Inflation, Exchange Rate, Corruption Effect on Foreign Direct Investment (FDI) in ASEAN 3

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Abstract : The purpose of this study is to understand the relationship between monetary policy and fiscal policy on the business cycle in Malaysia. Monetary policy is represented by the money supply, exchange rates, government spending and taxes, while the business cycle is represented by economic growth. This study uses the period 1970–2017 by using the Vector Error Correction Model (VECM). We found that the money supply, exchange rate and government spending have a positive effect on the business cycle in Malaysia, however, taxes have a negative effect. This means that tax reductions in Malaysia have a positive impact on the business cycle in Malaysia which has an impact on increasing economic growth. Fiscal policy that is presented on tax and monetary policy in the money supply management policy has a direct impact on the business cycle in Malaysia.

Keywords: Business Cycle, Monetary, Vector Error Correction Model, Money Supply

JEL Classification : C10,M12,M2

1 INTRODUCTION

Economic development is a process whereby the total income and income per capita increase by considering the potential economic strength, which is directed to become a real economy through investment. Capital formation is the most important and strategic factor in the process of economic development. The capital formation also means the formation of expertise because expertise is often a supporting factor for capital formation (Kavya & Shijin,2020).

Almost all developed and developing countries in the world today know and analyze economic development in each country. Efforts to implement economic development policies, developing countries and developed countries need capital flows to support policies' implementation. The capital flow required by each country in the world varies depending on the country's characteristics, whether it is classified as a developed country or a developing country. In developed countries, in carrying out the wheels of economic policy, the required capital flow is relatively low compared to developing countries. This condition occurs because developed countries have better-supporting factors compared to developing countries. The supporting factors include infrastructure and technology. Almost all developing countries in the world can be lagging developed countries when viewed from economic development indicators. Therefore, a large capital flow is required for developing countries to catch up with developed countries as a driving force in increasing economic development (Jedwab,et al.,2021).

Large financing in economic development for each country cannot be fully sourced from domestic capital flows, but financing originating from foreign capital is needed to meet the shortfall in financing a country's economic development. This condition applies to developing countries and economic development in the era of globalization. Foreign capital is also needed for developed countries because economic integration is increasingly expanding between the blocks of countries in the world. The most effective and potential foreign capital inflow received by the host country is an investment compared to reign capital originating from debt.

The incoming Foreign Direct Investments (FDI) will support development financing in the long term and be even more profitable than financing originating from foreign debt. Basically, foreign debt will cause negative impacts and serious problems in its repayment because of the loan's interest and principal, which is the state budget (Yavas & Malladi,2020).

Foreign investment that enters the country consists of foreign direct investment (FDI), which positively impacts the ongoing process of a country's economic development; however, in its development, Foreign Direct Investments (FDI) can have a significant positive impact. Foreign Direct Investments (FDI) consist of inward and outward. Inward Foreign Direct Investments (FDI) are investments that come from other countries into the country. At the same time, outward Foreign Direct Investments (FDI) are foreign direct investments from within the country to other countries. Foreign Direct Investments (FDI) is the most potential flow of foreign capital compared to other capital sources. Foreign Direct Investments (FDI) can be one of the three major private capital inflows and bank loans and portfolio capital. For developing countries, Foreign Direct Investments (FDI) has a significant impact because the entry of Foreign Direct Investments (FDI) will also automatically transfer technology to domestic companies to increase productivity and competition in the current era of globalization (Contractor,et al.,2020).

Foreign direct investment is not just a capital movement. Compared to portfolio investment, Foreign Direct Investments (FDI) plays an important role in strong control or control over its overseas branch companies. A branch company will be tightly controlled by its parent company, which receives direct input in management skills, company trade secrets, technology, trademark usage rights, and instructions regarding which markets should be targeted and what means to avoid (Dominguez,2013).

ASEAN is one of the regions rich in natural and human resources. ASEAN is also one of the regions in the world that have recorded quite high economic growth. The high economic growth is inseparable from the swift flow of Foreign Direct Investment (FDI) to ASEAN partner countries. Foreign Direct Investments (FDI) has an important role in a country, particularly in the development and economic growth. Investment is an important thing in economic development because it is needed as a supporting factor in increasing the production process (To & Othman,2016).

