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## The Impact of Interest Rate, Corruption Perception Index, and Economic Growth on Foreign Direct Investment in ASEAN-6

### Abstract

Foreign Direct Investment (FDI) becomes an economic indicator that drives economic development in developing countries. These countries need to identify some urgent indicators that attract FDI inflows. The interest rate policy is expected to become an effective instrument. This research analyzed the impact of economic growth, interest rate, and CPI on FDI in ASEAN-6 in 2004-2016. ASEAN-6 were six of ASEAN member countries: Indonesia, Singapore, Malaysia, Thailand, Philippines, and Vietnam. The secondary data was collected from the reports of the World Bank, UNCTAD and Transparency International. This research used panel data with Fixed Effect Model (FEM). This research concluded that economic growth and interest rate had a positive and significant impact on FDI while CPI had a negative and significant impact on FDI. The recommendation of this research was the governments of ASEAN-6 maintain domestic economy to attract FDI. The domestic economy reflected by economic growth and interest rate. In addition, the governments need to improve the governance of FDI through the empowerment of anti-corruption institution.

**Keywords:** Corruption Perception Index; Economic Growth; Foreign Direct Investment; Fixed Effect Model; Interest Rate

**JEL Classification:** E22, E43

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### Abstrak

Foreign Direct Investment (FDI) menjadi sebuah indikator yang mendorong pembangunan ekonomi di negara berkembang. Mereka memerlukan identifikasi beberapa indikator penting yang menarik FDI inflows. Kebijakan tingkat bunga diharapkan menjadi sebuah instrumen yang efektif. Penelitian ini menganalisis pengaruh pertumbuhan ekonomi, tingkat bunga, dan CPI terhadap FDI di ASEAN-6 tahun 2004-2016. ASEAN-6 adalah negara-negara anggota ASEAN meliputi Indonesia, Singapura, Malaysia, Thailand, Filipina, dan Vietnam. Data sekunder diperoleh dari the World Bank, UNCTAD, dan Transparansi Internasional. Metode penelitian menggunakan data panel dengan Fixed Effect Model (FEM). Kesimpulan penelitian ini adalah pertumbuhan ekonomi dan tingkat bunga berpengaruh positif dan signifikan terhadap FDI sedangkan CPI berpengaruh negatif dan signifikan terhadap FDI. Rekomendasi penelitian ini meliputi pemerintah ASEAN-6 sebaiknya menjaga tingkat perekonomian domestik untuk menarik FDI. Perekonomian domestik digambarkan oleh pertumbuhan ekonomi dan tingkat bunga. Selain itu, pemerintah-pemerintah tersebut perlu memperbaiki tatakelola FDI melalui penguatan institusi anti-korupsi.

**Kata Kunci:** Corruption Perception Index; Pertumbuhan Ekonomi; Foreign Direct Investment; Fixed Effect Model; Tingkat Bunga

Investment is used to drive the domestic economy both in developed and developing countries. It can be done through direct investment or indirect investment. Direct investment is employed in the real sector while indirect investment is invested in the stock (financial) market. In addition, direct investment has a long-term contract while indirect investment has a short-term contract.

Sudarsono (2008) argued that developed countries, especially OIC, cannot satisfactorily attract FDI to the domestic economy. It means that these countries need to promote domestic economic indicators as well as stimulate FDI inflows. Budijanto & Rachman (2010) found that international trade had causal (relationship) with FDI. It indicates that the government, especially in developing countries, can increase export value and transaction.

Azam (2011) stated that the developing countries should keep economic and political stability, infrastructure availability, peace and security, and increase international trade as these measures can be used to promote FDI inflows from developed countries. Furthermore, Freckleton, Wright, & Craigwell (2012) found that FDI had a significant impact on economic growth while the level of corruption might also affect FDI inflow. In addition, the theory of investment can refer to Krugman, Obstfeld, & Melitz (2014).

Juanda & Mahyuddin (2009) and Gürsoy, Sekreter, & Kalyoncu (2013) examined the impact of economic growth on FDI. Juanda & Mahyuddin (2009) found that economic growth both in the domestic economy and foreign economy can promote FDI inflows in Indonesia. Furthermore, Gürsoy, Sekreter, & Kalyoncu (2013) explained that FDI had a causal relationship with economic growth.

