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RESEARCH ARTICLE

THE EFFECT OF CORRUPTION PERCEPTION INDEX ON DIRECT FOREIGN INVESTMENT IN ASEAN DURING 2008-2018 PERIOD

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Abstract

Foreign direct investment is the largest source of external funds in both developed and developing countries. Some literature explains that one of the barriers to investment flow is corruption. Thus, this study aims to determine the effect of corruption as measured by the corruption perception index on foreign direct investment. Corruption is a political risk that affects the flow of foreign direct investment. The estimation results of the Generalized Method of Moment (GMM) show that the corruption perception index has a significant positive effect on foreign direct investment. The author also uses market seeking and efficiency seeking variables as potential factors that influence investors to direct foreign direct investment.

Key words: corruption, investment, ASEAN, Generalized Method of Moment

1 | INTRODUCTION

Corruption or abuse of authority has become a widespread concern throughout the world (Beekman et al, 2014) and it routinely occurs in international business activities. Corruption not only destroys the political order, but also destroys economic activity. Corruption is widely regarded as part of the shadow economy which is a critical obstacle to promoting growth and development. The United Nations notes that every year around US\$ 2.6 trillion GDP disappears or 5% of global GDP (UNCTAD, 2019).

Corruption is a non-economic factor that also influences the flow of foreign direct investment in ASEAN as measured by the corruption perception index (Ismail, 2009). Mauro (1995) states that corruption affects investment which ultimately hampers economic growth and development. Lambsdorff (2003) also points out the direct impact of corruption on investment capital flows. Even the World Economic Forum (2019) claims corruption as the main factor inhibiting investment which reaches the highest score among 16 other factors. Whereas foreign direct investment is the largest source of external funds in both developed and developing countries.

Foreign direct investment flows tend to enter the market in countries that have a stable political system, while the political stability of a country is influenced by adequate economic development, institutional development and political participation. These three variables are interrelated in creating political stability (Sanit, 2002: 2). Poor governance in an institution or agency can increase the probability of corruption. This causes inefficiency which ultimately hinders economic progress so that investors must rethink their investment decisions. The indicator of political stability as measured by corruption control shows a significant positive influence

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on foreign direct investment in the Asia-Pacific region (Canare, 2017). Foreign direct investment in ASEAN is also influenced by political stability which is reflected in the quality of institutions (Masron & Naseem, 2017). In the end, a country that upholds anti-corruption and good governance has the main principle of achieving smooth business, ensuring sustainable peace and security, thereby creating sustainable economic growth.

The total of foreign direct investment received by ASEAN is very large, reaching US$ 201.98 billion compared to developing countries in American continent which only reached US$ 17.78 billion. Seeing the importance of foreign direct investment for the growth of a country, however, it is faced with the risk of corruption which becomes a barrier to the entry of foreign direct investment. The average ASEAN corruption perception index in 2018 scored below 50 percent, but foreign direct investment entering ASEAN was very high compared to other developing countries. Several developing countries in America (Uruguay, Barbados, Chile, Bahmas, Dominica, Costarica and others) with a corruption perception index score above 50 get the opposite result, namely getting less foreign direct investment than ASEAN. This is an imbalance between the theory of the influence of corruption on foreign direct investment, which raises questions about the influence of corruption in developing countries, especially in the ASEAN region itself. The explanation of this phenomenon can be concluded in that the formulation and purpose of this study is to determine the effect of the corruption perception index on foreign direct investment in ASEAN for the 2008-2018 period.

2 | LITERATURE REVIEW

2.1 | Investment

Investment is actually the addition of new capital goods (Rosyidi, 2009: 185). Investments are affected by interest rates. An increase in interest rates will result in a decrease in investment (Blanchard & Johnson, 2013: 91). The interest rate used by investors in making investments is the real interest rate. While, the real interest rate is the interest rate that has been corrected by the inflation rate (Mankiw,

2010: 94). The relationship between investment and real interest rates is explained in the following equations and curves:

Source: Mankiw (2010)
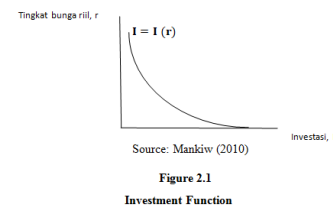
Figure 2.1
Investment Function

Figure 2.1 shows that investment is influenced by interest rates. The investment function has a downward sloping curve, meaning that when interest rates rise, the amount of investment will decrease. Investors will bear the burden of higher interest returns when there is an increase in interest rates so that investors will not invest. Moreover, the IS curve in the goods market implies that investment is equal saving. The company's investment will be in line with public and government savings. On the other hand, saving and consumption decisions are influenced by income. GDP per capita is a proxy for income that will indirectly affect investment.

