

THE EFFECT OF EXCHANGE RATE AND INFLATION ON FOREIGN DIRECT INVESTMENT IN INDONESIA

Senika Inria, Yoel Aginta Barus

Nanjing University of Information Science and Technology, China. E-mail: senikainria@gmail.com
Nanjing University of Information Science and Technology, China. E-mail: barusyuel0@gmail.com

KeyWords

Exchange Rate, Inflation, Foreign Direct Investment

ABSTRACT

Economic development is one of the biggest problems in a country, where the economic development process requires investment funds. This study aims to determine the effect of the Rupiah exchange rate and inflation on foreign direct investment in Indonesia. This study uses quantitative methods. The samples in this study are the value of the foreign direct investment net inflow, the official exchange rate, and the inflation in Indonesia in the period 2018-2022 from World Bank and the Central Bank of Indonesia (Bank Indonesia). Data processing and analysis techniques used SPSS Statistics 20 software. The results showed that the Rupiah exchange rate partially had a negative and significant effect on foreign direct investment in Indonesia, and inflation had a positive and significant effect on foreign direct investment in Indonesia. Simultaneously, Exchange Rate and Inflation variables have a significant effect on Foreign Direct Investment in Indonesia.

Chapter One Introduction

As a developing country that adheres to an open economic system, in maintaining economic stability Indonesia cannot be separated from the role of injections of funds both domestic and foreign. Indonesia is experiencing several problems, one of which is domestic economic development. In developing the domestic economy, a significant flow of funds is required. The limited funding sources experienced by Indonesia are overcome by investment both domestic and foreign to cover the financing limitations in Indonesia's economic development. One source of financing to cover the limited burden of developing the economy in Indonesia is capital investment.

Foreign direct investment (FDI) really helps Indonesia in carrying out national development. Increasing investment through increasing capital goods can have a positive impact on the economy. Apart from that, foreign direct investment can have a positive impact on opening up job opportunities in a country as well as technology transfer. Increased economic development will also be accompanied by economic growth in the country. Economic growth in any country cannot be separated from the role of investment.

From the demand side, increasing investment can stimulate economic growth by creating effective demand. Meanwhile, from the supply side, increasing investment will stimulate economic growth by creating more capital reserves which then develop in the form of increased production capacity. The rapid increase in investment, both local and foreign, in an area is an indicator that the area has a good economic system, because it is supported by sufficient resources, both natural resources and human resources. Investment is an important variable in driving an economy.

Indonesia is one of the developing countries in Southeast Asia which is included in the top four categories of good economic growth in Southeast Asia. The better and more foreign investors invest in developing countries, the easier it is to stabilize the economy. There are factors that can influence foreign direct investment that occurs in a country, one of which is that the country must pay attention to

the level of inflation in its country. When there is high inflation, it will cause an increase in the price of export commodities, which can reduce competitiveness with the price of the same commodity in other countries.

Another factor that investors pay attention to when investing capital in a country is looking at the movement of the country's currency exchange rate against the US dollar. Investors will invest in countries that have strong currency or exchange rates. Stable growth in currency value indicates that the country has relatively good or stable economic conditions.

Based on the background that has been explained, the author chose the title "The Effect of Exchange Rate and Inflation on Foreign Direct Investment in Indonesia". The study is aimed at understanding the determinants factors that affect investment especially foreign direct investment in Indonesia.

Chapter Two Literature Review

Foreign direct investment (FDI) is an important variable in improving the economic development of developing countries. Indonesia is a developing country in Southeast Asia that requires FDI to support its development ^[10].

Numerous studies have been conducted in different parts of the world and the majority of the studies have inspected the effects of determinants of FDI inflow and found that relevant determinants include the size and growth potential of the host market, economic stability, economic growth, political stability, infrastructure, human capital, interest rate, per capita income, tax rates, wage rates, quality of institutions, etc ^[11]. Many factors influence the foreign direct investment in Indonesia, including exchange rates and inflation.

2.1 Exchange Rate

According to Bussière (2020), the exchange rate (exchange rate) is the exchange between two different currencies, which is a comparison of the value or price between the two currencies. Foreign exchange rates are very dependent on market conditions. In a free market, the exchange rate will change following changes in demand and supply (Johnson, 2020) ^[18].

