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**Determinants of Foreign Direct Investment Inflows in Seven ASEAN
Countries During the Period of 2010-2017: Dunning Model
Approach**

PENGUSUL

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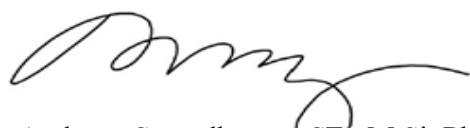
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Andryan Setyadharma, SE., M.Si. PhD

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Didit Purnomo <journals-noreply@ums.ac.id>
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16 June 2020 at 16:12

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Muhammad Anas <ma912@ums.ac.id>
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12 February 2021 at 16:30

Yth. Dr. Andryan Setyadharma,

Terima kasih atas reminder yang diberikan kepada kami, dan kami mohon maaf atas keterlambatan proses review artikel Anda.

Untuk periode Juni-Desember kemarin memang sangat banyak artikel masuk. Hal tersebut membuat kami sempat kewalahan mencari reviewer.

Saat ini artikel Anda sedang direview oleh dua orang reviewer, dan akan kami prioritaskan untuk diterbitkan pada Juni ini, tentunya berdasarkan masukan dari reviewer dan Editor in Chief.

Terima kasih.

Salam hormat,

Muhammad Anas

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13 February 2021 at 13:04

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**Determinants of Foreign Direct Investment Inflows in Seven ASEAN Countries
During The Period of 2010-2017: Dunning Model Approach**

Abstract

~~The study aims to establish the determinants of FDI Inflows in 7 ASEAN countries in the period of 2010-2017 using the Dunning Model approach. The type of this study employs quantitative analysis through the Dunning Model Approach. As the technique of analysis, the data used in this study is secondary data and this study employs the Panel Data Regression analysis with Fixed Effect Model is used to estimate some secondary data. The results of this study indicate that the Real GDP and Corruption Perception Index have positive and significant effects on FDI Inflows; while Exchange Rate, ICT Development Index and Road Length have negative and significant effects on FDI Inflows. One variable, Trade Openness has no effect on FDI Inflows. The results of this study also show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources overflow with better quality.~~

Keywords: Foreign Direct Investment, ASEAN, Dunning Model

JEL classification: C51, E22, F21, F34

1. INTRODUCTION

According to Kumari and Sharma (2017), developing countries need more capital inflows, including in the form of foreign direct investment, to accelerate economic growth and to encourage economic development. Increase in investment will increase gross domestic product (GDP) and in the end, increase in GDP will cause economic growth. Investment could be a source of economic growth because investment can increase sources of capital through investment and taxes, creating jobs resulting in spill over effects such as transfer of skills, technology, managerial expertise and corporate governance practices (Asongu *et al.*, 2018).

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Azam and Lukman (2010) argue that the entry of investments into a country cannot be separated from the risks that exist in host countries. From an investor's perspective, economic risks in several countries need to be handled wisely, otherwise, investors will select other countries to avoid risks. The best investment option is chosen by the investors so that the return on investment remains same or even increases. One alternative investment chosen by these investors is investing in Foreign Direct Investment (FDI). Investment in FDI helps foreign investors to diversify risks and shocks in host countries. Therefore, FDI is expected to be able to increase the growth of sustainable foreign investment (Alam & Shah, 2013).

ASEAN is one of the major destinations for FDI. The Association of South East Asian Nations (ASEAN) is an international organisation whose members are mostly developing countries. ASEAN has been transformed into an entity with high integration after the formation of the ASEAN Economic Community (AEC) in 2015. The aim of the formation of the AEC is to create single market based on production activities with a framework of economic activity that is free of inflows of goods, services sectors, pass free flow of skilled workers, free flow of investment and capital flow. This condition creates a favourable climate for the entry of foreign direct investment in ASEAN countries.

Before the monetary crisis in 1998, ASEAN was one of the main objectives for the entry of FDI, but then it fluctuated, where in 1998 FDI to ASEAN Countries decreased to US\$ 20,926 million and in 2000 it decreased again to US\$ 21,751 million. The monetary crisis caused ASEAN Countries to become very risky for foreign direct investment because the ASEAN economy was experiencing a significant collapse. After the 1998 monetary crisis, ASEAN FDI inflows were still fluctuated, but tended to slowly increase. However, in 2009, there was a drastic decline in ASEAN FDI inflows and the drastic decline was started in 2008 where there was a Supreme Mortgage crisis in the US and spread out to other countries.

Although the amount of FDI that entered to ASEAN are quite large, the percentage of ASEAN FDI was only 8.38% compared to world FDI in 1995 and continued to decline due to the monetary crisis in 1998. ~~As shown in Figure 1, the percentage of FDI in ASEAN to the global FDI, when compared to the existing FDI in the world, it touched the lowest figure or equivalent to 1.60% after the crisis in 2001. Then, only 1.60%, after that the percentage increased again to reach 11.46% in 2018, as shown in Figure 1 below.~~

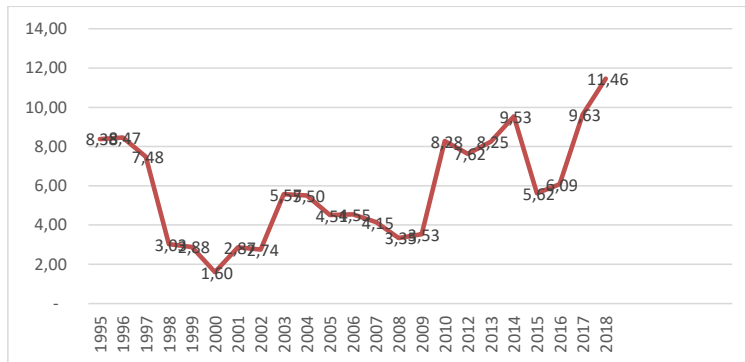


Figure 1. Percentage of ASEAN FDI against Global FDI
Source: UNCTAD (2019)

Figure 2 shows that global FDI decreased sharply started in 2016 until 2018. According to the World Investment Report (UNCTAD, 2018, p. 11), the decline in global FDI was caused by a decrease in cross-border acquisitions and mergers between Multinational Corporations. A decrease in the rate of return on investment capital is also a major contributor to the decline in global investment. But on the other side, ASEAN FDI still increased, and resulted in higher percentage of ASEAN FDI to global FDI.

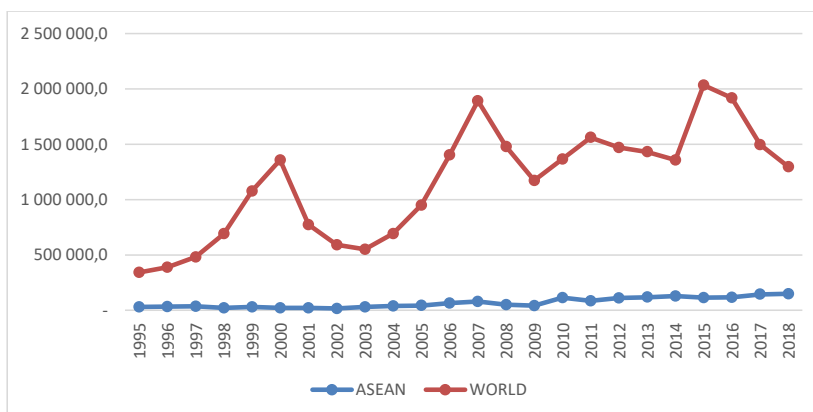


Figure 2. ASEAN FDI dan Global FDI (Million US\$)
Source: UNCTAD (2019)

In fact, according to United Nations Conference on Trade and Development (UNCTAD), in 2002 to 2004, among other ASEAN countries, Malaysia and Singapore were the most favoured countries by TNC (Transnational Corporation) in terms of FDI. UNCTAD in their World Investment Report 2006 also reported that Malaysia and Singapore are potential countries with high FDI performance. Vietnam is a country with high FDI performance, but its potential is still low. Philippines and Thailand have low FDI performance but has high potential. Indonesia and

Myanmar are among the countries with low FDI potential and performance. While other countries, i.e. Laos and Cambodia are not listed in the report (UNCTAD, 2006). Then in the World Investment Report in 2019, Singapore, Indonesia and Vietnam became top 20 countries of Top Host Countries for FDI. Singapore at 4th ranks, Indonesia at 16th ranks, and Vietnam at 18th ranks. This shows that currently ASEAN is an attractive region for foreign investors to invest their capital in the form of FDI.

The FDI is a source of capital and it becomes a complement for domestic investment and encourage overall economic growth in host countries (Chowdhury & Wheeler, 2008). For this reason, it is necessary to analyse what factors are considered to influence the entry of FDI into ASEAN, especially at 7 ASEAN countries, during the period of 2010-2017. After assessing the degree of the influence of these factors, then the right policies can be formulated correctly and it can lead to increase the flow of FDI so that the growth and economic development of the ASEAN countries can be achieved. Moreover, the increasing flow of FDI will strengthen the ASEAN's position as main area for the FDI.

According to UNCTAD (1998), there are three main factors that can influence the entry of FDI into a country, i.e. (1) the policy framework (economic and political stability, trade and tax policy, privatization), (2) economic factors, and (3) business facilities in the host country. Meanwhile, according to Dunning (1988), there are three main characteristics of foreign investors interest in investing their capital. These three characteristics are commonly called The OLI Paradigm, which is Ownership Advantage, which means that the company has specific technology or skills that can make the company superior to other companies. Location Advantage, that is the advantages possessed by a specific location, but these advantages are available to all investors. Finally, Internalization Advantage, the ability of companies to avoid disadvantage or capitalization of natural resources (imperfections in market information) that can hamper competition. The decision to undertake FDI is then based on various considerations such as the economic, political system, and socio-cultural characteristics of the host countries.

Dunning (1973) had conducted research that tried to explain the occurrence of international production flows and the reasons foreign affiliate companies competed with local companies to meet local market needs. Dunning's research was carried out on US-affiliated companies in the UK industries. Dunning explained that there were two possibilities for the participation of US companies in the UK industries. First, an US company will produce in the UK industry to exploit the market in the UK. Second, an American company investing at the British Industry because the comparative advantage of an American company is greater than the industry in the UK.

Then Dunning also explained that there are three things that underlie investors to invest FDI in host countries, the first is Resource Seeking, investors make investments in other countries that have input/production factors with better quality and lower prices when compared to factors of production in their country. Second is Market Seeking, investors invest in order to find new markets or maintain old markets. Third is Efficiency Seeking, the investment made aims to benefit from the availability and lower production costs and benefit from the size of the market in the investment destination country so as to achieve efficiency in production (Dunning & Lundan, 2008, pp.67-69).

Based on three motives above, several economics variables are considered as the factors that influence the entry of FDI into a country. One of the variables is market size, which can be proxied by real GDP. GDP is a measure that evaluates the total market value of goods and services

produced by a country in a given period. GDP also reflects the purchasing power of local resident in host countries (Tsen, 2005). An increase in GDP will increase the demand for goods and services produced by producers, so that as GDP increases, FDI flowing into the country also greater. This statement was supported by research conducted by Botric and Skuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan, and Isihak (2018); and Saidi and Hammami (2018). Their results show that GDP has a positive and significant effect on FDI.

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Figure 3 shows the trend of real GDP in 7 ASEAN Countries. From the picture, the GDP of the 7 ASEAN Countries had continued to increase from 2010 to 2017. From Figure 3, it is also seen that there was a gap of the GDP value of the 7 ASEAN countries. Indonesia real GDP was the highest among the other ASEAN countries with value of the GDP was US\$ 755,094.16 million in 2010 and increased to US\$ 1,090,454.47 million in 2017. The country with the lowest real GDP among the 7 ASEAN countries was Cambodia with a Real GDP was US\$ 11,242.28 million in 2010 and US\$ 18,215.85 million in 2017. As mentioned before, market size can be proxied by GDP, then the value of GDP will certainly affect the entry of FDI into the ASEAN region in general and 7 ASEAN countries in particular, thereby affecting the position of ASEAN as a country that is the main destination for world investment because with large GDP the flow of FDI will increase as well.

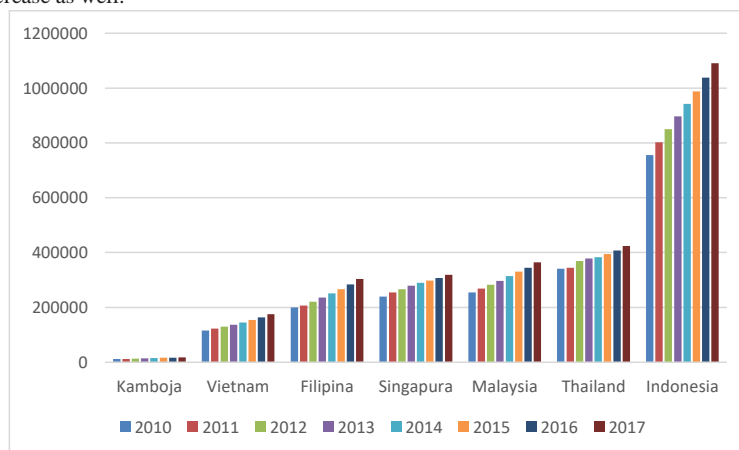


Figure 3. Real GDP of 7 ASEAN Countries (Million US\$)
Source: World Bank 2019

Another economic factor that is considered to determine the FDI entry to a country is Exchange rate. According to Samuelson and Nordhaus (2004, p.35), exchange rate is the price of one unit of the domestic currency expressed in the currency of another country. Exchange rate is one of the variables that proxies the investment motive for Efficiency Seeking. According to Chowdhury and Wheeler (2008), export-oriented investors will relatively invest FDI in countries with traditionally have low exchange rates. Depreciation of the local currency will reduce production costs (labour prices and prices of other input factors of production) in foreign investors' views, thereby causing FDI with seeking efficiency in production motives to flow more in the countries. In addition, depreciation in the value of local currencies also reduces the value of assets in host countries relative to other currencies, including those from the home country of the FDI. But if the FDI investors' objectives are to find or meet the needs of the local market,

they will find countries with strong exchange rates. When a country's currency appreciates, this indicates an increase in consumer purchasing power so that it will increase FDI that enters the country due to the expectation of increase profits to be gained by investors from increasing demand for goods (Bénassy-quéré et al., 2006; Chowdhury & Wheeler, 2008; Kiliçarslan, 2018).

Trade openness is also considered as a variable that can affect FDI. Some previous studies use the ratio between trade (export + import) to GDP as a measure that shows the level of a country's economic openness. Trade openness is not only important for export, but also for import, because there are many investors require intermediary input that are imported from other countries. Higher levels of trade openness provide new investment opportunities and strengthen relations between domestic markets and international markets (Kumari & Sharma, 2017). Trade openness can be used as a proxy of the investment motives for efficiency seeking. Investors choose to invest FDI in countries with high levels of trade openness because high trade openness also means that trade barriers for goods from host countries are gradually removed. This is an opportunity for export-oriented investors because they can take advantage of the comparative advantage of investment destination countries to export back to their home country and increase the exports.

Previously, Dunning had conducted a research which explained that the elimination of tariffs would lead to a reorganization of some economic activities and affect the company's competitive position. The reduced trade barrier in host countries will reduce production costs for investors and increase efficiency in production so that it will increase investor profits (Hoang, 2012). Institutional factors are including corruption that could affect FDI Inflows. According to Mauro (1995), corruption can hamper domestic investment and foreign direct investment. Foreign investors are not interested to invest on corrupt countries because corruption creates inefficiencies in investors' operational activities. Corruption is counted as a political risk. Hence, the high level of corruption in a country will increase investment costs for foreign investors. The increase in costs arises from payments or bribes made by investors for politicians or officials to get business contracts, or making bribes to officials for licenses, construction permits, tax payments, investor protection, and several other indicators related to ease of doing business in a country (Al-Sadig, 2009).

Research conducted by Canare (2017) shows that corruption tends to reduce FDI Inflows that enter to a country. Whereas countries with low levels of corruption receive more FDI. Institutional factor such as corruption also increases investment risk which becomes an additional cost for investors in investing their capital, causing inefficient allocations in the market and resources (Sasana & Fathoni, 2019). Corruption Perception Index (CPI) is an indicator that shows the perception of corruption of the public sectors according to experts and entrepreneurs. According to Transparency International (2019) the score of the Corruption Perception Index uses a scale of 1-100, where 1 (one) means a country is very corrupt or has a very high level of corruption and 100 (one hundred) means the country is very clean of corruption. So, with a higher CPI, FDI Inflows that enter a country also getting better. Therefore, the Corruption Perception Index can be used to determine the amount of FDI flow to a country (Harrison, 2012).

UNCTAD (1999) explains that as the consequence of globalization and economic integration, the role of market size in the host countries is decreasing. At the same time, differences in production costs between locations, quality of infrastructure, ease of doing business, and availability of skills are becoming increasingly important. According to Kumari and Sharma

(2017) the availability of good infrastructure is one of the drivers for the entry of FDI into a country. Infrastructure is a priority for investors when making investments because it shows business operations in the country are more efficient. Goldberg (2006) also explains that the availability of infrastructure in host countries is a benefit for investors who invest FDI as the investors are driven by the resource seeking motives.

Saidi and Hammami (2018) argue that transportation infrastructure including roads make a major contribution to economic growth and affect economic activity. Roads as logistics infrastructure has an important role in terms of connectivity between producers and consumers. Roads can increase efficiency and productivity, thereby increasing company competitiveness. The quality and availability of transportation infrastructure such as airports, roads and public transportation in host countries are factors that influence decision making for foreign investors when making investments. Fast logistical access and good infrastructure quality are conditions that supports FDI and in the end, they will influence FDI inflows.

The next factor that can attract FDI is technology. Kumari and Sharma (2017) explain that economic growth in developing countries such as in several ASEAN countries was determined by some factors such as: basic infrastructure, technology availability and export market expansion. Therefore, developing countries are trying to get more FDI inflows because in addition to bring the capital to the countries, FDI also brings the technology and various managerial and marketing skills and it requires correct policies to increase the FDI (Veljanoska *et al.*, 2013).

The availability of information and communication technology is an advantage and it has a positive influence on the entry of FDI, especially from investors who invest FDI to get the resources / factors of production (driven by the resource seeking investment motives). Abundant and cheap production resources will increase investors' interest in investing more so that it will increase FDI Inflows. Some countries adopt new technologies from other countries so they can conduct research and development (R&D) to attract FDI to their countries. Some benefits of technology in economic activities are the reduction of production costs and improvements in marketing information, so that production becomes more efficient. Efficiency is what interests investors to invest because it can reduce investment costs and increase profits (Veljanoska *et al.*, 2013).

The availability of information and communication technology can be demonstrated by the Information and Communication Technologies (ICT) Development Index, which is an index that explains the progress of a country's information and communication technology. The ICT Development Index scores are in the 1-10 interval. The value closer of ten indicates that the country's ICT development is getting better, and vice versa. If the value is closer to zero, the country's ICT development is getting worse.

2. RESEARCH METHOD

This type of study is quantitative research with secondary data types. This study uses panel data regression method. The data are from seven ASEAN countries, i.e., Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam with the period of 2010-2017.

The dependent variable ~~is in this study is~~ FDI Inflows, while the independent variable ~~consist of in this study is~~ GDP Rill as a proxy of market size variables, technology is proxied by the ICT Development Index variable, and Road Length as the representation of infrastructure variables. These variables are proxies of resources seeking motives. Trade Openness, Exchange Rate and Corruption Perception Index are the proxies of efficiency seeking motives. The data were

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obtained from several official websites of international organizations such as the World Bank, UNCTAD, ASEAN Secretariat, Transparency International, International Telecommunication Union with detailed time series data from 2010-2017, and cross sections of seven ASEAN countries.

Table 1. Operational Definition

| Variable | Operational Definition | Source |
|-----------------------------|---|---------------------------------------|
| FDI Inflows | FDI inflows to 7 ASEAN Countries or the number of FDI from foreign investors to 7 ASEAN countries. | UNCTAD |
| Real GDP | Real GDP of the 7 ASEAN countries. The data used is US\$ constant price in 2010. | World Bank |
| Exchange Rate | Exchange Rate is provided by World Bank. The exchange rate is annual data calculated from the average monthly exchange rate in a year (local currency units of 7 ASEAN countries relative to the US\$). | World Bank |
| Trade Openness | The level of economic openness of the 7 ASEAN countries which is the ratio of the sum of exports and imports of goods and services by a country to its Gross Domestic Product. | World Bank |
| ICT Development Index | ICT Development Index is a benchmark of the development of a country's Information and Communication Technology. | International Telecommunication Union |
| Corruption Perception Index | CPI is an aggregate indicator that combines various sources of corruption so that it becomes a benchmark of perception of corruption in the public sectors by experts and entrepreneurs issued by Transparency International. Where value of 0 means most corrupted and 100 is no corruption. | Transparency International |
| Road Length | The Road Length is the total of all roads in 7 ASEAN countries. | ASEAN Statistical Yearbook |

Data Analysis Method

To analyse the effect of the independent variables on FDI, a panel data model is constructed as follow:

$$\text{Log FDI}_{it} = \beta_0 + \beta_1 \text{Log GDP}_{it} + \beta_2 \text{Log ER}_{it} + \beta_3 \text{TRADE}_{it} + \beta_4 \text{Log ICT}_{it} + \beta_5 \text{Log CPI}_{it} + \beta_6 \text{Log ROAD}_{it} + \mu_{it} \quad (1)$$

Where:

- FDI = FDI Inflows
- GDP = Real GDP
- ER = Exchange Rate
- TRADE = Trade Openness
- ICT = ICT Development Index
- CPI = Corruption Perception Index
- ROAD = Length of Roads
- Log = Logarithm
- $\beta_1, \beta_2, \dots, \beta_6$ = regression coefficients,

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i = seven ASEAN countries
 t = year (2010-2017)
 μ = error term

There are three types of data panel, i.e., Common Effect Model (CEM), Fixed Effect Model (REM) and Random Effect Model (REM) and the best model is chosen through three tests: Chow test, Lagrange Multiplier test and Hausman test. Figure 4 summarises the tests. Basically, Chow Test is a test to find whether Common Effect or Fixed Effect is the best model. The hypothesis is: H_0 : Common Effect is the best model (if $p > 0.10$); H_1 : Fixed Effect is the best model (if $p < 0.10$). Hausman test is a test to determine whether Fixed Effect or Random Effect is the best model. The hypothesis is: H_0 : Random Effect is the best model (if $p > 0.10$); H_1 : Fixed Effect is the best model (if $p < 0.10$). Lagrange multiplier test (LM) is a test to select whether Common Effect or Random Effect model is the best model. The hypothesis is: H_0 : Common Effect is the best model (if $p > 0.10$); H_1 : Random Effect is the best model (if $p < 0.10$).