ASEAN 3, as the leading countries in Southeast Asia in following the current era of globalization, continues to improve itself with its economic openness. Which states that globalization will increase the openness of the economy of each country to international trade, international capital flows, and foreign direct investment from an economic perspective. To carry out their economic openness, countries in ASEAN 3 (Indonesia, the Philipines, and Thailand) have used the indicator for foreign direct investment (FDI) as a supporter to increase the country's economic development (Ahmed,et al.,2017).

Inflation tends to increase from predetermined prices. Inflation is everywhere and is always a monetary phenomenon that reflects excessive and unstable monetary growth. The rate of inflation in Indonesia will cause a decrease the rate of foreign capital inflow to Indonesia because the foreign investment will delay or stop their investment activities in Indonesia (Aïssa,et al.2007).

Lower inflation expectations influenced weakening inflationary pressure. The decline in inflation expectations is partly influenced by exchange rate appreciation and a slowdown in economic activity. Meanwhile, the main factor that plays a role in influencing the Philipines' inflation rate is the change in commodity prices. The efforts made by the Philipinelippine government to maintain inflation in the country are by adjusting and controlling commodity prices. Most of the movements in the inflation rate in ASEAN countries are influenced by changes in commodity prices (Montes & Lima,2018).

Exchange rate movements in Indonesia, the Philipines, and Thailand always fluctuate and do not show stability, which will worsen the economic condition. Exchange rates that fluctuate too much can affect the inflow of Foreign Direct Investment (FDI) in a country. The transmission of the exchange rate system shifting to a floating exchange rate system has a major impact on the economy because the exchange rate plays an important role in determining relative prices on world markets, encouraging monetary authorities to increase supervision of movements in the exchange rate of their currencies (Hill & Bautista,2013).

In several decades, high inflation rates have become the main threat to monetary stability. Since 1998, many Central Banks in several countries have made price stability their main goal. The high threat of inflation for monetary stability in a country will encourage the monetary authorities in each country to make inflation one of the main monetary policy targets (Orlowski,2008).

2 LITERATURE REVIEW

Theoretically, corruption can act as a grabbing hand by increasing transaction costs that can hinder foreign investment. With the increased transaction costs, the level of Foreign Direct Investment (FDI) will decrease and vice versa; if the transaction costs decrease, then Foreign Direct Investment (FDI) will increase. Several literature studies have found results that support the grabbing hand hypothesis, namely that corruption can reduce foreign investment. Meanwhile, several other studies do not support the grabbing hand hypothesis; namely, corruption facilitates foreign investment (Collier & Pattillo,2016).

Corrupt behavior often occurs in the judicial system. It involves many security officers; even corrupt behavior occurs in almost all subsectors, including public services, tax administration, land, customs, and the procurement of goods and services. In Indonesia, the behavior of corruption and nepotism has become a unity; even nepotism is often considered as something very commonplace and commonplace, even forming dynastic politics. Thus, developing countries Indonesia, the Philipines, and Thailand have a low average corruption score. It is interesting to study how the influence of corruption on Foreign Direct Investment (FDI).

Indicators in the form of information on the macroeconomic condition are needed before investing, including foreign direct investment (FDI). Good macroeconomic conditions will create a favorable investment climate if the macroeconomic variables such as inflation rate, exchange rate, corruption perception index (CPI), and the investment climate in ASEAN 3 countries will be considered good by foreign investors who want to invest in that country.