Exchange rates can affect investments in various ways depending on the investor's intention. When the focus of the investor was the local market, the appreciation of the local exchange rate increased the FDI due to the increased purchasing power of local consumers. When the goal of the investor is export, the appreciation of the local currency reduces FDI inflows through low competitiveness given the increase of labor costs (Bénassy-Quéré et al., 2001) ^[10].

The exchange rate or rupiah exchange rate can also affect investment returns. When the rupiah exchange rate weakens, it means that foreign currencies are strengthening, then this indicates that the economy is in a bad condition and vice versa. All companies listed on the IDX feel these things, including companies engaged in the transportation sector ^[2].

Exchange rate can be affected by many factors and sometimes cannot be predicted, so that's why investors should learn and pay attention to exchange rate movements in the host country ^[8].

2.2 Inflation

In the economic literature, the inflation rate is the same as the nominal money growth rate minus the economic growth rate. Over the past several decades, inflation-targeting regimes have been an essential goal of central banks in several countries (Ngoc, 2020) ^[3].

Inflation for the general public, is something that is encountered in everyday life. The level of inflation causes turmoil from time to time even though the level of decline or increase varies ^[18]. People's expectations of future inflation can be gleaned from movements in interest rates. Since nominal interest rates reflect, among other things, real interest rates and inflation expectations, interest rate movements can be used as indicators of inflation expectations ^[6]. Inflation will cause capital costs or costs of production to become higher. An increase in capital costs will result in a decrease in company profits. So, the yield level offered to investors will decrease, thereby reducing the interest of foreign investors in investing in portfolios ^[9].

2.3 FDI in Indonesia

Foreign Direct Investment (FDI) is a type of foreign investment. Stated that foreign direct investment is an international capital flow where a company in one country establishes or expands its operation or business networking in another country. Investment can be done by building, buying, or acquiring a company to gain long-term profits ^[8].

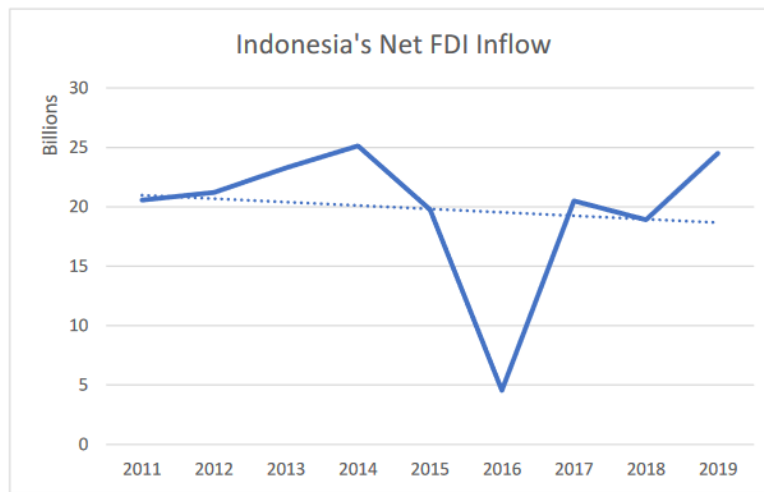


Figure 2 Indonesia's Net FDI Inflow

As depicted in Figure 2, Indonesia's FDI inflow suggests an increasing movement. Yet, the trend line in the graph is negative. This could insinuate that a decreasing amount of FDI could be expected in the future FDI, despite the latest increasing FDI inflow in 2019 [12].

