by internalizing the market based on the imperfection market. Therefore, foreign direct investment can be a product of the process of internalizing and conducting the transaction with the internal system of the company in order to reduce or eliminate the transaction cost caused by the failure of the overseas market due to market imperfection.

2.2 Eclectic Paradigm

Dunning (1977) developed a comprehensive eclectic paradigm which is known as the OLI framework. It is developed framework from the internalization theory and most used by scholars as it comprehensively covers both macro and micro perspective of the FDI. OLI stands for the Ownership-specific advantage, Location-specific advantage and Internalization-specific advantage.

Ownership advantages refer to the competitive advantages of the enterprises seeking to engage in foreign direct investment. This competitive advantage is the firm-specific assets including not only the physical assets like resources, human resources and capital but also the intangible assets such as technology, marketing skills and other knowledge-based assets. The greater the competitive advantage of the investing firms, the more likely it is to engage in overseas production.

Location advantages refer to an alternative country or region, for carrying out the value-added activities of multinational enterprises (MNEs). The more foreign natural or created resources a company needs to use jointly with its competitive advantage, the more likely they will prefer to be in a foreign region and will choose to expand or leverage a certain advantage by engaging in FDI.

Internalization advantages means that companies can manage in creating and extracting the core competencies. If the net profit that can be gained by internalizing the cross-border intermediate product market is greater, the more likely companies will prefer to engage in foreign production itself instead of giving

the right to do so.

Dunning(1981) divided the motivation of FDI into the purpose of market-seeking investment, resource-seeking investment, efficiency-seeking investment and strategic asset-seeking investment. The market-seeking investment is a direct investment for multinational companies to supply products to a specific country or neighboring countries. In this case, the market size and growth rate of the host country are the main determinants for investment. The resource-seeking investment is an investment that is pursued to purchase or utilize the abundant resources of a host country that are relatively inexpensive. In this case, the main determinants are relative resources, infrastructure and relative wage levels of the host country. The efficiency-seeking investment is an investment that is promoted as part of increasing the efficiency of production. In this case, the factors such as exchange rate and inflation that affects stable operation of economies of scales are the main determinants. The strategic asset-seeking FDI occurs when companies invest abroad to get new techniques and experience. The strategic asset-seeking FDI is to strengthen the internal competitiveness of the firm, so in this study this will not be categorized as the motivation for FDI for its difficulty in measurement.

2.3 Horizontal FDI

Markusen(1984) defined Horizontal Foreign Direct Investment as producing a company's production process and management activities overseas and supplying

them to local market. The strategy is to enter the overseas market to expand the market, and to supply products and services by establishing subsidiaries in local markets. This model suggests that FDI arises from the interaction between firm level economies of scale and trade costs.

This model assumes that there is no heterogeneity between the firms within the same industry. There exist no horizontal FDI and exports together in the same industry because all firms choose the same strategy. The company selects a strategy to enter the overseas market in consideration of the initial costs required to establish a local subsidiary and the trade costs incurred through exports. It also considers the market size of the other country. If the local market is not large enough, the gains from producing the product in the local market are not enough to offset the fixed costs needed for a new overseas production facility. However, if the local market is large enough, FDI is chosen over exports as the trade costs saved by local production offset the fixed costs.

Brainard(1997) and Helpman(2004) proposed a proximity-concentration hypothesis which a firm's decision to place a production location in the foreign country has the advantage of increasing proximity to customers as it produces directly from the point of sale. On the other hand, concentrating production facilities in one place can benefit from economies of scale. In this case, the firm determines the production location in consideration of the relative costs of transport cost of export, trade barrier of the other country, and the economies of scale of the company's production plant. In other words, while companies can

reduce production costs through economies of scale by focusing production in home country, trade costs are incurred when they are supplied to overseas markets. It reduces fixed costs but is vulnerable to high variable trading costs. If a firm does horizontal FDI, the same production plant must be established overseas. Proximity to local markets enables rapid responses and supply of consumption. While initial fixed costs are incurred, local production and supply can avoid variable costs by avoiding trade costs.

Markusen et al.(1996) and Markusen and Venables(1998) in the knowledge-capital model presented, horizontal FDI is promoted between the countries with similar economies of scale. In this case, multinational companies can avoid the trade costs of local investment. Therefore, the main determinant is the market size of the invested country and the trade costs such as tariffs and transportation costs.

2.4 Vertical FDI

Helpman(1984) proposed that companies choose the vertical FDI because there is a difference in the prices of factor production between countries. Firms must determine the location to minimize production costs. By dividing the company's production process into the headquarter services and manufacturing process, it is assumed that there is a difference in factor intensities between the two production processes. In this case, the vertical FDI is defined as the geographical division of production processes in order to reduce production costs according to

the difference in factor intensity of these processes. In other words, if a parent company is skill-intensive in headquarter services and labor-intensive in manufacturing, it will try to put it in a labor abundant country with low wages.

According to Markusen et al(1996), Markusen and Venables(1998) knowledge-capital framework, vertical FDI is promoted to export to third countries, minimizing the cost of production between countries with different economies of scale and production factors. As a result, in vertical FDI, the key determinants are wages, skill levels and prices of factors in the countries invested.

Antras and Helpman(2004) proposed a strategy of procuring intermediate goods to describe vertical FDI. Productivity differences between firms exist within the same industry, allowing companies to choose different strategies for procuring intermediate goods. They assumed that the headquarter services and intermediate inputs are needed to make the final good. The final product can be produced only by the headquarter company and the intermediate goods can be supplied through external company or internalization. In addition, since there is a difference in the price of production factors between countries, the supply of intermediate goods from overseas is relatively lower than domestic costs. However, it is assumed that an incomplete contract environment exists in the transactions between independent companies. In this case, firms choose whether to supply intermediate goods through externalization or to vertically integrate through productivity. In case of procurement domestically, the initial fixed cost is low, but high production cost must be paid because of the relatively high price of production factor. When

procuring intermediate goods from overseas, intermediate goods can be procured through intra-firm trade through vertical FDI with offshore outsourcing companies. This acquisition of intermediate goods through offshore company leads to holdup problem while it occurs high fixed costs when acquired through vertical FDI. Hold-up problem or commitment problem is a situation where two parties may work efficiently but refrain to do so because of concerns that they may give the other party bargaining power and reduce their profits. Antras and Helpman(2004) asserts that this hold-up problem is the main determinant of choosing the procurement strategy. As hold-up problem grows, firms are procuring goods through intra-trade by internalization. Vertical FDI is the strategy of choice for high productivity companies due to the high initial fixed cost.

The bottom line is that companies choose intermediate procurement strategy according to the difference in productivity. The low productivity firms choose to procure from domestic country while the high productivity firms choose to procure from abroad. In these firms the highest productivity firms choose to vertical FDI and use the intra-trade to procure the intermediate goods.

2.5 Previous Literature Review of FDI in ASEAN

Ismail(2009) used a gravity model with ASEAN countries except Cambodia in the time period of 1995~2003 to verify the determinants of FDI in ASEAN. Ismail(2009) used the main two variables of GDP and distance from the gravity

model and also used inflation, real exchange rate, government budget balance, infrastructure, transparency and etc. The market size, GDP per capita, government budget balance, infrastructure positively affected FDI while inflation rate and exchange rate negatively affected FDI attractiveness.

Hoang and Bui(2015) analyzed the FDI inflow of 6 countries from ASEAN (Vietnam, Indonesia, Malaysia, the Philippines, Singapore, Thailand) using the Dunning framework. The time period was 1991~2009 and the variables were market size, exchange rate, interest rate, human capital, wage, productivity, trade openness, infrastructure, corruption etc. FDI showed positive correlation with GDP, infrastructure, trade openness, productivity, exchange rate and negative correlation with interest rate.

Park (2017) analyzed the determinants of Korean firms of investing in ASEAN region as an alternative to China market. Park divided the FDI into service sector and manufacture sector and analyzed using 38 different variables. Park divided the categories into economic, policy, social and geographical for the analysis. In the result, GDP, population, rate of economic activity, service GDP ratio, GDP growth rate, trade share, total FDI, mobile phone / wireline penetration rate, and information affected positively on Korean FDI while government spending, distance and restrictions affected negatively on it.