3 RESEARCH OBJECTIVE AND METHODOLOGY

The method used in explaining the effect of macroeconomic conditions on Foreign Direct Investment (FDI) in Indonesia, the Philipines, and Thailand is using the Panel Least Square (PLS) method. The Panel Least Square (PLS) method explains the formulation of the problem in this study. The testing process using the Panel Least Square (PLS) method begins with the formation of the restructuring used in the Panel Least Square (PLS) estimation model. The reconstruction is formed through economic phenomena and empirical facts, aiming to provide limitations in the relationship between variables used in this study. After the restructuring is formed, it will be carried out by forming the Least Square Panel (PLS). This study adopts the previous research model from Malik & Malik, (2013) and Hoang & Bui, (2015) with the following model form:

FDI = f (Income, Capital, GDP, Trade, Crisis

Then for the second model is adopted from Hoang & Bui, (2015).
FDI = f (g, ER, INF)

Based on the adoption of the two models from Malik & Malik, (2013) and Hoang & Bui, (2015), to answer the problem formulation in the study, the two models were transformed as follows:
FDI = f (INF, ER, CPI)
The form of the model is then transformed into an economic model, namely:

$$FDI_{i,t} = \beta_0 + \beta_1 INF_{i,t} + \beta_2 ER_{i,t} + \beta_3 CPI_{i,t} + e$$

Where :

FDI	= Foreign Direct Investment (billion US $)
INF	= Inflation rate (%)
ER	= Exchange rate (%)
CPI	= Corruption Perception Index (points)
i	= Indonesia
F	= Philipines
t	= Thailand
β_0	= constant
$\beta_1 \beta_2 \beta_3$	= coefficient
t	= time
e	= error term

The difference in the model used in this study with some previous studies is the addition of previous researchers' time span, the research object used, and the data analysis tools. These variables cannot be separated from the adoption of the models that have been used by these studies.

The operational definition is an explanation of all the variables used in the study. The variables used include one related variable (dependent variable) and three independent variables (independent variable). The dependent variable used is Foreign Direct Investment (FDI) in ASEAN 3, and the independent variable is macroeconomic conditions (exchange rate, inflation rate, and corruption perception index (CPI). The operational definitions used in this study are:
1.Foreign Investment (FDI)
Foreign Direct Investment (FDI) is an investment in a company's real business in a country in a company in another country. Foreign Direct Investment (FDI) data used in this study were obtained from the Word Bank expressed in US dollars (US $).

2. Inflation Rate (INF)
Inflation is a tendency to increase in prices generally and continuously. Maintaining stable inflation is one of the goals of government policy. Measure the rate of inflation using the Consumer Price Index (CPI) as a percentage. This study's inflation data were obtained from the Word Bank expressed in percent (%) units.

3. Exchange Rate (ER)
The exchange rate is the unit price of a currency against other countries' currencies used in economic transactions. The data used is the annual exchange rate of currencies in ASEAN 3 countries against the US dollar. In this study, exchange rate data were obtained from International Fund Money (IMF), which was expressed in percent (%).

4. Corruption Perception Index (CPI)
The value of investment perceptions is measured based on the corruption perception index in ASEAN 3 countries. Every year this index is obtained by data from Transparency International (TI) in the form of the Corruption Perception Index (CPI) with units (points).

4 RESULTS AND DISCUSSION

This section will explain the results of the descriptive analysis, which aims to describe in general the data that will be used in this study, namely data from macroeconomic fundamental indicators in countries that are members of ASEAN 3. The data includes foreign direct investment, inflation, value—exchange, and a corruption perception index. The descriptive analysis results will be used as an indicator to observe developments in macroeconomic fundamentals and investor perceptions linked to the flow of foreign capital in the form of foreign direct investment in 3 ASEAN countries or (ASEAN 3). The descriptive statistics of the variables used in this study can be seen in the research table in table 1

Table 1 Descriptive Statistics in Indonesia

	FDI Indonesia	INF Indonesia	ER Indonesia	CPI Indonesia
Mean	5.28E+11	10.23500	10056.25	26.01500
Median	4.71E+11	6.400000	9542.795	25.00000
Maximum	1.02E+12	58.45000	13389.41	37.00000

Minimum	9.54E+10	3.530000	7855.150	17.00000
Std. Deviation	3.32E+11	12.09486	1666.480	6.937638
Observations	20	20	20	20