2.4 Conceptual Framework and Hypothesis

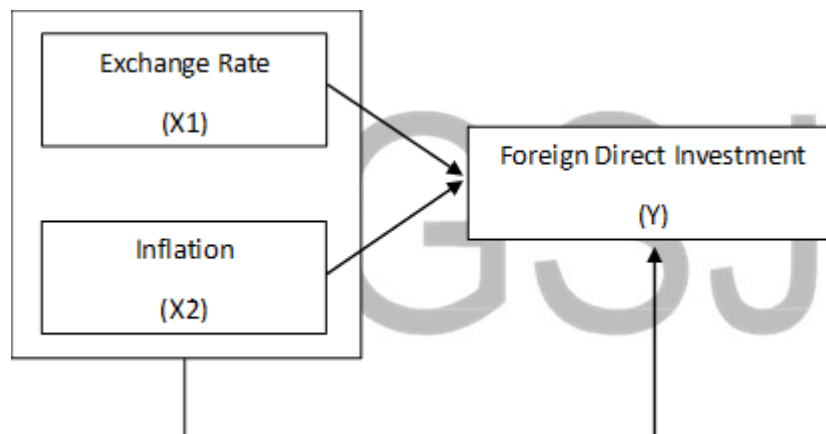


Figure 1 Conceptual Framework

This study examines the effects of exchange rates and inflation on foreign direct investment in Indonesia. Hypotheses are provisional assumptions whose accuracy requires testing. Thus, the hypotheses are as follows:

- H1: Exchange rate influences on foreign direct investment in Indonesia.
- H2: Inflation influences on foreign direct investment in Indonesia.
- H3: Exchange rate and inflation influences foreign direct investment in Indonesia.

Chapter Three Methodology and Data

3.1 Research Variables

The research variables are dependent and independent. The dependent variable in this study is foreign direct investment(Y). The independent variables are exchange rate(X1) and inflation(X2).

3.2 Methodology of Data Collection

In this research, the author uses quantitative data. Quantitative data refers to numerical or numeric data (Lukman, 2007). This study utilizes data on exchange rates, inflation, and foreign direct investment in Indonesia from 2018 to 2022, with processing assisted by SPSS 20.0. The data was collected from statistical data published by the World Bank Open Data (World Bank) and the Central Bank of Indonesia (Bank Indonesia).

3.3 Method of Analysis

3.3.1 Normality Test

Normality test is useful to determine the data that has been collected normal distribution or taken from a normal population ^[19]. The basis for decision-making for this normality test is the Kolmogorov-Smirnov test where if the Sig (p) value is > 0.05 then the data has a normal distribution (Ghozali, 2013).

3.3.2 Multicollinearity Test

A multicollinearity test was carried out for the regression equation with at least two independent variables. Therefore, in the multiple linear regression equation, it is necessary to test Multicollinearity first.

Detection of Multicollinearity can be known by doing a correlation test between independent variables. In addition, the most popular multicollinearity detection is looking for the value of the variance inflation factor (Kanda Data, 2022). When the tolerance value is > 0.10 and the variance inflation factor (VIF) value is < 10, then there is no multicollinearity.

3.3.3 Autocorrelation Test

Autocorrelation is the relation between the residuals of one observation and the residuals of other observations. Autocorrelation occurs more easily in time series data. Because in most cases, current data can be influenced by previous data. If the data being analyzed contains autocorrelation, it causes the estimator to be LUE, no longer BLUE. Testing for autocorrelation symptoms can be done using the Durbin-Watson (DW) test and the Breusch-Godfrey test.

3.3.4 Heteroscedasticity Test

Heteroscedasticity test aims to test whether a variable regression model dissimilarity of the residual of an observation to the observation of others. If the variance of the residuals remains, then called homoscedasticity, and if the variance is different so-called heteroscedasticity.

Chapter Four Results

4.1 Normality Test

The data in this study are exchange rate, inflation and FDI in Indonesia from January 2018 until December 2022, so the N is 60, as every year has 12 months and is multiplied by 5.

Table 1 Normality test result

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		60
Normal Parameters ^{a,b}	Mean	.0000254
	Std. Deviation	2019317860.44
Most Extreme Differences	Absolute	.124
	Positive	.124
	Negative	-.116
Kolmogorov-Smirnov Z		.961
Asymp. Sig. (2-tailed)		.314

a. Test distribution is Normal.

b. Calculated from data.

Source: Secondary Data, processed by SPSS 20, 2023

In the table description (One-Sample Kolmogorov-Smirnov Tests). Asymp.Sig (2-tailed) value is 0.314. Therefore, if the Asymp value > 0.05, then the hypothesis is accepted. From table 1, it can be explained that the distribution of residual values in each of the regression equation models will be declared to be normally distributed.