The empirical research on the impact of interest rate on FDI was conducted by Cavallari & d'Addona (2013) and Siddiqui & Aumeboonsuke (2014). Cavallari & d'Addona (2013) argued that interest rate (T-Bill or interbank rate) volatility could determine FDI. In addition, Siddiqui & Aumeboon-

suke (2014) found that interest rate had a negative and significant impact on FDI.

Quazi (2014) and Hossain (2016) argued that corruption had impact on FDI. Quazi (2014) suggested that governments should reduce the level of corruption and create a healthy economic environment to attract FDI. Furthermore, Hossain (2016) recommended that governments should reinforce the anti-corruption institution.

Several empirical studies that have been conducted so far tend to focus on the effect of economic growth and interest rates on FDI. Several other studies have tried to include the influence of the corruption index on FDI. Thus, the combination of economic and non-economic factors that influences FDI has not been the main focus of these studies. For this reason, this study combines economic factors such as economic growth and interest rates and non-economic factors with a proxy for corruption indices that may influence FDI in ASEAN-6. This research will focus on the impact of economic growth, interest rate, and corruption perception index on FDI in ASEAN-6 in 2004-2016. This study aims to examine: (1) the impact of interest rate on FDI; (2) the impact of corruption perception index on FDI; and (3) the impact of economic growth on FDI.

Figure 1 illustrates the development of FDI in ASEAN-6 from 2006-2014. In general, the development of FDI tended to fluctuate but with an increasing trend. The value of FDI was between US\$18.5 million and US\$25 million. This indicates that FDI is an important economic indicator for the domestic economy in ASEAN.

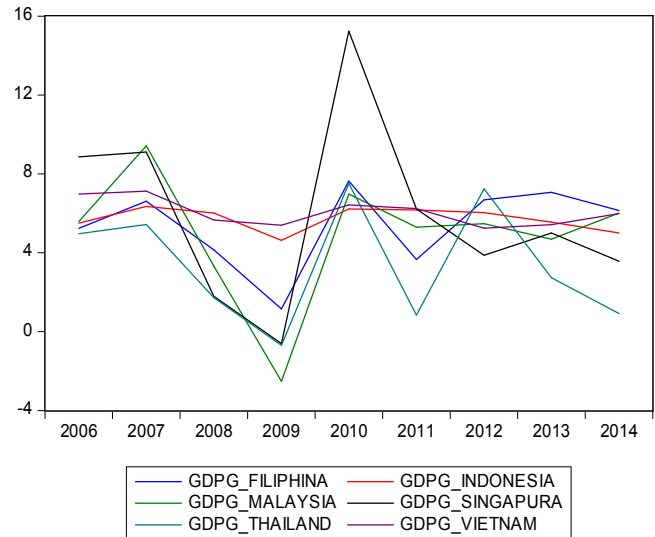
Figure 2 shows the development of CPI in ASEAN-6 from 2006 to 2014 as published by the Transparency International. In this final period, the value of CPI is measured using a scale between 10 and 100. The value of 10 indicates the worst level of corruption while the value of 100 the best level of corruption. It means that the higher value of corruption index shows a lower level of corruption in a country.

**The Impact of Interest Rate, Corruption Perception Index, and Economic Growth on Foreign Direct Investment in ASEAN-6**

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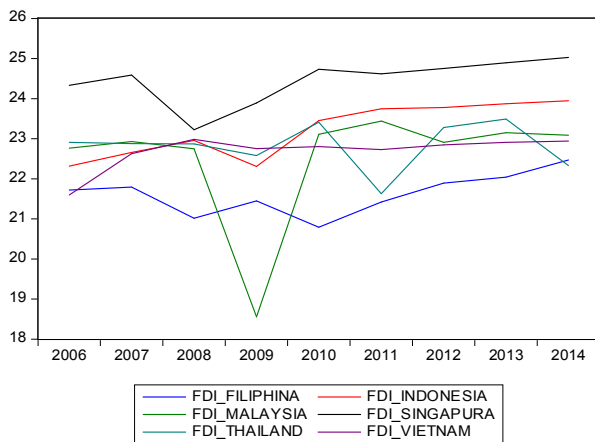
Figure 3 displays the development of economic growth in ASEAN-6 from 2006 to 2014. The economic growth rate tended to fluctuate. Some ASEAN countries tended to have declining economic growth. In 2006-2014 the economic growth rate of ASEAN-6 countries was between -3 percent and 15 percent.

