

Determinants of Foreign Direct Investment in ASEAN

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Abstract

This study aims to analyze the factors determine foreign direct investment in ASEAN consists of 10 countries (Indonesia, Myanmar, Laos, Philippines, Vietnam, Brunei, Brunei Darussalam, Singapore, Malaysia and Thailand), period 2000-2016. The data analysis method is panel data regression with fixed effect models using variables of market size, human capital, domestic investment and the level of corruption. From the estimation results found that the factors of market size, human capital, domestic investment and the level of corruption together have a significant effect on FDI. Individual market size has a positive and significant effect, human capital has a positive and significant effect, domestic investment has a positive and significant effect, the level of corruption has a negative and significant effect, with a significance level of five percent on FDI.

Keywords: ASEAN, FDI, market size, human capital, domestic investment, level of corruption.

Introduction

Along with the increasingly open cooperation between countries globally in various fields, ASEAN has conducted economic, trade and investment activities with the countries of the world's large economies. ASEAN region majority of developing countries have limited funds to finance their own economic development. If it is not supported by large capital, it will hamper the planned development process. To cover the shortfall in development costs, the government needs investment from the domestic and the private sector.

One type of potential investment has an impact on the development and economic development of a region, namely Foreign Direct Investment (FDI). FDI has a crucial role in the success of economic integration in the ASEAN region. In addition to capital inflows, foreign exchange rates, easier access to international markets and technology transfer, FDI can be an instrument in strengthening institutions and creating a more stable business environment (Plummer, 2007).

Based on data released by the world bank, FDI growth rates fluctuated and tended to decline in ASEAN countries from 2012 to 2016. As in 2015, the Philippines decreased by 0.09 percent and Cambodia decreased by 0.88 percent if compared to the previous year. Then in 2016 in Indonesia decreased by 1.81 percent, Myanmar decreased by 1.66 percent, Laos decreased by 3.57 percent, Thailand decreased by 1.48 percent and Brunei decreased by -1.32 percent when compared with the previous year. Only Singapore has a growth rate of FDI that continues to increase every year in the period 2012-2015.

The choice of investors in making their investments is influenced by the conditions of the factors that attract the FDI recipient countries. A number of factors determine the amount of FDI flowing into the host country, including market size, human capital, domestic investment, and the level of corruption. In this case a region needs to create a climate that is conducive to FDI by taking into account the conditions of the influencing factors, which are the main support for attracting FDI flows.

This research is based on several theories such as macro level theory that focuses on identifying what factors determine the level of FDI that occurs in a country. Factors included in the macro level theory category are market size, economic growth, exchange rates and other factors (Accoley, 2005).

Another theory is that the market size theory states that the amount of FDI flow into a host country is determined by the market size of the country. The size of the market size is measured based on GDP (Gross Domestic Product) or based on output from multinational companies (Cahyono, 2013). Nelson-Phelps' human capital theory states that a country can easily absorb innovative ideas and new technologies developed or introduced by FDI players, when the country has a stock of human capital that is not only large in number but also expert and educated (Adhikary, 2017).

Signal theory, which explains the effect of domestic investment on FDI. Where the increased level of domestic investment is seen as an indication of high capital returns, thus producing a signaling effect for foreign companies and stimulating an increase in FDI flows (Lautier & Moreaub, 2012). Corruption Tolerable Level of Investment Theory, This theory states that corruption has a negative impact on FDI at the level of poor institutional quality. This theoretical model shows that there are several levels of corruption in the host country that can be tolerated by investors, if the level of corruption of a country has the potential to be detrimental, then foreign investors are likely to avoid problems by attracting FDI flows (Abotsi, 2016).

Based on the theory of foreign direct investment, research is conducted to determine the effect of independent variables on the dependent variables individually and simultaneously, then the hypothesis of this study can be written as follows:

1. Market size, human capital, domestic investment, and the level of corruption significantly influence foreign direct investment in ASEAN.
2. Market size, human capital, domestic investment, and the level of corruption simultaneously have a significant effect on foreign direct investment in ASEAN.

Methods

In this study used balance panels data, where the number of time units is the same for each individual. The study was conducted in official ASEAN member countries consisting of 10 countries, namely Indonesia, Myanmar, Laos, the Philippines, Vietnam, Cambodia, Brunei Darussalam, Singapore, Malaysia and Thailand. Data for all variables in this study began from 2000 until 2016 sourced from the World Bank and Transparency International.

The specifications of this research model can be written in the form of an equation as follows :

$$Y_{it} = \alpha_0 + \alpha_1 X_{1it} + \alpha_2 X_{2it} + \alpha_3 X_{3it} + \alpha_4 X_{4it} + \varepsilon_{it} \quad (1)$$

Where Y_{it} is foreign direct investment country i in period t , X_{1it} is market size country i in period t , X_{2it} is human capital country i in period t , X_{3it} is domestic investment country i in period t , X_{4it} is level of corruption country i pada period t , α is regression coefficient and ε_{it} is error term.

The Operational Definitions of the Variables used in this research are:

1. Foreign Direct Investment (Y) is the ratio of FDI inflow to GDP to ASEAN Countries from 2000 to 2016, in percent.
2. Market Size (X1) is measured by real GDP growth based on constant 2010 prices in ASEAN countries from 2000 to 2016 in units of percent.
3. Human Capital (X2) is measured by the ratio of secondary school enrollments in ASEAN countries from 2000 to 2016 and expressed in percent units.
4. Domestic Investment (X3) is measured by the ratio of gross fixed capital to GDP in ASEAN countries from 2000 to 2016 in percentage units.
5. Corruption Level (X4) is the level of corruption in a country as measured by the Corruption Perception Index (CPI), where if the value approaches 0 = corrupt and if the value approaches 100 = corruption free. Data on ASEAN Countries from 2000 to 2016.

