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Analysis of Foreign Investment Determinants in Indonesia

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Abstract

Foreign investment is an activity of investing capital from one country to another. In essence, investment is an initial step in economic development activities. Foreign investment can be influenced by several factors, such as inflation, Bank Indonesia interest rates, labor, gross domestic product, and exchange rates. From the theory and actual conditions, the researchers found a gap. From this gap, the problem in this study was how inflation, Bank Indonesia interest rates, labor, Gross Domestic Product (GDP), exchange rates, and export value affected foreign investment in Indonesia in the short and long run. The aim of this study was to determine the effect of inflation, Bank Indonesia interest rates, labor, Gross Domestic Product (GDP), exchange rates, and export value on foreign investment in Indonesia in the short run and long run. The analytical method used in this research was Autoregressive Distributed Lag (ARDL). Based on the findings, this study concludes that in the short run, the variable of inflation, Bank Indonesia interest rates, Gross Domestic Product (GDP), and exports value have significant and positive effects on foreign investment in Indonesia. Meanwhile, labor and exchange rate variables have significant and negative effects on foreign investment in Indonesia. In the long run, inflation and export value variables have significant and positive effects on foreign investment in Indonesia. In addition, interest rates of Indonesia's Bank and exchange rates have significant and negative effects on foreign investment in Indonesia. However, the variables of labor and Gross Domestic Product (GDP) have no effect on foreign investment in Indonesia.

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INTRODUCTION

Indonesia is one of the developing countries which requires a large enough fund to carry out economic development. Domestic funds are deemed insufficient to carry out the development because the size of domestic savings is still insufficient to meet the required investment (Eliza, 2013).

Investment is an activity in which funds are placed in a certain period and expected to provide benefits. Investment is also known as capital formation as well as the inflow of capital and the transfer of technology to business sectors in an investment destination country. The investment funds are used to finance various existing projects such as factories, educational buildings, infrastructure, and health facilities that can increase growth indicators, education level, or household wealth (Jawaid et al., 2016).

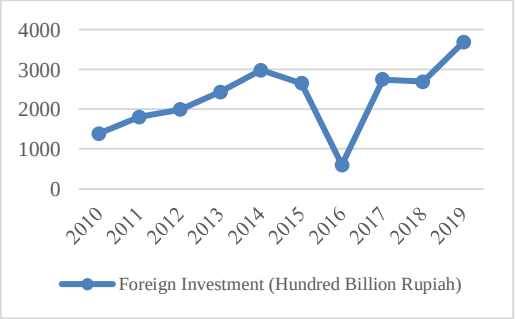
According to Morriss & Udomkerd (2012) there are three ways of financing to obtain investment, namely debt financing, domestic financing, and foreign investment. Domestic financing can be provided in the form of debt, while foreign investment can be in form of joint ventures related to domestic investors. This investor financing can be influenced by the political nature of the existing regime and have an influence on investors in investing in a country.

Some observers argue that when compared to portfolios, foreign direct investment is more beneficial. This is because the investment made can be in form of capital transfer of knowledge and technology which can be felt by a stable country. Meanwhile, since portfolios are fluctuating, they do not have a major influence on development in the real sector, and are vulnerable to economic stability (David Lembong & Nugroho, 2013). Foreign direct investment is an investment made by individuals or companies (investors) in a country that is not the investor's home country in the form of building a business or acquiring business assets in that country (John, 2016). This foreign direct investment is an effort to increase the amount of capital originating from abroad (Asiamah et al., 2019).

Many developing countries have welcomed foreign direct investment (FDI) to increase economic growth, one of which is Indonesia. The flow of Foreign Direct Investment (FDI) can make companies move to produce in foreign countries to take advantage of lower production costs abroad, rather than gaining access to local foreign market consumers (Shi, 2019).

Foreign direct investment is considered to be the main source in stimulating growth-enhancing activities (Jawaid et al., 2016). Some of the fundamental reasons that support the attractiveness of Foreign Direct Investment (FDI) are advanced technology, skills, Research and Development (R&D) and knowledge to host the country (Iamsiraroj, 2016). Some of these reasons are introduced to developing countries and generate many new jobs. This has been proven empirically by Matthias Arnold & Javorcik (2009) where productivity, employment and wages can increase after local companies are acquired. On the other hand, productivity and wages can increase with the introduction of advanced technology (Matsuura & Saito, 2020). The following is a graph of foreign direct investment in Indonesia in 2010-2019.

Figure 1. Graph of Foreign Direct Investment for 2010-2019.



