Determinants of Foreign Direct Investment in Indonesia

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Abstract

The objective of this research is to investigate the influence of macroeconomic factors such as market size, labor cost, interest rate, exchange rate, trade openness, and inflation to the foreign direct investment in Indonesia. This research uses a quantitative approach with time series data, quarterly from 2006 to 2019. The data is processed using SPSS Statistics 23 software, specifically linear regression analysis method and passed the classical assumption test. Results show that there is a partially significant relationship between market size, labor cost, interest rate, exchange rate, and trade openness to the foreign direct investment, meanwhile inflation does not significantly affect the foreign direct investment. These findings hopefully can help the government to make wiser policies to increase the foreign direct investment.

Keywords: Foreign Direct Investment, Market size, Trade openness, Labor cost

I. INTRODUCTION

The Corona Virus Disease 2019 or more likely known by COVID-19 makes the global economy in crisis. The world is faced with urgent health issues and must save its population from this pandemic. The International Monetary Fund (IMF) stated that the economic situation in 2020 is worse than The Great Depression in 1992 and the 2008 Financial Crisis. Even the United States suffered from the biggest recession which made its citizens lose their jobs and become poor. Other countries such as Germany, France, Japan, and Singapore are following the United States to make their entries in the list of countries who are suffering from recession [1].

This pandemic is not over yet, hence the economic crisis is still ongoing. Deficits of developed countries can be above 10% to 15%, even there is also a case of the deficit above 20%. According to the Minister of Finance of Indonesia, Indonesia’s economy is not slumped like those developed countries. The Bank of Indonesia keeps it on track with fiscal and monetary instruments so that the economy and financial stability can be maintained [2]. Based on the Badan Pusat Statistik (BPS) Indonesia’s economic growth year-on-year before the pandemic grew 5,02% in the third quarter and then 4,97% in the fourth quarter. When the first pandemic appeared
in Indonesia which is in 2020, there was still 2.97% growth in the first quarter even though it contracted to minus 3.49% in the third quarter.

Regarding investment, Indonesia suffers from great loss in competitive rate caused by the pandemic, although investors' trust to keep investing in Indonesia is at a stable rate according to rating results from a trusted rating agency. Not only that, there were also several agencies who raised their credit rating during the pandemic. According to the sovereign credit rating, in the matter of national debt management, Indonesia is recognized by some International Rate Agencies. The data from Bank of Indonesia illustrates. Standard and Poor’s Index (S&P) gives BBB rating and revised the outlook from Stable to Negative. But S&P assumes Indonesia's growth recovery to gain power into 2022, besides the capability of Indonesia to pay short-term external borrowings is well maintained [3].

<table>
<thead>
<tr>
<th>Rating agency</th>
<th>Sovereign Credit Rating</th>
<th>Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitch Ratings</td>
<td>BBB</td>
<td>STABLE</td>
</tr>
<tr>
<td>Moody’s Investor Service</td>
<td>Baa2</td>
<td>STABLE</td>
</tr>
<tr>
<td>Japan Credit Ratings</td>
<td>BBB+</td>
<td>STABLE</td>
</tr>
<tr>
<td>Rating &amp; Investment Information</td>
<td>BBB</td>
<td>STABLE</td>
</tr>
</tbody>
</table>

Source: Bank of Indonesia [3]

These ratings (table 1) from several international agencies should increase external trustworthiness towards the current or future health of Indonesia’s economy. The forecast of Indonesia’s economy is going to be stable from year to year with balanced risk, hence this hopefully can be a positive sentiment for the investors to increase their interest to invest in Indonesia. With that being said, there will be more foreign inflow to Indonesia’s capital market as a source of economic development.

According to the Ministry of Finance of Indonesia, The National Revenue and Expenditure Budget (APBN) experienced a deficit every year during these last three years before the pandemic. A deficit in the state budget is when the state’s spending need is always bigger than its income [4].
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Source: Ministry of Finance of Indonesia [4]

Figure 1 illustrates that Indonesia's National Revenue and Expenditure Budget (APBN) experienced a deficit from year to year. In 2018, Indonesia experienced a deficit up to IDR 326 trillion and decrease to IDR 296 trillion in 2019. Meanwhile, 2020 when Indonesia needed IDR 2540.4 trillion to expenditure, there was still a deficit of IDR 307.2 trillion. From this data, it can be concluded that Indonesia’s revenue cannot suffice its growing expenditure, so more funds are needed to support continuous economic development.

