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RISK ANALYSIS OF OPTIMIZATION OF FDI IN INDONESIA EVIDENCE OF COINTEGRATION MODELING AND ECM

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ABSTRACT

Foreign Direct Investment (FDI) is one of the superior strategies commonly used by governments from developing countries to obtain funding for development. Because of the research that concentrates on risk management, the authors tried to use six free variables derived from the economic framework. The goal is to be able to find out how the selected free variables affect long - term and short - term FDI optimization. Then from the six variables, the author identified unexpected incident which can cause the risk of FDI optimization in Indonesia. Error correction model is the method used by the author to process the data. The results showed similar results for both the long and short term. Exports and foreign debt are variables that do not significantly affect the presence of FDI in Indonesia. Meanwhile, interest rates and exchange rates are free variables that have a positive and significant effect, while labor and GDP have a negative and significant effect.

INTRODUCTION

Indonesia is one of the countries that is included in the category of major countries in the world and is located in Southeast Asia. It can be seen from its land area of 1,904,569 km^2 (not including water/ocean areas), the population density, and abundant natural resources. Indonesia stretches over an area of 2,020,000 million KM^2 between the Indian and Pacific Oceans. For the Southeast Asia region, Indonesia is the largest country compared to others. With the existing characteristics, there must be so many natural resources and human resources that should be processed to be of maximum benefit. Based on the information, Indonesia should be one of the countries with the potential to succeed. However, since achieving independence on August 17, 1945 until now Indonesia has remained only in the category of developing countries. Many factors can be used as reasons for this. One of them is closely related to the geographical location of a very large country and is also an island country.

Even so, it is undeniable that Indonesia actually has a lot of progress in terms of economic growth since it has succeeded in being independent of foreign colonialism. However, this is still not enough to make Indonesia have a strong economy, to be equal to other developed countries. It cannot be separated from progress that is also even faster achieved by other countries. However, there are many countries that are younger than Indonesia but have better economic growth.

Looking at the track record of the countries included in the category countries with advanced economies today (like Germany, USA, England, etc.), most of them have been part of a strong country since the war era. This is marked by the countries' ability to do production, such as technology, vehicles (planes or cars), and even weapons. These products are included in the category of products that require technology and high costs (capital intensive) to produce.

From here it can be seen that, economic growth cannot be separated from the existence of capital available for government use (Kanayo, 2013; Wang & Liu, 2016). The size of the capital owned by the government will determine sooner or later the economic growth that occurs in a country (Massey, 2019). The role of capital is to facilitate development activities such as production activities, improving education, and infrastructure development, especially for developing countries (Cook, 2011; Lin, 2011; Srinivasu et al., 2013). These are the key factors in efforts to encourage the increase in economists.

Capital from within an organization will be very dependent on the quality of workers in it (Kryscynski et al., 2021; Pasban & Nojedeh, 2016). Speaking of state revenue, then three main sources of Indonesia's income are tax revenue, non-tax state revenues (PNBP) and grants (Sinaga et al., 2020). In the author's view, the revenue received by the government in each period will not be sufficient to be used in carrying out developments that result in economic growth. especially if you look at it from the perspective of the big targets that have been set. This situation needs to be given special attention to the government to be resolved as well as possible. High economic growth is determined by high/fast development too.

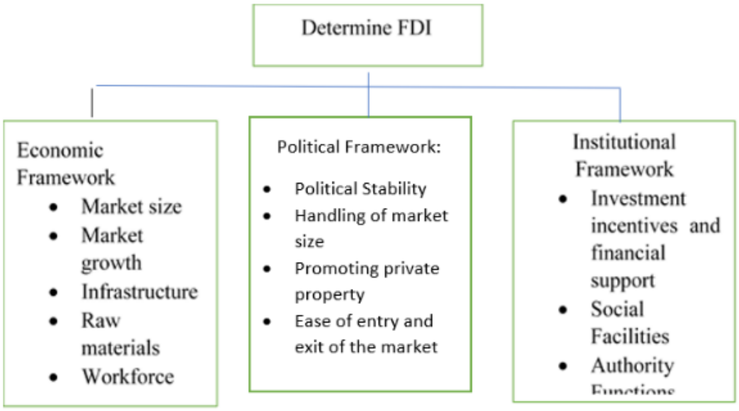
Beyond the economic growth that is critical to any developing country, the government has also targets to be achieved and it is a common hope that this can be realized. Target can be interpreted as a picture of a future state that is different from the current situation and is something that is desired (Nephew, 2017). It offers orientations for individuals and organizations, for society, politics, science, research or business and economics. These targets require very large capital that, according to the authors, can not be covered by state revenue. The two targets for Indonesia to have big capital are the hope that the country can be included in the top five economic strengths by 2045 (closely related to economic growth) and the new capital city is also expected to be fully operated by 2045. For the construction of the new capital, it also requires a lot of funds.