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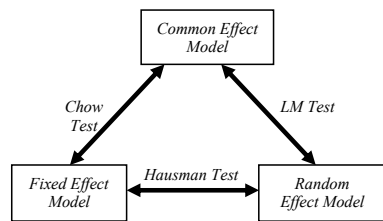


Figure 4. Selection of Best Model

3. RESULTS AND DISCUSSION

Table 2 presents the result of three test to select the best model. Chow test indicates that FEM is the best model, while Hausman test indicates that FEM is the best model and LM test indicates that CEM is the best model. Since Chow test shows that FEM is the best model, overall, it is concluded that the best model is Fixed Effect Model (FEM).

Table 2. The Result of the Selection of Best Model

| Tests | F-Stat Values | Results |
|-------------------|------------------------------|---|
| Chow Test | 9.145*** | H_0 is rejected. It means FEM is better than CEM |
| Hausman Test | 15.600** | H_0 is rejected. It means FEM is better than REM. |
| LM Test | 1.933 | H_0 is accepted. It means CEM is better than REM |
| Conclusion | FEM is the best model | |

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Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$

Table 3 shows the data panel estimation result. Real GDP has a positive and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the GDP Real variable is 2.558000. This means that if the real GDP increases by 1%, the FDI Inflows will increase by 2.56% assuming *ceteris paribus*. The result of this study as in line with market seeking investment motives which states that market size in host countries can encourage FDI flow to a country. The result is also in line with research conducted by Botric and Skuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan and Isihak (2018); and Saidi and Hammami (2018). A positive and significant influence between GDP and FDI shows that GDP is the main factor influencing FDI flow to a country. Real GDP also reflects the level of consumption and sales in a country, so the increase in GDP reflects the increase in demand for goods and services produced by investors. According to Lipsey, Steiner and Purvis (1992), with an increase in Real GDP, foreign investors will increase FDI to increase their production capability in order to offset the increase in demand for goods and services from residents in host countries.

Table 3. Panel Data Estimation Result

| Variables | Fixed Effect |
|-------------------------|--------------|
| Constanta | -9.173590** |
| Log Real GDP | 2.558000*** |
| Log Exchange Rate | -1.253843*** |
| Trade Openness | -0.000926 |
| Log ICT | -0.664510** |
| Log CPI | 0.562707* |
| Log Road Length | -0.653362* |
| R ² | 0.977695 |
| Adjusted R ² | 0.971470 |
| Standard Error | 0.411934 |
| F-Statistic | 157.0670*** |

Note:

*** : significant at $p \leq 0.01$

** : significant at $p \leq 0.05$

* : significant at $p \leq 0.10$

Exchange Rate has a negative and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the Exchange Rate variable is -1.253843. Means that if the Exchange Rate depreciates by 1%, then the FDI Inflows will increase by 1.25% assuming *ceteris paribus*. The effect of the Exchange Rate on FDI Inflows in 7 ASEAN countries is not in accordance with the efficiency seeking investment motive that the exchange rate shows efficiency in host countries. Depreciation of the local currency will reduce production costs (labour and prices of other input factors). In addition, depreciation of the local currency also reduces the value of assets in the host countries relative in other currencies, including those from the home country FDI, so that investors who seek efficiency in their production while making FDI will invest more FDI in countries whose currencies are depreciating (Chowdhury & Wheeler, 2008).

Previous studies have stated that Exchange Rate can have a negative or positive effect depending on the purpose of carrying out FDI by investors. When the Exchange Rate has a negative effect on FDI, it means that the appreciation of the domestic exchange rate (the value of the local currency has increased but the nominal has decreased against other countries' currencies) will actually increase FDI Inflows to that country. From this negative relationship, it can be seen

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that the purpose of investors doing FDI is to find or meet the needs of the local market. According to Benassy-Quere, Coeure, and Mignon (2006); Chowdhury and Wheeler (2008). and Kilicarslan (2018) appreciation of the domestic exchange rate will increase the purchasing power of local consumers, so it will increase FDI that enters the country due to the expectation of increased profits that will be obtained by investors from increasing demand for goods.

Conversely, when the goal of investors to conduct FDI is to meet the needs of the international market (export oriented), then the appreciation of the local currency will reduce the FDI. Goldberg (2006) explains that the appreciation of the domestic currency in host countries indicates that the price of local labour is higher, thus making the prices of products produced by these investors increase, making them hardly to be sold in international markets and decreasing their competitiveness. So that export-oriented investors will reduce their investment when a country's currency is appreciating. Some previous studies that are in line with this study are research conducted by Ezeoha and Cattaneo (2012) and Saidi and Hammami (2018) research. The results showed a negative and significant effect between Exchange Rate and FDI, explaining that the purpose of carrying out FDI by investors is to search for or meet the needs of the local market rather than to look for international markets or export.

Trade Openness has a negative effect on FDI Inflows in 7 ASEAN countries but it is not statistically significant. Trade Openness is not a factor that is a consideration for foreign investors in conducting FDI in 7 ASEAN Countries The negative influence between Trade Openness and FDI Inflows is not in accordance with Dunning's investment motive where Trade Openness is one of the variables that shows the Efficiency Seeking motive, so it will encourage FDI inflows. The greater the economic openness of a country, the greater the potential for FDI to enter the country. Because economic openness in host countries shows that trade barriers are slowly being eliminated, the ease of doing of exports and imports in these countries is an attraction for export oriented investors because it can increase efficiency in production (Hoang, 2012).

ICT Development Index has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 5% (0.05) significance level. The regression coefficient for the ICT Development Index variable is -0.664510. Means that if ICT Development Index variable increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease by 0.66% with the assumption of *ceteris paribus*. The negative influence of this study is not in line with Dunning's investment motives that ICT Development Index indicates that the availability of technology as a resource advantage, will drive FDI Inflows to a country (Goldberg, 2006). The negative influence between the ICT Development Index and FDI shows that ICT is not a factor that increases FDI. According to Veljanoska, Axhiu and Husedni (2013), the relationship between ICT and FDI depends on the investment destination. When investment of the FDI by investors is a FDI which is oriented towards labour-intensive production, then the development of ICT is not significantly influences FDI. Meanwhile, investors in ASEAN mostly invest in ASEAN because industries in ASEAN are more labour intensive, labour prices and other input factors are cheaper. So, the development of ICT in 7 ASEAN countries will reduce the interest of foreign investors. Ismail (2009) also supports the statement of Veljanoska, Axhiu and Husedni (2013) that the flow of FDI to developing countries is more encouraged because of labour-intensive production and low use of technology in its production. While the flow of FDI in developed countries is due to the use of high and modern production technology.

Higher Corruption Perception Index (CPI) has a positive effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% (0.10) significance level. The value of the regression coefficient for the Corruption Perception Index variable is 0.562707. This means that if the Corruption Perception Index increases by 1%, then FDI Inflows will also increase by 0.56% with the assumption of *ceteris paribus*. A positive relationship between CPI and FDI means that if perceptions of corruption increase, FDI Inflows in 7 ASEAN countries will also increase. The result of this study is consistent with Dunning's investment motives, which stated that CPI is one

of the variables that can proxy the Efficiency Seeking investment motive. The results of the study are in line with research by Ismail (2009) and Hoang (2012). CPI indicates efficiency when making investments. The positive influence between CPI and FDI can explain that the eradication of corruption in a country will reduce investment costs, improve the quality of institutions / government, and improve the investment climate so as to improve efficiency. Efficiency is what attracts investors to invest FDI (Hoang, 2012). According to Wibowo and Indrayanti (2020), good control of corruption behaviours in a country will also improve the quality of institutions, so that it will reduce political risks when investing and will increase FDI inflows.

Road Length has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% significance level. The regression coefficient for the Road Length variable is -0.653362. Means, if the Road Length increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease of 0.65% with the assumption of *ceteris paribus*. The result of this study is not in line with Dunning Resources Seeking's investment motives which state that the availability of infrastructure including roads in host countries will encourage FDI inflows. Research that supports the negative influence between infrastructure and FDI is Kumari and Sharma (2017) that uses the Electricity Consumption per Capita variable. The result shows that Electricity Consumption per Capita has a negative and statistically significant effect on the entry of FDI in developing countries in South Asia, East Asia and Southeast Asia. Addison and Heshmati (2003) also conducted a research which resulted in the conclusion that there was a negative influence between the infrastructure proxied by the Number of Telephone of 1000 People on FDI.

The negative influence between Road Length on FDI Inflows shows that road infrastructure still not an important factor in attracting FDI in 7 ASEAN countries even though road infrastructure plays an important role in the smooth running of a country's economic activities. The relationship between Road Length and FDI is negative because the longer a road in a country, the transportation costs will increase, so investors will reduce their investment. In addition, the negative relationship between Road Length and FDI can also be explained by investment motives undertaken by investors in 7 ASEAN countries. Where investments are made more driven by market seeking motives. So, the availability of infrastructure which is a variable that proxies the resource seeking motive is not something that attracts investors to invest FDI in 7 ASEAN countries.

4. CONCLUSIONS

This study aims to determine and analyse the effects of Real GDP, Exchange Rate, Trade Openness, ICT Development Index, Corruption Perception Index and Road Length on FDI Inflows in 7 ASEAN Countries in the period 2010-2017. The results of this study show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven more by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources with better quality.

FDI Inflows can provide a variety of positive externalities that can drive economic growth, various policies need to be directed in order to increase the FDI Inflows, such as providing various incentives for manufacturing companies in the form of tax reductions and import substitution that can reduce production costs, so it will increase exports. Improving macroeconomic conditions through the money supply so the exchange rate is stable. Optimizing and streamlining the development of ICT so that ICT develops widely and comprehensively. Make various policies and legal instruments that can reduce the level of corruption and increase infrastructure development that can attract more FDI. ~~XXX~~

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Comments:

1. The title had explained clearly about the content of the manuscript.
2. Add the originality idea from this research is abstract.
3. Authors had put some previous studies in introduction, but maybe you can simplify the introduction not more than 4 pages. The introduction still cannot explain briefly about the research gap & novelty from this research. You need to rewrite the introduction and please to add more update references in the last ten years.
4. Authors had explained clearly about the methods from this research.
5. Authors had explained clearly about the empirical result, but authors still needs to compare the empirical result with more update previous research. You can strength the analysis from this research.
6. Add the policy implication in conclusion section.
7. Please to add more update references in the last ten years.
8. Its recommended for authors to use native proofread

Recommendation: Minor Revision

Determinants of Foreign Direct Investment Inflows in Seven ASEAN Countries: Dunning Model Approach

Abstract

The aim of this study is to establish the determinants of FDI Inflows in 7 ASEAN countries in the period of 2010-2017 using the Dunning Model approach. The type of this study is quantitative analysis. The data used in this study is secondary data and this study employs Panel Data Regression analysis with Fixed Effect Model. The results of this study indicate that the Real GDP and Corruption Perception Index have positive and significant effects on FDI Inflows; while Exchange Rate, ICT Development Index and Road Length have negative and significant effects on FDI Inflows. One variable, Trade Openness has no effect on FDI Inflows. The results of this study show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources overflow with better quality.

Keywords: Foreign Direct Investment, ASEAN, Dunning Model

JEL classification: C51, E22, F21, F34

1. INTRODUCTION

According to Kumari and Sharma (2017), developing countries need more capital inflows, including in the form of foreign direct investment, to accelerate economic growth and to encourage economic development. Increase in investment will increase gross domestic product (GDP) and in the end, increase in GDP will cause economic growth. Investment could be a source of economic growth because investment can increase sources of capital through investment and taxes, creating jobs resulting in spill over effects such as transfer of skills, technology, managerial expertise and corporate governance practices (Asongu et al., 2018).

Azam and Lukman (2010) argue that the entry of investments into a country cannot be separated from the risks that exist in host countries. From an investor's perspective, economic risks in several countries need to be handled wisely, otherwise, investors will select other countries to avoid risks. The best investment option is chosen by the investors so that the return on investment remains same or even increases. One alternative investment chosen by these investors is investing in Foreign Direct Investment (FDI). Investment in FDI helps foreign investors to diversify risks and shocks in host countries. Therefore, FDI is expected to be able to increase the growth of sustainable foreign investment (Alam & Shah, 2013).

ASEAN is one of the major destinations for FDI. The Association of South East Asian Nations (ASEAN) is an international organisation whose members are mostly developing countries. ASEAN has been transformed into an entity with high integration after the formation of the ASEAN Economic Community (AEC) in 2015. The aim of the formation of the AEC is to create single market based on production activities with a framework of economic activity that is free of inflows of goods, services sectors, pass free flow of skilled workers, free flow of investment and capital flow. This condition creates a favourable climate for the entry of foreign direct investment in ASEAN countries.

Before the monetary crisis in 1998, ASEAN was one of the main objectives for the entry of FDI, but then it fluctuated, where in 1998 FDI to ASEAN Countries decreased to US\$ 20,926 million and in 2000 it decreased again to US\$ 21,751 million. The monetary crisis caused ASEAN Countries to become very risky for foreign direct investment because the ASEAN economy was experiencing a significant collapse. After the 1998 monetary crisis, ASEAN FDI inflows were still fluctuated, but tended to slowly increase. However, in 2009, there was a drastic decline in ASEAN FDI inflows and the drastic decline was started in 2008 where there was a Supreme Mortgage crisis in the US and spread out to other countries.

Although the amount of FDI that entered to ASEAN are quite large, the percentage of ASEAN FDI was only 8.38% compared to world FDI in 1995 and continued to decline due to the monetary crisis in 1998. The percentage of FDI in ASEAN, when compared to the existing FDI in the world, it touched the lowest figure after the crisis in 2001, only 1.60%. after that the percentage increased again to reach 11.46% in 2018 as shown in Figure 1 below.

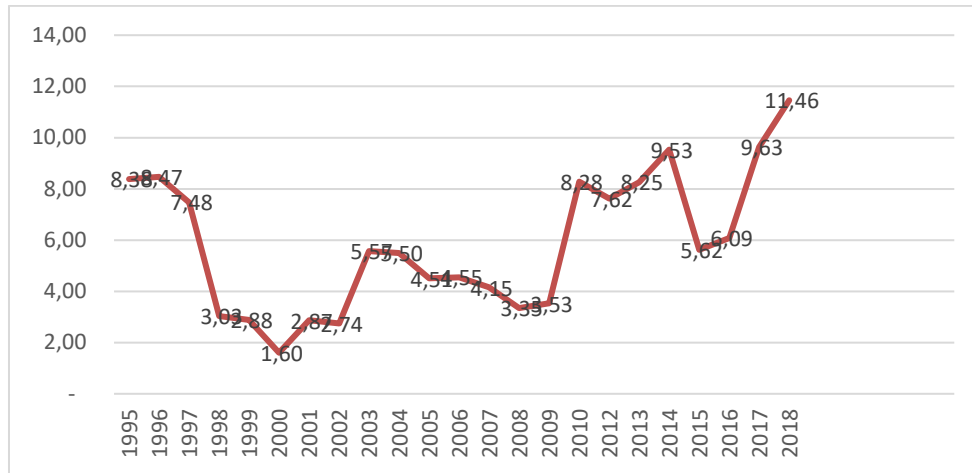


Figure 1. Percentage of ASEAN FDI against Global FDI
Source: UNCTAD (2019)

Figure 2 shows that global FDI decreased sharply started in 2016 until 2018. According to the World Investment Report (UNCTAD, 2018, p. 11), the decline in global FDI was caused by a decrease in cross-border acquisitions and mergers between Multinational Corporations. A decrease in the rate of return on investment capital is also a major contributor to the decline in global investment. But on the other side, ASEAN FDI still increased, and resulted in higher percentage of ASEAN FDI to global FDI.

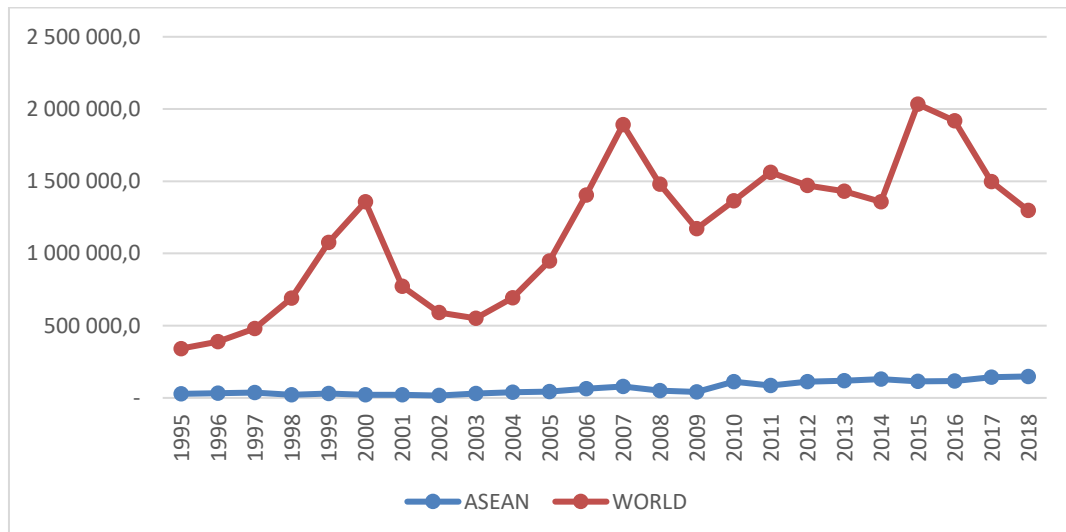


Figure 2. ASEAN FDI dan Global FDI (Million US\$)
Source: UNCTAD (2019)

In fact, according to United Nations Conference on Trade and Development (UNCTAD), in 2002 to 2004, among other ASEAN countries, Malaysia and Singapore were the most favoured countries by TNC (Transnational Corporation) in terms of FDI. UNCTAD in their World Investment Report 2006 also reported that Malaysia and Singapore are potential countries with high FDI performance. Vietnam is a country with high FDI performance, but its potential is still low. Philippines and Thailand have low FDI performance but has high potential. Indonesia and

Myanmar are among the countries with low FDI potential and performance. While other countries, i.e. Laos and Cambodia are not listed in the report (UNCTAD, 2006). Then in the World Investment Report in 2019, Singapore, Indonesia and Vietnam became top 20 countries of Top Host Countries for FDI. Singapore at 4th ranks, Indonesia at 16th ranks, and Vietnam at 18th ranks. This shows that currently ASEAN is an attractive region for foreign investors to invest their capital in the form of FDI.

The FDI is a source of capital and it becomes a complement for domestic investment and encourage overall economic growth in host countries (Chowdhury & Wheeler, 2008). For this reason, it is necessary to analyse what factors are considered to influence the entry of FDI into ASEAN, especially at 7 ASEAN countries, during the period of 2010-2017. After assessing the degree of the influence of these factors, then the right policies can be formulated correctly and it can lead to increase the flow of FDI so that the growth and economic development of the ASEAN countries can be achieved. Moreover, the increasing flow of FDI will strengthen the ASEAN's position as main area for the FDI.

According to UNCTAD (1998), there are three main factors that can influence the entry of FDI into a country, i.e. (1) the policy framework (economic and political stability, trade and tax policy, privatization), (2) economic factors, and (3) business facilities in the host country. Meanwhile, according to Dunning (1988), there are three main characteristics of foreign investors interest in investing their capital. These three characteristics are commonly called The OLI Paradigm, which is Ownership Advantage, which means that the company has specific technology or skills that can make the company superior to other companies. Location Advantage, that is the advantages possessed by a specific location, but these advantages are available to all investors. Finally, Internalization Advantage, the ability of companies to avoid disadvantage or capitalization of natural resources (imperfections in market information) that can hamper competition. The decision to undertake FDI is then based on various considerations such as the economic, political system, and socio-cultural characteristics of the host countries.

Dunning (1973) had conducted research that tried to explain the occurrence of international production flows and the reasons foreign affiliate companies competed with local companies to meet local market needs. Dunning's research was carried out on US-affiliated companies in the UK industries. Dunning explained that there were two possibilities for the participation of US companies in the UK industries. First, an US company will produce in the UK industry to exploit the market in the UK. Second, an American company investing at the British Industry because the comparative advantage of an American company is greater than the industry in the UK.

Then Dunning also explained that there are three things that underlie investors to invest FDI in host countries, the first is Resource Seeking, investors make investments in other countries that have input/production factors with better quality and lower prices when compared to factors of production in their country. Second is Market Seeking, investors invest in order to find new markets or maintain old markets. Third is Efficiency Seeking, the investment made aims to benefit from the availability and lower production costs and benefit from the size of the market in the investment destination country so as to achieve efficiency in production (Dunning & Lundan, 2008, pp.67-69).

Based on three motives above, several economics variables are considered as the factors that influence the entry of FDI into a country. One of the variables is market size, which can be

proxied by real GDP. GDP is a measure that evaluates the total market value of goods and services produced by a country in a given period. GDP also reflects the purchasing power of local resident in host countries (Tsen, 2005). An increase in GDP will increase the demand for goods and services produced by producers, so that as GDP increases, FDI flowing into the country also greater. This statement was supported by research conducted by Botric and Skuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan, and Isihak (2018); and Saidi and Hammami (2018). Their results show that GDP has a positive and significant effect on FDI.