Results and Discussion

Based on the results of the chow and hausman test, the Chi-square probability of 0.0000 is smaller than the probability $\alpha = 0.05$ so that the Fixed Effect model is the right model to use in this study. The value of the correlation matrix between the independent variables used is smaller than 0.8, so it is concluded that there is no multicollinearity problem in the panel data regression model used.

Detecting heteroscedasticity disturbance in the estimation model was carried out using the residual diagnostics heteroscedasticity test. From the test results there are no independent variables whose probability values are below the significant value $\alpha = 0.05$, it can be concluded that there is non heteroscedasticity.

Table 1. Estimation Results Fixed Effect Model

Dependent Variable: Y
 Method: Panel Least Squares
 Date: 05/15/19 Time: 06:21
 Sample: 2000 2016
 Periods included: 17
 Cross-sections included: 10
 Total panel (balanced) observations: 170

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.309299	1.860509	-1.241219	0.2164
X1	0.306166	0.084079	3.641399	0.0004
X2	0.112765	0.020044	5.625794	0.0000
X3	0.102834	0.042066	2.444606	0.0156
X4	-0.128849	0.053056	-2.428566	0.0163

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.830427	Mean dependent var	4.988882
Adjusted R-squared	0.816295	S.D. dependent var	5.558909
S.E. of regression	2.382591	Akaike info criterion	4.653018
Sum squared resid	885.5715	Schwarz criterion	4.911260
Log likelihood	-381.5065	Hannan-Quinn criter.	4.757809
F-statistic	58.76580	Durbin-Watson stat	1.524674
Prob(F-statistic)	0.000000		

Based on Table 1 the panel data regression results obtained by the following research model equation

$$Y_{it} = \alpha_0 + \alpha_1 X_{1it} + \alpha_2 X_{2it} + \alpha_3 X_{3it} + \alpha_4 X_{4it} + \epsilon_{it} \tag{2}$$

$$Y_{it} = -2.309 + 0.306X_{1it} + 0.112X_{2it} + 0.102X_{3it} - 0.128X_{4it} + \epsilon_{it} \tag{3}$$

The constant value obtained is -2.309 which means that without the influence of independent variables namely Market Size (X1), Human Capital (X2), Domestic Investment (X3), and Corruption Level (X4), the value of the dependent variable is Foreign Direct Investment (Y) in ASEAN of -2.309. In other words the dependent variable has a value that is so low because it is not influenced by the independent variables in this study.

Market size has a positive and significant effect on foreign direct investment in ASEAN. Where the regression coefficient value is 0.306 with a probability value of 0.0004 smaller than the probability. $\alpha = 0.05$. The estimation results are relevant to research from Demirhan dan Masca (2008), Xaypanya *et al.* (2014), Elfakhani dan Mackie (2015), Stack *et al.* (2017). Human capital has a positive and significant effect on foreign direct investment in ASEAN. Where the regression coefficient value is 0.112 with a probability value of 0.0000 smaller than the probability $\alpha = 0.05$. The estimation results are relevant to research from Hoang dan Bui (2014), Karimi *et al.* (2013), Hakro dan Ghumro (2011), Adhikary dan Mengistu (2008).

Domestic investment has a positive and significant effect on foreign direct investment in ASEAN. Where the regression coefficient value of 0.102 with a probability value of 0.0156 is smaller than the probability $\alpha = 0.05$. The estimation results are relevant to research from Kok and Ersoy (2009), Lautier and Moreaub (2012), Ndikumana and Verick (2008). The level of corruption has a positive and significant effect on foreign direct investment in ASEAN. The regression coefficient value of 0.102 with a probability value of 0.0156 is smaller than the probability $\alpha = 0.05$. The estimation results are relevant to research from Amarandei (2013), Brada *et al.* (2018), Godinez dan Liu (2014), Gossel (2018). While the probability value of F-statistics is 0.0000 smaller than the value of $\alpha = 0.05$, which means that together or simultaneously Market Size, Human Capital, Domestic Investment, and Corruption Levels have a significant effect on foreign direct investment in ASEAN.

Conclusions

Market size has a positive and significant effect on $\alpha = 0.05$ on foreign direct investment in ASEAN. Therefore a stable market size growth needs to be maintained to attract FDI flow. The policy that can be done is fiscal policy, especially government spending that is efficient and on target will encourage productive business activities which can then affect GDP growth as a country's market size.

Human capital has a positive and significant effect on $\alpha = 0.05$ on foreign direct investment in ASEAN. Therefore human capital as one of the determinants of FDI must be increased not only from quantity but also quality, policies that can be taken such as improving the quality and relevance of education, so that a country will have skilled and competitive human capital.

Domestic investment has a positive and significant effect at $\alpha = 0.05$ on foreign direct investment in ASEAN. Therefore domestic investment must also have a stable growth climate to attract FDI flows, by implementing policies such as government and private investment that is focused on infrastructure development that supports the production of goods and services.

The level of corruption has a negative and significant effect on $\alpha = 0.05$ on foreign direct investment in ASEAN. Therefore the level of corruption must be controlled and minimized so that it does not become a limiting factor for FDI flows. The policy that can be done is a one-stop investment licensing service system so that it is easy to control, fast and transparent. Thus avoiding investors from losses, due to additional unnecessary transaction costs.

Market size, human capital, domestic investment and the level of corruption together have a significant effect on $\alpha = 0.05$ on foreign direct investment in ASEAN countries. It can be concluded that the combination of the four variables can affect the flow of FDI in ASEAN.

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