4.2 Multicollinearity Test

Reliability testing is performed to determine how consistent measurements remain. Measurements can only be trusted or reliable if they are measured multiple times on the same group of subjects and as long as the aspect being measured does not change among the subjects. The method used to measure reliability in this study was using the Cronbach Alpha coefficient formula.

If Cronbach Alpha >0.6, the results of the questionnaire test are said to be reliable. In this test, the researcher used SPSS 20. The number of respondents is 120, the significance level is 5%, and the r table value (r table) = 0.179. The reliability test results calculated with the SPSS program are shown in the table 2.

Table 2 Multicollinearity test result

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	6734720 5588.169	1552318 5452.771		4.33 8	.000		
	Exchange Rate	- 3303394. 876	1090568. 015	-.390	- 3.02 9	.004	.893	1.12 0
	Inflation	5161369 46.581	2441287 53.519	.272	2.11 4	.039	.893	1.12 0

a. Dependent Variable: Foreign Direct Investment

Source: Secondary Data, processed by SPSS 20, 2023

The multicollinearity test can be analyzed from the Variance Inflation Factor (VIF) value and tolerance value. If VIF <10 and tolerance value >0.1 then multicollinearity does not occur. Vice versa, if VIF >10 and tolerance value <0.1 then multicollinearity occurs.

In table 2, it can be explained that the tolerance value has shown that there are no independent variables that can have a value less than 0.1. The exchange rate gets a result of 0.893, and inflation gets the same value, namely 0.893. In the VIF table we also get results that do not exceed 10. For the exchange rate and inflation both get a result of 1,120. So, in this research it can be explained that there is no multicollinearity.

Table 3 F Analysis Test Result

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4469325358217 6420000.000	2	2234662679108 8210000.000	5.295	.008 ^b
	Residual	2405810326699 49700000.000	57	4220719871402 626000.000		
	Total	2852742862521 26100000.000	59			

a. Dependent Variable: Foreign Direct Investment

b. Predictors: (Constant), Inflation, Exchange Rate

Source: Secondary Data, processed by SPSS 20, 2023

From the Table 3, the magnitude of the probability numbers in the "ANOVA" calculation is to test the regression model. The results for this value are higher than the significance level of 0.05 (5%), as $0.08 > 0.05$. This means H_0 accepted and H_a rejected. Because dk in the denominator = $n-k-1 = 60-2-1 = 57$, so, the f -table is 3.16, and the result of a comparison between f -count and f -table shows that the f -count is 5.295 while the f -table is 3.16. These results show that f -count $>$ f -table, as $5.295 > 3.16$, it can be explained that simultaneously the independent variables Exchange Rate and Inflation have a significant effect on Foreign Direct Investment in Indonesia.

4.3 Autocorrelation Test

Autocorrelation Test aims to test whether, in the linear regression model, there is a correlation between the confounding error in period t and the confounding error in period $t-1$ (previous period). If correlation occurs, it means there is an autocorrelation problem.

Table 4 Autocorrelation Test Result

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.396 ^a	.157	.127	2054439064.90 4	.253

a. Predictors: (Constant), Inflation, Exchange Rate

b. Dependent Variable: Foreign Direct Investment

Source: Secondary Data, processed by SPSS 20, 2023

The basis for decision-making using the Durbin–Watson (D–W) test is: First, if D–W number (in the Summary Model Output) below - 2 means there is positive autocorrelation. Second, if D–W numbers (in the Model Summary Output) between - 2 to + 2 means there is no autocorrelation. Third, if D–W number (in the Model Summary Output) is above +2 means, there is negative autocorrelation (Difarissa, et.al., 2014).

From the Table 4, from the DW column, the value is .253. Then the DW value was compared with DU and $4-DU$. The DU value is taken from the DW table with $n=60$ and $k=2$ so that a DU value of 1.6518 can be produced, then proceed with making decisions with the following conditions $du < d < 4-du$ at the value ($1.6518 < .253 < 1.6518 = 2.3482$) which shows that in each regression model in this study there are no autocorrelation.