Figure 3 shows the trend of real GDP in 7 ASEAN Countries. From the picture, the GDP of the 7 ASEAN Countries had continued to increase from 2010 to 2017. From Figure 3, it is also seen that there was a gap of the GDP value of the 7 ASEAN countries. Indonesia real GDP was the highest among the other ASEAN countries with value of the GDP was US\$ 755,094.16 million in 2010 and increased to US\$ 1,090,454.47 million in 2017. The country with the lowest real GDP among the 7 ASEAN countries was Cambodia with a Real GDP was US\$ 11,242.28 million in 2010 and US\$ 18,215.85 million in 2017. As mentioned before, market size can be proxied by GDP, then the value of GDP will certainly affect the entry of FDI into the ASEAN region in general and 7 ASEAN countries in particular, thereby affecting the position of ASEAN as a country that is the main destination for world investment because with large GDP the flow of FDI will increase as well.

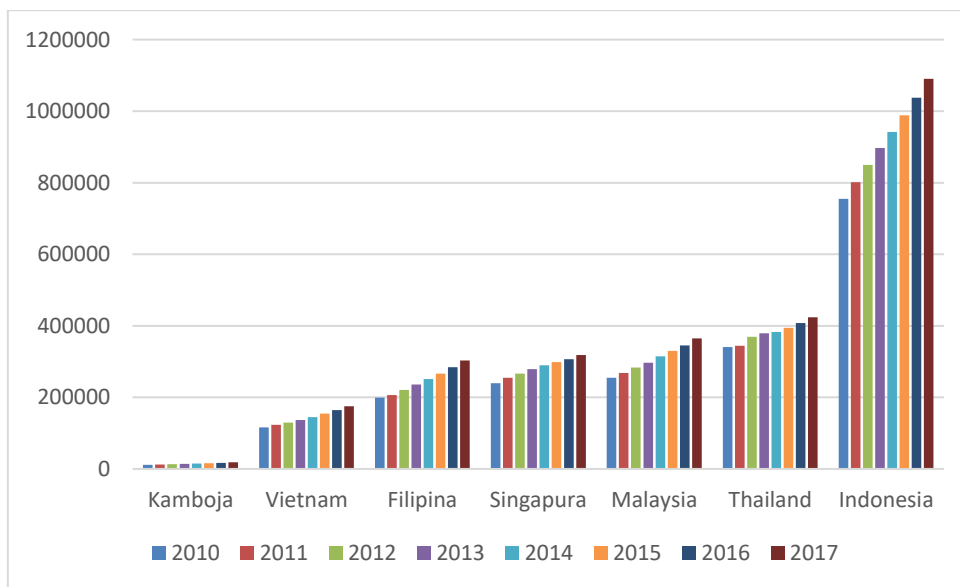


Figure 3. Real GDP of 7 ASEAN Countries (Million US\$)

Source: World Bank 2019

Another economic factor that is considered to determine the FDI entry to a country is Exchange rate. According to Samuelson and Nordhaus (2004, p.35), exchange rate is the price of one unit of the domestic currency expressed in the currency of another country. Exchange rate is one of the variables that proxies the investment motive for Efficiency Seeking. According to Chowdhury and Wheeler (2008), export-oriented investors will relatively invest FDI in countries with traditionally have low exchange rates. Depreciation of the local currency will reduce production costs (labour prices and prices of other input factors of production) in foreign investors' views, thereby causing FDI with seeking efficiency in production motives to flow more in the countries. In addition, depreciation in the value of local currencies also reduces the

value of assets in host countries relative to other currencies, including those from the home country of the FDI. But if the FDI investors' objectives are to find or meet the needs of the local market, they will find countries with strong exchange rates. When a country's currency appreciates, this indicates an increase in consumer purchasing power so that it will increase FDI that enters the country due to the expectation of increase profits to be gained by investors from increasing demand for goods (Bénassy-quéré et al., 2006; Chowdhury & Wheeler, 2008; Kiliçarslan, 2018).

Trade openness is also considered as a variable that can affect FDI. Some previous studies use the ratio between trade (export + import) to GDP as a measure that shows the level of a country's economic openness. Trade openness is not only important for export, but also for import, because there are many investors require intermediary input that are imported from other countries. Higher levels of trade openness provide new investment opportunities and strengthen relations between domestic markets and international markets (Kumari & Sharma, 2017). Trade openness can be used as a proxy of the investment motives for efficiency seeking. Investors choose to invest FDI in countries with high levels of trade openness because high trade openness also means that trade barriers for goods from host countries are gradually removed. This is an opportunity for export-oriented investors because they can take advantage of the comparative advantage of investment destination countries to export back to their home country and increase the exports.

Previously, Dunning had conducted a research which explained that the elimination of tariffs would lead to a reorganization of some economic activities and affect the company's competitive position. The reduced trade barrier in host countries will reduce production costs for investors and increase efficiency in production so that it will increase investor profits (Hoang, 2012). Institutional factors are including corruption that could affect FDI Inflows. According to Mauro (1995), corruption can hamper domestic investment and foreign direct investment. Foreign investors are not interested to invest on corrupt countries because corruption creates inefficiencies in investors' operational activities. Corruption is counted as a political risk. Hence, the high level of corruption in a country will increase investment costs for foreign investors. The increase in costs arises from payments or bribes made by investors for politicians or officials to get business contracts, or making bribes to officials for licenses, construction permits, tax payments, investor protection, and several other indicators related to ease of doing business in a country (Al-Sadig, 2009).

Research conducted by Canare (2017) shows that corruption tends to reduce FDI Inflows that enter to a country. Whereas countries with low levels of corruption receive more FDI. Institutional factor such as corruption also increases investment risk which becomes an additional cost for investors in investing their capital, causing inefficient allocations in the market and resources (Sasana & Fathoni, 2019). Corruption Perception Index (CPI) is an indicator that shows the perception of corruption of the public sectors according to experts and entrepreneurs. According to Transparency International (2019) the score of the Corruption Perception Index uses a scale of 1-100, where 1 (one) means a country is very corrupt or has a very high level of corruption and 100 (one hundred) means the country is very clean of corruption. So, with a higher CPI, FDI Inflows that enter a country also getting better. Therefore, the Corruption Perception Index can be used to determine the amount of FDI flow to a country (Harrison, 2012).

UNCTAD (1999) explains that as the consequence of globalization and economic integration, the role of market size in the host countries is decreasing. At the same time, differences in production costs between locations, quality of infrastructure, ease of doing business, and availability of skills are becoming increasingly important. According to Kumari and Sharma (2017) the availability of good infrastructure is one of the drivers for the entry of FDI into a country. Infrastructure is a priority for investors when making investments because it shows business operations in the country are more efficient. Goldberg (2006) also explains that the availability of infrastructure in host countries is a benefit for investors who invest FDI as the investors are driven by the resource seeking motives.

Saidi and Hammami (2018) argue that transportation infrastructure including roads make a major contribution to economic growth and affect economic activity. Roads as logistics infrastructure has an important role in terms of connectivity between producers and consumers. Roads can increase efficiency and productivity, thereby increasing company competitiveness. The quality and availability of transportation infrastructure such as airports, roads and public transportation in host countries are factors that influence decision making for foreign investors when making investments. Fast logistical access and good infrastructure quality are conditions that supports FDI and in the end, they will influence FDI inflows.

The next factor that can attract FDI is technology. Kumari and Sharma (2017) explain that economic growth in developing countries such as in several ASEAN countries was determined by some factors such as: basic infrastructure, technology availability and export market expansion. Therefore, developing countries are trying to get more FDI inflows because in addition to bring the capital to the countries, FDI also brings the technology and various managerial and marketing skills and it requires correct policies to increase the FDI (Veljanoska et al., 2013).

The availability of information and communication technology is an advantage and it has a positive influence on the entry of FDI, especially from investors who invest FDI to get the resources / factors of production (driven by the resource seeking investment motives). Abundant and cheap production resources will increase investors' interest in investing more so that it will increase FDI Inflows. Some countries adopt new technologies from other countries so they can conduct research and development (R&D) to attract FDI to their countries. Some benefits of technology in economic activities are the reduction of production costs and improvements in marketing information, so that production becomes more efficient. Efficiency is what interests investors to invest because it can reduce investment costs and increase profits (Veljanoska et al., 2013).

The availability of information and communication technology can be demonstrated by the Information and Communication Technologies (ICT) Development Index, which is an index that explains the progress of a country's information and communication technology. The ICT Development Index scores are in the 1-10 interval. The value closer of ten indicates that the country's ICT development is getting better, and vice versa. If the value is closer to zero, the country's ICT development is getting worse.

2. RESEARCH METHOD

This type of study is quantitative research with secondary data types. This study uses panel data regression method. The data are from seven ASEAN countries, i.e., Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam with the period of 2010-2017.

The dependent variable in this study is FDI Inflows, while the independent variable in this study is GDP Rill as a proxy of market size variables, technology is proxied by the ICT Development Index variable, and Road Length as the representation of infrastructure variables. These variables are proxies of resources seeking motives. Trade Openness, Exchange Rate and Corruption Perception Index are the proxies of efficiency seeking motives. The data were obtained from several official websites of international organizations such as the World Bank, UNCTAD, ASEAN Secretariat, Transparency International, International Telecommunication Union with detailed time series data from 2010-2017, and cross sections of seven ASEAN countries.

Table 1. Operational Definition

| Variable | Operational Definition | Source |
|------------------------------------|---|--|
| FDI <i>Inflows</i> | FDI inflows to 7 ASEAN Countries or the number of FDI from foreign investors to 7 ASEAN countries. | UNCTAD |
| Real GDP | Real GDP of the 7 ASEAN countries. The data used is US\$ constant price in 2010. | <i>World Bank</i> |
| <i>Exchange Rate</i> | Exchange Rate is provided by World Bank. The exchange rate is annual data calculated form the average monthly exchange rate in a year (local currency units of 7 ASEAN countries relative to the US\$). | <i>World Bank</i> |
| <i>Trade Openness</i> | The level of economic openness of the 7 ASEAN countries which is the ratio of the sum of exports and imports of goods and services by a country to its Gross Domestic Product. | <i>World Bank</i> |
| <i>ICT Development Index</i> | ICT Development Index is a benchmark of the development of a country's Information and Communication Technology. | <i>International Telecommunication Union</i> |
| <i>Corruption Perception Index</i> | CPI is an aggregate indicator that combines various sources of corruption so that it becomes a benchmark of perception of corruption in the public sectors by experts and entrepreneurs issued by Transparency International. Where value of 0 means most corrupted and 100 is no corruption. | <i>Transparency International</i> |
| Road Length | The Road Length is the total of all roads in 7 ASEAN countries. | <i>ASEAN Statistical Yearbook</i> |

Data Analysis Method

To analyse the effect of the independent variables on FDI, a panel data model is constructed as follow:

$$\text{Log FDI}_{it} = \beta_0 + \beta_1 \text{Log GDP}_{it} + \beta_2 \text{Log ER}_{it} + \beta_3 \text{TRADE}_{it} + \beta_4 \text{Log ICT}_{it} + \beta_5 \text{Log CPI}_{it} + \beta_6 \text{Log ROAD}_{it} + \mu_{it} \quad (1)$$

Where:

FDI = FDI Inflows
 GDP = Real GDP

| | |
|------------------------------------|-------------------------------|
| ER | = Exchange Rate |
| TRADE | = Trade Openness |
| ICT | = ICT Development Index |
| CPI | = Corruption Perception Index |
| ROAD | = Length of Roads |
| Log | = Logarithm |
| $\beta_1, \beta_2, \dots, \beta_6$ | = regression coefficients, |
| i | = seven ASEAN countries |
| t | = year (2010-2017) |
| μ | = error term |

There are three types of data panel, i.e., Common Effect Model (CEM), Fixed Effect Model (REM) and Random Effect Model (REM) and the best model is chosen through three tests: Chow test, Lagrange Multiplier test and Hausman test. Figure 4 summarises the tests. Basically, Chow Test is a test to find whether Common Effect or Fixed Effect is the best model. The hypothesis is: H_0 : Common Effect is the best model (if $p > 0.10$); H_1 : Fixed Effect is the best model (if $p < 0.10$). Hausman test is a test to determine whether Fixed Effect or Random Effect is the best model. The hypothesis is: H_0 : Random Effect is the best model (if $p > 0.10$); H_1 : Fixed Effect is the best model (if $p < 0.10$). Lagrange multiplier test (LM) is a test to select whether Common Effect or Random Effect model is the best model. The hypothesis is: H_0 : Common Effect is the best model (if $p > 0.10$); H_1 : Random Effect is the best model (if $p < 0.10$).

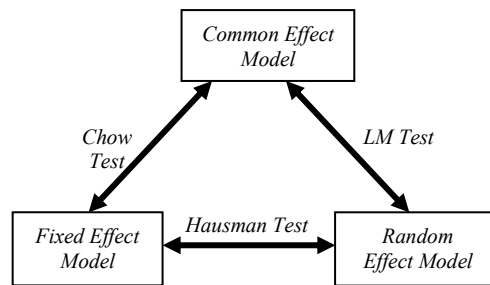


Fig 1. Selection of Best Model

3. RESULTS AND DISCUSSION

Table 2 presents the result of three test to select the best model. Chow test indicates that FEM is the best model, while Hausman test indicates that FEM is the best model and LM test indicates that CEM is the best model. Since Chow test shows that FEM is the best model, overall, it is concluded that the best model is Fixed Effect Model (FEM).

Table 2. The Result of the Selection of Best Model

| Tests | F-Stat Values | Results |
|-----------|---------------|--|
| Chow Test | 9.145**** | H_0 is rejected. It means FEM is better than CEM |

| | | |
|-------------------|------------------------------|--|
| Hausman Test | 15.600** | H ₀ is rejected. It means FEM is better than REM. |
| LM Test | 1.933 | H ₀ is accepted. It means CEM is better than REM |
| Conclusion | FEM is the best model | |

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$

Table 3 shows the data panel estimation result. Real GDP has a positive and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the GDP Real variable is 2.558000. This means that if the real GDP increases by 1%, the FDI Inflows will increase by 2.56% assuming *ceteris paribus*. The result of this study is in line with market seeking investment motives which states that market size in host countries can encourage FDI flow to a country. The result is also in line with research conducted by Botric and Skuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan and Isihak (2018); and Saidi and Hammami (2018). A positive and significant influence between GDP and FDI shows that GDP is the main factor influencing FDI flow to a country. Real GDP also reflects the level of consumption and sales in a country, so the increase in GDP reflects the increase in demand for goods and services produced by investors. According to Lipsey, Steiner and Purvis (1992), with an increase in Real GDP, foreign investors will increase FDI to increase their production capability in order to offset the increase in demand for goods and services from residents in host countries.

Table 3. Panel Data Estimation Result

| Variables | Fixed Effect |
|-------------------------|---------------------|
| Constanta | -9.173590** |
| Log Real GDP | 2.558000*** |
| Log Exchange Rate | -1.253843*** |
| Trade Openness | -0.000926 |
| Log ICT | -0.664510** |
| Log CPI | 0.562707* |
| Log Road Length | -0.653362* |
| R ² | 0.977695 |
| Adjusted R ² | 0.971470 |
| Standard Error | 0.411934 |
| F-Statistic | 157.0670*** |

Note:

*** : significant at $p \leq 0.01$

** : significant at $p \leq 0.05$

* : significant at $p \leq 0.10$

Exchange Rate has a negative and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the Exchange Rate variable is -1.253843. Means that if the Exchange Rate depreciates by 1%, then the FDI Inflows will increase by 1.25% assuming *ceteris paribus*. The effect of the Exchange Rate on FDI Inflows in 7 ASEAN countries is not in accordance with the efficiency seeking investment motive that the exchange rate shows efficiency in host countries. Depreciation of the local currency will reduce production costs (labour and prices of other input factors). In addition, depreciation of the local currency also reduces the value of assets in the host countries relative

in other currencies, including those from the home country FDI, so that investors who seek efficiency in their production while making FDI will invest more FDI in countries whose currencies are depreciating (Chowdhury & Wheeler, 2008).

Previous studies have stated that Exchange Rate can have a negative or positive effect depending on the purpose of carrying out FDI by investors. When the Exchange Rate has a negative effect on FDI, it means that the appreciation of the domestic exchange rate (the value of the local currency has increased but the nominal has decreased against other countries' currencies) will actually increase FDI Inflows to that country. From this negative relationship, it can be seen that the purpose of investors doing FDI is to find or meet the needs of the local market. According to Benassy-Quere, Coeure, and Mignon (2006); Chowdhury and Wheeler (2008). and Kilicarlsan (2018) appreciation of the domestic exchange rate will increase the purchasing power of local consumers, so it will increase FDI that enters the country due to the expectation of increased profits that will be obtained by investors from increasing demand for goods.

Conversely, when the goal of investors to conduct FDI is to meet the needs of the international market (export oriented), then the appreciation of the local currency will reduce the FDI. Goldberg (2006) explains that the appreciation of the domestic currency in host countries indicates that the price of local labour is higher, thus making the prices of products produced by these investors increase, making them hardly to be sold in international markets and decreasing their competitiveness. So that export-oriented investors will reduce their investment when a country's currency is appreciating. Some previous studies that are in line with this study are research conducted by Ezeoha and Cattaneo (2012) and Saidi and Hammami (2018) research. The results showed a negative and significant effect between Exchange Rate and FDI, explaining that the purpose of carrying out FDI by investors is to search for or meet the needs of the local market rather than to look for international markets or export.

Trade Openness has a negative effect on FDI Inflows in 7 ASEAN countries but it is not statistically significant. Trade Openness is not a factor that is a consideration for foreign investors in conducting FDI in 7 ASEAN Countries The negative influence between Trade Openness and FDI Inflows is not in accordance with Dunning's investment motive where Trade Openness is one of the variables that shows the Efficiency Seeking motive, so it will encourage FDI inflows. The greater the economic openness of a country, the greater the potential for FDI to enter the country. Because economic openness in host countries shows that trade barriers are slowly being eliminated, the ease of doing of exports and imports in these countries is an attraction for export oriented investors because it can increase efficiency in production (Hoang, 2012).

ICT Development Index has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 5% (0.05) significance level. The regression coefficient for the ICT Development Index variable is -0.664510. Means that if ICT Development Index variable increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease by 0.66% with the assumption of *ceteris paribus*. The negative influence of this study is not in line with Dunning's investment motives that ICT Development Index indicates that the availability of technology as a resource advantage, will drive FDI Inflows to a country (Goldberg, 2006). The negative influence between the ICT Development Index and FDI shows that ICT is not a factor that increases FDI. According to Veljanoska, Axhiu and Husedni (2013), the relationship between ICT and FDI depends on the investment destination. When investment of the FDI by investors is a FDI which is oriented towards labour-intensive production, then the development of ICT is not significantly influences FDI. Meanwhile, investors in ASEAN mostly invest in ASEAN because industries in ASEAN are more labour intensive, labour prices and other input factors are cheaper. So, the development of ICT in 7 ASEAN countries will reduce the interest of foreign investors. Ismail (2009) also supports the statement of Veljanoska, Axhiu and Husedni

(2013) that the flow of FDI to developing countries is more encouraged because of labour-intensive production and low use of technology in its production. While the flow of FDI in developed countries is due to the use of high and modern production technology.

Higher Corruption Perception Index (CPI) has a positive effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% (0.10) significance level. The value of the regression coefficient for the Corruption Perception Index variable is 0.562707. This means that if the Corruption Perception Index increases by 1%, then FDI Inflows will also increase by 0.56% with the assumption of *ceteris paribus*. A positive relationship between CPI and FDI means that if perceptions of corruption increase, FDI Inflows in 7 ASEAN countries will also increase. The result of this study is consistent with Dunning's investment motives, which stated that CPI is one of the variables that can proxy the Efficiency Seeking investment motive. The results of the study are in line with research by Ismail (2009) and Hoang (2012). CPI indicates efficiency when making investments. The positive influence between CPI and FDI can explain that the eradication of corruption in a country will reduce investment costs, improve the quality of institutions / government, and improve the investment climate so as to improve efficiency. Efficiency is what attracts investors to invest FDI (Hoang, 2012). According to Wibowo and Indrayanti (2020), good control of corruption behaviours in a country will also improve the quality of institutions, so that it will reduce political risks when investing and will increase FDI inflows.

Road Length has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% significance level. The regression coefficient for the Road Length variable is -0.653362. Means, if the Road Length increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease of 0.65% with the assumption of *ceteris paribus*. The result of this study is not in line with Dunning Resources Seeking's investment motives which state that the availability of infrastructure including roads in host countries will encourage FDI inflows. Research that supports the negative influence between infrastructure and FDI is Kumari and Sharma (2017) that uses the Electricity Consumption per Capita variable. The result shows that Electricity Consumption per Capita has a negative and statistically significant effect on the entry of FDI in developing countries in South Asia, East Asia and Southeast Asia. Addison and Heshmati (2003) also conducted a research which resulted in the conclusion that there was a negative influence between the infrastructure proxied by the Number of Telephone of 1000 People on FDI.

The negative influence between Road Length on FDI Inflows shows that road infrastructure still not an important factor in attracting FDI in 7 ASEAN countries even though road infrastructure plays an important role in the smooth running of a country's economic activities. The relationship between Road Length and FDI is negative because the longer a road in a country, the transportation costs will increase, so investors will reduce their investment. In addition, the negative relationship between Road Length and FDI can also be explained by investment motives undertaken by investors in 7 ASEAN countries. Where investments are made more driven by market seeking motives. So, the availability of infrastructure which is a variable that proxies the resource seeking motive is not something that attracts investors to invest FDI in 7 ASEAN countries.