The development of the real interest rate in ASEAN-6 from 2006-2014 can be seen in Figure 4. It can be seen that the real interest rate in ASEAN-6 was fluctuating. The lowest real interest rate was -6 percent while the highest level of the real interest rate was 10 percent.



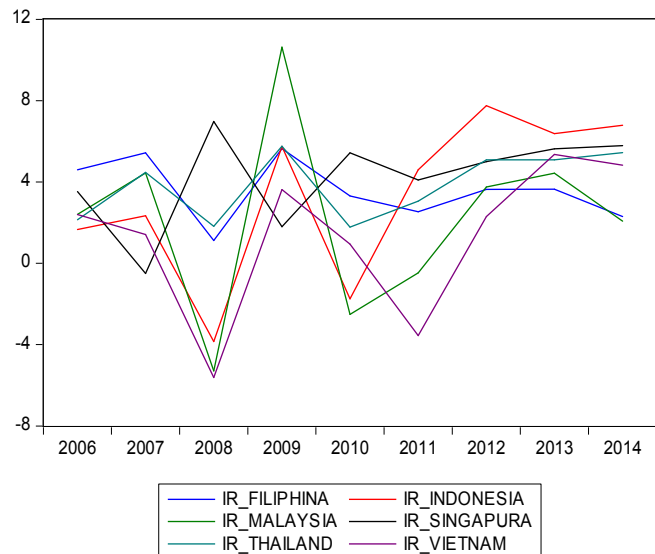
**Figure 3.** Economic Growth in ASEAN-6, 2006-2014 (%)

Source: The World Bank ([www.worldbank.org](http://www.worldbank.org))



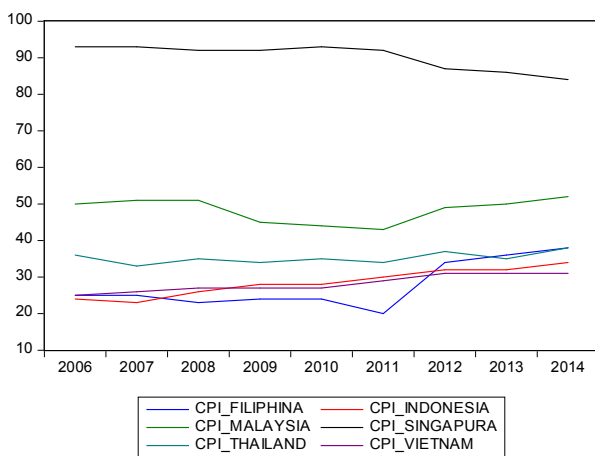
**Figure 1.** FDI in ASEAN-6, 2006-2014 (Million US\$)

Source: UNCTAD ([www.unctad.org](http://www.unctad.org))



**Figure 4.** Real Interest Rate in ASEAN-6, 2006-2014 (%)

Source: The World Bank ([www.worldbank.org](http://www.worldbank.org))



**Figure 2.** Corruption Perception Index (CPI) in ASEAN-6, 2006-2014 (Index)

Source: Transparency International ([www.transparency.org](http://www.transparency.org))

This paper was divided into seven parts, namely; introduction, method, result, discussion, conclusion, and policy implication, acknowledgment, and reference. The contribution of this research was expected to support the government of ASEAN-6 in order to promote FDI inflows through interest rate policy, anti-corruption regime, and in-

clusive economic growth. Furthermore, the expected result of this research is interest rate, corruption perception index, and the economic growth impact on FDI significantly.

## METHODS

This research used secondary data collected from UNCTAD ([unctad.org](http://unctad.org)), the World Bank ([www.worldbank.org](http://www.worldbank.org)), and Transparency International ([www.transparency.org](http://www.transparency.org)). These data include Foreign Direct Investment (FDI), economic growth, Real Interest Rates (RIR), and Corruption Perception Index (CPI) in ASEAN-6. ASEAN-6 is six member countries of ASEAN; Indonesia, Malaysia, Singapore, Thailand, Philippines, and Vietnam. The research used data from 2004-2016, with the total number of observations reaching about 78 observation. This research used Panel Data with Fixed Effect Model (FEM). Gujarati & Porter (2009) explained that "panel data such as collected data (time series collection and cross-section observation), a combination of time series and cross-section data, micro panel data, longitudinal data, event history analysis, and cohort analysis." The Framework of the panel data model can be found on Appendix 1 page.