Source : World Bank, 2020 (processed)

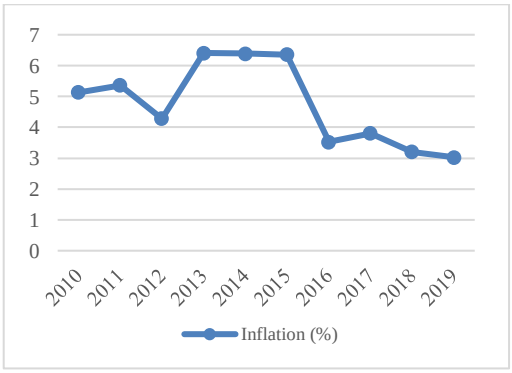
From the data in Figure 1, it can be seen that foreign investment that occurred in Indonesia in 2010-2019 was fluctuating. From 2010–2014 investment has increased every year. In 2015, foreign investment experienced a decline and in 2016 the decline was drastic. In 2017 foreign investment increased again, but in 2018 it experienced a slight decline, and in 2019 it increased again.

Foreign Investment has an important role for a country. One country that uses foreign capital as a source for domestic development

financing is Indonesia. The role of foreign capital needed, such as foreign direct investment, is used to support economic growth (Letarisky et al., 2014).

Foreign Investment can be affected by inflation of a country. If the inflation rate in a country decreases, there will be a decrease in the nominal interest rate. This causes the capital expenditure costs to be slightly excess. Thus, the opportunity for lower-priced capital can increase the desire of FDI investors to partner in a country and vice versa (Mustafa, 2019). The following is a graph of inflation in 2010–2019.

Figure 2. Graph of Inflation in 2010-2019.



Source : World Bank, 2020 (processed)

From Figure 2, it can be seen that the inflation occurred in 2010 - 2019 tended to decline. Even though in 2013 there was the highest increase, in 2014 the inflation declined again. When compared with the graph of foreign investment in 2010-2019 (Figure 1), this is in contrast to the theory that if inflation increases, investment will decrease and if inflation decreases, investment will increase. In the real conditions, the phenomenon is inversely proportional to the existing theory, namely when inflation increases, investment will also increase, and when inflation decreases, investment will also decrease.

Interest rates are an important factor that can affect investment. Its fluctuations are one of the considerations for investors to invest in a country. Here, interest rate variations affect decisions to invest (Eregha, 2010). According to Subagyo et al. (2018) an increased interest rate will increase the implied interest rate on investment in a stock. In addition, an increased interest rate can also cause investors to withdraw their investment in stocks and move them to investments in form of savings or deposits. The following is a graph of the Bank Indonesia interest rate (BI Rate) in 2010- 2019.

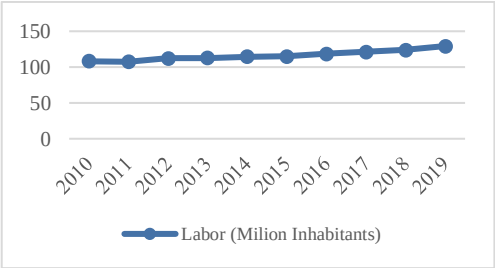
Figure 3. Graph of Bank Indonesia Interest Rates (BI Rate) in 2010-2019.

Source : Bank Indonesia, 2020 (processed)

Figure 3 shows that the Bank Indonesia interest rate (BI Rate) in 2010 – 2019 fluctuated slightly, but tended to decline. The highest increase in interest rates occurred in 2014, while the lowest decline in interest rates occurred in 2017. If the graph of the Bank Indonesia interest rate (BI Rate) is compared to the graph of foreign investment (Figure 1), the conditions that occurred are in contrast to the theory of should there be an increase in interest rates, investment will decline, and if interest rates decrease, investment will increase. However, what is seen in the two data graphs is different from the existing theory. In real conditions, when interest rates have increased, investment has also increased, and when interest rates have decreased, investment has also decreased.

Labor are residents of a country who have entered the working age based on the country working age (Munzir A.G. et al., 2017). The working age in Indonesia is 15-64 years. Labor is the most important factor in production activities since they can produce goods and services in the economy potentially and actively. Labor can influence investment to increase. This increase occurs because an increased workforce affects the productivity of a company to increase, and an increase in productivity can affect investment to increase (Rizal, 2018). The following is a graph of Labor in 2010-2019.

Figure 4. Graph of Labor in 2010-2019.

