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Analysis of the Effect of Inflation, GDP, and BI Rate on FDI in Indonesia in 1990-2020

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ABSTRACT

This study aims to determine how inflation relations, gross domestic product, and BI rate affect foreign direct investment in Indonesia. This study used the Ordinary Least Square (OLS) approach to analyze time series data for the 1990–2020 period, using estimation steps, classical assumption tests, model goodness, and regression coefficients of determination. The results showed that the variables of gross domestic product and BI rate had a positive and significant effect on foreign direct investment in Indonesia. In addition, inflation does not affect foreign direct investment. In an effort to increase foreign direct investment, the government plays a role in paying attention to macroeconomic impacts and utilizing and being expected to cooperate in maintaining stability through other economic variables.

Keyword: Inflation, GDP, BI Rate

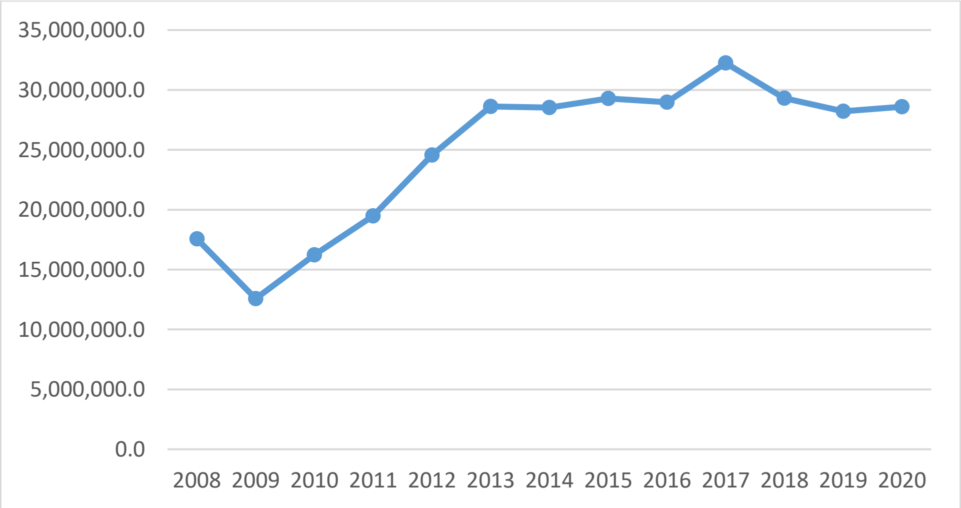
INTRODUCTION

As a developing country, Indonesia seeks to increase the amount of foreign direct investment in order to boost economic growth and development. Using an open economy system, Indonesia realizes the importance of economic development in achieving the welfare of the nation. The success of economic development can be characterized by a sustainable and relatively high rate of economic growth (Jufrida et al., 2016)

World development indicators state that foreign direct investment promotes economic growth and facilitates technology transfer (Afridi et al., 2018). Jimenez stated that the macroeconomic environment is in a healthy condition and that quality human resources and infrastructure can reduce the inflow of foreign direct investment (Peres et al., 2018). Direct foreign investment in Indonesia has benefits as it creates new jobs and is able to reduce the unemployment rate (Nur et al., 2022).

Developing countries such as Indonesia require significant funds and costs during the economic development process. These cost limitations are a stumbling block to economic development. Foreign direct investment is one of Indonesia's most important sources of income (Tharafi, 2013). The role of the government in attracting sources of financing and exploring sources of domestic investment is to encourage foreign direct investment. Foreign financing is less profitable than domestic investment in supporting long-term financing (Febriana & Muqorobbin, 2014).

Graph 1. Realization of Indonesia Foreign Direct Investmen for the 2008-2020



Source: Badan Koordinasi Penanaman Modal

From figure 1.1, it can be seen that the development of foreign direct investment in Indonesia in 2008–2020 experienced fluctuations. In 2008 there was a global economic crisis, causing many countries to experience investment declines. The crisis of 2008 originated from the lefts of the Subprime Moertgage in the United States, which slowed down the international trading system (Amirsyah, 2020). In 2016, foreign direct investment realization experienced a reasonable decline. This decline can be attributed to America's Fed Fund Rate policy and the occurrence of British Brexit (Jamil & Hayati, 2020). The unstable development of foreign direct investment in 2020 occurred due to the restriction of domestic and foreign activities as a result of the COVID-19 pandemic.

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According to Todaro and Smith, the provision of production tools such as the opening of factories, the purchase of production raw materials, and the import of machinery with the procurement of investment goods carried out is a business activity of foreign direct investment (Fadilah, 2017). The Indonesian government plays a role as an economic driver in regulating and improving policy procedures for regulating investment through two laws. PM UU No. 25 of 2007 on investment and UU No. 1 of 1967 on foreign investment the current role of the government must be accompanied by several sectors, such as the community sector and the private company sector.