4. CONCLUSIONS

This study aims to determine and analyse the effects of Real GDP, Exchange Rate, Trade Openness, ICT Development Index, Corruption Perception Index and Road Length on FDI Inflows in 7 ASEAN Countries in the period 2010-2017. The results of this study show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven more by market seeking investment motives and fulfil the needs of the local market, not export-

oriented FDI and seeking profit from resources with the availability of resources with better quality.

FDI Inflows can provide a variety of positive externalities that can drive economic growth, various policies need to be directed in order to increase the FDI Inflows, such as providing various incentives for manufacturing companies in the form of tax reductions and import substitution that can reduce production costs, so it will increase exports. Improving macroeconomic conditions through the money supply so the exchange rate is stable. Optimizing and streamlining the development of ICT so that ICT develops widely and comprehensively. Make various policies and legal instruments that can reduce the level of corruption and increase infrastructure development that can attract more FDI.

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Re: [JEP] Editor Decision

1 message

Andryan Setyadharma <andryan@mail.unnes.ac.id>
To: dp274@ums.ac.id, sa150@ums.ac.id, ma912@ums.ac.id

16 April 2021 at 10:58

Dear Editors,

Apologize for the late reply.

We have revised the manuscript based on two reviewers' comments. We have uploaded the revised version to the submission system, but since we were not sure whether we uploaded it in the correct link, then we decided to send it via email too.

Please see attached.

Best regards,
Andryan

On Sat, 13 Feb 2021 at 13:04, Muhammad Anas <journals-noreply@ums.ac.id> wrote:

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Please revise your manuscript based on the comments from our reviewers. You can view the comments in the attached document. We are hopeful that you can finish the revision as soon as possible, so that your paper can be accepted sooner.

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90K

Determinants of Foreign Direct Investment Inflows in Seven ASEAN Countries During the Period of 2010-2017: Dunning Model Approach

Abstract

Before the monetary crisis in 1998, ASEAN was one of the main objectives of Foreign Direct Investment (FDI) and after the crisis, FDI inflows in ASEAN were still fluctuating, but tended to slowly increase. However, in 2009, there was a drastic decline in the FDI. The study aims to establish the determinants of FDI Inflows in 7 ASEAN countries in the period of 2010-2017. This study employs quantitative analysis through the Dunning Model Approach. As the technique of analysis, the Panel Data Regression analysis with Fixed Effect Model is used. The results of this study indicate that the Real GDP and Corruption Perception Index have positive and significant effects on FDI Inflows; while Exchange Rate, ICT Development Index and Road Length have negative and significant effects on FDI Inflows. Trade Openness has no effect on FDI Inflows. The results also show that FDI Inflows to the seven ASEAN countries are labour-intensive FDI, low technology FDI, driven by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources overflow with better quality.

Keywords: *Foreign Direct Investment, ASEAN, Dunning Model*

JEL classification: *C51, E22, F21, F34*

1. INTRODUCTION

According to Kumari and Sharma (2017), developing countries need more capital inflows, including in the form of foreign direct investment (FDI), to accelerate economic growth and to encourage economic development. Increase in investment will increase gross domestic product (GDP) and in the end, increase in GDP will cause economic growth. Investment could be a source of economic growth because investment can increase sources of capital through investment and taxes, creating jobs resulting in spill over effects such as transfer of skills, technology, managerial expertise and corporate governance practices (Asongu, Akpan, Isihak, 2018).

Azam and Lukman (2010) argue that the entry of investments into a country cannot be separated from the risks that exist in host countries. From investors' perspective, economic risks in several countries need to be handled wisely, otherwise, investors will select other countries to avoid risks. The best investment option is chosen by the investors so that the return on investment remains same or even increases. One alternative investment chosen by these investors is investing in FDI. Investment in FDI helps foreign investors to diversify risks and shocks in host countries. Therefore, FDI is expected to be able to increase the growth of sustainable foreign investment (Alam & Shah, 2013).

Before the monetary crisis in 1998, ASEAN was one of the main objectives for the entry of FDI, but then it fluctuated, where in 1998 FDI to ASEAN Countries decreased to US\$ 20,926 million and in 2000 it decreased again to US\$ 21,751 million. The monetary crisis caused ASEAN Countries become very risky for FDI because the ASEAN economy was experiencing a significant collapse. After the 1998 monetary crisis, ASEAN FDI inflows were still fluctuating, but tended to slowly increase. However, in 2009, there was a drastic decline in ASEAN FDI inflows and the drastic decline was started in 2008 where there was a Supreme Mortgage crisis in the US and spread out to other countries.

Although the amount of FDI that entered to ASEAN are quite large, the percentage of ASEAN FDI was only 8.38% compared to world FDI in 1995 and continued to decline due to the monetary crisis in 1998. As shown in Figure 1, the percentage of FDI in ASEAN to the global FDI touched the lowest figure or equivalent to 1.60% after the crisis in 2001. Then, the percentage increased again to reach 11.46% in 2018.

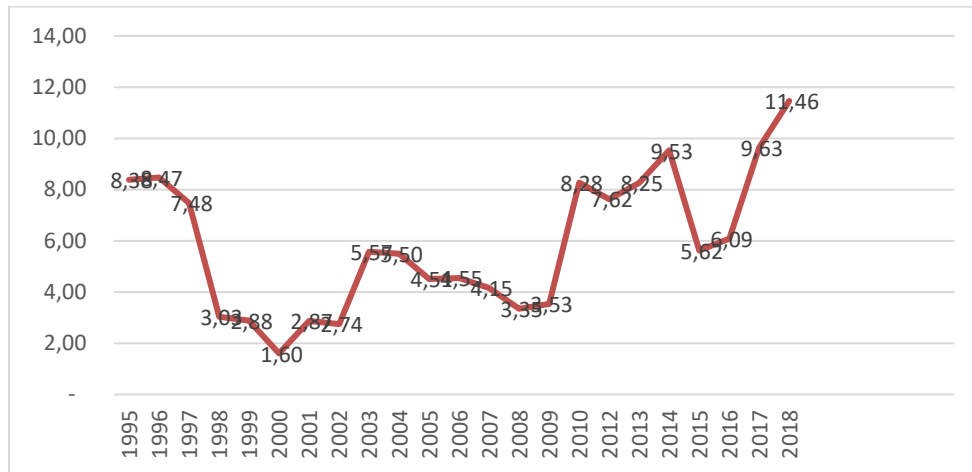


Figure 1. Percentage of ASEAN FDI against Global FDI

Source: UNCTAD (2019)

According to Dunning (1988), there are three main characteristics of foreign investors interest in investing their capital. These three characteristics are commonly called The OLI Paradigm, which is (1) Ownership Advantage, which means that the company has specific technology or skills that can make the company superior to other companies; (2) Location Advantage, that is the advantages possessed by a specific location, but these advantages are available to all investors. Finally, (3) Internalization Advantage, the ability of companies to avoid disadvantage or capitalization of natural resources (imperfections in market information) that can hamper competition. The decision to undertake FDI is then based on various considerations such as the economic, political system, and socio-cultural characteristics of the host countries.

Dunning also explained that there are three things that underlie investors to invest FDI in host countries, the first is Resource Seeking, investors make investments in other countries that have input/production factors with better quality and lower prices when compared to factors of production in their country. Second is Market Seeking, investors invest in order to find new markets or maintain old markets. Third is Efficiency Seeking, the investment made aims to benefit from the availability and lower production costs and benefit from the size of the market in the investment destination country so as to achieve efficiency in production (Dunning & Lundan, 2008, pp.67-69).

Based on three motives above, several economics variables are considered as the factors that influence the entry of FDI into a country. One of the variables is market size, which can be proxied by real GDP. GDP is a measure that evaluates the total market value of goods and services produced by a country in a given period. GDP also reflects the purchasing power of local resident in host countries (Tsen, 2005). An increase in GDP will increase the demand for goods and services produced by producers, so that as GDP increases, FDI flowing into the country also greater. This statement was supported by research conducted by Botric and Škuflic (2006); Hoang

(2012); Adhikary (2017); Asongu, Akpan, and Isihak (2018); and Saidi and Hammami (2018). Their results show that GDP has a positive and significant effect on FDI.

Another economic factor that is considered to determine the FDI entry to a country is Exchange rate. Exchange rate is one of the variables that proxies the investment motive for Efficiency Seeking. According to Chowdhury and Wheeler (2008), export-oriented investors will relatively invest FDI in countries with traditionally have low exchange rates. Depreciation of the local currency will reduce production costs (labour prices and prices of other input factors of production) in foreign investors' views, thereby causing FDI with seeking efficiency in production motives to flow more in the countries. In addition, depreciation in the value of local currencies also reduces the value of assets in host countries relative to other currencies, including those from the home country of the FDI. But if the FDI investors' objectives are to find or meet the needs of the local market, they will find countries with strong exchange rates. When a country's currency appreciates, this indicates an increase in consumer purchasing power so that it will increase FDI that enters the country due to the expectation of increase profits to be gained by investors from increasing demand for goods (Bénassy-quéré et al., 2006; Chowdhury & Wheeler, 2008; Kiliçarslan, 2018).

Trade openness is also considered as a variable that can affect FDI. Some previous studies use the ratio between trade (export + import) to GDP as a measure that shows the level of a country's economic openness. Trade openness is not only important for export, but also for import, because there are many investors require intermediary input that are imported from other countries. Higher levels of trade openness provide new investment opportunities and strengthen relations between domestic markets and international markets (Kumari & Sharma, 2017). Trade openness can be used as a proxy of the investment motives for efficiency seeking. Investors choose to invest FDI in countries with high levels of trade openness because high trade openness also means that trade barriers for goods from host countries are gradually removed. This is an opportunity for export-oriented investors because they can take advantage of the comparative advantage of investment destination countries to export back to their home country and increase the exports.

The reduced trade barrier in host countries will reduce production costs for investors and increase efficiency in production so that it will increase investor profits (Hoang, 2012). Institutional factors are including corruption that could affect FDI Inflows. Corruptions can hamper domestic investment and foreign direct investment. Foreign investors are not interested to invest on corrupt countries because corruption creates inefficiencies in investors' operational activities. Corruption is counted as a political risk. Hence, the high level of corruption in a country will increase investment costs for foreign investors. The increase in costs arises from payments or bribes made by investors for politicians or officials to get business contracts, or making bribes to officials for licenses, construction permits, tax payments, investor protection, and several other indicators related to ease of doing business in a country (Al-Sadig, 2009).

Institutional factor such as corruption also increases investment risk which becomes an additional cost for investors in investing their capital, causing inefficient allocations in the market and resources (Sasana & Fathoni, 2019). Research conducted by Canare (2017) shows that corruption tends to reduce FDI Inflows that enter to a country. Whereas countries with low levels of corruption receive more FDI. Corruption Perception Index (CPI) is an indicator that shows the perception of corruption of the public sectors according to experts and entrepreneurs. Low CPI score means high level of corruption and high CPI score means low level of corruption. So, with a higher CPI, there is higher probability of FDI Inflows to increase into a country. Therefore, the Corruption Perception Index can be used to determine the amount of FDI flow to a country (Harrison, 2012).

UNCTAD (1999) explains that as the consequence of globalization and economic integration, the role of market size in the host countries is decreasing. At the same time, differences in production costs between locations, quality of infrastructure, ease of doing business, and availability of skills are becoming increasingly important. According to Kumari and Sharma (2017) the availability of good infrastructure is one of the drivers for the entry of FDI into a country. Infrastructure is a priority for investors when making investments because it shows business operations in the country are more efficient. Goldberg (2006) also explains that the availability of infrastructure in host countries is a benefit for investors who invest FDI as the investors are driven by the resource seeking motives.

Saidi and Hammami (2018) argue that transportation infrastructure including roads make a major contribution to economic growth and affect economic activity. Roads as logistics infrastructure has an important role in terms of connectivity between producers and consumers. Roads can increase efficiency and productivity, thereby increasing company competitiveness. The quality and availability of transportation infrastructure such as airports, roads and public transportation in host countries are factors that influence decision making for foreign investors when making investments. Fast logistical access and good infrastructure quality are conditions that supports FDI and in the end, they will influence FDI inflows.

The next factor that can attract FDI is information and communication technology. The availability of information and communication technology is an advantage, and it has a positive influence on the entry of FDI, especially from investors who invest FDI to get the resources / factors of production (driven by the resource seeking investment motives). Kumari and Sharma (2017) explain that economic growth in developing countries such as in several ASEAN countries was determined by some factors such as: basic infrastructure, technology availability and export market expansion. Therefore, developing countries are trying to get more FDI inflows because in addition to bring the capital to the countries, FDI also brings the technology and various managerial and marketing skills and it requires correct policies to increase the FDI (Veljanoska *et al.*, 2013). Some benefits of technology in economic activities are the reduction of production costs and improvements in marketing information, so that production becomes more efficient. Efficiency is what interests investors to invest because it can reduce investment costs and increase profits (Veljanoska *et al.*, 2013).

The FDI is a source of capital and it becomes a complement for domestic investment and encourage overall economic growth in host countries (Chowdhury & Wheeler, 2008). For this reason, it is necessary to analyse what factors are considered to influence the entry of FDI into ASEAN, especially at 7 ASEAN countries, during the period of 2010-2017. After assessing the degree of the influence of these factors, then the right policies can be formulated correctly, and it can lead to increase the flow of FDI so that the growth and economic development of the ASEAN countries can be achieved. Moreover, the increasing flow of FDI will strengthen the ASEAN's position as main area for the FDI.

2. RESEARCH METHOD

The study employs quantitative model using secondary data and uses panel data regression method. The data are from seven ASEAN countries, i.e., Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam with the period of 2010-2017. In this study, the dependent variable is FDI Inflows, while the independent variables consist of Real GDP as a proxy of market size variables, technology is proxied by the Information and Communication Technology (ICT) Development Index variable, and Road Length as the representation of infrastructure variables. These variables are proxies of resources seeking motives. Trade Openness, Exchange Rate and Corruption Perception Index are the proxies of efficiency seeking

motives. The data were obtained from several official websites of international organizations such as the World Bank, UNCTAD, ASEAN Secretariat, Transparency International, International Telecommunication Union with detailed time series data from 2010-2017, and cross sections of seven ASEAN countries.

Table 1. Operational Definition

| Variable | Operational Definition | Source |
|------------------------------------|---|--|
| <i>FDI Inflows</i> | FDI inflows to 7 ASEAN Countries or the number of FDI from foreign investors to 7 ASEAN countries. | UNCTAD |
| Real GDP | Real GDP of the 7 ASEAN countries. The data used is US\$ constant price in 2010. | <i>World Bank</i> |
| <i>Exchange Rate</i> | Exchange Rate is provided by World Bank. The exchange rate is annual data calculated from the average monthly exchange rate in a year (local currency units of 7 ASEAN countries relative to the US\$). | <i>World Bank</i> |
| <i>Trade Openness</i> | The level of economic openness of the 7 ASEAN countries which is the ratio of the sum of exports and imports of goods and services by a country to its Gross Domestic Product. | <i>World Bank</i> |
| <i>ICT Development Index</i> | ICT Development Index is a benchmark of the development of a country's Information and Communication Technology. The ICT Development Index scores are in the 1-10 interval. The value closer of ten indicates that the country's ICT development is getting better, and vice versa. If the value is closer to zero, the country's ICT development is getting worse. | <i>International Telecommunication Union</i> |
| <i>Corruption Perception Index</i> | CPI is an aggregate indicator that combines various sources of corruption so that it becomes a benchmark of perception of corruption in the public sectors by experts and entrepreneurs issued by Transparency International. Where value of 0 means most corrupted and 100 is no corruption. | <i>Transparency International</i> |
| Road Length | The Road Length is the total of all roads in 7 ASEAN countries. | <i>ASEAN Statistical Yearbook</i> |

Data Analysis Method

The model specification follows the model suggested by Saidi and Hammami (2018). They formulated an economic model as follow:

foreign direct investment = (total population, gross domestic product, economic openness, exchange rate, and transport infrastructures)

Based on previous model, we modify the model by adding a new variable, i.e. corruption index and the next step is to turn the model into a structural model that uses cross-section data as follow:

$$\text{Log FDI}_{it} = \beta_0 + \beta_1 \text{Log GDP}_{it} + \beta_2 \text{Log ER}_{it} + \beta_3 \text{TRADE}_{it} + \beta_4 \text{Log ICT}_{it} + \beta_5 \text{Log CPI}_{it} + \beta_6 \text{Log ROAD}_{it} + \mu_{it} \quad (1)$$

Where:

- FDI = FDI Inflows
- GDP = Real GDP
- ER = Exchange Rate
- TRADE = Trade Openness
- ICT = ICT Development Index
- CPI = Corruption Perception Index
- ROAD = Length of Roads
- Log = Logarithm
- $\beta_1, \beta_2, \dots, \beta_6$ = regression coefficients,
- i = seven ASEAN countries
- t = year (2010-2017)
- μ = error term

The data panel method consists of three different types, they are, Fixed Effect Model (REM), Random Effect Model (REM) and Common Effect Model (CEM). and the best model is chosen through three tests: Chow test, Lagrange Multiplier test and Hausman test. Figure 4 summarises the tests.

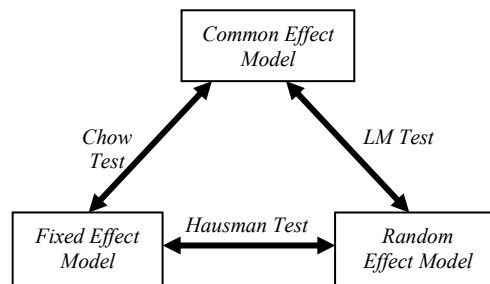


Figure 2. Selection of Best Model

The selection of the best model follows the hypothesis as presented in Table 2. Chow Test selects Common Effect or Fixed Effect as the best model. Hausman test is a test to determine whether Fixed Effect or Random Effect is the best model.. Lagrange multiplier test (LM) is a test to select whether Common Effect or Random Effect model is the best model.

Table 2. the hypotheses of the selection of the best model

| Tests | Hypotheses |
|--------------|--|
| Chow Test | H ₀ : Accept CEM if p -value > 0.10 H ₁ : Accept FEM if p -value < 0.10 |
| LM Test | H ₀ : Accept CEM if p -value > 0.10 H ₁ : Accept REM if p -value < 0.10 |
| Hausman Test | H ₀ : Accept CEM if p -value > 0.10 H ₁ : Accept FEM if p -value < 0.10 |

3. RESULTS AND DISCUSSION

Table 3 presents the result of three test to select the best model. Chow test suggests that FEM is the best model, while Hausman test selects FEM as the best model and LM test indicates that CEM is the best model. Overall, two test show that FEM is the best model. So, it is concluded that the best model is Fixed Effect Model (FEM).

Table 3. The Result of the Selection of Best Model

| Tests | F-Stat Values | Results |
|-------------------|------------------------------|--|
| <i>Chow Test</i> | 9.145*** | H ₀ is rejected. It means FEM is better than CEM |
| Hausman Test | 15.600** | H ₀ is rejected. It means FEM is better than REM. |
| <i>LM Test</i> | 1.933 | H ₀ is accepted. It means CEM is better than REM |
| Conclusion | FEM is the best model | |

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$

Table 4 shows the data panel estimation result. Real GDP has a positive and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the GDP Real variable is 2.558000. This means that if the real GDP increases by 1%, the FDI Inflows will increase by 2.56% assuming *ceteris paribus*. The result of this study as in line with market seeking investment motives which states that market size in host countries can encourage FDI flow to a country. The result is also in line with research conducted by Botric and Škuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan and Isihak (2018); and Saidi and Hammami (2018). A positive and significant influence between GDP and FDI shows that GDP is the main factor influencing FDI flow to a country. Real GDP also reflects the level of consumption and sales in a country, so the increase in GDP reflects the increase in demand for goods and services produced by investors. According to Lipsey, Steiner and Purvis (1992), with an increase in Real GDP, foreign investors will increase FDI to increase their production capability in order to offset the increase in demand for goods and services from residents in host countries.

Table 4. Panel Data Estimation Result

| Variables | Fixed Effect |
|--------------------------|--------------|
| Constanta | -9.173590** |
| Log Real GDP | 2.558000*** |
| <i>Log Exchange Rate</i> | -1.253843*** |
| <i>Trade Openness</i> | -0.000926 |
| Log ICT | -0.664510** |
| Log CPI | 0.562707* |
| Log Road Length | -0.653362* |
| R ² | 0.977695 |
| Adjusted R ² | 0.971470 |
| Standard Error | 0.411934 |
| F-Statistic | 157.0670*** |

Note:

- *** : significant at $p \leq 0.01$
- ** : significant at $p \leq 0.05$
- * : significant at $p \leq 0.10$

Exchange Rate has a negative and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the Exchange Rate variable is -1.253843. Means that if the Exchange Rate depreciates by 1%, then the FDI Inflows will decrease by 1.25% assuming *ceteris paribus*. This study supports previous study by Asiamah, OFori and Afful (2019) . They suggest that the impact of depreciation on the lower level of FDI inflows shows that exchange rate is an important path to indicate that the economy can be in danger. The effect of the Exchange Rate on FDI Inflows in 7 ASEAN countries is not in accordance with the efficiency seeking investment motive that the exchange rate shows efficiency in host countries. Depreciation of the local currency will reduce production costs (labour and prices of other input factors). In addition, depreciation of the local currency also reduces the value of assets in the host countries relative in other currencies, including those from the home country FDI, so that investors who seek efficiency in their production while making FDI will invest more FDI in countries whose currencies are depreciating (Chowdhury & Wheeler, 2008).