Some researchers conclude that GDP (economic growth) and interest rate have a significant impact on FDI (Malik & Malik, 2013; Febriana & Muqorrobin, 2014; Anwar, Kuswanto, & Dewi, 2016). The equation of this research is as follow:

$$FDI_{it} = \alpha + \beta_1 RIR_{it} + \beta_2 CPI_{it} + \beta_3 GGDP_{it} + \varepsilon_{it} \quad (1)$$

FDI is net FDI inflows in a million USD. RIR is the real interest rate in percentage (%). Meanwhile, GGDP is economic growth in percentage (%). All variables were collected from the World Bank and UNCTAD reports. Furthermore, CPI is corruption perception index that was collected from Transparency International. The  $\alpha$  is constant of the panel

while  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are coefficients of independent variables. The values of  $\beta$ s are ( $\beta_1 < 0$ ;  $\beta_2 < 0$ ; and  $\beta_3 > 0$ ). The "i" is ASEAN-6 (Indonesia, Singapore, Malaysia, Thailand, Philippines, and Vietnam) while the "t" is the period (2004-2016). Furthermore, the  $\varepsilon$  is error term of a panel.

The panel estimation model in equation (1) will be done in the form of lag 1 to identify the effect of lag variable and panel robustness. Thus, equation (1) becomes as follows:

$$FDI_{i,t-1} = \alpha + \beta_1 RIR_{i,t-1} + \beta_2 CPI_{i,t-1} + \beta_3 GGDP_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

The panel equation estimation (2) will use the fixed effects at the time (period). RIR is a decision variable for investors to allocate investment to a country. Meanwhile, the CPI shows the management and appropriacy of financial utilization in a country for business activities. The higher the CPI value, the lower the level of corruption, and vice versa. Furthermore, GGDP is a capacity or economic measure of ASEAN-6 countries as investment destinations for all investors in the world. This means that the greater GGDP will encourage an increase in FDI inflows.

## RESULTS

The first step of panel data analysis is using Chow, Hausman, and Lagrange Multiplier tests. These tests will help determine the best model of panel data, namely; common effects model (CEM), fixed effects model (FEM), and random effects model (REM).

Table 1 describes the result of a fixed effects model based on equation 1. The result indicates that FDI in ASEAN-6 was impacted by CPI and GDP growth. Meanwhile, the RIR was not impacted to FDI. Furthermore, the value of the coefficient estimation of C, RIR, and GDP growth tend to small. The next step tries to estimate the equation 2.

Table 2 shows the result of FEM on determinant factors of FDI in ASEAN-6 in 2004-2016 based on equation 2. It can be seen that C (constant) showed no impact on FDI. The value of C coefficient was 1.371366. Meanwhile, RIR showed a positive and significant impact on FDI in ASEAN-6. It means that investors decide RIR as a factor to invest in ASEAN countries. The positive impact of RIR on FDI becomes an instrument to design monetary and investment policy. Furthermore, the governments of ASEAN-6 should evaluate this result to maintain and promote FDI inflow to the domestic economy.

CPI as an indicator of corruption has a negative and significant impact on FDI in ASEAN-6. It becomes a warning signal for the governments of ASEAN countries that investors have a prudent decision to invest in ASEAN. Therefore, the governments should create the lowest level of corrup-

tion (highest value of CPI) through reinforcement of anti-corruption institution.

Economic growth (GGDP) showed a positive and significant impact on FDI in ASEAN-6. It means that investors decide to invest in ASEAN-6 based on macroeconomic indicators. Furthermore, the governments of ASEAN-6 should stabilize the domestic economy because such stability will stimulate FDI inflows.

The Adjusted R<sup>2</sup> value is 0.77803, which means that dependent variable variation (FDI) is explained by all independent variable variation (RIR, CPI, and GGDP). Meanwhile, the value of F statistics indicates that all independent variables have an impact on FDI in ASEAN-6. It means that the result of FEM estimation can describe the effect of RIR, CPI and economic growth in order to stimulate FDI in ASEAN-6.