2.2 | Foreign Direct Investment

Foreign direct investment is the transfer of capital flows followed by the transfer of ownership and control status. Foreign direct investment is the purchase of productive assets such as the purchase or construction of a factory, land, buildings and equipment. This purchase implies a full transfer of ownership of a company due to foreign direct investment (Brada & Perez, 2019). The form of international capital flow that is considered the most instrumental in a country's economic growth is foreign direct investment.

The motive for the occurrence of foreign direct investment is divided into two patterns, namely direct foreign investment vertical integration and horizontal integration (Ramondo, 2011). Horizontal integration aims at market seeking and vertical integration aims at efficiency seeking (Beugelsdijk et al, 2007). *Market seeking* on horizontal integration explains that investors always try to expand and maintain market reach. Market seeking is usually associated with market size, per capita income, population and market structure (Appleyard & Field, 2014: 242). *Efficiency seeking* on vertical integration refers that each country has a comparative

advantage that can improve the company's operational efficiency so that it is chosen as a location for foreign direct investment. Helpman (1984) suggests that differences in production costs such as labor relocating to wages are determinants of foreign direct investment. *Efficiency seeking* is linked to costs of natural resources, human capital, and a country's membership in regional integration (Appleyard & Field, 2014: 234).

2.3 | Institutional and Development Theory

According to Acemoglu & Robinson (2012), the main factor of a country trapped in poverty is influenced by the role of political institutions or institutional arrangements. Acemoglu & Robinson (2012) also divide the characteristics of political institutions and economic institutions into two kinds: **inclusive** and **extractive**. Countries will succeed in achieving prosperity when implementing or having inclusive political and economic institutions. The theory of political institutions and inclusive economic institutions leads to how the state guarantees private ownership (property) and encourages entrepreneurship (markets), as well as the active role of community members (civil society) in determining government policies (government). Inclusive or open political and economic institutions will provide opportunities for the creation of new businesses and investments so as to encourage economic growth and achieve prosperity.

Extractive political and economic institutions lead to an unfair political system because a closed system causes the market to not develop effectively and in the long run will have an impact on failure to achieve prosperity. Extractive political and economic systems are dominated by acts of authoritarianism, corruption, nepotism and collusion. Some of these actions are risks that are avoided by business people, especially investors who want to develop their business through investment.

Corruption in general is the use of public office for personal gain in various forms (World Bank, 2015). Corruption will describe the risks that arise when an economic system works. Corruption is considered as one of the critical obstacles to a growth, development and creation of social welfare. This is due to the fact that corruption creates its own deliberate incentives (*high cost*) that can only be enjoyed by the government as perpetrators of corruption (Sharma & Mitra, 2015).

Inclusive political and economic institutions reflect a stable political system. Acts of corruption, collusion, and nepotism increasingly push the political and economic system towards extractives and encourage political instability which can lead to reduced investment flows. Political stability is an illustration of the control by state or local government institutions over the political system so that it runs smoothly and stably.

3 | MODELS AND METHODS

This study uses a quantitative approach and dynamic panel data. The estimation method used is the Generalized Method of Moment (GMM) because it can minimize bias, overcome endogeneity and eliminate inconsistent results due to the use of static panel data methods.