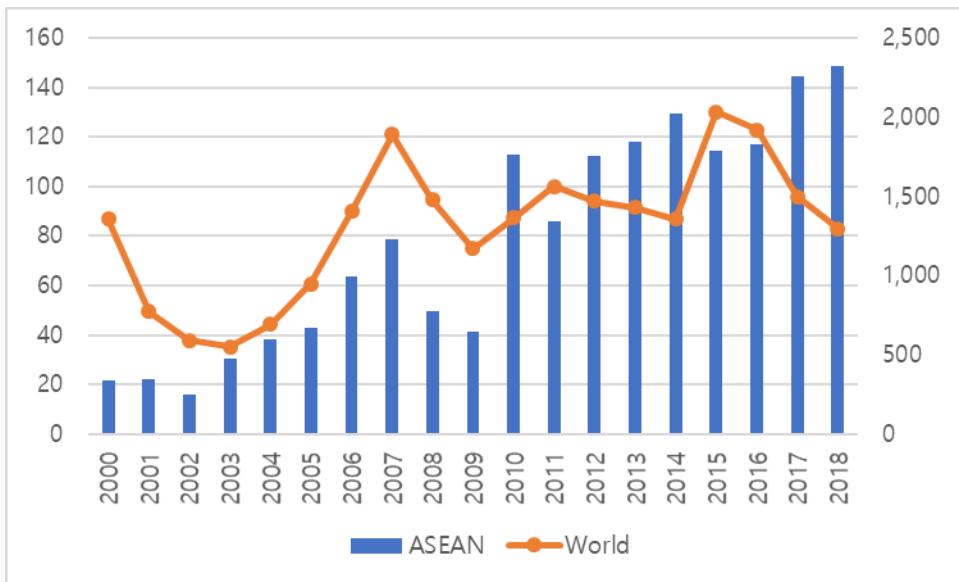
There exist limited number of previous literatures that specifically analyze the determinants of FDI in ASEAN. The difference between the previous literature and this dissertation is that this dissertation uses the overall ranking of Ease of Doing

Business report and divided the FDI into manufacture and service sector. Previous literatures used the selected variables from the 10 major categories of Ease of Doing Business Report from World Bank. The variables of Doing Business have changed over the time and some of them are measured different way and show the risk of inconsistency. Thus, by using the overall ranking of the reports and consider as one variable, it will diminish the risk of inconsistency. And there were limited number of studies that divides the FDI by manufacture and service sector. This study will contribute new perspective of FDI in ASEAN region by dividing into manufacture and service sector and further promote the development of the FDI research.

III. FDI Trend in ASEAN

The inflow of Foreign Direct Investment of ASEAN steadily increased from 2000 and Figure 1 shows the comparison of the world FDI inflow trend and ASEAN FDI inflow trend. ASEAN showed an increasing FDI inflow trend since 2000 except the global financial crisis in 2008-2009 when the world FDI inflow also decreased with the unstable global economic. After the financial crisis, the amount of world FDI inflow of 2018 decreased 17% than that of 2011. In contrast, ASEAN showed an increasing FDI inflow trend from 2011 and increased 73% from 2011 to 2018. FDI inflow of ASEAN increased from 2.18 billion dollars in 2000 to 14.87 billion dollars in 2018.

Figure 1. ASEAN and World FDI Inflow Trend



Source: UNCTAD (Unit: \$billion)

In other words, it increased more than 10 times from the beginning of 2000s to 2018. Comparing the world FDI inflow trend with ASEAN FDI inflow trend, the two trends show similar pattern of increase and decrease before 2010, but from 2010 the two trends show the opposite trend pattern of increase and decrease.

As ASEAN consists of 10 member countries, each country has different contribution ratio of the total FDI amount. Table 1 shows the ASEAN FDI inflow of each 10 member countries on a four-year cycle. The ratio is the simple average of those five years from the Table 1 to roughly estimate the share of each country. From the overall ratio, more than half of the Foreign Direct Investment is concentrated in Singapore. In 2018, the share of FDI of Singapore in ASEAN occupies 52.2%. In the section 5, ASEAN Business Environment Analysis, Singapore's large portion of FDI is positively related with the business environment as Singapore is ranked second best business environment over 190 countries. After Singapore, the FDI is concentrated on the order of Indonesia(13.3%), Thailand (8.8%), Malaysia(7.9%) and Vietnam(7.8%). Summing up those five countries, the share is around 90% of total FDI inflow to ASEAN region. The sum of the other five countries (Brunei, Cambodia, Lao PDR, the Philippines and Myanmar) hold up around 10% of total FDI inflow of ASEAN. Thus, within the ASEAN countries there exist disparity of FDI inflow. Though ASEAN is considered as a single market, the increase of overall FDI inflow in ASEAN does not necessarily mean that every member country is receiving increase of investment.

Table 1. ASEAN FDI Inflow by Country

Country	2002	2006	2010	2014	2018	Ratio (%)
Brunei	1,036	434	481	568	504	0.6
Cambodia	145	483	1,404	1,853	3,103	1.5
Indonesia	146	4,914	13,771	21,811	21,980	13.3
Lao PDR	5	187	279	721	1,320	0.5
Malaysia	3,203	6,060	9,060	10,877	8,091	7.9
Myanmar	18	724	6,669	946	3,554	2.5
Philippines	1,542	2,929	1,298	5,285	6,456	3.7
Singapore	5,338	37,480	57,460	73,287	77,646	53.3
Thailand	3,355	8,182	14,555	4,809	10,493	8.8
Viet Nam	1,400	2,400	8,000	9,200	15,500	7.8
ASEAN Total	16,188	63,794	112,977	129,357	148,646	100.0

Source: UNCTAD (Unit: \$million)

Labor Force and Wage are important factors to consider when investing overseas as firms try to reduce the production cost. Table 2 shows the monthly minimum wage of ASEAN, Korea and China. According to the data from the International Labour Organization (ILO) Myanmar and Brunei did not have the requirements for the minimum wage. Some data in 2018 are from ASEAN briefing and shows some inconsistency between years such as Cambodia. Cambodia data of 2008 and 2013 are from ILO while 2018 data is from ASEAN briefing. The minimum wage of Korea is higher than China and ASEAN and this difference in labor cost possibly leads to invest on foreign countries to reduce the labor cost. The

monthly minimum wage of China has increased 165% from 2008 to 2018. In 2018 China's minimum wage is higher than other ASEAN countries minimum wage. In 2013, the monthly minimum wage of China was less than some countries from ASEAN which act as an advantage for China to attract investment. However, due to China's increase in minimum wage policy, ASEAN shows relatively higher advantage to attract foreign investment in 2018.

Table 2. Monthly Minimum Wage of ASEAN, Korea and China

Country	2008	2013	2018
Korea	852,020	1,015,740	1,573,770
China	132,504	231,882	351,136
Brunei	N/A	N/A	N/A
Cambodia	15	23	196,989
Indonesia	61,686	110,589	120,695
Lao PDR	37,700	81,380	143,000
Malaysia	N/A	252,333	308,407
Myanmar	N/A	N/A	N/A
Philippines	228,275	278,467	293,248
Thailand	201,461	297,726	301,514
Vietnam	27,000	57,500	168,500

Source: ILO, ASEAN briefing, unit: Won (China 1=165.63, Indonesia 1=0.083, Cambodia 1=0.29, Lao 1=0.13, Malaysia 1=280.37, Philippines 1=22.91, Thailand 1=38.17, Vietnam 1=0.05), Myanmar and Brunei do not have minimum wage requirements)

Labor force is one of resource-seeking factors that shows the active population that includes both employed and the unemployed who are looking for work. Table 3 shows the Labor force of ASEAN region, China, and Korea. In 2018, the labor force participation rate (age above 15) of ASEAN average was 69.1%. The world average of labor force participation rate on the same year was 61.3%.⁴ In other words, ASEAN's labor force participation rate was higher than the average of world and that of China as well. With the phenomenon of aging society in Korea and China, ASEAN has relatively higher advantage in labor market with its high labor force participation rate.

Table 3. Labor Force and LFPR of ASEAN, Korea and China(2018)

Country	Labor Force (million)	Labor Force Participation Rate (LFPR)(%)
Korea	2,800	63.4
China	80,694	68.2
Brunei	21	62.7
Cambodia	902	81.7
Indonesia	13,147	67.7
Lao PDR	194	78.3
Malaysia	1,536	68.6
Myanmar	2,274	61.5
Philippines	4,214	59.0
Singapore	386	67.7
Thailand	3,815	67.8
Viet Nam	5,535	76.3
ASEAN	32,024	69.1

Source: ILO, age +15, CEIC

⁴ World Bank LFPR rate, total %(modeled ILO estimate)

Table 4 shows the ASEAN FDI flow by sector. Service sector is the largest portion of the FDI in ASEAN and it takes up about 68.5% during the period 2012-2018. Financial and Insurance takes up 29.9% on the same period, then Manufacturing (20.8%) and Wholesale and retail(16.3%) ranked the following. From 2013 to 2017, the share of Service sector increased from 54.7% to 68.8% while the manufacturing decreased from 33% to 20.7%. ASEAN overall is not an attractive investment place for agriculture, fishery and mining which are categorized as the primary commodity. The manufacturing and service sectors are the two main sectors of ASEAN FDI which account for around 88% of the total FDI inflow. Thus, in this study, the FDI inflow of ASEAN will be divided into manufacture and service sectors to find out whether the determinants affect the decision of FDI in different way.