With the increase in funds available for government use, the equity owned by the state will also increase (Muda et al., 2016). Thus, additional funds from equity can be used by the government as capital to carry out development projects and other production activities that are important in an effort to achieve existing targets (Schwerhoff & Sy, 2017). The accumulation of additional funds will have a very big influence on Indonesia, where the availability of capital and labor is very limited and is one of the factors hindering development in developing countries.

Therefore, the government needs to find an additional source of funds. One strategy that can be implemented by the government is to invite foreign investors to attend Indonesia. Unlike the case with indirect investment, such as portfolio investment which investors can withdraw at any time, Foreign Direct Investment has properties that are more committed to the long term, so it is considered more value for a country. This view is certainly in line with what has become the government's target and also the hope of all of us. Targets and expectations are that in the next twenty years or so (2045), the Indonesian people can already enjoy a more prosperous life compared to now.

Like inviting investors into a business company, the government will face competition with other developing countries in an effort to bring in foreign investors (Wijoyo, 2021). This is inevitable because other developing countries also want economic growth in their countries. Hence, foreign investors are willing to invest in Indonesia, the government also need to strive for positive or interesting things that can affect foreign investors to come to Indonesia so that the government can convince foreign parties about the benefits that will be obtained for investors and also Indonesia. Through the picture presented below, it can be seen the factors that determine Foreign Direct Investment in a country (Mölders, 2011):

Figure 1. Factors Determining Foreign Direct Investment in a Country


Determine FDI
Economic Framework
Market size
Market growth
Infrastructure
Raw materials
Workforce
Political Framework:
Political Stability
Handling of market size
Promoting private property
Ease of entry and exit of the market
Institutional Framework
Investment incentives and financial support
Social Facilities
Authority Functions

Because this study is related to the concentration of Risk Management, the author tried to take six free variables that in the author's view can make the FDI target achieved, but on the other hand it becomes unattainable because of the risks resulting from these variables. Declining exports, high foreign debt, high interest rates, lack of availability of competent labor, weakening / fluctuations in the Rupiah exchange rate, and low state GDP are unforeseen events derived from the six macroeconomic variables to be used. For this reason, the government needs to pay attention and also maximize activities related to the six variables above in order to mitigate the opportunities and impacts of existing KTD. The closest discussion to this topic was surfaced by Sijabat (2022) in which it is stated that FDI affects Indonesia's economic growth through an analysis using Toda-Yamamoto approach, which then ignited the researchers' interest. Hence, the title that the author feels appropriate for this study is "Risk Analysis of Optimization of FDI in Indonesia Evidence of Cointegration Modeling and ECM."

METHOD

Econometrics is a branch of economics that brings together economic theory, mathematical methods, and statistical data to empirically test economic theoretical models and analyze economic phenomena quantitatively. The reason why the author decided to use the econometric method is because the data used is time series data.

To complete this study, the authors collected secondary data as data to be processed. These data are already available on the internet from several sources, such as the World Bank, the Central Statistics Agency (BPS), and also assistance from other reliable sources. The time period used is 30 years (or those from 1991 – 2020). The independent variables are exports, foreign debt, central bank interest rates, labor, exchange rates, and GDP. Meanwhile, the dependent variable is FDI. The authors process the collected data using a quantitative approach. The Error Correction Model (ECM) test process was supported by using the Eviews 10.

RESULT AND DISCUSSION

Effect of Exports on FDI

The results show that exports (X1) have a negative and insignificant effect on FDI in Indonesia for the long and short term. As is well known, prob. of the export variable is 0.3528 for the long term and 0.4027 for the short term. According to the authors, it is because the need for production capital can be met, either through own sources of funds or domestic private investors. In addition, it is due to Indonesia's ability to provide products needed in the international market without the help of investors from foreign countries. The existing capabilities in a country will certainly close the opportunity for the entry of foreign investors, except for those who want to manufacture their products in Indonesia.