4.4 Heteroscedasticity Test

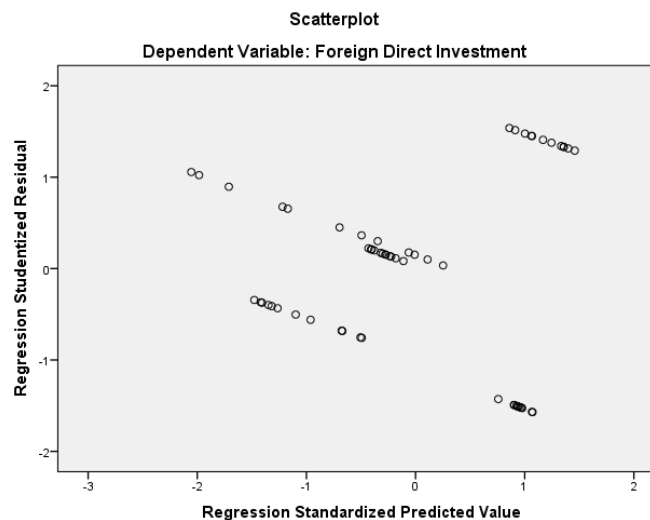


Figure 1 Heteroscedasticity test result

Source: Secondary Data, processed by SPSS 20, 2023

In Figure 1 of the scatterplot graph, can be seen that the points have spread above and below or are around the number 0, and the points distribution is not only above or below.

The distribution of the data does not form wavy patterns that widen and then narrow and widen again and also have no pattern. So, it means that there is no heteroscedasticity.

Conclusion

Exchange Rate variable has a value of t count (-3.029) < t table (2.004) with a significance value of 0.004 < 0.05. So, the Exchange Rate partially has a negative and significant effect on Foreign Direct Investment in Indonesia. The stronger Indonesian currency (Rupiah) makes foreign investors interested in investing their funds in Indonesia, this is because the stronger rupiah currency shows that the country's economic condition is stable so investment risks are smaller, which is a positive signal for investors to invest in Indonesia.

Inflation Rate variable on Foreign Direct Investment has a value of t count 2.114 > t table 2.004 with a significance value of 0.039 < 0.05. So, the Inflation has a positive and significant effect on Foreign Direct Investment. When inflation increases, it indicates that the country is experiencing an increase in consumption. An increase in consumption indicates that demand for goods and services in that country is also increasing, this will cause a rapid turnover of goods or services in a country, followed by an increase in production. This causes profits for investors to increase. So, investors are interested in investing in that country.

Based on the results of the simultaneous test (F Test), the value f count (5.295) > f table (3.16) was obtained with a significance value of 0.008 < 0.05. Based on these results, it means that the Exchange Rate and Inflation variables have a joint or simultaneous and significant effect on Foreign Direct Investment in Indonesia.

Suggestion

The government is expected to be able to maintain the inflation in Indonesia to stay stable. The government is expected to be able to be more thorough in making policies and regulations related to investment. Apart from economic improvements from a macro perspective, uncomplicated bureaucracy, and stable social and political conditions also influence the investment climate in Indonesia, both domestic and foreign.

Future researchers can also add several other variables to this research. So that research on the determinants of Foreign Direct Investment in Indonesia can be studied more in-depth.