Badan Kooridinasi Penanaman Modal (BKPM), the Indonesian government issued a strategic investment plan in 2015, stipulating that foreign direct investment priorities are focused on infrastructure, industry, maritime, agriculture, tourism, Special Economic Zones, and the digital economy. This strategy refers to Presidential Regulation No. 44 of 2016 concerning closed business fields and open business fields.

Foreign investment is divided into two, foreign direct investment and indirect foreign investment (Sarkodie & Strezov, 2019). Foreign direct investment is defined as an investment fund used by business activities as a means of production (Sabir et al., 2019) while indirect investment is defined as an investment that is largely controlled by stocks or portfolios (Wang, 2019). Domestic portfolio investment has a high chance of capital outflow because portfolio investment is short-term and can be withdrawn at any time, causing economic vulnerability (Mahadiansar et al., 2021).

As explained by (Hendra Permana & Rivani, 2013; Saragih et al., 2021) contributing to the main factor as a determinant of foreign direct investment in Indonesia. This study also looks at the state of infrastructure in Indonesia in order to support the climate for foreign direct investment. In developing their research, (Anna & Karambakuwa, 2012) discovered that FDI has a negative impact as an indicator of risk factors. (Musyoka & Ocharo, 2018) Foreign direct investment in Kenya can be explained by inflation and interest rates, implying that there is no causal relationship between FDI and FDI inflation against inflation.

In general, Foreign Direct Investment (FDI) is an important indicator of economic development, economic growth, and technology transfer. Based on these macroeconomic determinants, the study aims to analyze the factors that affect foreign direct investment in Indonesia, including inflation, gross domestic product, and BI rate.

METHOD

This research was conducted in Indonesia by analyzing Indonesian state data for the period 1990–2020. The type of data used in this study is secondary data. The data in this study was obtained from the Badan Pusat Statistik (BPS), Badan Koordinasi Penanaman Modal (BKPM), and the World Bank and includes data on direct foreign investment, inflation, gross domestic product, and BI rate in the form of annual data for the 1990–2020 period.

To find out the change in the value of the dependent variable, namely foreign direct investment, caused by a change in the independent variable. In this study, using the time series analysis method through approaches Ordinary Least Square (OLS), we estimate the classical assumption test, model goodness, and regression coefficient test with the help of the Eviews 10 analysis tool. Using a linear regression analysis model with the formula:

$$\mathrm{Log(FDI)_t} = \beta_0 + \beta_1 \mathrm{INF_t} + \beta_2 \mathrm{Log(GDP)_t} + \beta_3 \mathrm{BIRATE_t} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots(1)$$

Description:

FDI : Foreign Direct Investment, US$ million
INF : Inflation, %
GDP : Gross Domestic Product, Rupiah
BIRATE : BI Rate, %
ε : Error term
β_0 : Constant
$\beta_1 \ldots \beta_3$: Regression Coefficient
t : Year

RESULT AND DISCUSSION

Table 1. Econometric Model Estimation Results

Log(FDI)t = -29,909 + 0,007INF$_t$ + 2,904Log(GDP)$_t$ + 0,089BIRATE$_t$
*(0,551) (0,000) (0,051)**
R^2 = 0,611; DW = 1,399; *F* statistic =14,152; Prob. *F* = 0,000
Diagnosis Test
1. Multikolineritas INF = 1,491; Log(GDP) = 3,957; BIRATE = 4,834
2. Normalitas Residual (Jarque-Bera) JB (2) = 1,518; *Prob.*JB (2) = 0,468
3. Autokorelasi (Bruesch-Godfrey) χ^2 (3) = 0,738 $Prob.\chi^2$ (2) = 0,669
4. Heteroskedastisitas (White) χ^2 (9) = 0,150; $Prob.\chi^2$(9) = 0,158
5. Linieritas (Ramsey RESET) *F*(2,25) = 4,019; *Prob.F* = 0,031

Source: BKPM, BPS, World Bank, Processed. Description: *Significant at α = 0,01; **Significant at α = 0,05; ***Significant at α = 0,10. The number in brackets is empirical probability of the t-statistic.

The estimation results show that the model has no problem violating the classical assumption test, all VIF values < 10, so the estimated model is free from multicollinearity problems. Probability values for Residual Normality, Autocorrelation Test, Heteroscedasticity, and Linearity, obtained at 0.468 (>0.1), 0.669 (>0.1), 0.158 (>0.1), and 0.031 (> 0.01), show that the estimated model has a norm residual distribution, is free from autocorrelation problems, and problems heteroscedasticity, with linear specifications.

The statistics of the model's goodness show that the existing model, as can be seen from the empiric probability of statistical F, of 0.000 (<0.1), has a coefficient of determination (R^2) showing the predictive power of the estimated model of 0.611, meaning that 61.1% of the variation in foreign direct investment can be explained by variations in inflation, gross domestic product, and BI rate. where 38.9% is explained by variations of other free variables outside the model.