Table 4. ASEAN FDI Inflow by Sector(in million US\$, %)

Sector	2012	2013	2014	2015	2016	2017	2018
1.Agriculture and Fishery	1,747 (1.5)	2,330 (1.9)	4,717 (3.6)	5,389 (4.5)	2,683 (2.3)	4,275 (2.9)	4,039 (2.6)
2.Mining	6,462 (5.5)	8,104 (6.7)	7,492 (5.8)	6,542 (5.5)	3,921 (3.3)	2,253 (1.5)	-5,937 (-3.8)
3.Manufacturing	-8,169 (-7.0)	39,905 (33.0)	26,888 (20.7)	28,491 (24.0)	22,139 (18.6)	30,425 (20.7)	55,116 (35.6)
4.Construction	-256 (-0.2)	836 (0.7)	1,053 (0.8)	249 (0.2)	1,428 (1.2)	1,929 (1.3)	2,254 (1.5)
5.Service Sector	115,234 (98.7)	66,139 (54.7)	85,750 (65.9)	74,034 (62.4)	83,051 (69.8)	101,109 (68.8)	91,661 (59.2)
5-1. Financial and Insurance	39,802 (34.1)	22,078 (18.3)	44,396 (34.1)	32,141 (27.1)	44,545 (37.4)	39,356 (26.8)	42,398 (27.4)
5-2.Wholesale and retail trade; repair of motor	38,318 (32.8)	17,384 (14.4)	21,913 (16.8)	10,604 (8.9)	12,548 (10.5)	26,214 (17.8)	20,204 (13.1)
5-3. Real Estate Activities	11,054 (9.5)	9,312 (7.7)	9,699 (7.5)	8,866 (7.5)	10,514 (8.8)	13,681 (9.3)	13,058 (8.4)
5.Unspecified	1,757 (1.5)	3,652 (3.0)	4,215 (3.2)	3,962 (3.3)	5,737 (4.8)	6,909 (4.7)	7,580 (4.9)
Total	116,774	120,966	130,115	118,667	118,959	146,902	154,713

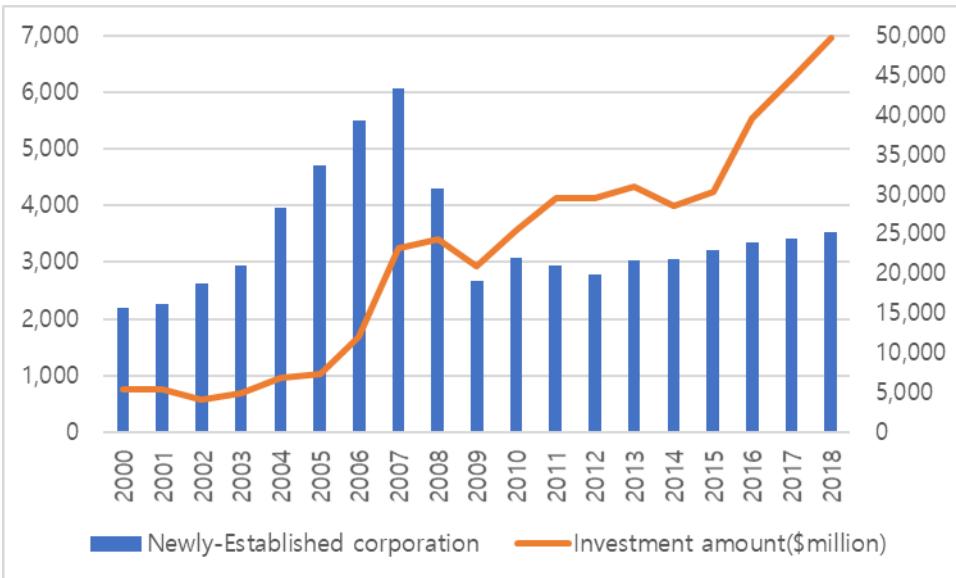
Source: ASEAN Secretariat Stat

IV. Korean Firms' FDI Trend in ASEAN

Korea has started to invest abroad since the beginning of 1990. Figure 2 shows the Korea's Foreign Direct Investment trend from the beginning of 2000 to 2018. Korea invested 5.4 billion dollars in the beginning of 2000s and established around 2,200 corporations in the foreign countries. The investment amount of FDI showed a constant growth and recorded 49.7 billion dollars in 2018. The accumulate number of the newly-established corporations is 65,671 and the accumulate investment amount recorded 422 billion dollars.⁵ Due to the global financial crisis in 2008~2009, the investment amount of Korea's FDI decreased but recovered back from 2010. In 2007, the number of newly established corporation recorded 6,073 which was the highest during the period but the number decreased after 2008 and it is keeping a maintenance in the number 3,000. In other words, before 2008, the FDI investment amount and the number of newly established corporations both increased proportionally. After the crisis, the number of newly established corporations remain around 3,000 annually while the investment amount of FDI keeps increasing. It could be interpreted that Korean firms are investing more on the previously established corporations or the firms are investing more on the newly established firms than before 2008.

⁵ Data from Export-Import Bank of Korea(Accumulate data of 2000~2018)

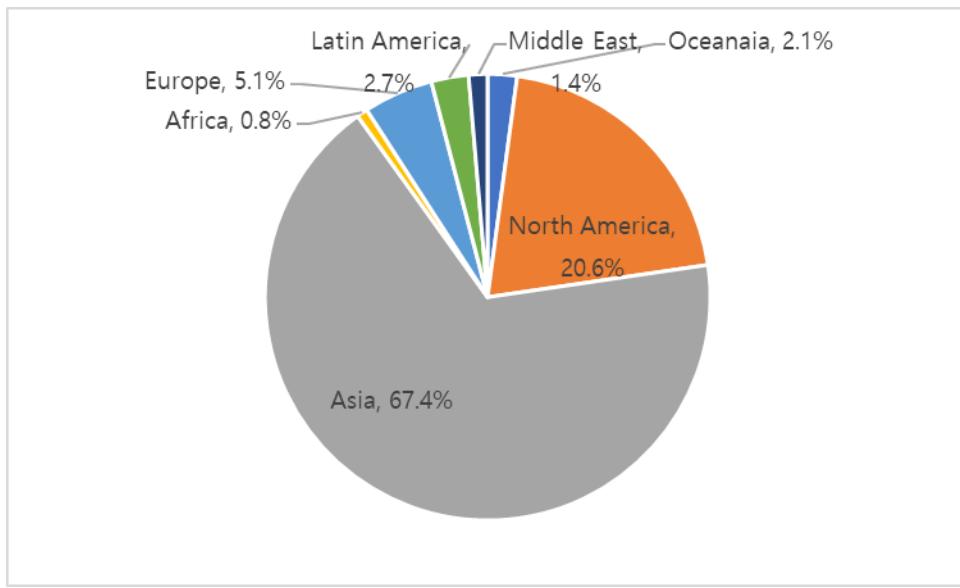
Figure 2. Korea's Overall FDI Trend



Source: Export-Import bank of Korea

Using the cumulative data of Foreign Direct Investment from 2000 to 2018, Korea's overall investment pattern can be analyzed. Figure 3 shows the status of Korea's accumulate number of newly-established corporation by region. By cumulative number of newly established corporations, Korea established firms mostly in Asia region. Asia region counts for 44,259(67.4%) which means that more than half of the total established firms are in Asia region. Asia region is geographically the closest region to trade with Korea. The following region is North America and it counts for 13,501(20.6%). These two regions counts for about 87% of the total established firms. Thus, Korean firms have invested mostly in Asia and North America since 2000 and those two are the main trading partner regions.