Source : Author Computation

Based on the calculation of the results from Descriptive Statistics in Table 1, it shows that the foreign direct investment variable has a maximum value of 1.02E + 12 and a minimum value of 9.54E + 10. The maximum value and the minimum value have a fairly large difference. This shows that there is a fluctuation in the development of foreign direct investment in Indonesia. Another variable that shows a fairly high fluctuation in development is inflation. This is indicated by a fairly wide interval between the maximum and minimum values of Indonesia's inflation variable. The range of these intervals is a maximum value of 58.45000 and a minimum value of 3.530000. These conditions indicate that the movement of inflation in Indonesia is experiencing significant fluctuations. The development of high fluctuation is also indicated by the Exchange Rate variable and the corruption perception index of these variables, which have a fairly wide range and show varied fluctuations. The Exchange Rate variable has a fairly high level of fluctuation, namely a maximum value of 13389.41 and a minimum value of 7855.150. This means that there are factors that influence exchange rate movements. The variable corruption perception index shows a fairly high interval range, namely a maximum value of 37.00000 and a minimum value of 17.00000. This shows a significant change in the corruption perception index in Indonesia.

The results of descriptive statistical tests and providing an overview of the fluctuation movement in each variable can also see the distribution conditions of each variable. This condition can be seen through the comparison and the standard deviation value, and the average value of the variables owned by each of these variables. Data on the condition of macroeconomic variables have good data. This is evidenced by comparing the standard deviation value and the mean value of the variable with a value of 3.32E + 11. This means that the standard deviation value is smaller than the average value.

Based on the estimation results that show the distribution of variable data, it can be seen that based on the four estimated variables, namely foreign direct investment, inflation, exchange rate, and corruption perception index, it is known that three of the four variables have data distribution as evidenced by a small standard deviation of the average. Meanwhile, the exchange rate variable data does not show a good spread because the standard deviation value is greater than the average value.

Table 2 Descriptive Statistics in the Philipines

	FDI_ Philipine	INF_ Philipine	ER_ Philipine	CPI_ Philipine
Mean	1.71E+11	4.211000	47.12200	29.15000
Median	1.59E+11	3.885000	45.82500	26.00000
Maximum	3.14E+11	9.230000	56.04000	38.00000
Minimum	7.22E+10	0.670000	39.09000	23.00000
Std. Deviation	8.89E+10	2.163459	4.877367	5.224185
Observations	20	20	20	20

Source : Author Computation

Based on the calculation of the results from descriptive statistics, Table 2 shows that the foreign direct investment variable has a maximum value of 3.14E + 11 and a minimum value of 7.22E + 10. The maximum value and minimum value have a fairly high interval/difference. This shows a fairly high fluctuation in the development of foreign direct investment in the Philipines. Another variable that shows a fairly high fluctuation in development is the exchange rate variable. This is indicated by the fairly high interval range between the maximum and minimum value of the Philipines' exchange rate variable. The range of these intervals is a maximum of 56.04000 and a minimum value of 39.09000. These conditions indicate that the exchange rate movement in the Philipines has experienced significant fluctuations. The variable corruption perception index also indicates a high movement of fluctuation. These variables have a fairly high range and show varied fluctuations. The variable corruption perception index has a fairly low level of fluctuation, namely a maximum value of 38.00000 and a minimum of 23.00000.

Macroeconomic condition data has good data. This is evidenced by comparing the standard deviation value and the average value of the variables with values 8.89E + 10 and 1.71E + 11. This means that the standard deviation value is greater than the average value. Good data distribution can also be seen in the variables of inflation, exchange rate, and corruption perception index. Inflation has a standard deviation ratio of 88.93053 with an average comparison of 4.211000. The exchange rate has a standard deviation ratio of 541.9855 and an average value of 47.12200. The variable corruption perception index has a standard deviation value comparison of 518.5500, and the mean value is 29.15000.

Based on the estimation results showing the distribution of variable data, it can be seen that based on the four variables estimated by foreign direct investment, inflation, exchange rates, and corruption perception index, it is known that the four variables have a good data distribution as evidenced by a small standard deviation of the mean value.