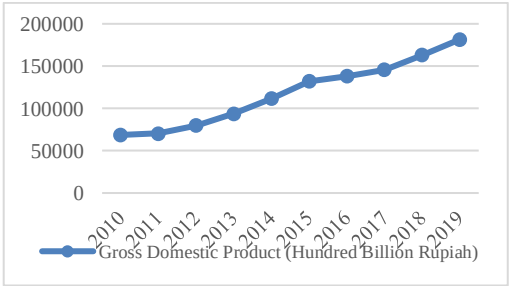


Source : Bank Indonesia, 2020 (processed)

From Figure 4 it can be seen that the number of workers in Indonesia in 2010-2019 tended to increase. When compared with the graph of foreign investment in 2010-2019 (Figure 1), the conditions are not in accordance with the theory in which if the workforce increases, investment will not increase. Meanwhile, in real conditions, what happened was when the workforce increased, investment did not always increase, but decreased.

Gross Domestic Product (GDP) is a measure of economic growth. It consists of goods and services produced domestically in a certain year. Therefore, economic growth is measured in annual changes in which this gross domestic product is compared to the previous year (Ausloos et al., 2019). The relationship between Gross Domestic Product (GDP) is positive on long-run investment (Foreign Direct Investment) (Dewi & Triaryati, 2015). The following is a graph of foreign investment and Gross Domestic Product (GDP) in 2010-2019.

Figure 5. Graph of the Gross Domestic Product (GDP) 2010-2019.

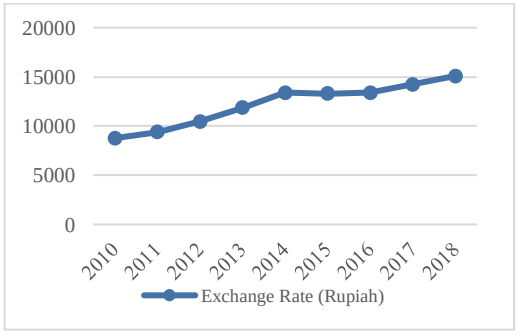


Source : World Bank, 2020 (processed)

Figure 5 shows the Gross Domestic Product (GDP) in Indonesia 2010-2019. From the graph, it can be seen that the Gross Domestic Product (GDP) has increased every year. When compared with the graph of foreign investment in 2010-2019 (Figure 1), the conditions are not in accordance with theory. In the theory, if the gross domestic product increases, the investment will increase and if the gross domestic product decreases, the investment will decline. In real conditions, an increase in Gross Domestic Product (GDP) did not always increase investment but reduced.

Exchange rate is one of the factors that influence investment. Its role is as an indicator of the stability of a country with which later investors consider it before the decision of investment (Wijaya et al., 2020). An exchange rate is the exchange between two different currencies, that is, the comparison of the value or price between those two currencies. This comparison of values is often referred to exchange rate. Exchange rates usually fluctuate so that any changes in exchange rates can result in depreciation and appreciation. Depreciation of the rupiah against the US dollar is a decrease in the price of the US dollar against the rupiah and currency appreciation, namely an increase in the price of the rupiah against the US dollar. Changes in exchange rates can affect investors to invest in a country too. The following is a graph of the Rupiah exchange rate in 2010-2019.

Figure 6. Graph of the Rupiah Exchange Rate 2010-2019.



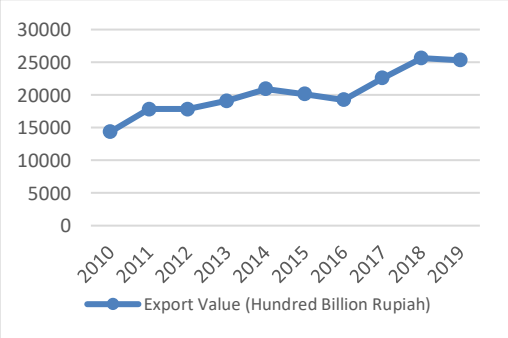
Source : Bank Indonesia, 2020 (processed)

Figure 6 shows the rupiah exchange rate in 2010-2019. From the graph it can be seen that the rupiah exchange rate tended to increase (weaken). When compared with the investment chart for one year 2010-2019 (Figure 1), this condition is not in accordance with the theory. In theory, if the exchange rate increases (weakened), investment will experience a decline, and when management of the exchange rate decreases (strengthened), investment will increase. In real conditions, an

increase (weaken) in the exchange rate, an increase in investment, and a decrease (strengthening) in the exchange rate caused investment to decline.

According to Sarwedi (2002) exports have a positive effect on foreign direct investment in Indonesia. This positive relationship is still being debated by some observers. This is because the opportunity for foreign investment to occur is highly dependent and influenced by the policies of the host country. Exports and FDI are two things that are interconnected in economic development and both become important issues (Mahmoodi & Mahmoodi, 2016). However, if the two components are separated, new problems will arise, especially if they are related to motivation within a country. The following is a graph of Indonesia's export value in 2010 - 2019.