Many economic observers have also often observing what factors influence foreign investors to come to a country. One of them is to increase profits by trying broaden the consumer reach (market search) of their products alone. This is in line with the results of the UN Conference on Trade and Development (UNCTAD, 1998), there are three motives for investing: market search, resource search, and efficiency quest.

However, when talking about the export risk variable, it can have a significant effect on changes in the world economy. If in the future exports become significant, it will pose a big risk for FDI in Indonesia. This is due to the negative coefficient for the export variable (- 0,017149 for long term /. - 0,022412 for short term). Thus, the government cannot rule out this variable and still needs to analyze unexpected events and mitigate. The goal is that export activities can continue to run optimally and not disturbed. Opportunity mitigation is mitigation implemented before an unexpected event occurs (Gonovski, 2017). Impact mitigation is mitigation that is implemented after an unexpected event occurs (Todd & Ancell, 2014).

Opportunity Mitigation

1) Create extensive monetary and fiscal policies
2) Indonesia's economic resilience needs to be weighed by market efficiency (product variation and price)
3) Maintaining resilience in the event of an international crisis; pay attention to price formation, constantly updating existing laws; making relevant export policies including anchoring companies in the international innovation ecosystem; identify the need for skilled workers, strengthen service export activities and so forth.

4) Mitigate opportunities for exports of the following risks: political risk, transfer risk, default risk, impossibility to deliver goods risk.

Impact Mitigation

1) Enforcement of tax breaks;
2) Customs trimming;
3) Expanding export portfolio;
4) Optimizing business location in making investments.

This impact mitigation measure is important for still able to prevent a deficit in the trade balance, and of course transferring risks to third parties and insurance.

Effect of Foreign Debt on FDI

The results for foreign debt variables (X2) are the same as for Exports for the long - term and short - term. As is well known, prob. of the foreign debt variable is 0,1991 for the long term and 0,2536 for the short term. Logically, foreign debt and FDI are additional capital owned by an organization and even a country to realize economic growth in a country (Indonesia). This is in line with research conducted by Rudi et al. (2016), In this study, it can be seen that both variables are free variables (X1 and X2).

Thus, this variable can be said to be a variable that has no effect on FDI. However, when talking about uncertain changes in the world economy, foreign debt variables can pose a big risk in the future, such as export variables. This is caused by a negative coefficient value for length (- 0.021718) and short term (- 0.038532). This happens if prob. changed to below 0.05. as already known the coefficient of this variable is negative. For this reason, although it does not produce a significant influence, the government still needs special attention.

Opportunity Mitigation

1) Laws on Foreign Exchange Traffic Reporting can continue to be developed; and
2) Determine financing control or loans originating from abroad and also provides direction so that the debt taken can be used for productive activities and produces benefits.

Impact Mitigation

1) To find the right or specific strategy and direction of policy to finance the payment of debt that has passed; and
2) Requesting an additional extension of time in debt payments if the funds are not yet available.

Effect of Interest Rates on FDI

The Interest Rate (X3) has a positive and significant effect on FDI in Indonesia in the long and short term. Significantly marked with a prob value below 0.05. Probability value 0.0243 (for long term) and 0.0385 (for short term). Positive influence can be seen from the value of the coefficient which is positive. The prevailing assumption is that on a 1% increase in central bank interest rates and other constant free variables, it will increase FDI by 1.65E + 08 for the long - term and 1,46E + 08 for the short - term. Another case with the research conducted by Dewi and Triaryati (2015) in which interest rates negatively affect the inflow of funds from foreign investors. It can happen because in the short term and long term foreign entrepreneurs will increase their investment spending if the expected profit from the investment is greater than the interest rate that must be paid. Thus, the lower the interest rate, the more motivated Entrepreneurs are to make investments, because the cost of using their funds is also getting smaller.

However, an increase in interest rates can also result in less investment from within the country or private investors. The decline that occurs in domestic investors will then be taken over by investors from abroad. Talking about risk and risk assessment, the interest rate variable is a variable that provides risk opportunities, because it has a significant effect on FDI. For this reason, mitigating opportunities and impacts is the government's task for the long and short term.

Opportunity Mitigation

1) Central Banks need to fight inflation: The central bank or Bank Indonesia needs to make policies tighter monetary The Central Bank can influence expectations about future developments occur in the future, for example regarding credit decisions/ purchases and about wage negotiations. This mode is often being the most difficult to predict because no one knows exactly how, when, and why expectations can be formed. Proper regulation will assist the government in making monetary policy;
2) Efforts to control inflation can also be carried out by controlling public transport fares; government must continue to be able to maintain the availability of goods needs so that there is no shortage in the country.