3.1 | Empirical Model

$$\ln FDI_{it} = \beta_0 + \beta_1 FDI_{it-1} + \beta_2 IPK_{it} + \beta_3 r_{it} + \beta_4 \ln GDPperCapt_{it} + \beta_5 \ln Pop_{it} + \beta_6 Humancap_{it} + \varepsilon_{it} \tag{3.1}$$

Wher $\ln FDI_{it}$ is the total foreign direct investment in ASEAN FDI_{it-1} is the total foreign direct investment in ASEAN period t-1, IPK_{it} is the corruption perception index, r_{it} is the real interest rate, $\ln GDPperCapt_{it}$ is GDP per capita, $Humancap_{it}$ is human capital as measured by total advanced education, $\ln Pop_{it}$ is the total population, $\beta_1, ..., \beta_6$ is the coefficient 1st, ..., 6th regression, $i = 1, 2, ..., 6$ are countries in ASEAN, and is the esearch period (2008-2018).

3.2 | Variable Operational Definition

1.Foreign Direct Investment

This study uses data on total foreign direct investment that entered ASEAN during 2008-2018 in US$ billion.

2.Corruption Perception Index

The corruption perception index is a measure of the public's perception of corruption by public officials expressed in percent (%), on a scale of 0-100.

This study uses data on the level of corruption as measured from the Corruption Perception Index in ASEAN during 2008-2018.

3.Real Interest Rate

The real interest rate is the nominal interest rate that has been adjusted for the inflation rate. Real interest rates describe the concept of return on investment activities. This study uses data on real interest rates in ASEAN during 2008-2018 expressed in percent (%).

4.GDP Per Capita

GDP per capita is the level of income received by each resident in the production process. GDP per capita is used as a measure of market size in measuring market share and purchasing power. This study uses GDP per capita data in ASEAN during 2008-2018 in US$ billion

5.Population

Population is a group of people who live in a certain area. This population is related to the attractiveness of investors to highly populated ASEAN as labor provider in production activities. In this study, population data refers to the number of people living in ASEAN consisting of Indonesia, Cambodia, Malaysia, Thailand, the Philippines and Vietnam during 2008-2018 with units of million.

6.Human Capital

Human capital is a combination of knowledge and skills of a human person as a description of the ability that can be used as an asset in carrying out economic activities. In this study, human capital uses data on the total percentage of people with advanced graduates, which is equivalent to the diploma, bachelor, master and doctoral levels in ASEAN in 2008-2018 with units of percent (%).

3.3 | Types and Sources of Data

This study uses cross section data from ASEAN-6 countries, namely Indonesia, Cambodia, Malaysia, Thailand, the Philippines and Vietnam. The time series data starts from 2008-2018. This research utilizes secondary data which can be summarized as follows

Foreign direct investmentdata fromThe corruption perception index data from Real interest rates data from GDP per capita data from Total population data from Human capital

4 | RESULTS AND DISCUSSION

4.1 | Research Analysis Results

The following is the estimation result of each variable using the Generalized Method of Moment (GMM):

Table 4.2
GMM Estimation Results

Variable	GMM System	
	Coefficient	Prob > z
Lag FDI (lnFDI)	0.3788879	0.012*
Corruption Perception Index (IPK)	0.0457843	0.051***
Real Interest Rate (SukuBunga)	-0.1750791	0.000*
GDP per capita (lnGDPperCapt)	0.1092387	0.694
Population (lnPop)	0.7023344	0.000*
Human capital	-0.0306519	0.069***

(HumanCap)	
AR (2)	0.881
Sargan Test of Overid. Restrictions	0.992
Sargan test GMM	0.583
Difference GMM	0.966
Sargan Test iv	0.946
Difference iv	0.521
Prob F	0.000

Source: Author estimation

4.1.1 | Specification Test Results

The results of the GMM estimation in table 4.2 show that the p-value of the *Sargan Test of Overid* is 0.992, meaning that the model used is valid because the p-value is above the 1%, 5% and 10% significance levels. Meanwhile, the p-value of the *Sargan test* GMM is 0.583, the p-value of *Difference* GMM is 0.966, the p-value of *Sargan Test* iv is 0.946 and the p-value of *Difference* iv is 0.521. This makes it clear that H_0 is accepted and the model used is valid because the p-values of the four statistics are above the 1%, 5% and 10% significance levels.