For more detailed information regarding the foreign direct investment in Indonesia, we can see from the chart below that there is a fluctuation during the period of 2006 to 2019.

**Figure 2 Foreign Direct Investment Inflow (% of GDP) Indonesia (in US$ trillion)**

Source: World Bank [22]

With that being acknowledged, the Indonesian government needs to consider the policies that will be set because it will affect the macroeconomic conditions and determine the amount of cash flow that will be spent or earned by Indonesia. This finding later hopefully can help the government to provide preventive measures in order to anticipate the worst-case scenario like pandemic. One of the government’s policies to increase cash inflow is to allow investment in a form of Foreign Investment. Generally, foreign investment is classified into foreign direct investment and portfolio investment [5]. Foreign direct investment is an investment in a form of fixed assets to foreign countries in which can be used to operate business [6].

1. **Foreign Direct Investment**
Foreign Direct Investment (FDI) is a type of foreign investment. [7] 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 with building, buying, or acquiring a company in order to gain long-term profits.

There are several reasons why investors want to do a foreign direct investment. According [8] there are two main reasons to invest abroad, which are horizontal and vertical foreign direct investment. Horizontal foreign direct investment is to serve the domestic market and vertical foreign direct investment is to lower cost or cost efficiency. However, to the host country, foreign direct investment is a part of direct investment where foreign investors from the other countries are the one who directly invest, and it will add capital to the destination country. Foreign direct investment is an important source of capital for a country’s economy. The company or country of origin which is doing the investment is called a home country, and the destination company or country which receives the investment is called a host country [9].

2. Determinants of Foreign Direct Investment

Market size shows the purchasing ability of people in one country [10]. Generally, market size can be measured by using the gross domestic product (GDP), GDP per capita, or total population. GDP per capita is the total value of all final goods and services produced by all economic units in a country divided by the total population of the country. A growing market size can be assumed as an advantageous positive sign, thus the greater growth of market size in a country will attract more investors to do FDI [9] and this statement goes along with the statement of [11] which states that a big market size is considered as a good sign to get a profitable investment. Not only that, according to [23], economic sentiment (market size) determines whether investors will invest in a country or not, depending on its state (value). A good market size will attract more investors to directly invest, and a bad market size will motivate investors to do the opposite. [27] stated that there is a long-run relationship between GDP (market size) and the foreign direct investment in Pakistan.

Labor cost is an important part of total production, which means that the lower the labor cost, the more it will attract more foreign investors to invest in the country. This statement is in accordance with the statement of [8] which states that efficiency is the main reason why investors do FDI. According to [9], a country with low labor cost will attract investors because it can reduce business and production costs. Labor cost also can be considered as labor quality, this actively illustrates that the bigger the labor cost, the higher the skills of labor which is something that investors are looking for when investing in FDI [11]. According to [24], the findings suggest that relatively low labor cost plays an important role to drive foreign direct investment in the mining of mineral ore in Africa. [28] stated that the foreign direct investment in Korea leads to an increase in employment rate but in contrast decreasing the median weekly wage. This finding is in
accordance to [29] where the labor cost has a significantly negative impact on the inward flow of FDI in Malaysia.

Interest rate is a fee that must be paid by the capital borrower for the loan funds to the fund lender. One of the fund lenders is a bank, hence the customers who borrow funds from a bank must pay their interest at the interest rate of the loan amount [12]. Usually, interest rates are determined by the central bank, and the Bank of Indonesia is the one who establishes or sets the policy of interest rates in Indonesia. Interest rates have an important role in the investors’ decisions who want to invest their capital in a certain country. If the interest rate is high, investors tend to not invest due to the fact that the interest expense that will be borne is also going to escalate and vice versa, if the interest rate is lower than the offered return, investors will become more attracted to invest as they will get more profits.

Exchange rate is a relative price of one currency to another currency from other countries. According [12], exchange rate can be defined as the total amount of domestic currency needed, which is the amount of Rupiah needed, to gain a unit of foreign currency. Exchange rate can be affected by many factors and sometimes cannot be predicted, so that is why investors should learn and pay attention to exchange rate movements in the host country. In regards to this variable, it is important to note that a host country with a weak currency can attract more foreign direct investment due to the fact that the depreciation effect will make the assets in the home country will be more expensive than the assets in the host country [13]. According to [25], the findings suggest that the exchange rate volatility has a significant impact in the case of Southeast Asian countries without a floating exchange rate regime. This finding is contradictory to [27] which stated that real exchange rate harms the foreign direct investment in Pakistan. In accordance with that finding, [29] stated that over time, the appreciation of a local currency has a significant negative impact on Malaysia's inward flow of FDI.