Impact Mitigation

1) Correctly apply markup rates: If the government is forced raise prices for all products, both goods and services services, then all must go through the calculation policy thorough and precise. Thus, the government can decide, how big the increase should be. The next decision to be made is to determine, whether it is better to do a price increase once (which means more significant or higher) or to continue in smaller increments but done a few time. A definite or correct answer to both possibilities approach can not be given, because it all depends on existing situation.
2) Provide information and communicate about the need public price increase policy: The importance of providing information to the public about the amount and need of price increases. This can enable people to accept forced policies held. Comprehensive information is closely related to the question of justice, so that the community can accept government decisions.
3) Provide subsidies: Subsidies for reducing the price of basic commodities to the public poor or have income below wages minimum applicable in each region.

Effect of Labor on FDI

Labor (X4) has a negative and significant effect on FDI in Indonesia in the long and short term. Significantly marked with a prob value below 0.05. probability value 0,0003 (for short term) and 0,0366 (for long term). Negative influence can be seen from the value of the coefficient which is negative. The prevailing assumption is that if the educated workforce (bachelor - doctor) increases by 1% and the other independent variables are constant, it will reduce FDI by -3.59E + 08 for the long - term and -5,11E + 08 for the short-term. In the opinion of the authors, these results are quite eye-catching and may require further research for the results obtained. This is because, there may be other reasons behind this result that need and can also be a topic to be studied more deeply by raising the topic of human resources.

Opportunity Mitigation

1) Improving the culture of discipline and self-integrity since the level lowest education.
2) Improve the ability of teaching staff.
3) Updating qualification levels according to needs and development of the era: there is possible qualifications that must be continuously renewed along with digital advances, the era of globalization is increasingly increases, and the influx of new technologies or the need for them technology transfer. Renewal of qualifications can also be caused workers already have more formal qualifications high school or those with good education, but because there are changes to the labor market can no longer be used or needs to be improved.
4) Prevent long - term unemployment: Long-term unemployment caused by separation from the labor market will also have an impact on the loss of competence levels. This is because the workforce does not practice the knowledge they have. In addition, they also do not learn new things from the knowledge they have previously gained in school and even university. The role of government in provide good employment opportunities for those who are (qualified or not) as much as possible is very important. Government can also provide facilities and infrastructure for free or subsidized so that graduates starting from bachelor degree can increase capabilities through the availability of jobs, and there are trainings.
5) Placement of workers with qualifications in their fields: Do not let workers who have certain qualifications to work in a field they are not good at. productive workforce must be able to practice their skills.

Impact Mitigation

1) Hiring experts from abroad to provide training to skilled workers in Indonesia.
2) Calling Indonesian workers who have achieved success in developed countries of the world to want to serve the country.

3) Communicating regularly with foreign investors about the skills or abilities that should be owned or controlled by workers from Indonesia to be able to work in multinational companies, such as language skills foreigners, and so on.

Effect of Exchange Rate on FDI

The Exchange Rate (X5) variable has a significant effect on the presence of Foreign Direct Investment in Indonesia with a positive coefficient for the long and short term, namely 666080.5 / 949402.8. These results indicate that an increase or decrease of 1% of the Rupiah, and other independent variables being constant will also affect the increase or decrease in FDI by 666080.5/ 949402.8. The long-term probability value is $0.0024 < 0.05$ and the short-term is $0.0142 < 0.05$. Tambunan et al. (2015) in his research obtained different results from the author. The research showed results with a negative and insignificant influence on FDI.

Thus, it can also be concluded that the strengthening foreign exchange rate (US Dollar) or the increasing amount of Rupiah received will cause more and more foreign investors to invest their capital in Indonesia. The results obtained in this study show that the strengthening of the Rupiah will cause fewer investors from abroad to invest in Indonesia. Therefore, the weakening of the Rupiah exchange rate or the strengthening of the US currency (US Dollar) will result in business costs that must be provided by the company can be reduced, such as transportation costs, labor, and raw materials needed by the company. The reduced costs needed, of course, will be able to increase the profit received by the company if it exports its products abroad.

Opportunity Mitigation

1) Trying to keep the trade balance stable;
2) Seeks to limit loans originating from abroad;
3) The rising value of foreign debt signals dependence on foreign currencie,
4) Hedging by utilizing forward and DNDF transactions, conduct
5) Regular monitoring of financial market and economic developments.