Previous studies have stated that Exchange Rate can have a negative or positive effect depend on the purpose of carrying out FDI by investors. When the Exchange Rate has a negative effect on FDI, it means that the appreciation of the domestic exchange rate (the value of the local currency has increased but the nominal has decreased against other countries' currencies) will actually increase FDI Inflows to that country. From this negative relationship, it can be seen that the purpose of investors doing FDI is to find or meet the needs of the local market. According to Benassy-Quere, Coeure, and Mignon (2006); Chowdhury and Wheeler (2008). and Kilicarslan (2018) appreciation of the domestic exchange rate will increase the purchasing power of local consumers, so it will increase FDI that enters the country due to the expectation of increased profits that will be obtained by investors from increasing demand for goods.

Conversely, when the goal of investors to conduct FDI is to meet the needs of the international market (export oriented), then the appreciation of the local currency will reduce the FDI. Goldberg (2006) explains that the appreciation of the domestic currency in host countries indicates that the price of local labour is higher, thus making the prices of products produced by these investors increase, making them hardly to be sold in international markets and decreasing their competitiveness. So that export-oriented investors will reduce their investment when a country's currency is appreciating. Some previous studies that are in line with this study are research conducted by Ezeoha and Cattaneo (2012) and Saidi and Hammami (2018) research. The results showed a negative and significant effect between Exchange Rate and FDI, explaining that the purpose of carrying out FDI by investors is to search for or meet the needs of the local market rather than to look for international markets or export.

Trade Openness has a negative effect on FDI Inflows in 7 ASEAN countries, but it is not statistically significant. This result is not consistent with previous study by Asongu, Akpan and Isihak (2018) and Sabir, Rafique and Abbas (2019). Trade Openness is not a factor that is a consideration for foreign investors in conducting FDI in 7 ASEAN Countries The negative influence between Trade Openness and FDI Inflows is not in accordance with Dunning's investment motive where Trade Openness is one of the variables that shows the Efficiency Seeking motive, so it will encourage FDI inflows. The greater the economic openness of a country, the greater the potential for FDI to enter the country. Because economic openness in host countries shows that trade barriers are slowly being eliminated, the ease of doing of exports and imports in these countries is an attraction for export oriented investors because it can increase efficiency in production (Hoang, 2012).

ICT Development Index has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 5% (0.05) significance level. The regression coefficient for the ICT Development Index variable is -0.664510. Means that if ICT Development Index variable increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease by 0.66% with the assumption of *ceteris paribus*. The negative influence of this study is not in line with Dunning's investment motives that ICT Development Index indicates that the availability of technology as a resource advantage, will drive FDI Inflows to a country (Goldberg, 2006). The negative influence between the ICT Development Index and FDI shows that ICT is not a factor that increases FDI. According to Veljanoska, Axhiu and Husedni (2013), the relationship between ICT and FDI depends on the investment destination. When investment of the FDI by investors is a FDI which is oriented towards labour-intensive production, then the development of ICT is not significantly influences FDI. Meanwhile, investors in ASEAN mostly invest in ASEAN because industries in ASEAN are more labour intensive, labour prices and other input factors are cheaper. So, the development of ICT in 7 ASEAN countries will reduce the interest of foreign investors. Ismail (2009) also supports the statement of Veljanoska, Axhiu and Husedni (2013) that the flow of FDI to developing countries is more encouraged because of labour-intensive production and low use of technology in its production. While the flow of FDI in developed countries is due to the use of high and modern production technology.

Higher Corruption Perception Index (CPI) has a positive effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% (0.10) significance level. The value of the regression coefficient for the Corruption Perception Index variable is 0.562707. This means that if the Corruption Perception Index increases by 1%, then FDI Inflows will also increase by 0.56% with the assumption of *ceteris paribus*. A positive relationship between CPI and FDI means that if perceptions of corruption increase, FDI Inflows in 7 ASEAN countries will also increase. The result of this study is consistent with Dunning's investment motives, which stated that CPI is one of the variables that can proxy the Efficiency Seeking investment motive. The results of the study are in line with research by Ismail (2009), Hoang (2012) and Sabir, Rafique and Abbas (2019). CPI indicates efficiency when making investments. The positive influence between CPI and FDI can explain that the eradication of corruption in a country will reduce investment costs, improve the quality of institutions / government, and improve the investment climate so as to improve efficiency. Efficiency is what attracts investors to invest FDI (Hoang, 2012). According to Wibowo and Indrayanti (2020), good control of corruption behaviours in a country will also improve the quality of institutions, so that it will reduce political risks when investing and will increase FDI inflows.

Road Length has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% significance level. The regression coefficient for the Road Length variable is -0.653362. Means, if the Road Length increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease of 0.65% with the assumption of *ceteris paribus*. The result of this study is not in line with Dunning Resources Seeking's investment motives which state that the availability of infrastructure including roads in host countries will encourage FDI inflows. Research that supports the negative influence between infrastructure and FDI is Kumari and Sharma (2017) that uses the Electricity Consumption per Capita variable. The result shows that Electricity Consumption per Capita has a negative and statistically significant effect on the entry of FDI in developing countries in South Asia, East Asia and Southeast Asia. Addison and Heshmati (2003) also conducted a research which resulted in the conclusion that there was a negative influence between the infrastructure proxied by the Number of Telephone of 1000 People on FDI.

The negative influence between Road Length on FDI Inflows shows that road infrastructure still not an important factor in attracting FDI in 7 ASEAN countries even though road infrastructure plays an important role in the smooth running of a country's economic activities. The relationship between Road Length and FDI is negative because the longer a road in a country,

the transportation costs will increase, so investors will reduce their investment. In addition, the negative relationship between Road Length and FDI can also be explained by investment motives undertaken by investors in 7 ASEAN countries. Where investments are made more driven by market seeking motives. So, the availability of infrastructure which is a variable that proxies the resource seeking motive is not something that attracts investors to invest FDI in 7 ASEAN countries.

4. CONCLUSIONS

The results of this study show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven more by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources with better quality.

FDI Inflows can provide a variety of positive externalities that can drive economic growth, so various policies need to be directed to increase the FDI Inflows. Therefore, based on the results, it is recommended that Governments in 7 ASEAN countries should: (1) provide various incentives for manufacturing companies in the form of tax reductions and import substitution that can reduce production costs, so it will increase exports, (2) develop and improve the infrastructure other than road and ICT, and (4) introduce more strict regulation that punish corruptors with longer sentence in jail, powerless and economically weak so it can reduce the level of corruption. In addition, Central Bank in 7 ASEAN countries should maintain the conducive macroeconomic conditions through the management of money supply so the exchange rate can stable in long run.

It is important to note that FDI does not only fill the gap between available capital and required domestically, but it also transfers technology, organizational and other essential skills. More importantly, the presence of FDI in 7 ASEAN countries will help the effort of reducing poverty and increase overall welfare.

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[JEP] Editor Decision

1 message

Muhammad Anas <journals-noreply@ums.ac.id>
To: "Mr. Andryan Setyadharma" <andryan@mail.unnes.ac.id>

17 April 2021 at 10:58

Dear Dr. Andryan Setyadharma:

Thank you for submitting the revised version of your paper. The editorial team has checked the article and decided that it needs to undergo a (hopefully) final revision before it is accepted. You can view the editor's comments in the attached document below.

Please do not reply to this email as this is generated by system. Should you have any difficulties in sending your revision, feel free to send to ma912@ums.ac.id instead.

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Please consider using a proofreading service. Some of the English sentences are grammatically flawed

Determinants of Foreign Direct Investment Inflows in Seven ASEAN Countries During the Period of 2010-2017: Dunning Model Approach

Abstract

Before the monetary crisis in 1998, ASEAN was one of the main objectives of Foreign Direct Investment (FDI) and after the crisis, FDI inflows in ASEAN were still fluctuating, but tended to slowly increase. However, in 2009, there was a drastic decline in the FDI. The study aims to establish the determinants of FDI Inflows in 7 ASEAN countries in the period of 2010-2017. This study employs quantitative analysis through the Dunning Model Approach. As the technique of analysis, the Panel Data Regression analysis with Fixed Effect Model is used. The results of this study indicate that the Real GDP and Corruption Perception Index have positive and significant effects on FDI Inflows; while Exchange Rate, ICT Development Index and Road Length have negative and significant effects on FDI Inflows. Trade Openness has no effect on FDI Inflows. The results also show that FDI Inflows to the seven ASEAN countries are labour-intensive FDI, low technology FDI, driven by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources overflow with better quality.

Keywords: Foreign Direct Investment, ASEAN, Dunning Model

JEL classification: C51, E22, F21, F34

1. INTRODUCTION

According to Kumari and Sharma (2017), developing countries need more capital inflows, including in the form of foreign direct investment (FDI), to accelerate economic growth and to encourage economic development. Increase in investment will increase gross domestic product (GDP) and in the end, increase in GDP will cause economic growth. Investment could be a source of economic growth because investment can increase sources of capital through investment and taxes, creating jobs resulting in spill over effects such as transfer of skills, technology, managerial expertise and corporate governance practices (Asongu, Akpan, Isihak, 2018).

Azam and Lukman (2010) argue that the entry of investments into a country cannot be separated from the risks that exist in host countries. From investors' perspective, economic risks in several countries need to be handled wisely, otherwise, investors will select other countries to avoid risks. The best investment option is chosen by the investors so that the return on investment remains same or even increases. One alternative investment chosen by these investors is investing in FDI. Investment in FDI helps foreign investors to diversify risks and shocks in host countries. Therefore, FDI is expected to be able to increase the growth of sustainable foreign investment (Alam & Shah, 2013).

Before the monetary crisis in 1998, ASEAN was one of the main objectives for the entry of FDI, but then it fluctuated, where in 1998 FDI to ASEAN Countries decreased to US\$ 20,926 million and in 2000 it decreased again to US\$ 21,751 million. The monetary crisis caused ASEAN Countries become very risky for FDI because the ASEAN economy was experiencing a significant collapse. After the 1998 monetary crisis, ASEAN FDI inflows were still fluctuating,

but tended to slowly increase. However, in 2009, there was a drastic decline in ASEAN FDI inflows and the drastic decline was started in 2008 where there was a Supreme Mortgage crisis in the US and spread out to other countries.

Although the amount of FDI that entered to ASEAN are quite large, the percentage of ASEAN FDI was only 8.38% compared to world FDI in 1995 and continued to decline due to the monetary crisis in 1998. As shown in Figure 1, the percentage of FDI in ASEAN to the global FDI touched the lowest figure or equivalent to 1.60% after the crisis in 2001. Then, the percentage increased again to reach 11.46% in 2018.

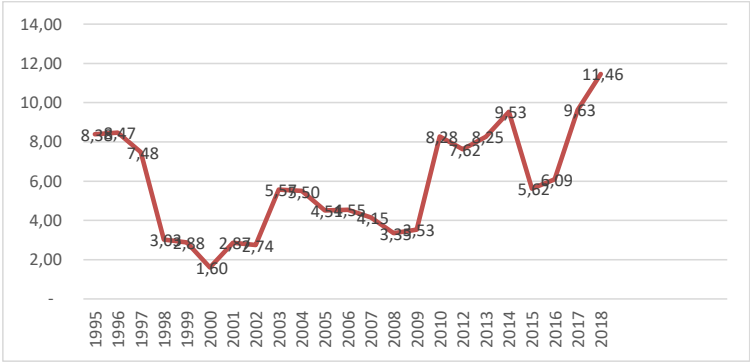


Figure 1. Percentage of ASEAN FDI against Global FDI
Source: UNCTAD (2019)

According to Dunning (1988), there are three main characteristics of foreign investors interest in investing their capital. These three characteristics are commonly called The OLI Paradigm, which is (1) Ownership Advantage, which means that the company has specific technology or skills that can make the company superior to other companies; (2) Location Advantage, that is the advantages possessed by a specific location, but these advantages are available to all investors. Finally, (3) Internalization Advantage, the ability of companies to avoid disadvantage or capitalization of natural resources (imperfections in market information) that can hamper competition. The decision to undertake FDI is then based on various considerations such as the economic, political system, and socio-cultural characteristics of the host countries.

Dunning also explained that there are three things that underlie investors to invest FDI in host countries, the first is Resource Seeking, investors make investments in other countries that have input/production factors with better quality and lower prices when compared to factors of production in their country. Second is Market Seeking, investors invest in order to find new markets or maintain old markets. Third is Efficiency Seeking, the investment made aims to benefit from the availability and lower production costs and benefit from the size of the market in the investment destination country so as to achieve efficiency in production (Dunning & Lundan, 2008, pp.67-69).

Based on three motives above, several economics variables are considered as the factors that influence the entry of FDI into a country. One of the variables is market size, which can be proxied by real GDP. GDP is a measure that evaluates the total market value of goods and services produced by a country in a given period. GDP also reflects the purchasing power of local resident in host countries (Tsen, 2005). An increase in GDP will increase the demand for goods and

services produced by producers, so that as GDP increases, FDI flowing into the country also greater. This statement was supported by research conducted by Botric and Škuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan, and Isihak (2018); and Saidi and Hammami (2018). Their results show that GDP has a positive and significant effect on FDI.

Another economic factor that is considered to determine the FDI entry to a country is Exchange rate. Exchange rate is one of the variables that proxies the investment motive for Efficiency Seeking. According to Chowdhury and Wheeler (2008), export-oriented investors will relatively invest FDI in countries with traditionally have low exchange rates. Depreciation of the local currency will reduce production costs (labour prices and prices of other input factors of production) in foreign investors' views, thereby causing FDI with seeking efficiency in production motives to flow more in the countries. In addition, depreciation in the value of local currencies also reduces the value of assets in host countries relative to other currencies, including those from the home country of the FDI. But if the FDI investors' objectives are to find or meet the needs of the local market, they will find countries with strong exchange rates. When a country's currency appreciates, this indicates an increase in consumer purchasing power so that it will increase FDI that enters the country due to the expectation of increase profits to be gained by investors from increasing demand for goods (Bénassy-quéré et al., 2006; Chowdhury & Wheeler, 2008; Kiliçarslan, 2018).

Trade openness is also considered as a variable that can affect FDI. Some previous studies use the ratio between trade (export + import) to GDP as a measure that shows the level of a country's economic openness. Trade openness is not only important for export, but also for import, because there are many investors require intermediary input that are imported from other countries. Higher levels of trade openness provide new investment opportunities and strengthen relations between domestic markets and international markets (Kumari & Sharma, 2017). Trade openness can be used as a proxy of the investment motives for efficiency seeking. Investors choose to invest FDI in countries with high levels of trade openness because high trade openness also means that trade barriers for goods from host countries are gradually removed. This is an opportunity for export-oriented investors because they can take advantage of the comparative advantage of investment destination countries to export back to their home country and increase the exports.

The reduced trade barrier in host countries will reduce production costs for investors and increase efficiency in production so that it will increase investor profits (Hoang, 2012). Institutional factors are including corruption that could affect FDI Inflows. Corruptions can hamper domestic investment and foreign direct investment. Foreign investors are not interested to invest on corrupt countries because corruption creates inefficiencies in investors' operational activities. Corruption is counted as a political risk. Hence, the high level of corruption in a country will increase investment costs for foreign investors. The increase in costs arises from payments or bribes made by investors for politicians or officials to get business contracts, or making bribes to officials for licenses, construction permits, tax payments, investor protection, and several other indicators related to ease of doing business in a country (Al-Sadig, 2009).

Institutional factor such as corruption also increases investment risk which becomes an additional cost for investors in investing their capital, causing inefficient allocations in the market and resources (Sasana & Fathoni, 2019). Research conducted by Canare (2017) shows that corruption tends to reduce FDI Inflows that enter to a country. Whereas countries with low levels of corruption receive more FDI. Corruption Perception Index (CPI) is an indicator that shows the perception of corruption of the public sectors according to experts and entrepreneurs. Low CPI score means high level of corruption and high CPI score means low level of corruption. So, with a higher CPI, there is higher probability of FDI Inflows to increase into a country. Therefore, the

Corruption Perception Index can be used to determine the amount of FDI flow to a country (Harrison, 2012).

UNCTAD (1999) explains that as the consequence of globalization and economic integration, the role of market size in the host countries is decreasing. At the same time, differences in production costs between locations, quality of infrastructure, ease of doing business, and availability of skills are becoming increasingly important. According to Kumari and Sharma (2017) the availability of good infrastructure is one of the drivers for the entry of FDI into a country. Infrastructure is a priority for investors when making investments because it shows business operations in the country are more efficient. Goldberg (2006) also explains that the availability of infrastructure in host countries is a benefit for investors who invest FDI as the investors are driven by the resource seeking motives.

Saidi and Hammami (2018) argue that transportation infrastructure including roads make a major contribution to economic growth and affect economic activity. Roads as logistics infrastructure has an important role in terms of connectivity between producers and consumers. Roads can increase efficiency and productivity, thereby increasing company competitiveness. The quality and availability of transportation infrastructure such as airports, roads and public transportation in host countries are factors that influence decision making for foreign investors when making investments. Fast logistical access and good infrastructure quality are conditions that supports FDI and in the end, they will influence FDI inflows.

The next factor that can attract FDI is information and communication technology. The availability of information and communication technology is an advantage, and it has a positive influence on the entry of FDI, especially from investors who invest FDI to get the resources / factors of production (driven by the resource seeking investment motives). Kumari and Sharma (2017) explain that economic growth in developing countries such as in several ASEAN countries was determined by some factors such as: basic infrastructure, technology availability and export market expansion. Therefore, developing countries are trying to get more FDI inflows because in addition to bring the capital to the countries, FDI also brings the technology and various managerial and marketing skills and it requires correct policies to increase the FDI (Veljanoska *et al.*, 2013). Some benefits of technology in economic activities are the reduction of production costs and improvements in marketing information, so that production becomes more efficient. Efficiency is what interests investors to invest because it can reduce investment costs and increase profits (Veljanoska *et al.*, 2013).

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The FDI is a source of capital and it becomes a complement for domestic investment and encourage overall economic growth in host countries (Chowdhury & Wheeler, 2008). For this reason, it is necessary to analyse what factors are considered to influence the entry of FDI into ASEAN, especially at 7 ASEAN countries, during the period of 2010-2017. After assessing the degree of the influence of these factors, then the right policies can be formulated correctly, and it can lead to increase the flow of FDI so that the growth and economic development of the ASEAN countries can be achieved. Moreover, the increasing flow of FDI will strengthen the ASEAN's position as main area for the FDI.

2. RESEARCH METHOD

The study employs quantitative model using secondary data and uses panel data regression method. The data are from seven ASEAN countries, i.e., Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam with the period of 2010-2017. In this study, the dependent variable is FDI Inflows, while the independent variables consist of Real GDP as a proxy of market size variables, technology is proxied by the Information and Communication

Technology (ICT) Development Index variable, and Road Length as the representation of infrastructure variables. These variables are proxies of resources seeking motives. Trade Openness, Exchange Rate and Corruption Perception Index are the proxies of efficiency seeking motives. The data were obtained from several official websites of international organizations such as the World Bank, UNCTAD, ASEAN Secretariat, Transparency International, International Telecommunication Union with detailed time series data from 2010-2017, and cross sections of seven ASEAN countries.

Table 1. Operational Definition

| Variable | Operational Definition | Source |
|-----------------------------|---|---------------------------------------|
| FDI Inflows | FDI inflows to 7 ASEAN Countries or the number of FDI from foreign investors to 7 ASEAN countries. | UNCTAD |
| Real GDP | Real GDP of the 7 ASEAN countries. The data used is US\$ constant price in 2010. | World Bank |
| Exchange Rate | Exchange Rate is provided by World Bank. The exchange rate is annual data calculated from the average monthly exchange rate in a year (local currency units of 7 ASEAN countries relative to the US\$). | World Bank |
| Trade Openness | The level of economic openness of the 7 ASEAN countries which is the ratio of the sum of exports and imports of goods and services by a country to its Gross Domestic Product. | World Bank |
| ICT Development Index | ICT Development Index is a benchmark of the development of a country's Information and Communication Technology. The ICT Development Index scores are in the 1-10 interval. The value closer of ten indicates that the country's ICT development is getting better, and vice versa. If the value is closer to zero, the country's ICT development is getting worse. | International Telecommunication Union |
| Corruption Perception Index | CPI is an aggregate indicator that combines various sources of corruption so that it becomes a benchmark of perception of corruption in the public sectors by experts and entrepreneurs issued by Transparency International. Where value of 0 means most corrupted and 100 is no corruption. | Transparency International |
| Road Length | The Road Length is the total of all roads in 7 ASEAN countries. | ASEAN Statistical Yearbook |

Data Analysis Method

The model specification follows the model suggested by Saidi and Hammami (2018). They formulated an economic model as follow:

foreign direct investment = (total population, gross domestic product, economic openness, exchange rate, and transport infrastructures)

Based on previous model, we modify the model by adding a new variable, i.e. corruption index and the next step is to turn the model into a structural model that uses cross-section data as follow:

$$\text{Log FDI}_{it} = \beta_0 + \beta_1 \text{Log GDP}_{it} + \beta_2 \text{Log ER}_{it} + \beta_3 \text{TRADE}_{it} + \beta_4 \text{Log ICT}_{it} + \beta_5 \text{Log CPI}_{it} + \beta_6 \text{Log ROAD}_{it} + \mu_{it} \quad (1)$$

Where:

- FDI = FDI Inflows
- GDP = Real GDP
- ER = Exchange Rate
- TRADE = Trade Openness
- ICT = ICT Development Index
- CPI = Corruption Perception Index
- ROAD = Length of Roads
- Log = Logarithm
- $\beta_1, \beta_2, \dots, \beta_6$ = regression coefficients,
- i = seven ASEAN countries
- t = year (2010-2017)
- μ = error term

The data panel method consists of three different types, they are, Fixed Effect Model (REM), Random Effect Model (REM) and Common Effect Model (CEM). and the best model is chosen through three tests: Chow test, Lagrange Multiplier test and Hausman test. Figure 4 summarises the tests.