Figure 3. Korea's FDI Investment by Region



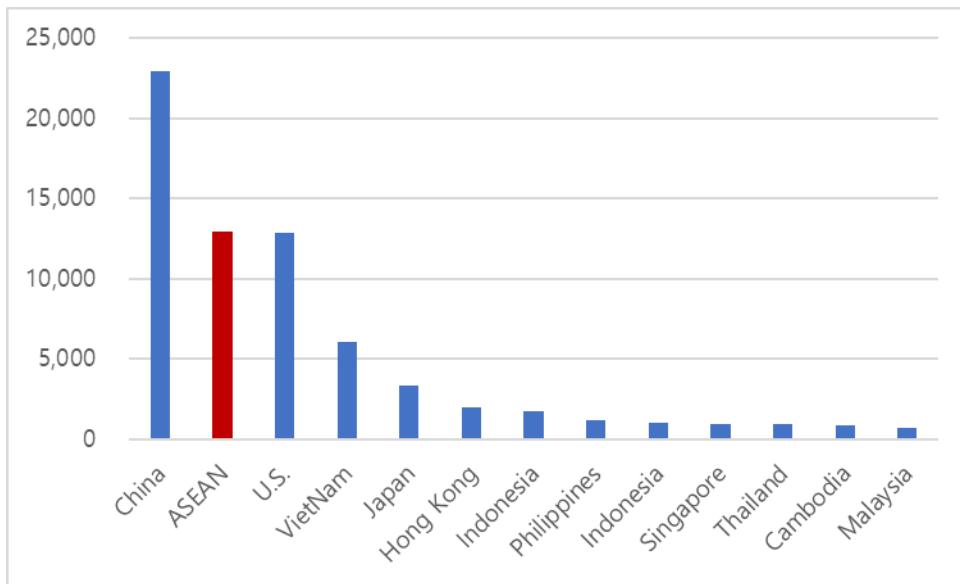
Source: Export-Import Bank of Korea (Accumulate data of Newly-Established Corporations 2000~2018)

By looking at Korea's accumulate number of newly-established corporations in order of most invested countries in Figure 4, China is the country that Korean firms mostly invested. China attracts Foreign Direct Investment country with its high GDP (\$13.6 trillion in 2018)⁶ and relatively cheap production factor that was mentioned in Table 2. After China entered WTO in 2001, the amount of FDI increased drastically. China's rapid economic development along with FDI inflow from the world made it attractive to Korean firms to invest in China market. The sum of ASEAN countries rank the second with 12,919 accumulate number of newly-established corporations after China. In the top 12 most invested countries of Korea, 9 countries are from ASEAN region. If ASEAN region to be considered

⁶ World Bank

as a single economic market, it could be an alternative market for China.

Figure 4. Korea's Accumulate Corporations by Country

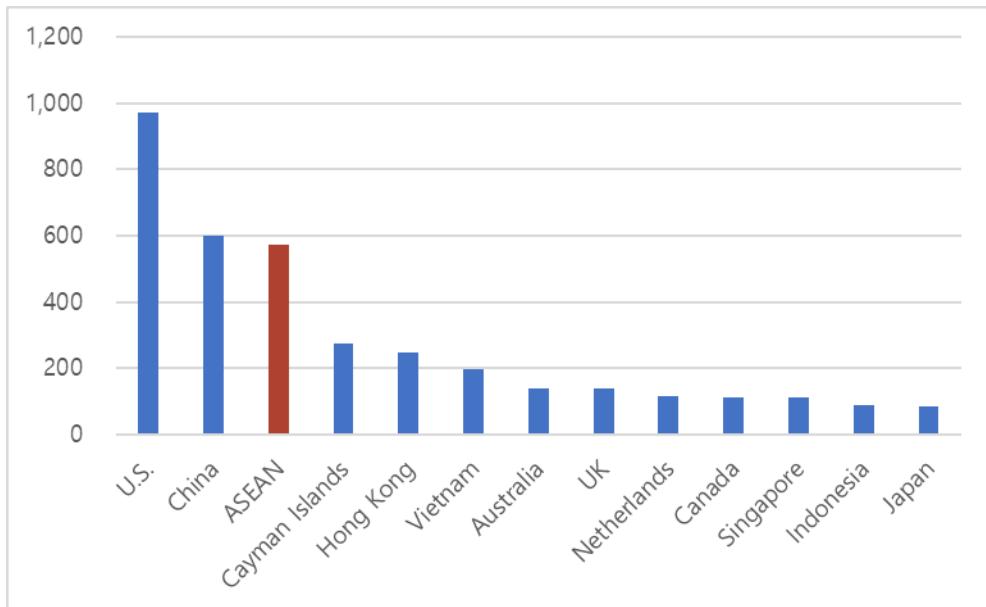


Source: Export-Import Bank of Korea(Accumulate data of Newly Established Corporations 2000~2018)

Figure 5 shows the Korea's accumulate FDI investment amount by country. U.S. is the most invested country for Korean firms in terms of the FDI value. In terms of investment amount, U.S. counts for 969.8 billion dollars, China counts for 598.9 billion dollars and ASEAN counts for 571.5 billion dollars. By simply dividing the accumulate number of newly-established corporations by accumulate number of investment amount, Korea has invested around 2.6 million dollars per company in China and has invested around 4.4 million dollars per company in

ASEAN region.⁷ This could be interpreted that though there are more Korean firms in China, Korean firms are more investing in ASEAN region per company. In short, by analyzing the accumulate FDI data from 2000, the top 3 Korea has mostly invested areas are U.S, China and ASEAN.

Figure 5. Korea's Accumulate FDI Investment Amount by Country



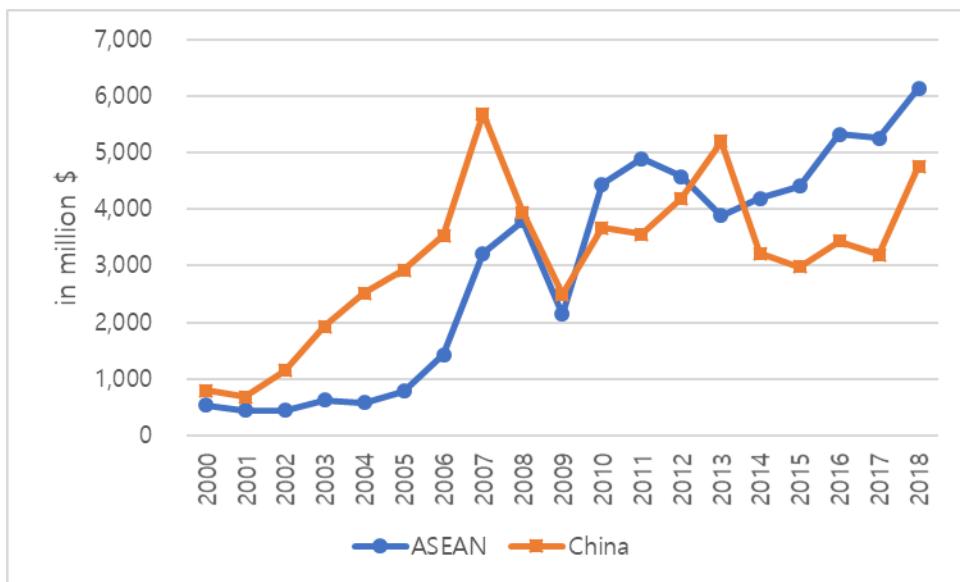
Source: Export-Import Bank of Korea(Accumulate data 2000~2018), Unit: (\$ billion)

ASEAN is considered as an alternative market for China and it is needed to compare the two areas together. By looking at the Figure 6 and Figure 7, Korean Firms' FDI trend between ASEAN and China is shown. After the global financial crisis, Korean firms are investing more on ASEAN countries than China as the number of newly-corporations established in ASEAN(4,193) surpassed the number

⁷ Calculation = (Data from Figure 5. Accumulate Newly Established Corporations) / (Data from Figure 6. Accumulate Investment Amount)

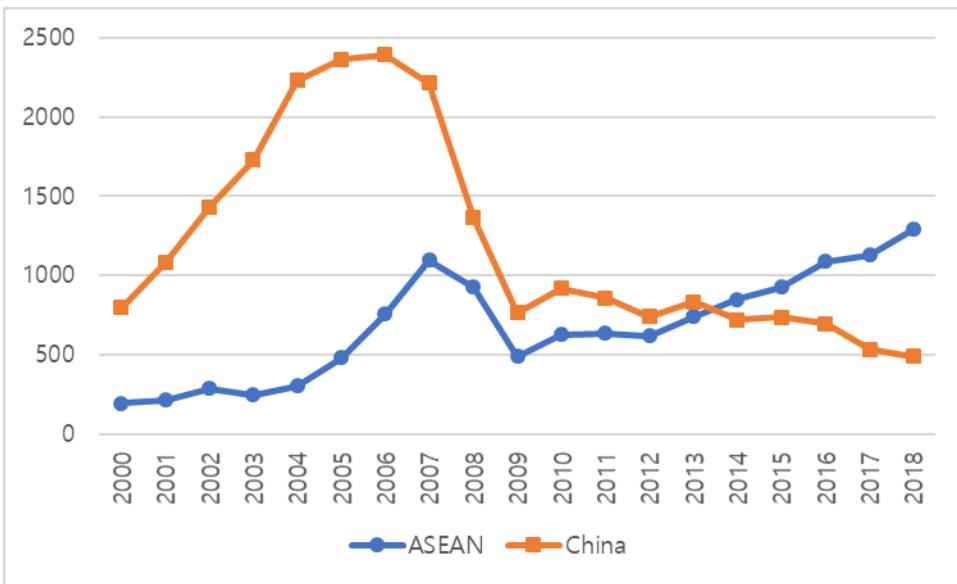
of newly-established corporations China(3,215) in 2014. In 2014, when the investment order between ASEAN and China was changed, Korea invested 4.2 billion dollars in ASEAN while 3.2 billion dollars in China. In 2017, the gap between ASEAN and China enlarged with the amount recorded 5.2 billion dollars in ASEAN and 3.2 billion dollars in China. The decline in FDI in China appears to be attributable to the growth slowdown of China, the restriction on trade and products, and the increase in the price of production factor. In addition, the Chinese government has restricted FDI in excessive energy consumption and environmentally contaminated products. Also, the economic tension from THAAD missile deployment in 2016 has decreased the Korean FDI.