A country who actively does international trading is called an open economy country. The openness level of one country can be shown by the amount of total export and import. The more open one country in doing international trade (trade openness), the higher the chance for the investors to invest and as a result will strengthen the relationship between that country and international market [14]. Trade openness of a country can be measured by dividing the total amount of export and import to the total amount of GDP of that country. According [10], the more open a country is in doing foreign trades, the more opportunities will be created to invest and strengthen the relationship between national and international markets. [29] in contrast stated that over time, trade openness has a significant negative impact on Malaysia’s inward flow of FDI.

Inflation is a continuous increase in the prices of goods and services, while on the other hand the level of the society's income is relatively fixed. The instability of a country’s economy can be described by high inflation, hence it can lead to a lack or obstruction of foreign investment entering Indonesia [15]. Inflation rate in one country can measure a country’s economic stability.
A stable or a decrease in the inflation rate means that the government can control inflation, so the country has a stable condition. If hyperinflation occurs, it means that the government cannot control the country’s situation. In a country with stable or decreasing inflation, it will attract investors to invest for the reason that there is a drop in goods’ price so the company’s operational cost will also go down [16]. According to [26], inflation has a significantly negative impact on enhancing foreign direct investment inflows in BRICS region. This finding is in accordance with [27] which stated that inflation harms the foreign direct investment in Pakistan and also to [29] where inflation has a significantly negative impact on the inward flow of FDI in Malaysia.

**Figure 2 Research Framework**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypothesis (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market size</td>
<td>$H_1$</td>
</tr>
<tr>
<td>Labor cost</td>
<td>$H_2$</td>
</tr>
<tr>
<td>Interest rate</td>
<td>$H_3$</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>$H_4$</td>
</tr>
<tr>
<td>Trade openness</td>
<td>$H_5$</td>
</tr>
<tr>
<td>Inflation</td>
<td>$H_6$</td>
</tr>
</tbody>
</table>

$H_1$: market size affects Foreign Direct Investment (FDI)

$H_2$: labor cost affects Foreign Direct Investment (FDI)

$H_3$: interest rate affects Foreign Direct Investment (FDI)

$H_4$: trade openness affects Foreign Direct Investment (FDI)

$H_5$: exchange rate affects Foreign Direct Investment (FDI)

$H_6$: inflation affects Foreign Direct Investment (FDI)

### III. RESEARCH METHODS

This research is quantitative research, where all the data used is secondary data with a causal research approach to investigate how independent variables namely market size, labor cost, interest rate, exchange rate, trade openness, and inflation will affect the dependent variable which is the foreign direct investment (FDI). This research use census sampling as technique sampling, where sample is population of this research. This research also uses quarterly time series data from 2006 to 2019.

Table 2 Variable Operationalization
Determinants of Foreign Direct Investment

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>Measurement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Foreign Direct</td>
<td>Foreign direct investment inflow value entering Indonesia</td>
<td>bkpom.go.id</td>
</tr>
<tr>
<td>2.</td>
<td>Market Size</td>
<td>GDP per capita = GDP / total population</td>
<td>bps.go.id</td>
</tr>
<tr>
<td>3.</td>
<td>Labor Cost</td>
<td>Average national minimum wage (annual)</td>
<td>bps.go.id</td>
</tr>
<tr>
<td>4.</td>
<td>Interest Rate</td>
<td>The Certificate of Bank of Indonesia interest rate</td>
<td>bi.go.id</td>
</tr>
<tr>
<td>4.</td>
<td>Trade Openness</td>
<td>Trade openness = (export + import) / GDP</td>
<td>bps.go.id</td>
</tr>
<tr>
<td>5.</td>
<td>Exchange Rate</td>
<td>US$/IDR exchange rate</td>
<td>bi.go.id</td>
</tr>
<tr>
<td>6.</td>
<td>Inflation</td>
<td>Inflation rate</td>
<td>bi.go.id</td>
</tr>
</tbody>
</table>

All data in this research will be processed with the help of IBM SPSS Statistics 23.0 software with regression analysis technique. There are several more data analysis techniques that will be used in this research to get multiple linear regression analysis results, namely: Descriptive Analysis, Classical Assumption Test, Goodness of Fit Test, and Hypothesis Test.