References

- [1] Ade H. PENGARUH INFLASI, NILAI TUKAR, DAN PERTUMBUHAN EKONOMI TERHADAP INVESTASI ASING LANGSUNG DI INDONESIA DALAM PERSPEKTIF EKONOMI ISLAM (PERIODE 2011-2019) [J]. UIN RADEN INTAN LAMPUNG. 2022.
- [2] Amanda ST, Akhyar C, Ilham RN. THE EFFECT OF INFLATION, EXCHANGE EXCHANGE, INTEREST RATE ON STOCK PRICE IN THE TRANSPORTATION SUB-SECTOR, 2018-2020[J]. *Journal of Accounting Research, Utility Finance and Digital Assets*. 2023 (1): 342-352.
- [3] ANDRIYANI K, MARWA T, ADNAN N, MUIZZUDDIN M. The determinants of foreign exchange reserves: Evidence from Indonesia[J]. *The Journal of Asian Finance, Economics and Business (JAFEB)*. 2020 (7): 629-636.
- [4] Ashurov S, Othman AHA, Rosman RB, Haron RB. The determinants of foreign direct investment in Central Asian region: A case study of Tajikistan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan (A quantitative analysis using GMM) [J]. *Russian Journal of Economics*. 2020 (6): 162-176.
- [5] Astuty F. the Analysis of Foreign Direct Investment and Its Affecting Factors in Indonesia[J]. *Quantitative Economics Journal*. 2021(9): 23-36.
- [6] Bina A, Rahmadana MF, Yusuf M. The analysis of factors affecting inflation in Indonesia[J]. In: *ICoSTA 2022: Proceedings of the 4th International Conference on Science and Technology Applications, ICoSTA 2022, 1-2 November 2022, Medan, North Sumatera Province, Indonesia*. European Alliance for Innovation. 2023.
- [7] Budiono S, Purba JT. Factors of Foreign Direct Investment Flows to Indonesia in the Era of Covid-19[J]. *Available at SSRN 4059393*. 2022.
- [8] Dewi CS, Hutomo FO. Determinants of Foreign Direct Investment in Indonesia[J]. In: *Conference Series*). 2021.
- [9] Dharmawan H. Pengaruh Nilai Tukar Rupiah, Produk Domestik Bruto Dan Tingkat Inflasi Terhadap Investasi Portofolio Asing Di Pasar Modal Indonesia[J]. *Jurnal Ilmiah Mahasiswa FEB*.2021 (9).
- [10] Djulius H. Energy use, trade openness, and exchange rate impact on foreign direct investment in Indonesia[J]. In: *Energy use, trade openness, and exchange rate impact on foreign direct investment in Indonesia: Djulius, Horas*. 2017.

- [11] Fernandez M, Almaazmi MM, Robinson J. Foreign direct investment in Indonesia: an analysis from investors perspective[J]. *International Journal of Economics and Financial Issues*. 2020 (10): 102.
- [12] Ghazi M. The determinant of foreign direct investment in Indonesia[J]. *Jurnal Bisnis dan Akuntansi*. 2021 (23): 297-306.
- [13] Irawan CB, Sasongko B, Mukhlis M, Yanto DDGF, Wulandari MW. Trade and Foreign Direct Investment on Economic Growth in Indonesia ARDL Approach: English[J]. *Tamansiswa Accounting Journal International*. 2020 (5): 70-75.
- [14] Juliannisa IA. Pengaruh kurs terhadap investasi di Indonesia tahun 1987-2018[J]. *Bisman-Jurnal Bisnis & Manajemen*. 2020 (5): 120-124.
- [15] MEIVITAWANLI B. Determinants of foreign direct investment: Evidence from provincial level data in Indonesia[J]. *The Journal of Asian Finance, Economics and Business*. 2021 (8): 53-60.
- [16] PRABOWO ST. Faktor-Faktor Yang Mempengaruhi Penanaman Modal Asing (Pma) Di Indonesia (Periode 1987-2020) [J]. 2021.
- [17] Putri NK, Komara K, Setyowati T. Pengaruh Nilai Tukar, Pertumbuhan Ekonomi, Inflasi, dan Suku Bunga terhadap Investasi Asing Langsung di Indonesia[J]. *JKBM (JURNAL KONSEP BISNIS DAN MANAJEMEN)*. 2021 (8): 11-25.
- [18] Sinaga JS, Muda I, Silalahi AS. The effect of BI rate, exchange rate, inflation and third party fund (DPK) on credit distribution and its impact on non performing loan (NPL) on XYZ commercial segment bank[J]. *Universal Journal of Accounting and Finance*. 2020 (8): 55-64.
- [19] Sitompul S, Ichsan RN, Nasution L. The Influence of Exchange Rate, Inflation, For the Results of the Development Assets of Islamic Banks[J]. 2021.
- [20] Yang X, Shafiq MN. The Impact of Foreign Direct Investment, Capital Formation, Inflation, Money Supply and Trade Openness on Economic Growth of Asian Countries[J]. *iRASD Journal of Economics*. 2020 (2): 25-34.