Figure 7. Graph of Export Value in 2010-2019.



Source : Bank Indonesia, 2020 (processed)

The scope of this research was limited to the effect of inflation, Bank Indonesia interest rates, labor, Gross Domestic Product (GDP), exchange rates and export value on foreign investment in Indonesia in the short and long run. The data used in this research were secondary data in the form of quantitative data. The type of data used in this research was time series data, from 1985-2019. These data were taken from the World Bank, Bank Indonesia, and the Central Statistics Agency. Data sourced from the World Bank included data on foreign direct investment, inflation, Gross Domestic Product (GDP), and export value. Data sourced from Bank Indonesia included data on Bank Indonesia interest rates and exchange rates. Data sourced from the Central Statistics Agency were labor data.

The analysis model used in this study was multiple linear regression equations using the ARDL (Autoregressive Distributed Lag) method. This method was used because the ARDL method is an analytical method that estimates the regression model in short-run and long-run relationships that involves a cointegration test between time series variables. In addition, this method has advantages where the data used can be in the form of short series data, and in this study the data used were relatively small, so the ARDL method was used. This method also does not require the classification of variable pre-estimates so that it is directly applied to variables I (0), I (1), or even a combination of the two. The cointegration test in this method was carried out by comparing the F-statistic value with the variable F value that has been compiled by Pesaran & Pesaran (1997) supported by Nkoro & Uko (2016).

The general form of ARDL (p, q, r, s, u) according to Pesaran & Shin (1998), supported by Bhattacharya et al. (2019) is as follows:

$$y_t = a_0 + a_{1t} + \sum_{i=1}^{p} a_2\, y_{t-1} + \sum_{i=1}^{q} a_3\, X_{t-1} + \sum_{i=0}^{r} a_4\, X_{2t-1} + \sum_{i=0}^{s} a_5\, X_{3t-1} + \sum_{i=0}^{u} a_6\, X_{4t-1} + \sum_{i=0}^{v} a_7\, X_{5t-1} + e_t \quad \ldots.(1)$$

The approach using the ARDL model indicated a lag as illustrated in the equation above. According to Juanda (2009), lag can be defined as the time it takes for a response (Y) to arise as a result of an influence, and in form of an action or a decision. The selection of the right lag for the model was done using the basis of Schwarz- Bayesian Criteria (SBC), Akaike Information Criteria (AIC), or others. A good model has the smallest criterion information value.

The next step in the ARDL method is to estimate the parameters in the short run or short term. This can be done by estimating the model through the Error Correction Model (ECM). The ECM model can be obtained from the ARDL model. Estimation using the Error Correction Model was based on the previous long-run equation as follows Bhattacharya et al. (2019) :

$$\Delta y_t = a_0 + a_{1t} + \sum_{i=1}^{p} a_2\, \beta_i \Delta y_{t-1} + \sum_{i=1}^{q} a_3\, \gamma_i \Delta X_{t-1} + \sum_{i=0}^{r} a_4\, \delta_i \Delta X_{2t-1} + \sum_{i=0}^{s} a_5\, \theta_i \Delta X_{3t-1} + \sum_{i=0}^{u} a_6\, \mu_i \Delta X_{4t-1} + \sum_{i=0}^{v} a_7\, \mu_i \Delta X_{5t-1} + \vartheta ECM_{t-1} + e_t \quad \ldots\ldots (2)$$

The ECTt which is an Error Correction Term can be written as follows Bhattacharya et al. (2019) :

$$ECM_t = Y - a_0 - a_{1t} - \sum_{i=1}^{p} a_2\, Y_{t-i} - \sum_{i=0}^{q} a_3\, X_{t-i} - \sum_{i=0}^{r} a_4\, X_{2t-i} - \sum_{i=0}^{s} a_5\, X_{t-i} + \sum_{i=0}^{u} a_6\, X_{t-i} + \sum_{i=0}^{v} a_7\, X_{t-i} \quad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

The important thing in estimating the ECM model is that the error correction term (ECT) that must be of negatif value. The negative value in ECT shows that the model being estimated is valid.

All coefficients in the short run equation above were related to the convergent short run dynamic model to equilibrium. Meanwhile, ϑ represents the speed of adjustment from the short run to the long run equilibrium. This shows the imbalance resulting from the shock in the previous year adjusted to the long run balance this year.