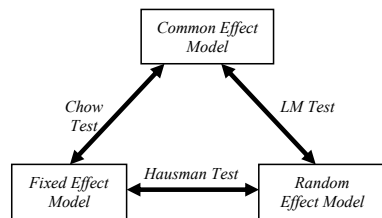


Figure 2. Selection of Best Model

The selection of the best model follows the hypothesis as presented in Table 2. Chow Test selects Common Effect or Fixed Effect as the best model. Hausman test is a test to determine whether Fixed Effect or Random Effect is the best model.. Lagrange multiplier test (LM) is a test to select whether Common Effect or Random Effect model is the best model.

Table 2. the hypotheses of the selection of the best model

| Tests | Hypotheses |
|--------------|--|
| Chow Test | H ₀ : Accept CEM if p -value > 0.10 H ₁ : Accept FEM if p -value < 0.10 |
| LM Test | H ₀ : Accept CEM if p -value > 0.10 H ₁ : Accept REM if p -value < 0.10 |
| Hausman Test | H ₀ : Accept CEM if p -value > 0.10 H ₁ : Accept FEM if p -value < 0.10 |

3. RESULTS AND DISCUSSION

Table 3 presents the result of three test to select the best model. Chow test suggests that FEM is the best model, while Hausman test selects FEM as the best model and LM test indicates that CEM is the best model. Overall, two test show that FEM is the best model. So, it is concluded that the best model is Fixed Effect Model (FEM).

Table 3. The Result of the Selection of Best Model

| Tests | F-Stat Values | Results |
|-------------------|------------------------------|--|
| Chow Test | 9.145*** | H ₀ is rejected. It means FEM is better than CEM |
| Hausman Test | 15.600** | H ₀ is rejected. It means FEM is better than REM. |
| LM Test | 1.933 | H ₀ is accepted. It means CEM is better than REM |
| Conclusion | FEM is the best model | |

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$

Table 4 shows the data panel estimation result. Real GDP has a positive and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the GDP Real variable is 2.558000. This means that if the real GDP increases by 1%, the FDI Inflows will increase by 2.56% assuming *ceteris paribus*. The result of this study as in line with market seeking investment motives which states that market size in host countries can encourage FDI flow to a country. The result is also in line with research conducted by Botric and Škufflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan and Isihak (2018); and Saidi and Hammami (2018). A positive and significant influence between GDP and FDI shows that GDP is the main factor influencing FDI flow to a country. Real GDP also reflects the level of consumption and sales in a country, so the increase in GDP reflects the increase in demand for goods and services produced by investors. According to Lipsey, Steiner and Purvis (1992), with an increase in Real GDP, foreign investors will increase FDI to increase their production capability in order to offset the increase in demand for goods and services from residents in host countries.

Table 4. Panel Data Estimation Result

| Variables | Fixed Effect |
|-------------------|--------------|
| Constanta | -9.173590** |
| Log Real GDP | 2.558000*** |
| Log Exchange Rate | -1.253843*** |
| Trade Openness | -0.000926 |
| Log ICT | -0.664510** |
| Log CPI | 0.562707* |
| Log Road Length | -0.653362* |
| R ² | 0.977695 |

| | |
|-------------------------|-------------|
| Adjusted R ² | 0.971470 |
| Standard Error | 0.411934 |
| F-Statistic | 157.0670*** |

Note:

- *** : significant at $p \leq 0.01$
- ** : significant at $p \leq 0.05$
- * : significant at $p \leq 0.10$

Exchange Rate has a negative and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the Exchange Rate variable is -1.253843. Means that if the Exchange Rate depreciates by 1%, then the FDI Inflows will decrease by 1.25% assuming *ceteris paribus*. This study supports previous study by Asiamah, OFori and Afful (2019). They suggest that the impact of depreciation on the lower level of FDI inflows shows that exchange rate is an important path to indicate that the economy can be in danger. The effect of the Exchange Rate on FDI Inflows in 7 ASEAN countries is not in accordance with the efficiency seeking investment motive that the exchange rate shows efficiency in host countries. Depreciation of the local currency will reduce production costs (labour and prices of other input factors). In addition, depreciation of the local currency also reduces the value of assets in the host countries relative in other currencies, including those from the home country FDI, so that investors who seek efficiency in their production while making FDI will invest more FDI in countries whose currencies are depreciating (Chowdhury & Wheeler, 2008).

Previous studies have stated that Exchange Rate can have a negative or positive effect depend on the purpose of carrying out FDI by investors. When the Exchange Rate has a negative effect on FDI, it means that the appreciation of the domestic exchange rate (the value of the local currency has increased but the nominal has decreased against other countries' currencies) will actually increase FDI Inflows to that country. From this negative relationship, it can be seen that the purpose of investors doing FDI is to find or meet the needs of the local market. According to Benassy-Quere, Coeure, and Mignon (2006); Chowdhury and Wheeler (2008). and Kilicarlan (2018) appreciation of the domestic exchange rate will increase the purchasing power of local consumers, so it will increase FDI that enters the country due to the expectation of increased profits that will be obtained by investors from increasing demand for goods.

Conversely, when the goal of investors to conduct FDI is to meet the needs of the international market (export oriented), then the appreciation of the local currency will reduce the FDI. Goldberg (2006) explains that the appreciation of the domestic currency in host countries indicates that the price of local labour is higher, thus making the prices of products produced by these investors increase, making them hardly to be sold in international markets and decreasing their competitiveness. So that export-oriented investors will reduce their investment when a country's currency is appreciating. Some previous studies that are in line with this study are research conducted by Ezeoha and Cattaneo (2012) and Saidi and Hammami (2018) research. The results showed a negative and significant effect between Exchange Rate and FDI, explaining that the purpose of carrying out FDI by investors is to search for or meet the needs of the local market rather than to look for international markets or export.

Trade Openness has a negative effect on FDI Inflows in 7 ASEAN countries, but it is not statistically significant. This result is not consistent with previous study by Asongu, Akpan and Isihak (2018) and Sabir, Rafique and Abbas (2019). Trade Openness is not a factor that is a consideration for foreign investors in conducting FDI in 7 ASEAN Countries The negative influence between Trade Openness and FDI Inflows is not in accordance with Dunning's investment motive where Trade Openness is one of the variables that shows the Efficiency Seeking motive, so it will encourage FDI inflows. The greater the economic openness of a country, the greater the potential for FDI to enter the country. Because economic openness in host

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countries shows that trade barriers are slowly being eliminated, the ease of doing of exports and imports in these countries is an attraction for export oriented investors because it can increase efficiency in production (Hoang, 2012).

ICT Development Index has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 5% (0.05) significance level. The regression coefficient for the ICT Development Index variable is -0.664510. Means that if ICT Development Index variable increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease by 0.66% with the assumption of *ceteris paribus*. The negative influence of this study is not in line with Dunning's investment motives that ICT Development Index indicates that the availability of technology as a resource advantage, will drive FDI Inflows to a country (Goldberg, 2006). The negative influence between the ICT Development Index and FDI shows that ICT is not a factor that increases FDI. According to Veljanoska, Axhiu and Husedni (2013), the relationship between ICT and FDI depends on the investment destination. When investment of the FDI by investors is a FDI which is oriented towards labour-intensive production, then the development of ICT is not significantly influences FDI. Meanwhile, investors in ASEAN mostly invest in ASEAN because industries in ASEAN are more labour intensive, labour prices and other input factors are cheaper. So, the development of ICT in 7 ASEAN countries will reduce the interest of foreign investors. Ismail (2009) also supports the statement of Veljanoska, Axhiu and Husedni (2013) that the flow of FDI to developing countries is more encouraged because of labour-intensive production and low use of technology in its production. While the flow of FDI in developed countries is due to the use of high and modern production technology.

Higher Corruption Perception Index (CPI) has a positive effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% (0.10) significance level. The value of the regression coefficient for the Corruption Perception Index variable is 0.562707. This means that if the Corruption Perception Index increases by 1%, then FDI Inflows will also increase by 0.56% with the assumption of *ceteris paribus*. A positive relationship between CPI and FDI means that if perceptions of corruption increase, FDI Inflows in 7 ASEAN countries will also increase. The result of this study is consistent with Dunning's investment motives, which stated that CPI is one of the variables that can proxy the Efficiency Seeking investment motive. The results of the study are in line with research by Ismail (2009), Hoang (2012) and Sabir, Rafique and Abbas (2019). CPI indicates efficiency when making investments. The positive influence between CPI and FDI can explain that the eradication of corruption in a country will reduce investment costs, improve the quality of institutions / government, and improve the investment climate so as to improve efficiency. Efficiency is what attracts investors to invest FDI (Hoang, 2012). According to Wibowo and Indrayanti (2020), good control of corruption behaviours in a country will also improve the quality of institutions, so that it will reduce political risks when investing and will increase FDI inflows.

Road Length has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% significance level. The regression coefficient for the Road Length variable is -0.653362. Means, if the Road Length increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease of 0.65% with the assumption of *ceteris paribus*. The result of this study is not in line with Dunning Resources Seeking's investment motives which state that the availability of infrastructure including roads in host countries will encourage FDI inflows. Research that supports the negative influence between infrastructure and FDI is Kumari and Sharma (2017) that uses the Electricity Consumption per Capita variable. The result shows that Electricity Consumption per Capita has a negative and statistically significant effect on the entry of FDI in developing countries in South Asia, East Asia and Southeast Asia. Addison and Heshmati (2003) also conducted a research which resulted in the conclusion that there was a negative influence between the infrastructure proxied by the Number of Telephone of 1000 People on FDI.

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The negative influence between Road Length on FDI Inflows shows that road infrastructure still not an important factor in attracting FDI in 7 ASEAN countries even though road infrastructure plays an important role in the smooth running of a country's economic activities. The relationship between Road Length and FDI is negative because the longer a road in a country, the transportation costs will increase, so investors will reduce their investment. In addition, the negative relationship between Road Length and FDI can also be explained by investment motives undertaken by investors in 7 ASEAN countries. Where investments are made more driven by market seeking motives. So, the availability of infrastructure which is a variable that proxies the resource seeking motive is not something that attracts investors to invest FDI in 7 ASEAN countries.

4. CONCLUSIONS

The results of this study show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven more by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources with better quality.

FDI Inflows can provide a variety of positive externalities that can drive economic growth, so various policies need to be directed to increase the FDI Inflows. Therefore, based on the results, it is recommended that Governments in 7 ASEAN countries should: (1) provide various incentives for manufacturing companies in the form of tax reductions and import substitution that can reduce production costs, so it will increase exports, (2) develop and improve the infrastructure other than road and ICT, and (4) introduce more strict regulation that punish corruptors with longer sentence in jail, powerless and economically weak so it can reduce the level of corruption. In addition, Central Bank in 7 ASEAN countries should maintain the conducive macroeconomic conditions through the management of money supply so the exchange rate can stable in long run.

It is important to note that FDI does not only fill the gap between available capital and required domestically, but it also transfers technology, organizational and other essential skills. More importantly, the presence of FDI in 7 ASEAN countries will help the effort of reducing poverty and increase overall welfare.

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Artikel JEP

1 message

Muhammad Anas <ma912@ums.ac.id>
To: Andryan Setyadharma <andryan@mail.unnes.ac.id>

4 June 2021 at 20:51

Yth. Bapak Dr. Andryan Setyadharma,

Terkait artikel Bapak di JEP, mohon untuk segera mengirim hasil revisi agar bisa kami cek final. Jika bisa diselesaikan secepatnya, artikel Bapak akan kami terbitkan pada terbitan Volume 22 no 1, Juni 2021.

Terima kasih

Re: Artikel JEP

1 message

Andryan Setyadharma <andryan@mail.unnes.ac.id>

6 June 2021 at 15:33

To: Muhammad Anas <ma912@ums.ac.id>

Cc: dp274@ums.ac.id, sa150@ums.ac.id

Terima kasih untuk pengingatnya, Bapak. Berikut saya kirimkan kembali revisi artikel kami. Saya sudah upload juga di submission system.

Terima kasih atas perhatiannya,
Andryan

On Fri, 4 Jun 2021 at 20:51, Muhammad Anas <ma912@ums.ac.id> wrote:

Yth. Bapak Dr. Andryan Setyadharma,

Terkait artikel Bapak di JEP, mohon untuk segera mengirim hasil revisi agar bisa kami cek final. Jika bisa diselesaikan secepatnya, artikel Bapak akan kami terbitkan pada terbitan Volume 22 no 1, Juni 2021.

Terima kasih

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Andryan Setyadharma

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Determinants of Foreign Direct Investment Inflows in Seven ASEAN Countries During the Period of 2010-2017: Dunning Model Approach

Abstract

Before the monetary crisis in 1998, ASEAN was one of the main objectives of Foreign Direct Investment (FDI) and after the crisis, FDI inflows in ASEAN were still fluctuating, but tended to slowly increase. However, in 2009, there was a drastic decline in the FDI. The study aims to establish the determinants of FDI Inflows in 7 ASEAN countries in the period of 2010-2017. This study employs quantitative analysis through the Dunning Model Approach. As the technique of analysis, the Panel Data Regression analysis with Fixed Effect Model is used. The results of this study indicate that the Real GDP and Corruption Perception Index have positive and significant effects on FDI Inflows; while Exchange Rate, ICT Development Index and Road Length have negative and significant effects on FDI Inflows. Trade Openness has no effect on FDI Inflows. The results also show that FDI Inflows to the seven ASEAN countries are labour-intensive FDI, low technology FDI, driven by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources overflow with better quality.

Keywords: Foreign Direct Investment, ASEAN, Dunning Model

JEL classification: C51, E22, F21, F34

1. INTRODUCTION

Undeniably, developing countries need more capital inflows, including in the form of foreign direct investment (FDI), to accelerate economic growth and to boost economic growth (Kumari and Sharma, 2017). Increase in investment will increase gross domestic product (GDP) and in the end, increase in GDP will cause economic growth. Investment could be a source of economic growth because investment can increase sources of capital through investment and taxes, creating jobs and also spill over effects such as transfer of skills, technology, managerial expertise and corporate governance practices (Asongu, Akpan, Isihak, 2018).

The best investment option is chosen by the investors so that the return on investment remains same or even increases. One alternative investment chosen by these investors is investing in FDI. Azam and Lukman (2010) argue that the decision of the inflow of investments into a country cannot be separated from the risks that exist in host country. The decision to invest in a country is subject to the conditions of economic, political and social of the targeted country (Alam & Shah, 2013). Investment in FDI helps foreign investors to diversify risks and shocks in host countries. From investors' perspective, economic risks in some countries need to be handled wisely, otherwise, investors will select other countries to minimize the risks.

Before the monetary crisis in 1998, ASEAN was one of the main destinations for the inflow of FDI, but FDI to ASEAN Countries started to fall in 1998, where FDI decreased to US\$ 20,926 million in comparison to 1997 and in 2000 it decreased again to US\$ 21,751 million. The monetary crisis causes ASEAN countries into risky places for FDI because the ASEAN economies were experiencing a significant collapse. After the 1998 monetary crisis, ASEAN FDI inflows were still fluctuating, but tended to slowly increase. However, in 2009, there was a drastic decline in ASEAN FDI inflows and the drastic decline was started in 2008 where there was a Supreme Mortgage crisis in the US and spread out to other countries.

Although there were a significant amount of FDI that entered to ASEAN, the percentage of ASEAN FDI was only 8.38% compared to world FDI in 1995 and continued to decline due to the monetary crisis in 1998. As shown in Figure 1, the percentage of FDI in ASEAN to the global FDI touched the lowest figure or equivalent to 1.60% after the crisis in 2001. Then, the percentage increased again to reach 11.46% in 2018.

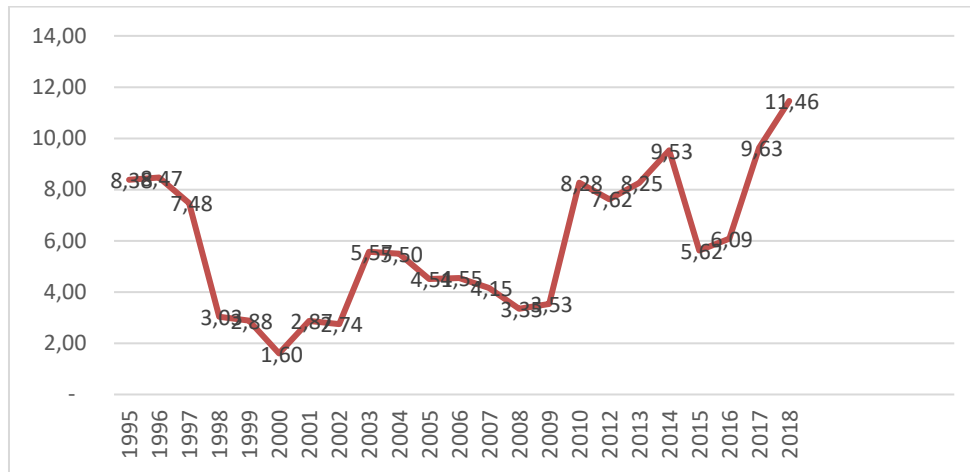


Figure 1. Percentage of ASEAN FDI against Global FDI

Source: UNCTAD (2019)

According to Dunning (1988), there are three main characteristics of foreign investors in investing their capital. These three characteristics are commonly called The OLI Paradigm, which is (1) Ownership Advantage, which means that the company has specific technology or skills that can make a company superior to other companies; (2) Location Advantage, that is the capacity of companies to operate their businesses better because they have good locations than another or the location-specific advantages, but this advantage is available to all investors. Finally, (3) Internalization Advantage, the ability of companies to avoid disadvantage or capitalization of natural resources (imperfect market information) that can hamper competition. The decision to invest in a country is then based on various considerations such as the economic, political system, and socio-cultural characteristics of the host country.

Dunning also explained that there are three reasons that motivate investors to invest FDI in host countries. First, Resource Seeking in which investors make investments in other countries that have input or production factors with better qualities, and lower prices when compared to factors of production in their countries or other countries. Second, Market Seeking in which investors invest because they try to find new markets or maintain old markets. Third, Efficiency Seeking in which the aims of an investment is to get more benefit from the availability and lower production costs and benefit from the size of the market in the host country as well as to achieve efficiency in production (Dunning & Lundan, 2008, pp.67-69).

Based on three motives above, several economics variables are considered as the factors that influence the inflow of FDI into a country. One of the variables is market size, which can be proxied by real GDP. GDP is a measure that calculates the total market value of goods and services produced by a country in a given period. GDP also reflects the purchasing power of local resident in host countries (Tsen, 2005). An increase in GDP will increase the demand for goods and services supplied by producers. As the GDP increases, FDI flows into the country also become greater. This condition is supported by research of Botric and Škuflic (2006); Hoang

(2012); Adhikary (2017); Asongu, Akpan, and Isihak (2018); and Saidi and Hammami (2018). Their results show that GDP has a positive and significant effect on FDI.

Another economic factor that is considered to determine the FDI inflow to a country is exchange rate. Exchange rate is used as a variable that proxy the investment motive for Efficiency Seeking. According to Chowdhury and Wheeler (2008), export-oriented investors will relatively invest FDI in countries with traditionally have weak exchange rates. Depreciation of the local currency will reduce production costs (labour prices and prices of other input factors of production) in foreign investors' views, thereby causing FDI with seeking efficiency in production motives to flow more in the countries. In addition, depreciation in the value of local currencies also reduces the value of assets in host countries relative to other currencies, including those from the home country of the FDI. But if the FDI investors' objectives are to find or meet the needs of the local market, they will find countries with strong exchange rates. When a country's currency appreciates, this indicates an increase in consumer purchasing power so that it will increase FDI that enters the country due to the expectation of increase profits to be gained by investors from increasing demand for goods (Bénassy-quéré et al., 2006; Chowdhury & Wheeler, 2008; Kiliçarslan, 2018).

Trade openness is also considered as a variable that can affect FDI. Previous studies use the ratio between trade (export plus import) to GDP as a measure that shows the level of a country's economic openness. Trade openness is not only important for export, but also for import, because there are many investors require intermediary input that are imported from other countries. Higher levels of trade openness provide new investment opportunities and strengthen relations between domestic markets and international markets (Kumari & Sharma, 2017). Trade openness can be used as a proxy of the investment motives for efficiency seeking. Investors choose to invest FDI in countries with high levels of trade openness because high trade openness also means that trade barriers for goods from host countries are low. This becomes an opportunity for export-oriented investors because they can take advantage of the comparative advantage of host countries to export back to their home country and increase exports.

Institutional factor such as corruption also increases investment risk which becomes an additional cost for investors in investing their capital, causing inefficient allocations in the market and resources (Sasana & Fathoni, 2019). Corruption can hamper domestic investment and foreign direct investment. Foreign investors are less interested to invest in corrupt countries because corruption creates inefficiencies in investors' operational activities. Corruption is counted as a political risk. Hence, the high level of corruption in a country will increase investment costs for foreign investors. The increase in costs arises from payments or bribes made by investors for politicians or officials to get business contracts, or making bribes to officials for licenses, construction permits, tax payments, investor protection, and several other indicators related to ease of doing business in a country (Al-Sadig, 2009).

Research conducted by Canare (2017) shows that corruption tends to reduce FDI Inflows that enter to a country. Whereas countries with low levels of corruption receive more FDI. Corruption Perception Index (CPI) is an indicator that shows the perception of corruption of the public sectors according to experts and entrepreneurs. Low CPI score means high level of corruption and high CPI score means low level of corruption. So, with a higher CPI, there is higher probability of FDI Inflows to increase into a country. Therefore, the Corruption Perception Index can be used to determine the amount of FDI flow to a country (Harrison, 2012).

UNCTAD (1999) explains that as the consequence of globalization and economic integration, the role of market size in the host countries is decreasing. At the same time, differences in production costs between locations, quality of infrastructure, ease of doing business, and availability of skills are becoming increasingly important. Refer to Kumari and Sharma (2017),

the availability of good infrastructure is one of the drivers for the inflow of FDI into a country. Infrastructure is a priority for investors when making investments because it shows business operations in host country are more efficient. Goldberg (2006) also explains that the availability of infrastructure in host countries is a benefit for investors who invest FDI with resource seeking motives.