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4.1.2 | Autocorrelation Test Results

Autocorrelation test is conducted by looking at the value of the z-statistical distribution of Arellano Bond or AR (2). H_0 states that there is no autocorrelation between variables with a significance level above 1%, 5% and 10%. The value of the z-statistical distribution of Arellano Bond or AR (2) in table 4.2 shows a value of 0.881 so that accepted H_0 shows no autocorrelation between variables in the model.

4.1.3 | Partial Test Results (t-test)

The following is the p-value of each independent variable based on the GMM regression results in table 4.2

1. Dependent variable lag shown by $lnfdi$ has a p-value of 0.012 which is significant at the 5% level. This explains that the model is dynamic because there is a correlation or influence between years $t-1$ on years t.

2. The corruption perception index variable that measures the level of corruption in table 4.2 shows a p-value of 0.051 with a coefficient value of 0.0457843. This indicates that the p-value is significant at a significance level of 10% therefore Ho is rejected. This means that the corruption perception index has a positive effect on foreign direct investment

3. The real interest rate variable in table 4.2 shows a p-value of 0.000 with a coefficient value of -0.1750791. This indicates that the p-value is significant at a significance level of 1%, 5% and 10% therefore Ho is rejected. This means that real interest rates have a negative effect on foreign direct investment

4. The GDP per capita variable in table 4.2 shows a p-value of 0.694 with a coefficient value of 0.1092387. This indicates that the p-value is not significant at a significance level of 1%, 5%, therefore Ho is accepted. This means that GDP per capita has no effect on foreign direct investment

5. The population variable in table 4.2 shows a p-value of 0.000. This indicates that the p-value is significant at a significance level of 1%, 5%, and 10%, therefore Ho is rejected. This means that the population has a positive effect on foreign direct investment

6. The human capital variable in table 4.2 shows a p-value of 0.069 with a coefficient value of -0.0306519. This indicates that the p-value is significant at a significance level of 10%, therefore Ho is rejected. This means that human capital has a negative effect on foreign direct investment

4.1.4 | Simultaneous Test Results (Prob>F)

Table 4.2 shows that the Prob F value is 0.000. This indicates that H_0 is rejected with a significance level of 1%. Thus it can be concluded that all independent variables together have an influence on the dependent variable

4.2 | Discussion of Research Analysis Results

The GMM estimation results in table 4.2 show that the corruption perception index as a measure of the level of corruption has a positive influence on foreign direct investment in the ASEAN region. Investors prioritize the corruption perception index as a measure of the country's level of corruption when choosing where to invest.

The estimation results of the corruption perception index which show a positive relationship to foreign direct investment in ASEAN are in line with the research of Ngoc et al (2017). Corruption will cause losses for investors when they do not have experience dealing with countries that have relatively high levels of corruption. The disadvantage of corruption is the creation of uncertainty in various spheres of the economy. The level of uncertainty is related to production costs that are prone to risk of adding large amounts in accordance with the policies of each country receiving foreign direct investment flows

Habib & Zurawicki (2002) are in line with the results of this study which states that the corruption perception index has a significant positive effect on foreign direct investment. This means that corruption is a barrier to foreign direct investment. Investors deliberately avoid countries with high levels of corruption because investors will face difficulties in business management, high risk and high costs.

Canare's research (2017) supports that corruption has a negative effect on foreign direct investment in the Asia Pacific region, which in turn has an impact on the growth and economic development of a country. Countries with low levels of corruption will receive more foreign direct investment flows. A control on corrupt acts by several parties has a positive impact on the flow of foreign direct investment. This is because stronger control will reduce the level of corruption that can occur in a country. Another reason is investors do not only invest by paying attention

to the low level of corruption in a country but also by paying attention to the steps taken by local governments to prevent and combat corruption. Canare's research (2017) is in line with research by Habib & Zurawicki (2002) that corruption poses enormous additional risks and costs.

The estimation results support the Grabbing Hand theory (Shleifer & Vishny, 1998) which explains that corruption is considered as sand in the wheels. This means that acts of corruption will create additional costs in a business or production process. This additional cost arises when investors want to invest or set up their company in the country concerned. Investors are required to pay a certain amount of money to obtain license fees, business establishment permits, business protection, and even to avoid a complicated tax collection system. Basically, the estimation results of the corruption perception index in this study are in line with several previous studies that have been mentioned in the previous chapter.