Figure 6. Korea's FDI Trend in ASEAN and China



Source: Export-Import Bank of Korea

Figure 7. Korea's New Corporations Trend in ASEAN and China



Source: Export-Import bank of Korea

China steadily increased the minimum wage along with the improvement of income distribution by Chinese government. Compared to China market, ASEAN has a relatively cheap labor and resource abundant factor which attracted Korean firms to invest in ASEAN region rather than China. This can be seen as a diversification strategy from Korean firms in choosing the investment area. Korea is an export-oriented country and was trade dependent. China was the main trade partner with Korea and Korea's high-dependency on China market⁸ made it vulnerable to economic retaliation after deployment of THAAD missile in 2016. ASEAN market was suitable market to diversify and the economic cooperation

⁸ Based on the Trade Intensity Index of Korea with China: 2.88 in 2017 Source: WITS, World Bank, Calculation: (Export from Korea to China / Export of Korea) / (Export from World to China / Export of World)

with ASEAN market was emphasized as an alternative market.

In Korean firms' perspective, ASEAN market is a new emerging economic market to trade and invest as an alternative of China market. ASEAN is an association of ten different countries and the countries have different economic and geographical characteristics. This diverse characteristics with rapid growth rate of ASEAN region make it attractive for foreign investment from all over the world. Export-Import Bank of Korea categorizes FDI data according to investment purpose. The investment purpose are categorized into overcome protection trade, Introduction of advanced technology, export Promotion, securing raw materials, raw material development, low wage utilization, entering third country and entering local markets. Referring to Table 5, the main purpose of FDI in ASEAN region in 2018 are export promotion, resource development, low wage utilization, entering third country and entering local market. Among these, the largest proportion is entering local market. If applied to Dunning's Eclectic paradigm, it could be seen that Korea's main purpose of FDI in ASEAN is market-seeking investment.

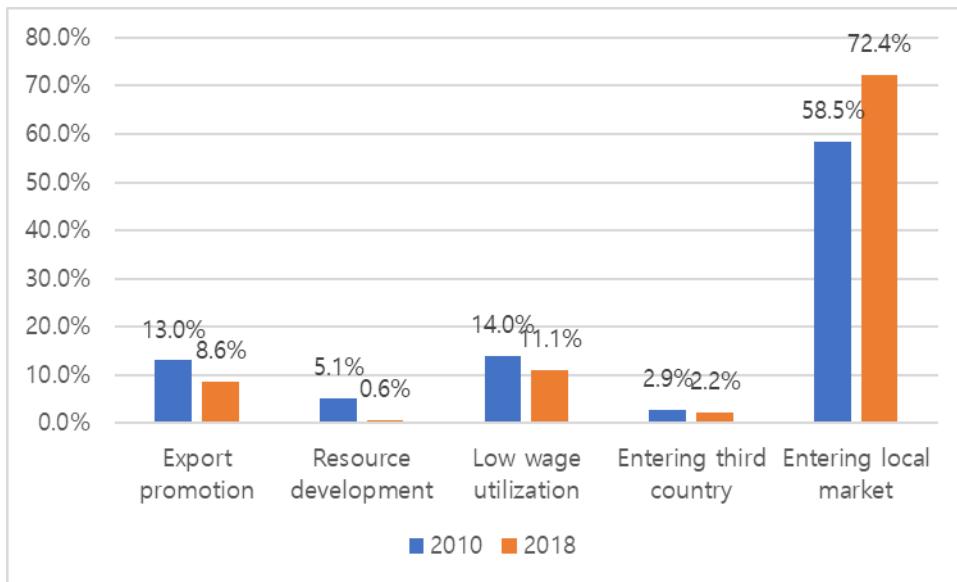
Table 5. Purpose of Korean Firms' Investment in ASEAN

Purpose of FDI	2018	
	Number of Newly-Established corporations	Investment Amount
Export promotion	111	818
Resource development	8	311
Low wage utilization	143	571
Entering Third country	29	1,096
Entering local market	935	3,279
Overcome protection trade	1	26
Introduction of advanced technology	4	15
Securing raw materials	0	0
Others	61	27

Source: Export-Import bank of Korea (investment amount unit: in million \$)

Figure 8 compares investment objectives of Korean companies in 2010 and 2018. The ratio of entering the local market increased from 58.5% to 72.4% which takes up the highest proportion of the investment purpose. The percentage of low wage utilization, resource development and export promotion all decreased from 2010. As the percentage of resource development and securing raw materials all decreased from 2010, it could be assumed that the determinants of resource-seeking investment from Dunning's eclectic paradigm are weakend.

Figure 8. Change in Purpose of Investment in ASEAN



Source: Export-Import bank of Korea

In this chapter, the trend of Korean firms' FDI was analyzed with different perspectives. Since 2000, Korean firms have mostly invested in North America and Asia regions and within the regions, U.S. China and ASEAN are the top 3 mostly invested countries. Before 2014, Korea has invested more in China than in ASEAN but after 2014 Korea is more investing in ASEAN region than in China. This could be a diversification or hedging strategy for Korean firms to invest in ASEAN region because high dependency on one country is risky. By looking at the purpose of investment in ASEAN region, entering the local market was the main reason for Korean firms to decide on investment. It leads to the hypothesis that the market-seeking investment factors are more influential for the determinants of FDI in ASEAN than the resource-seeking investment factors.

V. ASEAN Business Environment Analysis

World Bank has annually published Doing Business report to analyze the countries' business environment since 2006. Doing Business measures facet of business regulations and presents implications for future firm establishment and operation. The measurement of doing business gives a suggestion of where to do business easily. ASEAN countries and China ranked as followings in the Doing Business 2018: Singapore 2nd, Malaysia 24th, Thailand 27th, Brunei 56th, Vietnam 69th, Indonesia 72nd, China 78th, the Philippines 113th, Cambodia 135th, Lao PDR 141st and Myanmar 171st. There are 10 indicators that analyze the business environment of 190 countries over the world. Some indicators are changed and deleted from the list over time and it gives inconsistency of using specific indicator to analyze for the regression. In this dissertation, some indicators will be introduced to explain the current status of ASEAN countries' business environment. In each indicator South Korea and China will also be introduced with ASEAN countries to compare whether ASEAN countries have environment to do business. For the analysis part, the overall ranking data of ASEAN countries will be used as an independent variable instead of extracting specific indicator of the measurements. The 10 indicators are starting business, dealing with construction permits, paying taxes, trading across borders, registering property, getting electricity, enforcing contracts, protecting minority investors, getting credit and resolving insolvency. Based on the Doing Business 2018 report, the measurements

of the ten indicators are shown below in Table 6:

Table 6. Ease of Doing Business Indicators Summary

Indicators	Explanation & Measurement
1. Starting a business	Evaluate all formalities required for a company to start (Procedures, time, cost and minimum capital)
2. Dealing with construction permits	Evaluate procedures, time, cost and administrative system efficiency required for construction
3. Paying taxes	Payments, time and tax for a firm to comply with all tax regulations
4. Trading across borders	Evaluate the procedures, time and costs required for import and export
5. Registering property	Evaluate procedures, time and cost to transfer and register ownership of property
6. Getting electricity	Measure power supply efficiency and stability Procedures, time and cost to get electricity
7. Enforcing contracts	Evaluate how efficient the system is for the various contract implementation processes
8. Protecting investors	Evaluate the degree of shareholder protection from unfair insider transactions of the board of directors. (Transparency, director liability, shareholder rights, corporate transparency)
9. Getting credit	Evaluate the creditors' legal rights and credit information system (Level of protection of creditor's rights, level of providing credit information)
10. Resolving insolvency	Evaluate the coping efficiency of the company's insolvency and bankruptcy (Recovery rate, insolvency framework)

Source: World Bank, Doing Business 2018

1) Starting a Business & Resolving Insolvency

The indicator of starting a business is to show how easy and efficient to start a business in the foreign country. Table 7 shows that Singapore and Thailand have the most efficient business environment to start as they have less than 10 procedures and take less than 10 days to start a business. Cambodia and Lao PDR

are the most inefficient in starting a business because the time takes more than two months to start.