Only the GDP and BI rate variables have a statistically significant effect on foreign direct investment, with empirical probabilities of 0.000 (<0.01) and 0.051 (<0.1), respectively. The inflation variable has no significant effect on foreign direct investment at a rate of α up to 10%, because it shows an empirical probability t of 0.551 (> 0.1).

The gross domestic product (GDP) variable has a regression coefficient of 2.904. The pattern of the relationship between gross domestic product and foreign direct investment is logarithm-logarithmic, so that if domestic product increases by 1%, foreign direct investment will decrease by 2.904%. Conversely, if gross domestic product falls by 1 percent, foreign direct investment will increase by 2.904%.

The variable BI rate has a regression coefficient of 0.089. The pattern of the relationship between the BI rate and foreign direct investment is logarithmic-linear, meaning that if the BI rate increases by 1%, foreign direct investment will decrease by 8.9%. Conversely, if the BI rate decreases by 1%, foreign direct investment will increase by 8.9%.

DISCUSSION

The Effect of Inflation on Foreign Direct Investment

Inflation has no significant effect on foreign direct investment. This finding is in line with research (Siomi & Hermawan, 2014) proving that inflation variables do not have a significant effect on foreign direct investment. Compared to research (Bella Anindita et al., 2019; Dewi & Cahyono, 2016; Hendra Permana & Rivani, 2013) revealed that inflation has a positive effect on foreign direct investment. A continual rise in prices without a corresponding rise in the average income of consumers is referred to as inflation. The result of foreign direct investment suggests that inflation is not a barrier to the inflow of foreign direct investment. Because of this, investors' interest in making foreign direct investments is not directly affected by inflation.

The majority of people still have faith in and access to money, and the value of eyes is also high; therefore, Indonesia's inflation is still considered low (1digit inflation) at the time of this study. Inflation also averages less than 10% annually. The nation's economy is being driven by a low inflation rate, rising national incomes, and a thirst for investing.

Effect of Gross Domestic Product on Foreign Direct Investment

Gross Domestic Product (GDP) shows that it has an influence and is significant for foreign direct investment. This discovery follows the discovery (Astuty et al., 2018) revealing that gross domestic product has a positive and significant effect on foreign direct investment. Compared to research (Nisa & Juliprijanto, 2022), which states that GDP has no significant effect on foreign direct investment. If a state's income increases, then investment will increase (Fadilah, 2017).

Foreign direct investment in Indonesia is influenced by the country's GDP. Foreign direct investment will rise in response to rising domestic products, and vice versa. Several factors may be to blame for the relationship's current trajectory. First, the size of the market, which is vast given the size of the population, is impressive. Indonesia currently holds the fourth-largest population in the world. When seen from an economic perspective, large populations are frequently comparable to potential market share. Multinational corporations may have an additional opportunity to boost sales and profits thanks to potential market share, which would subsequently allow them to raise their investment in the nation. The greater the state's income, the more funds it has to invest. Developing countries such as Indonesia tend to experience a state of equilibrium, in which the amount of savings must be balanced with the level of state investment.

Effect of BI rate on Foreign Direct Investment

The variable BI rate has a significant effect on foreign direct investment. This research is in line with research (Febriana & Muqorobbin, 2014) that states that the BI rate has a positive and significant effect on foreign direct investment. The increase in the BI interest rate will cause the difference between the Indonesian and foreign interest rates to rise. Because of the difference in interest rates, foreign investors are encouraged to invest in Indonesia, either through securities such as SBI or through other financial instruments, because they will receive a higher rate of return. when interest rates rise, then Foreign Investment It will go down immediately, and if the interest rate falls, then Foreign Direct Investment will go up

IMPLICATIONS

In carrying out its duties, Bank Indonesia must pay attention to the fact that domestic interest rates provide benefits for foreign investors. With the profit obtained, foreign investors will feel safe in their investments, so they are willing to give their investments to the domestic market. Indonesia's stable interest rate is very important to the development of foreign direct investment. Bank Indonesia and the government are working together to strengthen policy in order to maintain macroeconomic stability, financial system stability, and promote structural reforms in order to strengthen Indonesia's economic fundamentals.

An increase in Gross Domestic Product (GDP) will increase foreign direct investment in Indonesia. The development of gross domestic product performance is one of the important factors in increasing the confidence of foreign investors. In this case, the government plays the role of an institution that can promote local companies. In order to achieve the gross domestic product target, the government takes action by regulating the allocation and level of state expenditure.

CONCLUSION

Based on the results of regression using Ordinary Least Square (OLS) shows that the estimated gross domestic product and BI rate have a significant effect on foreign direct investment. Meanwhile, inflation has no significant effect on foreign direct investment. Investment will increase along with the level of national income. The more money that can be used for investment, the higher the income generated. An increase in the BI rate will lead to a decrease in the rate of foreign investment in Indonesia. High interest rates prevent investors from making investments with their money. This research provides advice on the importance of assessing macroeconomic impacts. The government, by increasing foreign direct investment, is able to play a role in cooperating in maintaining stability through other economic variables.

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