Time series data modelling requires pre-estimation testing in the form of stationarity testing because in general time series economic data are stochastic, have a trend that is not stationary, or contain unit roots. The unit root test has two approaches, namely the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) methods. In testing the stationarity of the data, the researchers used the PP test. It was because there was a structural break that could not be avoided and possibly arose problems which can reduce the degree of freedom of the regression results. In the ADF test, the unit root test does not consider structural changes. Therefore, Perron built a formal procedure to test unit roots where there is a structural change in the time period $t = \tau + 1$. This PP test assumes there is a time series equation model as follows (Astuti & Khasanah, 2020) :

$$\Delta Y = \gamma Y_{t-1} + e_t$$
$$\Delta Y = \alpha_0 + \gamma Y_{t-1} + e_t$$
$$\Delta Y = \alpha_0 + \alpha_1 + \gamma Y_{t-1} + e_t \quad \ldots\ldots\ldots\ldots (4)$$

In the above test, the t-statistic of the null hypothesis ($a1 = 1$) can be compared with the critical value of Perron at the 5% significance level. When the absolute value of the t-statistic PP is greater than the Critical Value, the data has been stationary at a predetermined real level. However, when the resulted data of the PP test the are not stationary at the level, a differential draw must be made until the data are stationary at the first difference level. When the data are stationary in the first difference, cointegration test should still be done on the stationary data (first difference) considering that there is a possibility that the unit root test conclusions are drawn related to the power of test.

The test criteria are if the statistic value of ADF or PP is smaller than the MacKinnon crisis t-statistic, the test result will reject H0 which puts the data stationary at a difference level of one or known as the first difference.

Determination of optimal lag in the model was done to determine the lag combination in the ARDL model (p, q). The optimal lag was selected based on the base value of Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SC), and Hanna Quinn Criterion (HQ). According to Pesaran & Shin (1998) supported by Nkoro & Uko (2016) ARDL-AIC and ARDL-SC show better abilities in the majority of experiments conducted. This shows that Schwarz Bayesian Criterion (SC) is a consistent model when Akaike Information Criterion (AIC) is inconsistent and vice versa. Determination of the lag optimal was done by selecting the smallest criterion value.

Cointegration test was done by testing cointegration between variables that were not stationary at the data level. This cointegration was formed when the combination of non-stationary variables produces a stationary variable.

This method was compiled by Pesaran & Pesaran (1997) supported by Nkoro & Uko (2016) and is carried out by comparing the calculated F-statistic value with the critical value. The testing criteria are as follows : If the F-statistic value is below the lower bound I (0) value, it can be concluded that there is no

cointegration; If the F- statistic value is above the upper bound I (1), it can be concluded that there is cointegration; If the F-statistic is between the lower bound I (0) and upper bound I (1) values, the result is inconclusive.

Based on previous research literature with a modified model of Eliza (2013), Fadilah (2013), Thirafi (2013), Silvia & Tyas (2014), Pratiwi et al. (2015), and Dewata & Swara (2013) the research model for the investment equation is as follows

$$Inv_t = a_0 + \sum_{i=1}^{p} a_1\, Inv_{t-1} + \sum_{i=1}^{q} a_2\, Inf_{t-1} + \sum_{i=1}^{r} a_3\, SBI_{t-1} + \sum_{i=0}^{s} a_4\, TK_{2t-1} + \sum_{i=0}^{u} a_5\, PDB_{3t-1} + \sum_{i=0}^{v} a_6\, Kurs_{3t-1} + \sum_{i=0}^{w} a_7\, Eks_{4t-1} + \beta_1\, \Delta Inv_{t-1} + \beta_2\, \Delta Inf_{t-1} + \beta_3\, \Delta SBI_{t-1} + \beta_4\, \Delta TK_{2t-1} + \beta_5\, \Delta PDB_{3t-1} + \beta_6\, \Delta Kurs_{3t-1} + \beta_7\, \Delta Eks_{4t-1} + e_t \quad \text{..... (5)}$$

Where, Inv_t is Foreign Investment in Year t; Inv_{t-1} is Foreign Investment Lag in the Previous Year; ΔInv_t is Change in Foreign Investment in Year t; Inf_{t-1} is Inflation Lag in the Previous Year; ΔInf_{t-1} is Changes in Inflation Lag in the Previous Year; SBI_{t-1} is Lag in Bank Indonesia Interest Rates in the Previous Year; ΔSBI_{t-1} is Changes in Bank Indonesia Interest Rate Lag in the Previous Year; TK_{t-1} is Labor Lag in the Previous Year; ΔTK_{t-1} is Change in Labor Lag in the Previous Year; PDB_{t-1} is Lag of the Gross Domestic Product (GDP) in the Previous Year; ΔPDB_{t-1} is Change in Lag of the Gross Domestic Product (GDP) in the Previous Year; $Kurs_{t-1}$ is Lag of Exchange Rate in the Previous Year; $\Delta Kurs_{t-1}$ is Change in Lag of Exchange Rate in the Previous Year; Eks_{t-1} is Lag of Export Value in the Previous Year; ΔEks_{t-1} is Change in Lag of Export Value in the Previous Year; α_0 is the Intercept; α_1 - α_7 is Short Run Coefficient; β_1 - β_7 is Long Run Coefficient; e is Disturbane/error terms; and t is Time Series Unit in 1985-2019.