In terms of resolving insolvency, Singapore and Malaysia have the recovery rate over 80% and other ASEAN countries have less than 50% of recovery rate. Cambodia, Myanmar, Viet Nam take 5 or more years to process the resolving insolvency. Singapore and Malaysia are relatively more efficient in resolving insolvency than other ASEAN countries.

Table 7. Starting a Business and Resolving Insolvency of Index

Countries	Starting a Business Indicator			Resolving Insolvency		
	Procedures (number)	Time (days)	Cost(% of income per capita)	Time (years)	Cost (% of estate)	Recovery rate (%)
Brunei	5.5	12.5	1.1	2.5	3.5	47.2
Cambodia	9	99	51.3	6	18	14.2
Indonesia	11.2	23.1	10.9	1.1	21.6	64.7
Lao PDR	8	67	3.5	-	-	0
Malaysia	8.5	18.5	5.4	1	10	81.3
Myanmar	12	14	40.1	5	18	14.7
Philippines	16	28	15.8	2.7	32	21.3
Singapore	3	2.5	0.5	0.8	4	88.7
Thailand	5	4.5	6.2	1.5	18	68.0
Vietnam	9	22	6.5	5	14.5	21.8
China	7	22.9	0.6	1.7	22	36.9
Korea	2	4	14.6	1.5	3.5	84.7

Source: World Bank, Doing Business 2018

2) Dealing with Construction and Getting Electricity

Dealing with Construction permits is measured by the procedures, time and

cost to complete all formalities to build a warehouse, the quality control and safety mechanisms in the construction permitting system. In dealing with construction, Singapore, Vietnam and Thailand are relatively efficient in getting the construction permits due to their less procedures and less time. Cambodia and Indonesia take more than 200 days dealing with construction.

Getting electricity measures power supply efficiency and stability by procedures, time and cost to get electricity. In getting electricity, Cambodia and Lao PDR take more than 130 days. In terms of cost, Cambodia, Lao PDR, Myanmar and Vietnam have more than 1,000% of income per capita cost to get the electricity which results in low evaluation in business environment.

Table 8. Dealing with Construction Permits and Getting Electricity

	Dealing with Construction Permits			Getting Electricity		
	Procedures (number)	Time (days)	Cost(% of income per capita)	Procedures (number)	Time (days)	Cost(% of income per capita)
Brunei	20	83	1.8	5	36	41.5
Cambodia	20	652	5.3	4	179	1993.2
Indonesia	17	200.2	4.8	4	34	276.1
Lao PDR	11	83	0.4	6	134	1132.5
Malaysia	14	78	1.4	4	31	28
Myanmar	15	95	3.8	6	77	1155.3
Philippines	23	122	2.6	4	37	25.3
Singapore	10	54	6.2	4	30	25.3
Thailand	18	104	0.1	4	32	63.1
Vietnam	10	166	0.7	5	46	1191.8
China	23	247.1	7.8	5.5	143.2	356
Korea	10	27.5	4.4	3	13	37

Source: World Bank, Doing Business 2018

3) Registering Property and Enforcing Contracts

Registering property is measured by the procedures, time and cost to transfer a property. Registering property is divided into procedures and cost. Singapore takes the least days to register the property. Singapore, Malaysia and Thailand have relatively efficient environment to register property. Brunei takes the longest time which is nearly 10 months to register property.

Enforcing contract indicator is the evaluation of how efficient the system is for the various contract implementation processes. Singapore takes less than 6 months to enforce contracts while other ASEAN countries take more than a year to enforce a contract. Indonesia, Malaysia, Thailand and Vietnam take around 400 days and have similar environment of enforcing contracts.

Table 9. Registering Property and Enforcing Contracts

	Registering Property			Enforcing Contracts	
	Procedures (numbers)	Time (days)	Cost(% of property value)	Time (days)	Cost (% of claim)
Brunei	7	298.5	0.6	540	36.6
Cambodia	7	56	4.3	483	103.4
Indonesia	5	27.6	8.3	403	70.3
Lao PDR	4	53	1	443	31.6
Malaysia	8	13	3.5	425	37.3
Myanmar	6	85	4.1	1,160	51.5
Philippines	9	35	4.3	962	31
Singapore	6	4.5	2.9	164	25.8
Thailand	5	7	7.3	420	16.9
Vietnam	5	57.5	0.6	400	29
China	4	19.5	3.4	496	16.2
Korea	7	5.5	5.1	290	12.7

Source: World Bank, Doing Business 2018

4) Trading across borders

Trading across borders is measured by time and cost to export and import of the products. The indicator measurement has changed over time, but the time and cost of export and import are steadily measured over the period. The more trade dependent the country is, the less hours it takes to process the documentary and border. Singapore, Thailand, Vietnam and Malaysia take relatively less time and cost for documentary and border compliance process. In contrast, Indonesia, Myanmar and Lao PDR are inefficient with trading across borders.

Table 10. Trading Across Borders Index

	Time				Cost			
	Export		Import		Export		Import	
	Documentary Compliance (hours)	Border Compliance (hours)	Documentary Compliance (hours)	Border Compliance (hours)	Documentary Compliance (US\$)	Border Compliance (US\$)	Documentary Compliance (US\$)	Border Compliance (US\$)
Brunei	155	117	132	48	90	340	50	395
Cambodia	132	48	132	8	100	375	120	240
Indonesia	61.3	53.3	119.2	99.4	138.8	253.7	164.4	382.6
Lao PDR	216	12	216	14	235	73	115	153
Malaysia	10	45	10	69	45	321	60	321
Myanmar	144	142	48	230	140	432	210	457
Philippines	72	42	96	72	53	456	50	580
Singapore	2	10	3	33	37	335	40	220
Thailand	11	51	4	50	97	223	43	233
Vietnam	50	55	76	56	139	290	183	373
China	21.2	25.9	65.7	92.3	84.6	484.1	170.9	745
Korea	1	13	1	6	11	185	27	315

Source: World Bank, Doing Business 2018

In short, Singapore had the most efficient business environment to establish and operate the firms. Compared to China which ranked 78th, Malaysia, Thailand, Brunei, Vietnam and Indonesia have relatively less regulated business environment. The Philippines, Cambodia, Lao PDR and Myanmar are relatively more regulated business environment than China. From Chapter 3 Table 1, 90% of the total ASEAN FDI inflow was concentrated in Singapore, Indonesia, Thailand, Malaysia and Vietnam. The other five countries (Brunei, Cambodia, Lao PDR, the Philippines and Myanmar) hold up around 10% of total FDI inflow of ASEAN. Except Brunei with relatively efficient business environment, there is a correlation with Foreign Direct Investment with the business environment ranking. In ASEAN region, FDI was concentrated with countries with low rank.

VI. Methodology

6.1 Model

In this section, the determinants of Foreign Direct Investment in ASEAN will be analyzed with the model from the previous literature. The model that will be used in this dissertation is based on Dunning(1977)'s eclectic paradigm model. Dunning's eclectic paradigm suggests that the motivation of the investment can be divided the motivation of FDI into the purpose of market-seeking investment, resource-seeking investment and efficiency-seeking investment.

The determinants of market-seeking investment are market size (GDP), trade and growth rate of the host country. The resource-seeking investment is an investment to purchase or utilize the abundant resources of a host country. In this case, the main determinants are human resource (Labor Force), infrastructure (Mobile) of the host country. The efficiency-seeking investment is an investment that is promoted as part of increasing the efficiency of production. In this case, inflation that affects stable operation of economies of scales is the main determinants.

Also, the ranking of the Ease of Doing Business Index from the World Bank will be added in the model. The main model is the linear regression model with the variables mentioned. The panel regression of the ten ASEAN countries will be analyzed in the period of 2000-2018. The subject of this analysis is the ten

countries of ASEAN. The model will use the following linear equation model:

$$\ln FDI_i = \beta_1 \ln GDP_i + \beta_2 GDPgrowth_i + \beta_3 Trade_i + \beta_4 \ln Mobile_i + \beta_5 \ln LaborForce_i + \beta_6 Inflation_i + \beta_7 DBrank_i + \varepsilon \quad (i=10 \text{ ASEAN countries})$$

6.2 Data and Variables

In this thesis, four dependent variables are used for the analysis. The four dependent variables are the FDI inflow of ASEAN from the world, FDI from Korea to ASEAN, manufacture sector of Korean FDI to ASEAN and service sector of Korean FDI to ASEAN. The analysis will be divided into two main parts. First, the world FDI and Korean FDI will be compared to verify if two are differently affected by the determinants. Second, within the Korean FDI, manufacture sector and service sector will be divided to see if two are differently affected by the determinants. The data of FDI are from UNCTAD and Export-Import Bank of Korea to analyze the global trend and Korean trend of investment. The dependent variables are summarized in the Table 11.