Table 3 Descriptive Statistics in Thailand

	FDI Thailand	INF Thailand	ER Thailand	CPI Thailand
Mean	2.70E+11	2.345000	36.42750	34.60000
Median	2.72E+11	2.040000	34.91000	35.00000
Maximum	4.55E+11	7.990000	44.43000	38.00000
Minimum	1.14E+11	-0.900000	30.49000	30.00000
Std. Deviation	1.22E+11	2.201302	4.397268	2.348572
Observations	20	20	20	20

Source : Author Computation

Based on the calculation of the results from descriptive statistics in Table 4.3, it shows that the foreign direct investment variable has a maximum value of 4.55E + 11 and a minimum value of 1.14E + 11, which has a fairly low interval/difference. This shows that there is a decline in the development of foreign direct investment in Thailand. Another variable that shows a fairly high fluctuation in development is inflation. This is indicated by a fairly wide interval between the minimum and maximum values of Thailand's inflation variable. The range of these intervals is a maximum value of 7.990000 and a minimum value of -0.900000. These conditions indicate that the inflationary movement in Thailand is experiencing significant fluctuations. The high fluctuation movement is also indicated by the variable exchange rate and corruption perception index. These variables have a fairly wide range and show varied fluctuations. The exchange value variable has a fairly far fluctuation level, namely a maximum value of 44.43000 and a minimum value of 30.49000. The variable corruption perception index also shows a fairly wide range of intervals, namely a maximum value of 38.00000 and a minimum value of 30.00000. this shows a significant movement of a corruption perception index in Thailand.

Macroeconomic condition data has good data. This is evidenced by comparing the value of the standard devotion and the average value of the variables with the values 2.84E + 23 and 2.70E + 11. This means that the standard deviation value is greater than the average value. There is also a good data distribution on three variables: inflation, exchange rate, and corruption perception index. Inflation has a standard deviation ratio of 92.06890 and an average value of 2.345000. The exchange rate has a standard deviation of 367.3834 and an average value of 36.42750. then a corruption perception index has a standard deviation value of 104.8000 and an average value of 34.60000.

Based on the estimation results showing the distribution of variable data, it can be seen that based on the four estimated variables, namely foreign direct investment, inflation, exchange rates, and corruption perception index, it is known that the four variables have good data distribution as evidenced by a small standard deviation value of the average value.

To see how big the effect of inflation is, the exchange rate of a corruption perception index on foreign direct investment in ASEAN 3 (Indonesia, the Philipines, and Thailand) during the period 1998-2017, an estimate was made using panel data.

Table 4 Comparison of the PLS and FEM model data panel estimates

Dependent Variable : FDI			
Variable	PLS	Probability	FEM
Probability			
C	-4.90E+11	0.0000	-5.38E+11
0.0000			
INF	-7.03E+11	0.0025	-6.87E+11
0.0031			
ER	48757235	0.0000	30665589
0.1275			
CPI	2.30E+10	0.0000	2.66E+10
0.0000			
R-squared	0.811646		0.819321

Source : Author Computation

The panel data's estimation results in Table 4 with the dependent variable foreign direct investment show better results than pooled least square. This can be seen from the regression coefficient value of each independent variable. Apart from that, the better R-square (R^2) value is found in the fixed effect model (FEM) compared to other models.

5 CONCLUSION

Presentation on the results of descriptive analysis and quantitative analysis that have been described in the previous chapter regarding macroeconomic fundamental variables that affect Foreign Direct Investment (FDI) in ASEAN 3 from 1998-2017, the following conclusions are obtained: Inflation has a negative and insignificant effect on Foreign Direct Investment (FDI) in ASEAN 3. Thailand during the period 1998 to 2017 showed the largest Foreign Direct Investment (FDI) revenue among the three countries in ASEAN 3. Indonesia in the period 1998-2017 showed the second-largest Foreign Direct Investment (FDI) revenue among countries in ASEAN 3. During the period 1998-2017, the Philipines received the third-largest Foreign Direct Investment (FDI) behind Thailand and Indonesia.

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