RESULTS AND DISCUSSION

Stationarity test is a test conducted to see whether each variable in this study was stationary or not. In this study, stationarity test was carried out using two approaches, namely the Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) approaches. It was done at the level up to the first difference. Discussion of results should be argumentative and point out on how the findings, theories, previous study and empirical facts are relevant and contributes something new to knowledge of economics development.

From the results of the stationarity test with the Augmented Dickey Fuller (ADF) approach, there was only the investment variable which was not stationary at both the level and the first difference level. Meanwhile, the other variables were not stationary at the level, but stationary at the first difference level.

The stationary test using Phillip-Perron approach showed that there was only inflation variable belonged to the stationary level, while the other variables were not stationary. For the first difference level, all the variables were stationary.

The following are the results of the stationarity test using the ADF and PP approaches using Eviews 10.

Tabel 1. Stationarity test results using the Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) approach using Eviews 10.

Variable	*Augmented Dickey Fuller* (ADF)							
	Level				*First Difference*			
	ADF Value	1%	5%	10%	ADF Value	1%	5%	10%
INV	-0,5160	-3,6394	-2,9511	-2,6143	0,5876	-3,7241	-2,9862	-2,6326
INF	-4,6582	-3,6394	-2,9511	-2,6143	-7,0765	-3,6537	-2,9571	-2,6174
SBI	-2,5821	-3,6394	-2,9511	-2,6143	-6,7705	-3,6537	-2,9571	-2,6174
TK	1,1636	-3,6394	-2,9511	-2,6143	-6,1374	-3,6463	-2,9540	-2,6158
PDB	3,2385	-3,6394	-2,9511	-2,6143	-4,3192	-3,6463	-2,9540	-2,6158
KURS	-0,5991	-3,6394	-2,9511	-2,6143	-6,8569	-3,6463	-2,9540	-2,6158
EKS	1,2948	-3,6394	-2,9511	-2,6143	-5,0505	-3,6537	-2,9571	-2,6174

Variable	*Phillip-Perron*							
	Level				*First Difference*			
	ADF Value	1%	5%	10%	ADF Value	1%	5%	10%
INV	-0,5160	-3,6394	INV	-0,5160	-3,6394	INV	-0,5160	-3,6394
INF	-4,6582	-3,6394	INF	-4,6582	-3,6394	INF	-4,6582	-3,6394
SBI	-2,5821	-3,6394	SBI	-2,5821	-3,6394	SBI	-2,5821	-3,6394
TK	1,1636	-3,6394	TK	1,1636	-3,6394	TK	1,1636	-3,6394
PDB	3,2385	-3,6394	PDB	3,2385	-3,6394	PDB	3,2385	-3,6394
KURS	-0,5991	-3,6394	KURS	-0,5991	-3,6394	KURS	-0,5991	-3,6394
EKS	1,2948	-3,6394	EKS	1,2948	-3,6394	EKS	1,2948	-3,6394

Source: Data Processing, 2020

After the data have been tested for stationarity, the next step was to determine the optimal lag. It aimed to determine the extent of variable influence on others. The determination of optimal lag in this study was performed using the Akaike Information Criteria (AIC) basis. The results can be seen in the following table:

Table 2. Test Results for Determination of Optimum Lag with Eviews 10.

Variable	Optimum Lag
INV	3
INF	3
SBI	2
TK	3
PDB	3
KURS	3
EKS	3

Source: Data Processing, 2020

The chosen optimal lag was the one with the smallest criterion value. From the results, it was found that the lag used in estimating the variables in this study were (3, 3, 2, 3, 3, 3, 3).

After the optimal lag determination, the researchers performed cointegration test using the Bound Test Cointegration method. The results obtained are as follows:

Table 3. Testing Results Bound Test Cointegration with Eviews 10.

Test Statistic	Value	Signif.	I(0)	I(1)
F-Statistic	32,41560	1%	3,15	4,43
k	6	2,50%	2,75	3,99
		5%	2,45	3,61
		10%	2,12	3,23

Source: Data Processing, 2021

From the results of the bound test, it can be seen that the F-statistic value is greater than the value of the upper bound I (1). The F-statistic value obtained was 32.41560, while the upper bound I (1) value at 1%, 2.5%, 5%, and 10% significance were 4.43, 3.99, 3.61, and 3.23. This showed that the variables in this study had cointegration.