Impact Mitigation

1) Conducting business activities with an export orientation. By continuing to maintain the stability of the trade balance;
2) Implement the concept of tax Tobin policy;
3) The possibility of an increase in the rate by introducing expectations of the development of a certain Exchange Rate
4) Validation and fixed calculation basis

Effect of GDP on FDI

And the result for the last free variable or GDP (X6) is the same as the result of the labor - free variable. The GDP - free variable also indicates a negative relationship between GDP and foreign direct investment. With a coefficient value of -1170.752 for the long term, and -1079.283

for the short term, it can be interpreted that if GDP rises (decreases) by 1% (with other free variables constant) it will have an effect on the decrease (increase) of FDI by -1170.752 for long term and – 1079.283 for short term. This research also shows that Gross Domestic Product (GDP) has a significant effect on the entry of foreign investors into Indonesia with a probability value below 5%. Different results were obtained by Saragih et al. (2021). Their research shows that GDP has a positive and significant effect on FDI in Indonesia.

In the author's opinion this may be due to local investors has filled the places that are of concern to foreign investors; investors foreigners still consider other developing countries as investment means that have more potential to provide benefits for them. The absence of production activities that have the potential to provide benefits. Another reason, according to the author, although GDP can be said to be one of the important variables of prosperity economy in a country, however, GDP still cannot be used comprehensive measure of economic well-being. This matter because many jobs or tasks are not included in the calculation GDP, such as unpaid household work, which are not taken into account when performing the GDP calculation. Therefore, more calculations are needed than just referring to calculation of GDP.

Opportunity Mitigation

1) Providing attention through assistance and protection to people who are trying to produce creative economy products
2) The government can continue to pay attention and try to explore natural resources that can be processed into ready-to-use goods or output, and in order for the output to have a quality that can compete, of course, it is necessary to continue to improve the quality of domestic human resources.
3) The government needs to focus more on reindustrialization activities, especially in encouraging investment in the manufacturing sector and other labor-intensive and capital-intensive sectors. This will later be able to increase domestic productivity and competitiveness in the international market.

Impact Mitigation

1) Periodic industrial monitoring provides a basis for assessing the economic development of important industries in Indonesia.
2) The government needs to try to diversify previously existing products. The government also needs to start planning to produce its own domestically produced raw materials.
3) The occurrence of excessive income inequality will be able to reduce the motivation of the workforce or society, if performance is not beneficial from the point of view of individual citizens. Therefore, if many people are only low-income, this can negatively affect their willingness to excel at work. Motivational performance incentives will affect many things, such as: job placement, investment in self - training and further education, implementation of innovation and investment, entrepreneurial risks.

4) The government should prioritize the use of existing revenues to be allocated in public investment.

Referring to the results obtained, it can be concluded that GDP, together with the labor variable, are the two most risky independent variables. for that, the government needs to find unexpected events and mitigate opportunities and mitigate impacts optimally. Meanwhile, central bank interest rates and exchange rates are two variables that also have an effect but are in a position below labor and GDP. exports and foreign debt are variables that have no effect, but can provide a big risk if the world economy changes in the future and the probability is below 0.05.

CONCLUSION

The variable free of exports as well as foreign debt has no significant effect on the entry of foreign investors into the country for the long and short term. This can be seen from the probability value of the two free variables which are above 0.05 or 5%. In addition to not having a significant effect, these two free variables also negatively affect the fulfillment of the FDI target set by the government every year.

Free variables that have a significant effect on the long term and short term are the variables of interest rates, labor (bachelor – Ph.D), exchange rate, and also GDP. From the results of data processing, it can also be seen that the variables of interest rates and also the exchange rate have a positive effect on the inflow of funds from foreign investors. Meanwhile, the variable free of labor and GDP negatively affects the entry of foreign investors into Indonesia.

Future research are expected to study this topic further. Researchers may use other independent variables and increase the time period of the time series data used for the study. In addition to using variables derived from the economic framework, subsequent researchers can also use free variables from frameworks outside the economy. They can also conduct research using qualitative methods. Through interviews, researchers can also find out, threats that in the view of foreign investors are very dangerous for investment activities carried out. The results obtained can certainly be an added value that can be considered by the government.

Practically, the researchers advise the central and local governments to take risk mitigation measures. Risk mitigation strategies must be continuously updated and also developed in accordance with the priority of the risk value that has been obtained.

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