**IV. FINDINGS AND RESULTS**

Object of this research is Indonesia, using quarterly time series data from 200 to 2019. The dependent variable used in this research is foreign direct investment with total observations of 56 data. Classical assumption test is a requirement that is needed to be fulfilled in multiple regression analysis. This research has passed normality test, heteroskedasticity test, autocorrelation test, and multicollinearity test with the explanation in Table 2.

**Table 3 Classical Assumption Test Summary**

<table>
<thead>
<tr>
<th>Classical Assumption Test</th>
<th>Requirements</th>
<th>Results Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normality Test</td>
<td>Sig. KS-Test &gt; 0.05</td>
<td>Doing transformation in ER data and Passed (every variable shows Sig. &gt; 0.05)</td>
</tr>
<tr>
<td>Heteroskedasticity Test</td>
<td>Scatterplots shows scattering points or pattern</td>
<td>Passed (Scatterplots shows scattering points or pattern)</td>
</tr>
<tr>
<td>Autocorrelation Test</td>
<td>di&lt;d&lt;du table → di 1,172; du 1,638</td>
<td>Passed (d = 1,329) 1,172&lt;d&lt;1,329&lt;1,638</td>
</tr>
<tr>
<td>Multicollinearity Test</td>
<td>Tolerance&gt;0,1 VIF &lt;10</td>
<td>Doing transformation in MS and LC data, and Passed (Tolerance and VIF are appropriate)</td>
</tr>
</tbody>
</table>

Source: Ghozali (2016), Processed results from SPSS 23.0, 2020

This analysis uses correlation coefficient value, coefficient determination, and F-test. The R value shows how significant the relationship between the independent and dependent variable.
is. Bigger R value illustrates a more significant relationship. Coefficient determination value explains how the independent variable can explain the dependent variable which can be measured by the Adjusted R square. F-test is used to see the influence of MS, LC, IR, TO, ER, and Inf to the FDI simultaneously and can be calculated using the significance value less than 0.005.

Table 4 Model Summary and ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R square</th>
<th>Adj. R square</th>
<th>Std error</th>
<th>F-test</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.933</td>
<td>0.870</td>
<td>0.854</td>
<td>12950734582702.52700</td>
<td>54.564</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Dependent variable: FDI
Predictors: (Constant), MS, LC, IR, TO, ER, Inf
Source: Processed results from SPSS 23.0, 2020

According to Table 3 above, the adjusted R-square which shows a result of 0.854 means that the dependent variable (FDI) can be explained by the independent variables (MS, LC, IR, TO, and Inf) by 85.4% and the rest of 14.6% can be explained by the external variable outside of this research. According to the F-test result, the significance value of 0.000 is less than 0.05 so it can be concluded that market size, labor cost, interest rate, trade openness, exchange rate, and inflation simultaneously affect the foreign direct investment.

The hypothesis test in this research uses t-test, where the value calculated with significance level less than 0.05 and the results obtained as follow:

Table 5 Regression Analysis Results Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficients Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td></td>
<td>-1,911</td>
<td>0,109</td>
</tr>
<tr>
<td>MS</td>
<td>0.391</td>
<td>2.108</td>
<td>0.040*</td>
</tr>
<tr>
<td>LC</td>
<td>0.153</td>
<td>2.168</td>
<td>0.035*</td>
</tr>
<tr>
<td>IR</td>
<td>-0.357</td>
<td>-2.634</td>
<td>0.011**</td>
</tr>
<tr>
<td>TO</td>
<td>0.341</td>
<td>3.378</td>
<td>0.001***</td>
</tr>
<tr>
<td>ER</td>
<td>0.397</td>
<td>2.594</td>
<td>0.012*</td>
</tr>
<tr>
<td>Inf</td>
<td>0.188</td>
<td>1.630</td>
<td>0.110</td>
</tr>
</tbody>
</table>
Dependent variable: FDI
Source: Processed results from SPSS 23.0, 2020

According [17], standardized beta coefficients can be used if the size of independent variables are not equal, because standardized beta coefficients can eliminate sizing unit differences in the independent variables. In this research, the sizing unit used in the independent variables is different, so it will not have a constant if standardized beta coefficients are used.