Table 11. Dependent Variables

Dependent Variables	Explanation	Source
FDI_World	Foreign direct investment inflow, US dollars at current price in millions, Log	Unctad
FDI_ko	Total investment amount of FDI from Korea to ASEAN, US dollars at current price in millions, Log	Stats, Export-Import Bank of Korea
FDI_man	(Manufacture Sector) Foreign direct investment from Korea to ASEAN, US dollars at current price in millions, Log	Stats, Export-Import Bank of Korea
FDI_ser	Foreign direct investment, US dollars at current price in millions, Log, *Service sector Code: (E,G,H, I, J, K, L, M, N, O, P, Q, R, S, T, U)	Stats, Export-Import Bank of Korea

The service industry is an intangible economic goods production activity and there are no regulations that specifically define the service sector. Major countries are setting the scope of service industry classification according to their organizational methods for producing and providing statistics. Statistics Korea defined the following industrial classification as the service industry for the consistency of domestic statistical indicators with the international organizations. Major classification for service industry based on Korea Standard Industrial Classification are the following table:

Table 12. Service Sector Category

Code	Category
E	Water supply; sewerage, waste management and remediation activities
G	wholesale and retail business
H	Transportation and Warehousing
I	Accommodation & Restaurant
J	Information Service
K	Finance and insurance
L	Real Estate
M	Professional, scientific and technical service
N	Business facility management, business support and rental service business
O	Public Administration, Defense and Social Security Administration
P	Educational Service
Q	Health and Social Welfare Services
R	Arts, sports and leisure services
S	Associations and Organizations, repairs and other personal services
T	Employment activity in household and self-consumption production activity not classified elsewhere
U	International and Foreign Institutions

Source: Kostat

The independent variables are based on the Dunning's Eclectic Paradigm theory of Market-seeking, Resource-seeking and Efficiency Seeking factors. The ranking of Doing Business is added to differentiate from the previous literature analysis. The Ease of Doing Business Report by World Bank was first published in

2004 and is being published annually. The indicators have changed over the years and only few indicators remain steadily. The change in measurement of indicators can lead to inconsistency, thus this thesis will use the overall Doing Business ranking of the ASEAN countries. The underdeveloped countries in ASEAN such as Brunei, Cambodia and Myanmar had missing data or no data until the beginning of 2010. The independent variables are summarized in the Table 12.

Table 13. FDI Determinants (Independent) Variables

Type	Variables	Explanation	Source
Market-seeking	GDP	GDP (current US\$), Log	World Bank; WDI
	GDP Growth	GDP growth (annual %)	World Bank; WDI
	Trade Openness	Trade (% of GDP)	World Bank; WDI
Resource-seeking	Mobile Subscribers	Mobile cellular subscriptions (per 100 people), Log	World Bank; WDI
	Labor Force	Labor force, total, Log	World Bank; WDI
Efficiency-seeking	Inflation	Inflation, GDP deflator (annual %)	World Bank; WDI
Business Environment	DBRank	Ease of Doing Business Rank (1-190)	World Bank; Doing Business Rank(04-18)

6.3 Correlation Test

Correlation test is a test that measures statistical relationship between the variables. It shows the linear or non-linear relationship between the variables. There should be no interdependence between the independent variables in the regression. The strong correlation is defined as value r is between -1.0 and -0.7 (strong negative correlation) or +0.7 and +1.0 (strong positive correlation). The correlation test of the independent variables is shown in the Table 14. All the r values between the independent variables are less than the absolute value of 0.7 which assures that there is no interdependence between the independent variables.

Table 14. Correlation Test

	GDP	GDPgrowth	Trade	Mobile	Labor Force	Inflation	DBrank
GDP	1.0000						
GDPgrowth	-0.0515	1.0000					
Trade	0.1676	0.0105	1.0000				
Mobile	0.4892	-0.3226	0.3009	1.0000			
LaborForce	0.6763	0.3469	-0.2651	0.0119	1.0000		
Inflation	0.0062	0.3295	0.1509	-0.2878	0.2445	1.0000	
DBrank	-0.5248	0.3359	-0.6771	-0.5241	0.0843	0.2364	1.0000

6.4 Hypothesis

The regression analysis of this thesis is to find the determinants of Korean firms' FDI in ASEAN region. From the model introduced, there are three motivations to invest in foreign countries: market-seeking, resource-seeking and efficiency-seeking. Ismail (2009) confirmed that the market size, infrastructure positively affected FDI while inflation rate negatively affected FDI attractiveness. Hoang and Bui (2015) analyzed that FDI showed positive correlation with GDP, infrastructure, trade openness and negative correlation with interest rate. Park (2017) divided the FDI into service sector and manufacture sector and analyzed using 38 different variables. Park (2017) analyzed that GDP, GDP growth rate, trade share and mobile phone penetration rate affected positively on Korean FDI while distance and restrictions (doing business indicators) affected negatively on it. From the previous literatures review, two hypotheses can be drawn in this paper. And three research questions are to be answered through the analysis:

Hypothesis:

Hypothesis 1: The market-seeking, resource-seeking variables are expected to positively affect FDI inflow of ASEAN while the efficiency-seeking variables negatively affect it.

Hypothesis 2: Doing Business ranking is expected to negatively affect FDI inflow of ASEAN.

Research Questions:

Research. Question. 1: Do determinants affect differently between world FDI and Korean FDI?

Research. Question 2: Does doing business ranking correlates with FDI inflow of ASEAN?

Research. Question 3: Do determinants affect differently between manufacture and service sector?

VII. Empirical Results

Table 15. Linear Regression Result of ASEAN FDI

	ASEAN FDI from World	ASEAN FDI from Korea
Variables	Coefficient	Coefficient
GDP	0.615*** (7.32)	0.248 (1.37)
GDP Growth	0.070*** (2.88)	-0.018 (-0.34)
Trade Openness	0.008*** (8.42)	0.019*** (9.47)
Mobile Subscribers	0.351*** (2.62)	0.482* (1.66)
Labor Force	0.089 (1.37)	0.586*** (3.84)
Inflation	0.011 (1.13)	0.062** (2.36)
Doing Business Ranking	0.0002 (0.14)	0.009** (2.28)
Constant	-11.815 (-8.59)	-5.893 (-1.95)
R-Squared	0.88	0.66
OBS	116	110

Note: ***p<0.01, **p<0.05, *p<0.10

The first regression is run to compare the ASEAN FDI determinants between world and Korea. The determinants of world trend were significantly associated with all three Market-seeking investment factors. The GDP, GDP growth and Trade openness were significant at 1 percent and they all positively associated with FDI inflow of ASEAN. Also, the mobile subscribers which is the infrastructure factor positively associated with the world investment in ASEAN. Doing business

ranking did not have any significance association with the world FDI.

Korea on the other hand was only significantly influenced by trade openness from the market-seeking category. Both Mobile subscribers and Labor force from the resource-seeking category positively associated with the FDI in ASEAN. The inflation rate from the efficiency-seeking also positively associated with Korean firms' investment. Doing Business ranking positively associated with FDI.

In short, the market-seeking motivation for world FDI while the market size and growth did not have much significance in Korean FDI. For Korean FDI, the trade openness, resource-seeking variables (mobile subscribers, labor force), efficiency seeking variable (inflation) are all significantly associated as well as the business ranking. Thus, hypothesis 1 is not confirmed in the world FDI, but it does confirm with Korean FDI. In contrast to the expectation of hypothesis 2, there was positive relation. It could be interpreted that even though low rank such as Singapore receive the most FDI, other countries with higher rank such as Malaysia, Thailand, Vietnam and Indonesia still receive significant FDI. Doing Business ranking itself has a negative relation with FDI but due to other variables it could have resulted in positive relation.