The result of the second estimation is that real interest rates show that real interest rates have a significant negative effect on foreign direct investment in ASEAN. This finding supports Keynes's theory that real interest rates have a negative correlation with the rate of return on investment and the response by foreign direct investment also has the opposite effect (Mankiw, 2010).

Real interest rates are an effective signal for investors in their investment decisions. When interest rates are high, investment will decrease. This is due to an increase in interest rates will make the cost of repaying loans higher, thus preventing investors from carrying out the production process.

The estimation results of market seeking variables (GDP per capita and total population) show different results for foreign direct investment. The GDP per capita variable, which is a macroeconomic variable, shows no effect on foreign direct investment in ASEAN. According to Barassi & Zhou (2012), when only the GDP per capita variable is used to measure market size, the result will be insignificant towards foreign direct investment.

Statistically, it can be seen that there is a gap between GDP per capita and foreign direct investment. The average GDP per capita obtained by ASEAN is only US\$ 2,000-8000 while foreign direct invest-

ment entering ASEAN reaches US\$ 10-80 billion. Therefore, it is possible that GDP per capita cannot influence foreign direct investment. The conclusion is that GDP per capita is not necessarily used as a reference for investors to invest. Foreign direct investment will continue to flow into ASEAN even though the proportion of GDP per capita owned by ASEAN has increased or decreased.

The population variable has a significant positive correlation with foreign direct investment in ASEAN. The higher population is able to encourage the flow of foreign direct investment into a country. A high population provides a high number of labor force as well. The large population has the opportunity to drive economic growth. In accordance with the growth theory of Adam Smith and Solow that an abundant amount of the labor force can increase productivity as an input to the production process (Romer, 1990).

Most investors in ASEAN are developing in the manufacturing sector. This sector tends to be labor intensive. Labor-intensive system is the use of labor in large numbers in a production process. The labor-intensive principle aims to maximize the majority of program costs on unskilled and semi-skilled labor without compromising the quality of the products produced (McCutcheon, 1989). The availability of the workforce which is described by the number of residents is the motive for investors to determine the location of investment, especially foreign direct investment (Seetanah & Rojid, 2011). This proves that foreign direct investment continues to flow to ASEAN, where most of the population is of the productive age to work.

According to Asongu (2015) population growth affects investment caused by the tendency to consume. When the proportion of the population increases, it creates a higher proportion of consumption so that the demand for consumption increases. This encourages a larger scale of production and requires funds in its development. Therefore, investment will enter at the same time there is an opportunity for investors or companies to obtain higher profitability.

The increasing number of population which is in line with the increasing tendency to consume is the advantage of a country that describes the market size.

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When the population increases and the level of consumption increases, the market size becomes bigger and bigger. As a result, an area becomes a market destination for investors to market their products.

The next estimation result is the human capital variable which has a significant negative effect on foreign direct investment in ASEAN. Human capital in this study is measured by advanced education which is equivalent to tertiary enrollment. The estimation results support the research of Dutta et al (2017) that tertiary education has a negative effect on foreign direct investment. This is in accordance with the fact that the higher a person's education, the more aware they are of the law and have control over the public. They will avoid acts of corruption, collusion and nepotism while these activities also have a positive effect on foreign direct investment. Consequently, the increase in education is in line with the decrease in foreign direct investment.

The research of Dutta et al (2017) showed that the results of human capital as measured by primary and secondary enrollment showed significant positive results. These results identify that the investment location selection factor is based on vertical integration, namely the efficiency seeking motive. Communities with primary and secondary enrollment qualifications on average have low wages so that production costs are more efficient. Low worker wages encourage foreign direct investment to increase (Jiang et al, 2001).

5 | CONCLUSION

This study focuses on the analysis of political (non-economic), macroeconomic and development factors as determinants of foreign direct investment flows. The GMM method is used to show the time correlation as a determinant of foreign direct investment. The results shows that corruption perception index and population have a significant positive effect. However, real interest rates and human capital have a significant negative effect, while GDP per capita has no significant effect on foreign direct investment in ASEAN for the 2008-2018 period.

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