Based on Table 4 above, the formed regression equation is:

\[ FDI = 0.391 \text{MS} + 0.153 \text{LC} - 0.357 \text{IR} + 0.341 \text{TO} + 0.397 \text{ER} + 0.188 \text{Inf} + e \]
V. DISCUSSION

According to the t-test result, the significant value of market size (MS) is 0.040 which is less than 0.05 thus it can be said that $H_1$ is accepted. Positive regression coefficient result shows that market size which is measured with GDP per capita positively affects the FDI in Indonesia. High market size shows the prosperity level of its society. If Indonesia generates a big GDP per capita, it will illustrate that there is no issue in Indonesia’s economic growth, so that foreign investors’ trust will increase to invest their capital and, in the end, can increase the amount of foreign investment entering Indonesia. This finding is in accordance with the study done which stated that market size affects the foreign direct investment [26];[29];[30].

According to the t-test result, the significant value of labor cost (LC) is 0.035 which is less than 0.05 thus it can be said that $H_2$ is accepted. This actively illustrates that labor cost affects the foreign direct investment. The labor cost in Indonesia experienced an escalation from year to year which showed that the regions in Indonesia are considered to be able to give increasing wages every year. One of the ways to measure a country’s prosperity is by looking at its labor wages, so it can be said that Indonesia is prospering enough to attract foreign investors to invest. This finding is in accordance with the study done which stated that labor cost affects the foreign direct investment [11];[13].

According to the t-test result, the significant value of interest rate (IR) is 0.011 which is less than 0.05 thus it can be said that $H_3$ is accepted. Negative regression coefficient results show that interest rates negatively affect the foreign direct investment. An increase in the Certificate of Bank of Indonesia’s interest rate indicates that there are only a few projects done because the interest expense is high so that foreign investors are less attracted to invest in Indonesia. This finding is in accordance with the study done which stated that interest rate affects the foreign direct investment [19];[29].

According to the t-test result, the significant value of trade openness (TO) is 0.001 which is less than 0.05 thus it can be said that $H_4$ is accepted. It means that trade openness affects the foreign direct investment. The bigger the international trade done by Indonesia (export-import) shows that the trade openness in Indonesia has a high international scale. Indonesia’s active participation in trade openness indicates that the regulations managed by the Indonesian government can simplify and facilitate foreign investors to invest in Indonesia. This finding is in accordance with the study done which stated that trade openness affects the foreign direct investment. [26];[27].

According to the t-test result, the significant value of exchange rate (ER) is 0.012 which is less than 0.05 thus it can be said that $H_5$ is accepted. This actively illustrates that exchange rate affects the foreign direct investment. Exchange rate is measured to determine a country’s economic stability or strength. The exchange rate of the home country to the host country which
gets stronger every year can cause the asset price in the host country to be cheaper than the home country and this will lead to an increase in foreign direct investment. This finding is in accordance with the study done which stated that exchange rate affects the foreign direct investment. [11];[14];[18]

According to the t-test result, the significant value of inflation (Inf) is 0.110 which is more than 0.05 thus it can be said that H₆ is rejected. It means that inflation does not affect the foreign direct investment. This is due to the reason that there is a constant short-term fluctuation in Indonesian inflation, hence does not affect the foreign investors to invest in Indonesia. This finding is in accordance with the study done which stated that inflation does not affect the foreign direct investment [16];[21]. However, this finding is contradictory with [15];[19].

VI. CONCLUSION

There are significant and positive relationships between market size and foreign direct investment, labour cost and foreign direct investment, trade openness and foreign direct investment, and exchange rate and foreign direct investment. On top of that, there is a significant and negative relationship between interest rate and foreign direct investment. On the other hand, inflation does not affect the foreign direct investment.

This research only used macroeconomic factors as independent variables, namely market size, labor cost, interest rate, trade openness, exchange rate, and inflation, meanwhile there are other factors that can influence the foreign direct investment such as domestic growth, stock market performance, and volatility exchange rate. Not only that, this research also only focused on Indonesia with an observation period from 2006 to 2019.

According to results analysis that has been stated before, hopefully the Indonesian government can pay more attention to foreign direct investment through the indicators that have effect in this research. The Government through the Bank of Indonesia as a monetary policy maker must pay attention to economic growth to stabilize the currency (Rupiah) and set an interesting interest rate for the foreign investors to invest in Indonesia. The Government also needs to pay attention to national and international situations regarding average minimum wages so it can be reviewed. Last but not least, there is also a need to evaluate the policy regarding international market activity namely export and import so that the trade openness can be broader. Overall, this research hopefully can provide insights to the government in order to increase foreign direct investment in Indonesia during the period of crisis.

REFERENCES


Determinants of Foreign Direct Investment...