Table 16. Linear Regression Result of Sectoral FDI

	FDI Manufacture	FDI Service
Variables	Coefficient	Coefficient
GDP	-0.009 (-0.05)	0.120 (0.85)
GDP Growth	-0.037 (-0.69)	0.051 (1.25)
Trade Openness	0.011*** (5.25)	0.020*** (13.17)
Mobile Subscribers	0.729** (2.46)	0.224 (1.00)
Labor Force	1.327*** (8.42)	0.856*** (7.56)
Inflation	0.009 (0.38)	0.026 (1.45)
Doing Business Ranking	0.073 (0.67)	0.016*** (5.10)
Constant	-22.792 (-7.47)	-18.736 (-8.20)
R-Squared	0.74	0.81
OBS	110	114

Note: ***p<0.01, **p<0.05, *p<0.10

Table 16 shows the regression result between the manufacture and service sector of Korean FDI to ASEAN countries. In manufacture sector, trade openness, mobile subscribers and labor force were positively associated with the FDI. Trade

openness of the country and resource-seeking are the main motivations for manufacture sector. Doing business ranking did not have any significance in the manufacture sector. In other words, the market size, GDP growth, inflation and business environment ranking are not significant in choosing the manufacture country. In service sector, trade openness, labor force and doing business ranking were positively associated with the FDI. The differences between the manufacture sector and service sector are that manufacture is positively associated with the infrastructure of the country while service sector is positively associated with the business environment of the country.

VIII. Conclusion

ASEAN became a significant economic market after the global financial crisis in 2008. The average growth rate of ASEAN was 5.4% from 2010 while the world average growth rate was 3.0%. With relatively high average growth rate, ASEAN became an attractive economic market for trade and investment. The share of global FDI inflows increased from 1.6% in 2000 to 11.5% in 2018 which is more than 10 times during the same period. The FDI inflow of ASEAN surpassed China's inflow in 2014 and stands compelling economic market in East Asia region. Recent economic problems with China due to the THAAD deployment issue in 2016 have raised the need for diversification of investment and the need for economic cooperation with ASEAN as an alternative market of China.

This study focused on finding the determinants of Korean firms' Foreign Direct Investment (FDI) in ASEAN. In order to find the determinants of FDI, Dunning's eclectic paradigm model was used to divide the motivation of FDI into market-seeking, resource-seeking and efficiency-seeking categories. Doing business ranking was added in the determinants as the fourth category. The analysis was done with the linear regression of ASEAN countries from 2000 to 2018 period using 4 different dependent variables. The first dependent variable was the world FDI to ASEAN countries to check the motivation. The main motivation was the market size (GDP), GDP growth, Trade openness and mobile subscribers (Infrastructure). The world trend was for the market-seeking motivation. The

second dependent variable was the Korea FDI in ASEAN and trade openness, resource-seeking variables (mobile subscribers, labor force), efficiency seeking variable (inflation) and business ranking did have positive relation. However, the market size and the GDP growth did not have significance for the motivation. The other two dependent variables were manufacture and service sector of Korean FDI in ASEAN region to check the difference motivation between the two. The trade openness and labor force were both positively associated with the FDI. The difference motivation was that infrastructure (mobile subscribers) were significant in the manufacture sector FDI but not in the service sector FDI. And doing business ranking did have significance relation with the service FDI while it did not have significance with the manufacture FDI. For Korean firms, the market size and market growth were not attractive determinants, but the trade openness of the country mattered. Infrastructure such as mobile did positively attracted FDI.

This study includes some limitations. First, there are other variables that could represent the motivation of FDI. FDI is complex form of investment that could be affected by various motivations and determinants. Thus, other variables should be considered in the future study. Second, the results of the regression could be misleading with the multi variables regression. For example, single variable regression of Doing business ranking and inflation were both negative related with the FDI, but in the multi variable regression they both resulted in positive. Third, missing data of Brunei and Myanmar on certain period leads to less accurate analysis.

This study makes several suggestions for Korean firms and further studies of FDI. With the analysis of the business environment of each country and the analysis of determinants of the FDI, Korean firms can make strategies of where to invest in ASEAN. In further studies of FDI, the corporate level of FDI is needed to analyze the determinants of FDI by industry.

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국문 초록(Abstract Korean)

본 연구는 한국 기업들이 아세안에 해외직접투자를 하는 결정요인에 대하여 분석한다. 2008년 세계 금융위기 이후 아세안은 중요한 경제 시장이 되었다. 아세안의 평균 경제성장률은 2010년 이후에 5.4%였고 이는 세계 평균 경제성장률인 3.0%를 앞선다. 상대적으로 높은 경제성장률로 아세안에 무역과 투자가 집중이 되었다. 전 세계 해외직접투자 유입 비율은 2000년 1.6%에서 2018년 11.5%로 10배 이상 증가했으며 아세안의 해외직접투자 유입은 2014년 중국의 해외직접투자 유입을 넘어섰다. 최근 2016년 사드 미사일 배치로 인해 한국이 중국과의 경제관계에 문제가 발생하면서 아세안은 중국의 대안 시장으로서 투자의 다각화와 경제 협력의 필요성이 제기되었다.

본 연구에서는 Dunning (1977)의 절충이론의 모델을 기반으로 한국의 해외직접투자의 목적을 시장 추구형, 자원 추구형 그리고 효율성 추구형으로 나눠서 분석하였다. 또한 세계 은행에서 제공하는 기업환경 평가의 각 나라의 비즈니스 순위를 결정 요인에 추가하여 분석하였다. 본 연구는 아세안 지역의 세계 해외직접투자와 한국의 해외직접투자의 차이점을 분석하였으며 기존 연구들과는 다르게 한국의 해외직접투자를 제조업 부문과 서비스 부문으로 나누어 어떠한 결정요인들이 작용하였는지 제시한다.

분석 결과, 아세안 지역의 세계 해외직접투자의 주 결정요인은 시장

추구형 (국내총생산, 국내총생산 성장률, 무역 개방성)과 자원추구형 (모바일가입자 수)이 결정요인으로 크게 작용하였다. 아세안 지역의 한국 해외직접투자는 시장 추구형(무역 개방성), 자원 추구형(모바일 가입자 수, 노동력), 효율 추구형(인플레이션) 그리고 비즈니스 순위가 골고루 영향을 끼치는 것을 확인할 수 있었다. 아세안 지역의 한국 해외직접투자는 세계 해외직접투자와는 다르게 시장 규모와 성장률이 결정요인으로서 큰 영향이 없었다. 제조업과 서비스 부문에서는 시장 추구형(무역 개방성)과 자원 추구형(노동력)이 결정요인으로서 작용하고 있었다. 반면에, 제조 부문은 인프라 요인인 모바일 가입자수(자원 추구형)이 영향을 미친 반면에 서비스 부문에서는 결정 요인으로 작용하지 않았다. 또한 서비스 부문에서는 비즈니스 순위가 의미가 있었지만 제조 부문에서는 의미가 크게 없었다. 따라서, 아세안의 세계 해외직접투자는 주로 시장 추구형 목적과 부분적 자원 추구 목적인 반면에 한국 기업들의 해외직접투자는 부분적 시장추구 목적, 자원 추구 목적 그리고 효율 추구 목적이 모두 복합적으로 작용하고 있음을 확인하였다. 기업환경평가의 순위는 한국의 해외직접투자와 양의 상관관계를 가지고 있으며 서비스 부문에서만 주로 작용하고 있음을 확인하였다. 제조 부문에서는 인프라 시설이 더 결정요인으로 작용하고 있음을 보인다.

주제어: 해외직접투자, 아세안, 기업환경평가, 절충이론, 한국 기업

학 번: 2018-28410

Appendix

Table 17. ASEAN Membership and History

Member States	Establishment & Joining Dates
Indonesia	8 August 1967
Malaysia	8 August 1967
Philippines	8 August 1967
Singapore	8 August 1967
Thailand	8 August 1967
Brunei Darussalam	7 January 1984
Vietnam	28 July 1995
Lao PDR	23 July 1997
Myanmar	23 July 1997
Cambodia	30 April 1999

Source: ASEAN.org

Table 18. Doing Business Ranking of ASEAN Countries

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Brunei	N/A	N/A	78	88	96	112	83	79	59	101	84	72	56
Cambodia	133	143	145	135	145	147	138	133	137	135	127	131	135
Indonesia	115	135	123	129	122	121	129	128	120	114	109	91	72
Lao PDR	147	159	164	165	167	171	165	163	159	148	134	139	141
Malaysia	21	25	24	20	23	21	18	12	6	18	18	23	24
Myanmar	N/A	182	177	167	170	171							
Philippines	113	126	133	140	144	148	136	138	108	95	103	99	113
Singapore	2	1	1	1	1	1	1	1	1	1	1	2	2
Thailand	20	18	15	13	12	19	17	18	18	26	49	46	26
Vietnam	99	104	91	92	93	78	98	99	99	78	90	82	68

Source: World Bank, Doing Business Report (2006~2018)