**Table 1.** Fixed Effects Result (Equation 1)

Variables	Coefficient	Standard Error	t-statistics
C	-0.0000000000000008	0.0000000000000015	-5.196591*
RIR ?	0.000000000000000459	0.00000000000000186	0.246854
CPI ?	1.000000	0.000000000000000598	16700*
GGDP?	0.00000000000000018	0.000000000000000226	7.969603*
R <sup>2</sup>	1.000000	Adjusted R <sup>2</sup>	1.000000
F-statistics	187000000*	Prob.	0.00000

Note: dependent variable is FDI; \* sig. at  $\alpha = 1\%$ ; \*\*sig. at  $\alpha = 5\%$ ; \*\*\*sig. at  $\alpha = 10\%$

**Table 2.** Fixed Effects Result (Equation 2)

Variables	Coefficient	Standard Error	t-statistics
C	1.371366	1.387586	0.988311
RIR (-1)	0.288215	0.174628	1.65045***
CPI (-1)	-0.37652	0.213663	-1.76224***
GGDP (-1)	0.938034	0.057148	16.41408*
R <sup>2</sup>	0.821271	Adj. R <sup>2</sup>	0.77803
F-statistics	18.99295*	Prob.	0.00000

Note: dependent variable is FDI; \* sig. at  $\alpha = 1\%$ ; \*\*sig. at  $\alpha = 5\%$ ; \*\*\*sig. at  $\alpha = 10\%$

## DISCUSSION

Interest rate significantly impacts on FDI because it can attract FDI inflows. However, the influence is positive. This positive sign should be a warning signal for economic policymakers that increasing FDI inflows is determined by an increase in RIR. The governments of ASEAN-6 should offer and conduct interest rate policy that attracts FDI inflows. Some empirical studies that explore the impact of interest rate on FDI include Sudarsono (2008), Anna et al. (2012), and Siddiqui & Aumeboonsuke (2014).

Corruption perception index (CPI) has a significant impact on FDI in ASEAN-6. It means that FDI inflows in ASEAN-6 can be stimulated by the ability of the government to control corruption. The governments of ASEAN-6 should create good governance and clear procedure of FDI. This finding is relevant with government policy of ASEAN-6 to control corruption under corruption monitoring body on each country. This finding is supported by other empirical research such as Freckleton, Wright, & Craigwell (2012), Quazi (2014), and Hossain (2016).

Economic growth has a significant impact on FDI in ASEAN-6. It means that the governments of ASEAN-6 need to boost economic growth to attract FDI inflows. Economic growth (GDP) can be classified as market size indicator of ASEAN-6 to stimulate foreign investors on the business decision in the ASEAN region. The results of this study are a positive signal for ASEAN-6 countries to reach the targeted level of economic growth. In addition, economic growth will also be used to encourage and be determined by FDI inflows. Some empirical studies that support the finding on the impact of economic growth (GDP or macroeconomic indicators) were conducted by Sudarsono (2008), Juanda & Mahyudin (2009), Azam (2011), Cavallari & d'Addona (2013), and Gürsoy, Sekreter, & Kalyoncu (2013). These studies conclude that economic growth (GDP) can stimulate FDI inflows.

## CONCLUSION AND SUGGESTIONS

### Conclusion

ASEAN-6 is six ASEAN member countries that encourage the increase of FDI Inflows. Three factors influence FDI; real interest rate (RIR), the corruption perception index (CPI), and economic growth (GGDP). FEM results show that RIR and GGDP have a positive and significant impact on FDI. However, the CPI has a negative and significant effect on FDI. Interest rates that have a positive impact on investment need to be considered by economic policymakers to design the policy of domestic interest rates. The design should also consider international interest rates. The domestic and international interest rates can be a function of FDI inflows. Meanwhile, economic growth as a macroeconomic indicator and the size of a country's market needs to be managed properly to remain stable. Stronger efforts to increase economic growth are expected to attract more FDI inflows in the context of the economic development of the ASEAN-6 region. Furthermore, credible, transparent, and accountable economic governance will encourage the improvement of the CPI so that the ASEAN-6 region will be free from corruption. With better economic management, the ASEAN-6 region may no longer depend on FDI inflows.

### Suggestions

The governments of ASEAN-6 should evaluate the interest rate policy to stimulate FDI inflow. Furthermore, the governments can strengthen anti-corruption institution to control the corruption level and promote FDI. Finally, governments should maintain domestic economic stability and growth.

Furthermore, future research should focus on the deepening of the economic policy of FDI and try to employ time series analysis such as ARDL-ECM.

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