After testing the stationarity, determining the optimal lag, and cointegration, the next step was to process the data with Augmented Distributed Lag (ARDL) analysis in the short and long run. In processing data using Augmented Distributed Lag (ARDL), there were two results obtained, namely the results of short-run and long-run estimation. The following is the estimation result of short run Augmented Distributed Lag (ARDL) using Eviews 10.

Table 4. Estimation Result of Short Run Augmented Distributed Lag (ARDL) with Eviews 10.

Variable	Coefficient	Std. Error	t-Statistik	Prob.
C	1506,540	84,79178	17,76752	0,0000*
D (INF)	39,98371	2,926149	13,66428	0,0000*
D(SBI)	16,23240	3,609418	4,497234	0,0064*
D (TK)	-110,9023	10,32979	-10,73616	0,0001*
D (PDB)	0,233195	0,007347	31,74089	0,0000*
D (KURS)	-1,342292	0,044039	-30,47992	0,0000*
D (EKS)	0,243045	0,012781	19,01583	0,0000*
CointEq (-1)	-3,068957	0,137358	-22,34279	0,0000*

Source: Data Processing, 2020

From the short-run Augmented Distributed Lag (ARDL) test results, it can be seen that all inflation variables (INF) had significant and positive effects on foreign investment. This was not in accordance with the expected hypothesis where inflation has a negative effect on foreign investment. However, this is in accordance with Permana & Rivani (2013) study, namely inflation has a positive effect on investment in Indonesia. According to Syaikhu & Haryati (2017) the effect of inflation on investment can be seen from the effect of inflation on the ups and downs of production. High inflation rate results in a decrease in the amount of output. When inflation occurs, the prices will soar so that the purchasing power of the people will decrease, and when the purchasing power of the people decreases, the company's profits will decrease. Thus, it discourages investors from investing because the results obtained are slightly less than usual.

Bank Indonesia interest rates (SBI) had a significant positive effect on foreign investment (INV) in Indonesia. This is not in accordance with the expected hypothesis that interest rate has a negative effect on investment in Indonesia. However, this result is consistent with a research by Alfarina & Aimon (2020) where the Bank Indonesia interest rate has a positive effect on foreign investment in Indonesia.

According to a theory, the relationship between interest rates and investment is negative. According to Mujahid et al., (2019) if interest rates increase, investment costs will also increase and result in the decline on investor income. This will affect investors tendency to invest in a country and later cause investment in a country decrease.

International interest rates and domestic interest rates affected the increase in Foreign Direct Investment in Indonesia. Chow (2010) reveals that the increase in capital to developing countries recently is resulted from low interest rates in developed countries (Letarisky et al., 2014).

Labor variable (TK) had a significant and negative effect on foreign investment (INV) in Indonesia. This is not in accordance with the expected hypothesis where labor has a positive effect on investment (INV) in Indonesia. However, these results are consistent with a research by Syaikhu & Haryati (2017) where labor has a negative effect on investment in Indonesia.

In terms of labor, it had an effect on investment through productive labor because a high number of productive workers can increase company productivity. An increase in productivity will affect increased investment, so investors will tend to be interested in investing in the country (Syaikhu & Haryati, 2017). Labor productivity is the total goods and services produced by one worker in a certain period of time. Many studies have examined the relationship between Foreign Direct Investment (FDI) and labor productivity (Le et al., 2019). In addition, investment can have a positive effect on the labor market which can reduce the unemployment rate (Balcerzak & Zurek, 2011).

Gross Domestic Product (PDB) and export variables (EKS) havd significant and positive effects on foreign investment (INV) in Indonesia. Meanwhile, the exchange rate variable (KURS) had a significant and negative effect on foreign investment. These showed that the results obtained from the variables of gross domestic product, exports, and exchange rates are in accordance with the expected hypothesis.

According to Lembong & Nugroho (2013) an increase in GDP of a country can mean that the number of goods and services produced by that country has increased. The ability to produce output by an economic sector should also take the role of foreign capital in its production process because there will be greater output production which later represents the greater the amount of foreign capital that enters to produce this output. The increase in Gross Domestic Product (GDP) reflects an increase in market size so that countries that experience an increase in GDP can become the basis for sales.

Investments in the economic system are able to make the development of a country efficient. Meanwhile, the investments that play a role in economic growth are public investment and private investment. This is because those two investments trigger capital accumulation. In Indonesia, the economic growth sourced from public investment and private investment is

strongly influenced by government sector investment (Hafriandi & Gunawan, 2018).