Saidi and Hammami (2018) argue that transportation infrastructure including roads create a major contribution to economic growth and affect economic activities. Roads as logistics infrastructure has an important role in terms of connectivity between producers and consumers. Roads can increase efficiency and productivity, thereby increasing company competitiveness. The quality and availability of transportation infrastructure such as airports, roads and public transportation in host countries are factors that influence decision making for foreign investors when making investments. A good access for logistics movement and good infrastructure quality are conditions that supports FDI and in the end, they will influence FDI inflows.

The next factor that can attract FDI is information and communication technology. The availability of information and communication technology is an advantage, and it has a positive influence on the inflow of FDI, especially from investors who invest driven by the resource seeking investment motives. Kumari and Sharma (2017) explain that economic growth in ASEAN countries was determined by the availability of technologies. Therefore, developing countries are trying to get more FDI inflows because investors also bring their technologies to host countries, as well as various managerial and marketing skills (Veljanoska *et al.*, 2013). Some benefits of the use of technologies in economic activities are the reduction of production costs and improvements in marketing information, so that production becomes more efficient. Efficiency is one of the investors' reasons to invest because it can reduce investment costs and increase profits (Veljanoska *et al.*, 2013).

The FDI is a source of capital and it becomes a complement for domestic investment and support higher economic growth in host countries (Chowdhury & Wheeler, 2008). For this reason, it is necessary to analyse the factors that influence the inflow of FDI into ASEAN, especially at 7 ASEAN countries, during the period of 2010-2017. After assessing the degree of the influence of these factors, then the right policies can be formulated correctly, and it can lead to increase the flow of FDI, and in the end, the growth and economic development of the ASEAN countries can be achieved. Moreover, the increasing flow of FDI will strengthen the ASEAN's position as main location for the FDI.

2. RESEARCH METHOD

The study employs quantitative model using secondary data and uses panel data regression method. The data are from seven ASEAN countries, i.e., Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam with the period of 2010-2017. In this study, the dependent variable is FDI Inflows, while the independent variables consist of Real GDP as a proxy of market size variables, technology is proxied by the Information and Communication Technology (ICT) Development Index variable, and Road Length as the representation of infrastructure variables. These variables are proxies of resources seeking motives. Trade Openness, Exchange Rate and Corruption Perception Index are the proxies of efficiency seeking motives. The data were obtained from several official websites of international organizations such as the World Bank, UNCTAD, ASEAN Secretariat, Transparency International, International Telecommunication Union.

Table 1. Operational Definition

| Variable | Operational Definition | Source |
|------------------------------------|---|--|
| FDI <i>Inflows</i> | FDI inflows to 7 ASEAN Countries or the number of FDI from foreign investors to 7 ASEAN countries. | UNCTAD |
| Real GDP | Real GDP of the 7 ASEAN countries. The data used is US\$ constant price in 2010. | <i>World Bank</i> |
| <i>Exchange Rate</i> | Exchange Rate is provided by World Bank. The exchange rate is annual data calculated from the average monthly exchange rate in a year (local currency units of 7 ASEAN countries relative to the US\$). | <i>World Bank</i> |
| <i>Trade Openness</i> | The level of economic openness of the 7 ASEAN countries which is the ratio of the sum of exports and imports of goods and services by a country to its Gross Domestic Product. | <i>World Bank</i> |
| <i>ICT Development Index</i> | ICT Development Index is a benchmark of the development of a country's Information and Communication Technology. The ICT Development Index scores are in the 1-10 interval. The value closer of ten indicates that the country's ICT development is getting better, and vice versa. If the value is closer to zero, the country's ICT development is getting worse. | <i>International Telecommunication Union</i> |
| <i>Corruption Perception Index</i> | CPI is an aggregate indicator that combines various sources of corruption so that it becomes a benchmark of perception of corruption in the public sectors by experts and entrepreneurs issued by Transparency International. Where value of 0 means most corrupted and 100 is no corruption. | <i>Transparency International</i> |
| Road Length | The Road Length is the total of all roads in every countries in 7 ASEAN countries. | <i>ASEAN Statistical Yearbook</i> |

Data Analysis Method

The model specification follows the model suggested by Saidi and Hammami (2018). They formulated an economic model as follow:

foreign direct investment = (total population, gross domestic product, economic openness, exchange rate, and transport infrastructures)

Based on previous model, we modify the model by adding a new variable, i.e. corruption index and the next step is to turn the model into a structural model that uses cross-section data as follow:

$$\text{Log FDI}_{it} = \beta_0 + \beta_1 \text{Log GDP}_{it} + \beta_2 \text{Log ER}_{it} + \beta_3 \text{TRADE}_{it} + \beta_4 \text{Log ICT}_{it} + \beta_5 \text{Log CPI}_{it} + \beta_6 \text{Log ROAD}_{it} + \mu_{it} \quad (1)$$

Where:

FDI = FDI Inflows

GDP = Real GDP

ER = Exchange Rate

TRADE = Trade Openness

ICT = ICT Development Index
 CPI = Corruption Perception Index
 ROAD = Length of Roads
 Log = Logarithm
 $\beta_1, \beta_2, \dots, \beta_6$ = regression coefficients,
 i = seven ASEAN countries
 t = year (2010-2017)
 μ = error term

The data panel method consists of three different types, they are, Fixed Effect Model (REM), Random Effect Model (REM) and Common Effect Model (CEM). and the best model is chosen through three tests: Chow test, Lagrange Multiplier test and Hausman test. Figure 2 summarises the tests.

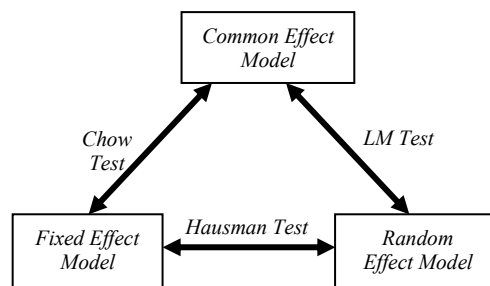


Figure 2. Selection of Best Model

The selection of the best model follows the hypothesis as presented in Table 2. Chow Test selects Common Effect or Fixed Effect as the best model. Hausman test is a test to determine whether Fixed Effect or Random Effect is the best model.. Lagrange multiplier test (LM) is a test to select whether Common Effect or Random Effect model is the best model.

Table 2. the hypotheses of the selection of the best model

| Tests | Hypotheses |
|--------------|--|
| Chow Test | H_0 : Accept CEM if p -value > 0.10 H_1 : Accept FEM if p -value < 0.10 |
| LM Test | H_0 : Accept CEM if p -value > 0.10 H_1 : Accept REM if p -value < 0.10 |
| Hausman Test | H_0 : Accept CEM if p -value > 0.10 H_1 : Accept FEM if p -value < 0.10 |

3. RESULTS AND DISCUSSION

Table 3 presents the result of three test to select the best model. Chow test suggests that FEM is the best model, while Hausman test selects FEM as the best model and LM test indicates that

CEM is the best model. Overall, two test show that FEM is the best model. So, it is concluded that the best model is Fixed Effect Model (FEM).

Table 3. The Result of the Selection of Best Model

| Tests | F-Stat Values | Results |
|-------------------|------------------------------|--|
| Chow Test | 9.145*** | H ₀ is rejected. It means FEM is better than CEM |
| Hausman Test | 15.600** | H ₀ is rejected. It means FEM is better than REM. |
| LM Test | 1.933 | H ₀ is accepted. It means CEM is better than REM |
| Conclusion | FEM is the best model | |

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$

Table 4 shows the data panel estimation result. Real GDP has a positive and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the GDP Real variable is 2.558000. This means that if the real GDP increases by 1%, the FDI Inflows will increase by 2.56% assuming *ceteris paribus*. The result of this study is in line with market seeking investment motives which states that market size in host countries can encourage FDI flow to the host countries. The result is also in line with studies by Botric and Škuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan and Isihak (2018); and Saidi and Hammami (2018). A positive and significant influence between GDP and FDI shows that GDP is one of the main factors influencing FDI flow to a country. Real GDP also reflects the level of consumption and production in a country, so the increase in GDP reflects the increase in demand for goods and services produced by investors. According to Lipsey, Steiner and Purvis (1992), with an increase in Real GDP, foreign investors will add more FDI to increase their production capability in order to meet the increase in demand for goods and services from residents in host countries.

Table 4. Panel Data Estimation Result

| Variables | Fixed Effect |
|-------------------------|--------------|
| Constanta | -9.173590** |
| Log Real GDP | 2.558000*** |
| Log Exchange Rate | -1.253843*** |
| Trade Openness | -0.000926 |
| Log ICT | -0.664510** |
| Log CPI | 0.562707* |
| Log Road Length | -0.653362* |
| R ² | 0.977695 |
| Adjusted R ² | 0.971470 |
| Standard Error | 0.411934 |
| F-Statistic | 157.0670*** |

Note:

*** : significant at $p \leq 0.01$

** : significant at $p \leq 0.05$

* : significant at $p \leq 0.10$

Exchange Rate has a negative and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the Exchange Rate variable is -1.253843. Means that if the Exchange Rate depreciates by 1%, then the FDI Inflows decrease by 1.25% assuming *ceteris paribus*. This study supports previous study by Asiamah, Ofori and Afful (2019). They suggest that the impact of exchange rate depreciation on the lower level of FDI inflows shows that exchange rate is an important path to indicate that the economy can be in risk situation. The effect of the Exchange Rate on FDI Inflows in 7 ASEAN countries is not in line with the efficiency seeking investment motive that the exchange rate shows efficiency in host countries. Depreciation of the local currency will reduce production costs (labour and prices of other input factors). In addition, depreciation of the local currency also reduces the value of assets in the host countries relative in other currencies, including those from the home country FDI, so that investors who seek efficiency in their production will invest more FDI in countries whose currencies are depreciating (Chowdhury & Wheeler, 2008).

Previous studies have stated that Exchange Rate can have a negative or positive effect depend on the purpose of carrying out FDI by investors. When the Exchange Rate has a negative effect on FDI, it means that the appreciation of the domestic exchange rate (the value of the local currency has increased but the nominal has decreased against other countries' currencies) will increase FDI Inflows to that country. From this negative relationship, the purpose of investors doing FDI is to find or meet the needs of the local market. According to Benassy-Quere, Coeure, and Mignon (2006); Chowdhury and Wheeler (2008) and Kilicarslan (2018). Appreciation of the domestic exchange rate will increase the purchasing power of local consumers, so it will increase FDI that enters the country due to the expectation of increased profits that will be obtained by investors from increasing demand for goods.

Conversely, when the goal of investors is to meet the needs of the international market (export oriented), then the appreciation of the local currency will reduce the FDI. Goldberg (2006) explains that the appreciation of the domestic currency in host countries indicates that the price of local labour is more expensive, thus making the prices of products increase, and it makes the products hardly to be sold in international markets and decreasing their competitiveness. So, export-oriented investors will reduce their investment when a country's currency is appreciating. Previous studies that are in line with this study are research conducted by Ezeoha and Cattaneo (2012) and Saidi and Hammami (2018). The results showed a negative and significant effect between Exchange Rate and FDI, explaining that the purpose of carrying out FDI by investors is to search for or meet the needs of the local market rather than to look for international markets or export.

Trade Openness has a negative effect on FDI Inflows in 7 ASEAN countries, but it is not statistically significant. This result is not consistent with previous study by Asongu, Akpan and Isihak (2018) and Sabir, Rafique and Abbas (2019). The result indicates that trade openness is not a factor for foreign investors in conducting FDI in 7 ASEAN Countries. In addition, the negative effect of Trade Openness on FDI Inflows is not in accordance with Dunning's investment motive. Dunning suggests that trade openness is one of the variables that shows the Efficiency Seeking motive, so it will encourage FDI inflows. The greater the economic openness of a country, the greater the potential for FDI to enter the country. Because economic openness in host countries shows that trade barriers are slowly being eliminated, the ease of doing of exports and imports in these countries is an attraction for export oriented investors because it can increase efficiency in production (Hoang, 2012).

ICT Development Index has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 5% (0.05) significance level. The regression coefficient for the ICT Development Index variable is -0.664510. Means that if ICT Development Index variable increases by 1%, then FDI Inflows in 7 ASEAN countries decrease by 0.66% with the assumption of *ceteris paribus*. The negative influence of this study is not in line with Dunning's investment

motives that ICT Development Index indicates that the availability of technology as a resource advantage, will drive FDI Inflows to a country (Goldberg, 2006). The negative impact of the ICT Development Index on the FDI inflows indicates that ICT is not a factor that increases FDI. According to Veljanoska, Axhiu and Husedni (2013), the relationship between ICT and FDI depends on the investment destination. When the investment of the FDI by investors is oriented towards labour-intensive production, then the development of ICT is a main factor that influencing FDI. Meanwhile, investors in ASEAN mostly invest in ASEAN because industries in ASEAN are more labour intensive, where labour prices and other input factors are cheaper. So, the development of ICT in 7 ASEAN countries will reduce the interest of foreign investors. Ismail (2009) also supports the statement of Veljanoska, Axhiu and Husedni (2013) that the flow of FDI to developing countries is more encouraged because of labour-intensive production and low use of technology in its production. While the flow of FDI in developed countries is due to the use of high and modern production technology.

Higher Corruption Perception Index (CPI) has a positive effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% (0.10) significance level. The value of the regression coefficient for the Corruption Perception Index variable is 0.562707. This means that if the Corruption Perception Index increases by 1%, then FDI Inflows will also increase by 0.56% with the assumption of *ceteris paribus*. A positive relationship between CPI and FDI means that if perceptions of corruption index increase, FDI Inflows in 7 ASEAN countries will also increase. The result of this study is consistent with Dunning's investment motives, which stated that CPI is one of the variables that can proxy the Efficiency Seeking investment motive. The results of the study are in line with research by Ismail (2009), Hoang (2012) and Sabir, Rafique and Abbas (2019). CPI indicates efficiency when making investments. The positive influence between CPI and FDI can explain that the eradication of corruption in a country will reduce investment costs, improve the quality of institutions / government, and improve the investment climate. These improvements also improve efficiency. Efficiency is what attracts investors to invest FDI (Hoang, 2012). refer to Wibowo and Indrayanti (2020), tight control of corruption behaviours in a country will also improve the quality of institutions, so that it will reduce political risks when investing and will increase FDI inflows.

Road Length has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% significance level. The regression coefficient for the Road Length variable is -0.653362. Means, if the Road Length increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease of 0.65% with the assumption of *ceteris paribus*. The result of this study is not in line with Dunning Resources Seeking's investment motives which state that the availability of infrastructure including roads in host countries will encourage FDI inflows. A study by Kumari and Sharma (2017) that uses the Electricity Consumption per Capita variable also supports the negative relationship between infrastructure and FDI. Kumari and Sharma (2017) show that Electricity Consumption per Capita has a negative and statistically significant effect on the inflow of FDI in developing countries in South Asia, East Asia and Southeast Asia. Addison and Heshmati (2003) also show that there was a negative influence between the infrastructure proxied by the Number of Telephone of 1000 People on FDI.

The negative influence between Road Length on FDI Inflows shows that road infrastructure still not an important factor in attracting FDI in 7 ASEAN countries even though road infrastructure plays an important role in the smooth running of a country's economic activities. The relationship between Road Length and FDI is negative because the longer a road in a country, the transportation costs will increase, so investors will reduce their investment. In addition, the negative relationship between Road Length and FDI can also be explained by investment motives undertaken by investors in 7 ASEAN countries. FDI are more likely driven by market seeking motives. So, the availability of infrastructure as the proxies of the resource seeking motive is not something that attracting investors to invest FDI in 7 ASEAN countries.

4. CONCLUSIONS

The results of this study show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven more by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources with better quality.

FDI Inflows can provide positive externalities that can drive economic growth, so various policies need to be addressed to increase the FDI Inflows. Therefore, based on the results, it is recommended that Governments in 7 ASEAN countries should: (1) provide various incentives for manufacturing companies in the form of tax reductions and import substitution that can reduce production costs, so it will increase exports, (2) develop and improve the infrastructure other than road and ICT, and (4) introduce more strict regulation that punish corruptors with longer sentence in jail, powerless and economically weak so it can reduce the level of corruption. In addition, Central Bank in 7 ASEAN countries should maintain the conducive macroeconomic conditions through the management of money supply so the exchange rate can stable in long run.

It is important to note that FDI does not only fill the gap between available capital and minimum investment requirement in a host country, but it also transfers technology, organizational and other essential skills. More importantly, the presence of FDI in 7 ASEAN countries will help the effort of reducing poverty and increase overall welfare.

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[JEP] Editor Decision

1 message

Muhammad Anas <journals-noreply@ums.ac.id>
To: "Mr. Andryan Setyadharma" <andryan@mail.unnes.ac.id>

24 June 2021 at 20:05

Dear Dr. Andryan Setyadharma,

We are delighted to inform you that your manuscript has been accepted for publication in our Journal for Volume 22 no. 1 2021. However, please keep in mind that there might still be revisions that you need to do before your paper is ready for publication.

We thank you appreciate your hard work and patience throughout the submission and review process, and we look forward to your future submissions.

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Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi dan Pembangunan
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Determinants of Foreign Direct Investment Inflows in Seven ASEAN Countries During the Period of 2010-2017: Dunning Model Approach

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Abstract

Before the monetary crisis in 1998, ASEAN was one of the main objectives of Foreign Direct Investment (FDI) and after the crisis, FDI inflows in ASEAN were still fluctuating, but tended to slowly increase. However, in 2009, there was a drastic decline in the FDI. The study aims to establish the determinants of FDI Inflows in 7 ASEAN countries in the period of 2010-2017. This study employs quantitative analysis through the Dunning Model Approach. As the technique of analysis, the Panel Data Regression analysis with Fixed Effect Model is used. The results of this study indicate that the Real GDP and Corruption Perception Index have positive and significant effects on FDI Inflows; while Exchange Rate, ICT Development Index and Road Length have negative and significant effects on FDI Inflows. Trade Openness has no effect on FDI Inflows. The results also show that FDI Inflows to the seven ASEAN countries are labour-intensive FDI, low technology FDI, driven by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources overflow with better quality.

Keywords: Foreign Direct Investment, ASEAN, Dunning Model

JEL classification: C51, E22, F21, F34

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1. Introduction

Undeniably, developing countries need more capital inflows, including in the form of foreign direct investment (FDI), to accelerate economic growth and to boost economic growth (Kumari and Sharma, 2017). Increase in investment will increase gross domestic product (GDP) and in the end, increase in GDP will cause economic growth. Investment could be a source of economic growth because investment can increase sources of capital through investment and taxes, creating jobs and also spill over effects such as transfer of skills, technology, managerial expertise and

corporate governance practices (Asongu, Akpan, Isihak, 2018).

The best investment option is chosen by the investors so that the return on investment remains same or even increases. One alternative investment chosen by these investors is investing in FDI. Azam and Lukman (2010) argue that the decision of the inflow of investments into a country cannot be separated from the risks that exist in host country. The decision to invest in a country is subject to the conditions of economic, political and social of the targeted country (Alam & Shah, 2013). Investment in FDI helps foreign

investors to diversify risks and shocks in host countries. From investors' perspective, economic risks in some countries need to be handled wisely, otherwise, investors will select other countries to minimize the risks.

Before the monetary crisis in 1998, ASEAN was one of the main destinations for the inflow of FDI, but FDI to ASEAN Countries started to fall in 1998, where FDI decreased to US\$ 20,926 million in comparison to 1997 and in 2000 it decreased again to US\$ 21,751 million. The monetary crisis causes ASEAN countries into risky places for FDI because the ASEAN economies were experiencing a significant collapse. After the 1998 monetary crisis, ASEAN FDI inflows were still fluctuating, but tended to slowly increase. However, in 2009, there was a drastic decline in ASEAN FDI inflows and the drastic decline was started in 2008 where there was a Supreme Mortgage crisis in the US and spread out to other countries.

Although there were a significant amount of FDI that entered to ASEAN, the percentage of ASEAN FDI was only 8.38% compared to world FDI in 1995 and continued to decline due to the monetary crisis in 1998. As shown in Figure 1, the percentage of FDI in ASEAN to the global FDI touched the lowest figure or equivalent to 1.60% after the crisis in 2001. Then, the percentage increased again to reach 11.46% in 2018.

According to Dunning (1988), there are three main characteristics of foreign investors in investing their capital. These three characteristics

are commonly called The OLI Paradigm, which is (1) Ownership Advantage, which means that the company has specific technology or skills that can make a company superior to other companies; (2) Location Advantage, that is the capacity of companies to operate their businesses better because they have good locations than another or the location-specific advantages, but this advantage is available to all investors. Finally, (3) Internalization Advantage, the ability of companies to avoid disadvantage or capitalization of natural resources (imperfect market information) that can hamper competition. The decision to invest in a country is then based on various considerations such as the economic, political system, and socio-cultural characteristics of the host country.

Dunning also explained that there are three reasons that motivate investors to invest FDI in host countries. First, Resource Seeking in which investors make investments in other countries that have input or production factors with better qualities, and lower prices when compared to factors of production in their countries or other countries. Second, Market Seeking in which investors invest because they try to find new markets or maintain old markets. Third, Efficiency Seeking in which the aims of an investment is to get more benefit from the availability and lower production costs and benefit from the size of the market in the host country as well as to achieve efficiency in production (Dunning & Lundan, 2008, pp.67-69).

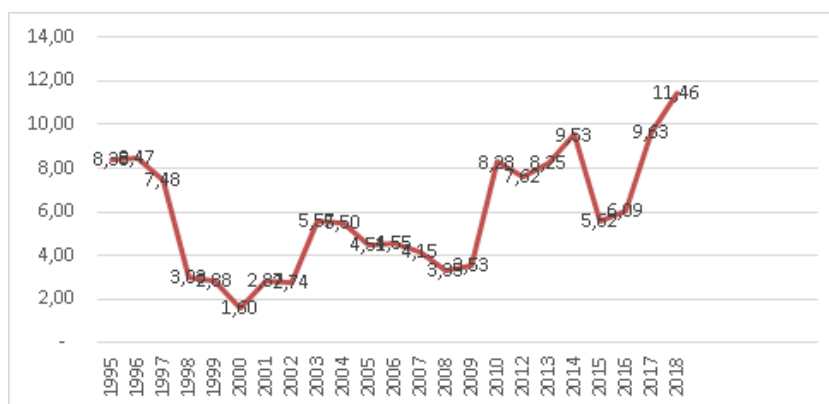


Figure 1. Percentage of ASEAN FDI against Global FDI

Source: UNCTAD (2019)

Based on three motives above, several economics variables are considered as the factors that influence the inflow of FDI into a country. One of the variables is market size, which can be proxied by real GDP. GDP is a measure that calculates the total market value of goods and services produced by a country in a given period. GDP also reflects the purchasing power of local resident in host countries (Tsen, 2005). An increase in GDP will increase the demand for goods and services supplied by producers. As the GDP increases, FDI flows into the country also become greater. This condition is supported by research of Botric and Škuffic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan, and Isihak (2018); and Saidi and Hammami (2018). Their results show that GDP has a positive and significant effect on FDI.

Another economic factor that is considered to determine the FDI inflow to a country is exchange rate. Exchange rate is used as a variable that proxy the investment motive for Efficiency Seeking. According to Chowdhury and Wheeler (2008), export-oriented investors will relatively invest FDI in countries with traditionally have weak exchange rates. Depreciation of the local currency will reduce production costs (labour prices and prices of other input factors of production) in foreign investors' views, thereby causing FDI with seeking efficiency in production motives to flow more in the countries. In addition, depreciation in the value of local currencies also reduces the value of assets in host countries relative to other currencies, including those from the home country of the FDI. But if the FDI investors' objectives are to find or meet the needs of the local market, they will find countries with strong exchange rates. When a country's currency appreciates, this indicates an increase in consumer purchasing power so that it will increase FDI that enters the country due to the expectation of increase profits to be gained by investors from increasing demand for goods (Bénassy-quéré et al., 2006; Chowdhury & Wheeler, 2008; Kiliçarslan, 2018).

Trade openness is also considered as a variable that can affect FDI. Previous studies use the ratio between trade (export plus import) to GDP as a measure that shows the level of a

country's economic openness. Trade openness is not only important for export, but also for import, because there are many investors require intermediary input that are imported from other countries. Higher levels of trade openness provide new investment opportunities and strengthen relations between domestic markets and international markets (Kumari & Sharma, 2017). Trade openness can be used as a proxy of the investment motives for efficiency seeking. Investors choose to invest FDI in countries with high levels of trade openness because high trade openness also means that trade barriers for goods from host countries are low. This becomes an opportunity for export-oriented investors because they can take advantage of the comparative advantage of host countries to export back to their home country and increase exports.

Institutional factor such as corruption also increases investment risk which becomes an additional cost for investors in investing their capital, causing inefficient allocations in the market and resources (Sasana & Fathoni, 2019). Corruption can hamper domestic investment and foreign direct investment. Foreign investors are less interested to invest in corrupt countries because corruption creates inefficiencies in investors' operational activities. Corruption is counted as a political risk. Hence, the high level of corruption in a country will increase investment costs for foreign investors. The increase in costs arises from payments or bribes made by investors for politicians or officials to get business contracts, or making bribes to officials for licenses, construction permits, tax payments, investor protection, and several other indicators related to ease of doing business in a country (Al-Sadig, 2009).

Research conducted by Canare (2017) shows that corruption tends to reduce FDI Inflows that enter to a country. Whereas countries with low levels of corruption receive more FDI. Corruption Perception Index (CPI) is an indicator that shows the perception of corruption of the public sectors according to experts and entrepreneurs. Low CPI score means high level of corruption and high CPI score means low level of corruption. So, with a higher CPI, there is higher probability of FDI

Inflows to increase into a country. Therefore, the Corruption Perception Index can be used to determine the amount of FDI flow to a country (Harrison, 2012).

UNCTAD (1999) explains that as the consequence of globalization and economic integration, the role of market size in the host countries is decreasing. At the same time, differences in production costs between locations, quality of infrastructure, ease of doing business, and availability of skills are becoming increasingly important. Refer to Kumari and Sharma (2017), the availability of good infrastructure is one of the drivers for the inflow of FDI into a country. Infrastructure is a priority for investors when making investments because it shows business operations in host country are more efficient. Goldberg (2006) also explains that the availability of infrastructure in host countries is a benefit for investors who invest FDI with resource seeking motives.

Saidi and Hammami (2018) argue that transportation infrastructure including roads create a major contribution to economic growth and affect economic activities. Roads as logistics infrastructure has an important role in terms of connectivity between producers and consumers. Roads can increase efficiency and productivity, thereby increasing company competitiveness. The quality and availability of transportation infrastructure such as airports, roads and public transportation in host countries are factors that influence decision making for foreign investors when making investments. A good access for logistics movement and good infrastructure quality are conditions that supports FDI and in the end, they will influence FDI inflows.

The next factor that can attract FDI is information and communication technology. The availability of information and communication technology is an advantage, and it has a positive influence on the inflow of FDI, especially from investors who invest driven by the resource seeking investment motives. Kumari and Sharma (2017) explain that economic growth in ASEAN countries was determined by the availability of technologies. Therefore, developing countries are trying to get more FDI inflows because investors

also bring their technologies to host countries, as well as various managerial and marketing skills (Veljanoska *et al.*, 2013). Some benefits of the use of technologies in economic activities are the reduction of production costs and improvements in marketing information, so that production becomes more efficient. Efficiency is one of the investors' reasons to invest because it can reduce investment costs and increase profits (Veljanoska *et al.*, 2013).

The FDI is a source of capital and it becomes a complement for domestic investment and support higher economic growth in host countries (Chowdhury & Wheeler, 2008). For this reason, it is necessary to analyse the factors that influence the inflow of FDI into ASEAN, especially at 7 ASEAN countries, during the period of 2010-2017. After assessing the degree of the influence of these factors, then the right policies can be formulated correctly, and it can lead to increase the flow of FDI, and in the end, the growth and economic development of the ASEAN countries can be achieved. Moreover, the increasing flow of FDI will strengthen the ASEAN's position as main location for the FDI.

2. Research Method

The study employs quantitative model using secondary data and uses panel data regression method. The data are from seven ASEAN countries, i.e., Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam with the period of 2010-2017. In this study, the dependent variable is FDI Inflows, while the independent variables consist of Real GDP as a proxy of market size variables, technology is proxied by the Information and Communication Technology (ICT) Development Index variable, and Road Length as the representation of infrastructure variables. These variables are proxies of resources seeking motives. Trade Openness, Exchange Rate and Corruption Perception Index are the proxies of efficiency seeking motives. The data were obtained from several official websites of international organizations such as the World Bank, UNCTAD, ASEAN Secretariat, Transparency International, International Telecommunication Union.

Table 1. Operational Definition

| Variable | Operational Definition | Source |
|------------------------------------|---|---------------------------------------|
| FDI <i>Inflows</i> | FDI inflows to 7 ASEAN Countries or the number of FDI from foreign investors to 7 ASEAN countries. | UNCTAD |
| Real GDP | Real GDP of the 7 ASEAN countries. The data used is US\$ constant price in 2010. | World Bank |
| <i>Exchange Rate</i> | Exchange Rate is provided by World Bank. The exchange rate is annual data calculated from the average monthly exchange rate in a year (local currency units of 7 ASEAN countries relative to the US\$). | World Bank |
| <i>Trade Openness</i> | The level of economic openness of the 7 ASEAN countries which is the ratio of the sum of exports and imports of goods and services by a country to its Gross Domestic Product. | World Bank |
| <i>ICT Development Index</i> | ICT Development Index is a benchmark of the development of a country's Information and Communication Technology. The ICT Development Index scores are in the 1-10 interval. The value closer of ten indicates that the country's ICT development is getting better, and vice versa. If the value is closer to zero, the country's ICT development is getting worse. | International Telecommunication Union |
| <i>Corruption Perception Index</i> | CPI is an aggregate indicator that combines various sources of corruption so that it becomes a benchmark of perception of corruption in the public sectors by experts and entrepreneurs issued by Transparency International. Where value of 0 means most corrupted and 100 is no corruption. | Transparency International |
| Road Length | The Road Length is the total of all roads in every countries in 7 ASEAN countries. | ASEAN Statistical Yearbook |

Data Analysis Method

The model specification follows the model suggested by Saidi and Hammami (2018). They formulated an economic model as follow:

foreign direct investment = (total population, gross domestic product, economic openness, exchange rate, and transport infrastructures)

Based on previous model, we modify the model by adding a new variable, i.e. corruption index and the next step is to turn the model into a structural model that uses cross-section data as follow:

$$\text{Log FDI}_{it} = \beta_0 + \beta_1 \text{Log GDP}_{it} + \beta_2 \text{Log ER}_{it} + \beta_3 \text{Log TRADE}_{it} + \beta_4 \text{Log ICT}_{it} + \beta_5 \text{Log CPI}_{it} + \beta_6 \text{Log ROAD}_{it} + \mu_{it} \quad (1)$$

Where:

FDI = FDI Inflows

- GDP = Real GDP
- ER = Exchange Rate
- TRADE = Trade Openness
- ICT = ICT Development Index
- CPI = Corruption Perception Index
- ROAD = Length of Roads
- Log = Logarithm
- $\beta_1, \beta_2, \dots, \beta_6$ = regression coefficients,
- i = seven ASEAN countries
- t = year (2010-2017)
- μ = error term

The data panel method consists of three different types, they are, Fixed Effect Model (REM), Random Effect Model (REM) and Common Effect Model (CEM). and the best model is chosen through three tests: Chow test, Lagrange Multiplier test and Hausman test. Figure 2 summarises the tests.

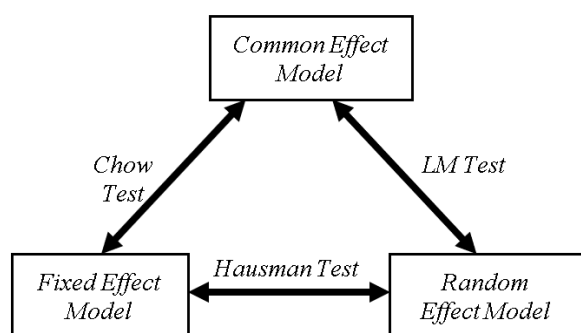


Figure 2. Selection of Best Model

The selection of the best model follows the hypothesis as presented in Table 2. Chow Test selects Common Effect or Fixed Effect as the best model. Hausman test is a test to determine whether Fixed Effect or Random Effect is the best model. Lagrange multiplier test (LM) is a test to select whether Common Effect or Random Effect model is the best model.

Table 2. the hypotheses of the selection of the best model

| Tests | Hypotheses |
|--------------|--------------------------------------|
| Chow Test | H_0 : Accept CEM if p-value > 0.10 |
| | H_1 : Accept FEM if p-value < 0.10 |
| LM Test | H_0 : Accept CEM if p-value > 0.10 |
| | H_1 : Accept REM if p-value < 0.10 |
| Hausman Test | H_0 : Accept CEM if p-value > 0.10 |
| | H_1 : Accept FEM if p-value < 0.10 |

3. Results and Discussion

Table 3 presents the result of three test to select the best model. Chow test suggests that

FEM is the best model, while Hausman test selects FEM as the best model and LM test indicates that CEM is the best model. Overall, two test show that FEM is the best model. So, it is concluded that the best model is Fixed Effect Model (FEM).

Table 4 shows the data panel estimation result. Real GDP has a positive and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the GDP Real variable is 2.558000. This means that if the real GDP increases by 1%, the FDI Inflows will increase by 2.56% assuming *ceteris paribus*. The result of this study is in line with market seeking investment motives which states that market size in host countries can encourage FDI flow to the host countries. The result is also in line with studies by Botric and Škuflic (2006); Hoang (2012); Adhikary (2017); Asongu, Akpan and Isihak (2018); and Saidi and Hammami (2018). A positive and significant influence between GDP and FDI shows that GDP is one of the main factors influencing FDI flow to a country. Real GDP also reflects the level of consumption and production in a country, so the increase in GDP reflects the increase in demand for goods and services produced by investors. According to Lipsey, Steiner and Purvis (1992), with an increase in Real GDP, foreign investors will add more FDI to increase their production capability in order to meet the increase in demand for goods and services from residents in host countries.

Table 3. The Result of the Selection of Best Model

| Tests | F-Stat Values | Results |
|-------------------|------------------------------|---|
| Chow Test | 9.145*** | H_0 is rejected. It means FEM is better than CEM |
| Hausman Test | 15.600** | H_0 is rejected. It means FEM is better than REM. |
| LM Test | 1.933 | H_0 is accepted. It means CEM is better than REM |
| Conclusion | FEM is the best model | |

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$

Table 4. Panel Data Estimation Result

| Variables | Fixed Effect |
|--------------------------|--------------|
| Constanta | -9.173590** |
| Log Real GDP | 2.558000*** |
| Log <i>Exchange Rate</i> | -1.253843*** |
| <i>Trade Openness</i> | -0.000926 |
| Log ICT | -0.664510** |
| Log CPI | 0.562707* |
| Log Road Length | -0.653362* |
| R ² | 0.977695 |
| Adjusted R ² | 0.971470 |
| Standard <i>Error</i> | 0.411934 |
| F-Statistic | 157.0670*** |

Note:

*** : significant at $p \leq 0.01$

** : significant at $p \leq 0.05$

* : significant at $p \leq 0.10$

Exchange Rate has a negative and significant effect on FDI Inflows in 7 ASEAN countries at a significance level of 1% (0.01). The regression coefficient value of the Exchange Rate variable is -1.253843. Means that if the Exchange Rate depreciates by 1%, then the FDI Inflows decrease by 1.25% assuming *ceteris paribus*. This study supports previous study by Asiamah, Ofori and Afful (2019). They suggest that the impact of exchange rate depreciation on the lower level of FDI inflows shows that exchange rate is an important path to indicate that the economy can be in risk situation. The effect of the Exchange Rate on FDI Inflows in 7 ASEAN countries is not in line with the efficiency seeking investment motive that the exchange rate shows efficiency in host countries. Depreciation of the local currency will reduce production costs (labour and prices of other input factors). In addition, depreciation of the local currency also reduces the value of assets in the host countries relative in other currencies, including those from the home country FDI, so that investors who seek efficiency in their production will invest more FDI in countries whose currencies are depreciating (Chowdhury & Wheeler, 2008).

Previous studies have stated that Exchange Rate can have a negative or positive effect depend

on the purpose of carrying out FDI by investors. When the Exchange Rate has a negative effect on FDI, it means that the appreciation of the domestic exchange rate (the value of the local currency has increased but the nominal has decreased against other countries' currencies) will increase FDI Inflows to that country. From this negative relationship, the purpose of investors doing FDI is to find or meet the needs of the local market. According to Benassy-Quere, Coeure, and Mignon (2006); Chowdhury and Wheeler (2008) and Kilicarslan (2018). Appreciation of the domestic exchange rate will increase the purchasing power of local consumers, so it will increase FDI that enters the country due to the expectation of increased profits that will be obtained by investors from increasing demand for goods.

Conversely, when the goal of investors is to meet the needs of the international market (export oriented), then the appreciation of the local currency will reduce the FDI. Goldberg (2006) explains that the appreciation of the domestic currency in host countries indicates that the price of local labour is more expensive, thus making the prices of products increase, and it makes the products hardly to be sold in international markets and decreasing their competitiveness. So, export-oriented investors

will reduce their investment when a country's currency is appreciating. Previous studies that are in line with this study are research conducted by Ezeoha and Cattaneo (2012) and Saidi and Hammami (2018). The results showed a negative and significant effect between Exchange Rate and FDI, explaining that the purpose of carrying out FDI by investors is to search for or meet the needs of the local market rather than to look for international markets or export.

Trade Openness has a negative effect on FDI Inflows in 7 ASEAN countries, but it is not statistically significant. This result is not consistent with previous study by Asongu, Akpan and Isihak (2018) and Sabir, Rafique and Abbas (2019). The result indicates that trade openness is not a factor for foreign investors in conducting FDI in 7 ASEAN Countries. In addition, the negative effect of Trade Openness on FDI Inflows is not in accordance with Dunning's investment motive. Dunning suggests that trade openness is one of the variables that shows the Efficiency Seeking motive, so it will encourage FDI inflows. The greater the economic openness of a country, the greater the potential for FDI to enter the country. Because economic openness in host countries shows that trade barriers are slowly being eliminated, the ease of doing of exports and imports in these countries is an attraction for export oriented investors because it can increase efficiency in production (Hoang, 2012).

ICT Development Index has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 5% (0.05) significance level. The regression coefficient for the ICT Development Index variable is -0.664510. Means that if ICT Development Index variable increases by 1%, then FDI Inflows in 7 ASEAN countries decrease by 0.66% with the assumption of *ceteris paribus*. The negative influence of this study is not in line with Dunning's investment motives that ICT Development Index indicates that the availability of technology as a resource advantage, will drive FDI Inflows to a country (Goldberg, 2006). The negative impact of the ICT Development Index on the FDI inflows indicates that ICT is not a factor that increases FDI. According to Veljanoska, Axhiu and

Husedni (2013), the relationship between ICT and FDI depends on the investment destination. When the investment of the FDI by investors is oriented towards labour-intensive production, then the development of ICT is a main factor that influencing FDI. Meanwhile, investors in ASEAN mostly invest in ASEAN because industries in ASEAN are more labour intensive, where labour prices and other input factors are cheaper. So, the development of ICT in 7 ASEAN countries will reduce the interest of foreign investors. Ismail (2009) also supports the statement of Veljanoska, Axhiu and Husedni (2013) that the flow of FDI to developing countries is more encouraged because of labour-intensive production and low use of technology in its production. While the flow of FDI in developed countries is due to the use of high and modern production technology.

Higher Corruption Perception Index (CPI) has a positive effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% (0.10) significance level. The value of the regression coefficient for the Corruption Perception Index variable is 0.562707. This means that if the Corruption Perception Index increases by 1%, then FDI Inflows will also increase by 0.56% with the assumption of *ceteris paribus*. A positive relationship between CPI and FDI means that if perceptions of corruption index increase, FDI Inflows in 7 ASEAN countries will also increase. The result of this study is consistent with Dunning's investment motives, which stated that CPI is one of the variables that can proxy the Efficiency Seeking investment motive. The results of the study are in line with research by Ismail (2009), Hoang (2012) and Sabir, Rafique and Abbas (2019). CPI indicates efficiency when making investments. The positive influence between CPI and FDI can explain that the eradication of corruption in a country will reduce investment costs, improve the quality of institutions / government, and improve the investment climate. These improvements also improve efficiency. Efficiency is what attracts investors to invest FDI (Hoang, 2012). refer to Wibowo and Indrayanti (2020), tight control of corruption behaviours in a country will also improve the quality of institutions, so that it will

reduce political risks when investing and will increase FDI inflows.

Road Length has a negative effect on FDI Inflows in 7 ASEAN countries and statistically significant at the 10% significance level. The regression coefficient for the Road Length variable is -0.653362. Means, if the Road Length increases by 1%, then FDI Inflows in 7 ASEAN countries will decrease of 0.65% with the assumption of *ceteris paribus*. The result of this study is not in line with Dunning Resources Seeking's investment motives which state that the availability of infrastructure including roads in host countries will encourage FDI inflows. A study by Kumari and Sharma (2017) that uses the Electricity Consumption per Capita variable also supports the negative relationship between infrastructure and FDI. Kumari and Sharma (2017) show that Electricity Consumption per Capita has a negative and statistically significant effect on the inflow of FDI in developing countries in South Asia, East Asia and Southeast Asia. Addison and Heshmati (2003) also show that there was a negative influence between the infrastructure proxied by the Number of Telephone of 1000 People on FDI.

The negative influence between Road Length on FDI Inflows shows that road infrastructure still not an important factor in attracting FDI in 7 ASEAN countries even though road infrastructure plays an important role in the smooth running of a country's economic activities. The relationship between Road Length and FDI is negative because the longer a road in a country, the transportation costs will increase, so investors will reduce their investment. In addition, the negative relationship between Road Length and FDI can also be explained by investment motives undertaken by investors in 7 ASEAN countries. FDI are more likely driven by market seeking motives. So, the availability of infrastructure as the proxies of the resource seeking motive is not something that attracting investors to invest FDI in 7 ASEAN countries.

4. Conclusions

The results of this study show that FDI Inflows to the 7 ASEAN countries are labour-intensive FDI, low technology FDI, driven more

by market seeking investment motives and fulfil the needs of the local market, not export-oriented FDI and seeking profit from resources with the availability of resources with better quality.

FDI Inflows can provide positive externalities that can drive economic growth, so various policies need to be addressed to increase the FDI Inflows. Therefore, based on the results, it is recommended that Governments in 7 ASEAN countries should: (1) provide various incentives for manufacturing companies in the form of tax reductions and import substitution that can reduce production costs, so it will increase exports, (2) develop and improve the infrastructure other than road and ICT, and (4) introduce more strict regulation that punish corruptors with longer sentence in jail, powerless and economically weak so it can reduce the level of corruption. In addition, Central Bank in 7 ASEAN countries should maintain the conducive macroeconomic conditions through the management of money supply so the exchange rate can stable in long run.

It is important to note that FDI does not only fill the gap between available capital and minimum investment requirement in a host country, but it also transfers technology, organizational and other essential skills. More importantly, the presence of FDI in 7 ASEAN countries will help the effort of reducing poverty and increase overall welfare.

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