According to Tambuhan (2015) real exchange rate is a relative price of goods between two countries. If the real exchange rate is high, foreign goods will be relatively cheap, and domestic goods will be relatively expensive. Conversely, if the real exchange rate is low, foreign goods will be relatively expensive and domestic goods will be relatively cheap.

Direct investment is closely related to international trade. International trade is an important factor that contributes both directly and indirectly to foreign investment. It can benefit the countries involved through the cooperation carried out. The international trade referred to in this discussion is exports.

Tighter foreign trade relations allow exporters to grow and penetrate international markets which in turn increases the volume of income from foreign trade (Pulatova, 2016). Foreign trade provides the basis for the inflow of foreign capital into underdeveloped countries. The amount of foreign capital depends on the volume of trade. The greater the volume of trade, the more likely a country is able repay interest rates and principal borrowings (Nopeline & Simanjuntak, 2017).

According to Aliasuddin et al. (2019) other benefits from exports for a country include employment, increasing living standards, lowering inflation, increasing business energy, stimulating marketing development, and so on. This increase in exports affects the economic growth of a country to increase.

Through these short-run estimation results, we can also see a value for ECT or CointEq. The CointEq value obtained was -3.068957 and was significant at the 5% level. This meant that the model in this study experienced short-run cointegration. In addition to short-run estimates, this study also conducted long run estimates. The following is the estimation result of long-run Augmented Distributed Lag (ARDL) using Eviews 10.

Table 5. Estimation Result of Long Run Augmented Distributed Lag (ARDL) with Eviews 10.

Variabel	Coefficient	Std. Error	t-Statistic	Prob.
INF	25,63367	10,18670	2,516385	0,0534**
SBI	-7,387717	3,425998	-2,156370	0,0836**
TK	-2,642099	2,332071	-1,132941	0,3086
PDB	0,001959	0,000999	1,962185	0,1070
KURS	-0,155676	0,007726	-20,15084	0,0000*
EKS	0,128863	0,006627	19,44426	0,0000*

Source: Data Processing, 2020

From the long run Augmented Distributed Lag (ARDL) estimation results, it can the inflation variable (INF) had a significant ad positive effect on foreign investment (INV) in Indonesia, while the Bank Indonesia interest rate (SBI) had a significant and negative effect on foreign investment (INV) in Indonesia. These two variables had a significant effect on foreign investment (INV) at the level of 10%.

From the long run estimation results, it was found that the inflation variable (INF) is not in accordance with the expected hypothesis, namely inflation has a significant negative effect on foreign investment (INV) in Indonesia, while the results obtained were that inflation had a significant positive effect on foreign investment (INV) in Indonesia. However, (Wijaya et al., 2020) found the same results, namely inflation has a significant positive effect on foreign investment in Indonesia.

Similar to the effect of inflation on foreign investment in the short run, the effect of inflation on foreign investment in the long run also had a significant positive effect. This condition occurred because the increase in inflation marked by an increase in product prices encouraged investors to increase their goods and services. The high price of these goods will increase profits for investors. Thus, investors must increase their investment.

The variable of labor (TK) and the variable of gross domestic product (GDP) had no effect

on foreign investment/foreign investment (INV) in the long run. The insignificance of the two variables was due to the other variables that had more influence on foreign investment (INV) in Indonesia. In a research by Fachrulloh & Mawardi (2018), other variables that can affect foreign investment are market size, trade openness and infrastructure which have significant and positive effects on foreign direct investment (FDI). Additionally, tax rate variable has a significant and negative effect on foreign direct investment (FDI). In addition, there is a study by David Lembong & Nugroho (2013) which found that the monetary crisis has a significant and negative effect on foreign direct investment (FDI).

As with the estimation results in the short run, in the long run the exchange rate variable had a negative effect on foreign investment or foreign investment, while the export value had a positive effect on foreign investment/foreign investment. These two variables had a significant effect on foreign investment/foreign investment at the 5% level. The results of the two variables are in accordance with the expected hypothesis.

CONCLUSION

There are some conclusions that can be drawn from the results of this study. First, in the short run, the variables of inflation, Bank Indonesia interest rates, gross domestic product and exports have significant and positive effects on foreign investment in Indonesia. Meanwhile, labor and exchange rate variables have significant and negative effects on foreign investment in Indonesia. Second, in the long run, inflation and export variables have significant and positive effects on foreign investment in Indonesia.

Meanwhile, Bank Indonesia interest rates and exchange rates have significant and negative effects on foreign investment in Indonesia. However, the variables of labor and gross domestic product have no effect on foreign investment in Indonesia.

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