




THE INFLUENCE OF MACRO VARIABLES ON FOREIGN DIRECT INVESTMENT (FDI) IN 8 ASEAN COUNTRIES

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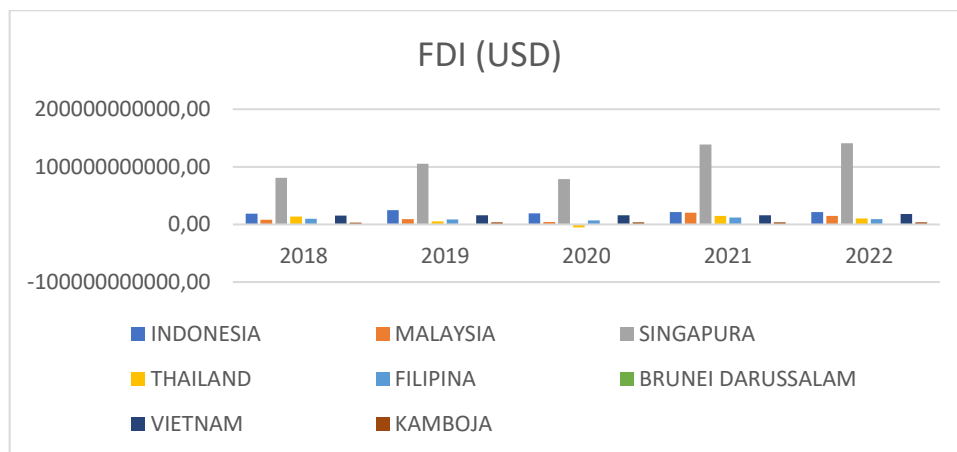
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<p>Info Article</p> <p>Received : 03 Maret 2023</p> <p>Revised : 02 April 2023</p> <p>Accepted : 03 May 2023</p> <p>Publication : 31 May 2023</p> <p>Keywords: FDI, GDP, Inflation, Exchange Rate, Trade Openness, Labor Force.</p> <p>Licensed Under a Creative Commons Attribution 4.0 International License</p> 	<p>Abstract: The title of the research is The Effect of Macro Variables on Foreign Direct Investment (FDI) in 8 Asean Countries. Tujaun research is to determine the influence of macro variables on foreign direct investment (FDI) in 8 Asean countries. The method of analysis in this study is quantitative method and uses secondary data from the World Bank. The data used consists of time series and cross-section data, so the panel data analysis method is used to analyse it. Panel data consists of space and time dimensions, combining the characteristics of cross-section data with time series data. Time series data was obtained from 2005-2022 with cross-section data on 8 ASEAN member countries, namely Indonesia, Malaysia, Singapore, Thailand, the Philippines, Brunei Darussalam, Vietnam, and Cambodia. The data analysis method used is quantitative analysis using panel data regression. This study uses panel data regression to determine differences between individuals or in each ASEAN country. The results showed that Foreign Direct Investment (FDI) is the flow of capital from abroad. FDI occurs when companies from one country invest directly in another country. FDI plays an important role in promoting economic growth, technology transfer, job creation, and productivity improvement in recipient countries. The decision to make foreign investment can be influenced by several macro variables, such as GDP, inflation, exchange rate, trade level, and labour force. This study uses panel data analysis method with data from 8 ASEAN countries in 2005-2022. The results of the study show that GDP and labour force have a positive effect on FDI in 8 ASEAN countries. Meanwhile, inflation, exchange rate, and trade profitability variables have no effect on FDI.</p>
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INTRODUCTION

The government must make various efforts to spur economic growth and accelerate national development by exploring new sources of financing, both domestic and international (Sulaksono, 2018). Foreign direct investment (FDI) is one of the sources of capital from foreign countries. This capital moves to the private sector from abroad through foreign direct investment (Amelia & Khoirudin, 2023). Foreign direct investment has a significant positive impact on the destination country, including increasing business growth and development, distributing technology from investors related to production and equipment, and creating jobs (Davis & Akbar, 2022). Suitability between the economy, the environment, and the management of natural resources is necessary for sustainable economic growth (Rahman et al. 2023). Indonesia's natural wealth makes agriculture and plantations one of the jobs that many are involved in and occupied. (Khoirudin et.al, 2023) Indonesia is an archipelago with vast territorial waters, which is an advantage for Indonesia as one of the world's fisheries producers. (Khoirudin et.al., 2023).

ASEAN is an attractive region to be used as an investment location with regional production base and objectives because it has very promising economic potential. (Sofilda et al., 2015). Foreign direct investment (FDI) inflows into ASEAN reached an all-time high of US\$224 billion in 2022. This is a significant achievement for ASEAN, despite a 12% decline in global FDI inflows to US\$1.3 trillion due to multiple international crises and challenges. ASEAN remains resilient in positioning itself as the largest recipient of FDI with inflows exceeding those to China for two consecutive years (The ASEAN Secretariat & UNCTAD, 2023). The following is a graph of FDI receipts in ASEAN for the period 2018 to 2022.



Source: World Bank

Figure 1. FDI (USD) in 8 ASEAN Countries 2018-2022

Figure 1. shows that from 2018 to 2022, 8 ASEAN countries have fluctuating FDI inflows. Of the 8 countries, Singapore is the country with the highest FDI inflows. This is because Singapore is making maximum efforts in the economic sector to attract foreign investment and create supportive trading conditions. FDI inflows in Singapore have increased significantly from the previous year, reaching 141 billion USD or around 63% of the amount of FDI flowing into ASEAN in 2022. Meanwhile, Thailand experienced a very significant decline of -4.9 billion USD in 2020. In 2020, most ASEAN countries experienced a decline in FDI inflows due to the Covid-19 pandemic that hit the world. Lockdown policies, supply chain disruptions, declining corporate income, and economic uncertainty caused this decline.

Indonesia received FDI inflows of 24 billion USD in 2019, an increase from the previous year. Cambodia received foreign investment inflows of 3.6 billion USD in 2019 and managed to maintain an investment climate. In 2022, Malaysia, Thailand, the Philippines, and Brunei Darussalam experienced a decline from the previous year. The decline was likely caused by economic uncertainty and other economic factors. Vietnam received foreign investment inflows reaching 17 billion USD in 2022, which showed an increase compared to previous years. The decision to make foreign investment can be influenced by several macro variables, such as gross domestic product, inflation rate, currency stability, trade openness, and the number of available labor force can be the attention of the investor country in directing capital flows to the destination country. Gross Domestic Product (GDP) plays an important role in attracting foreign investment because it reflects the economic conditions of a country.

Investors see GDP as a key indicator to assess the economic development of a country. The greater the economic progress indicates that the development and economic activity in the country are getting better (Nasir et al., 2021). GDP is used to observe changes in economic structure and understand economic developments from one year to the next. An increase in GDP will trigger an increase in foreign direct investment. Investors are interested in investing in countries with an increase in GDP which indicates economic improvement (Aviantih, 2023). Economic growth must create more jobs and encourage intensive investment in the use of labor (Az zakiyyah et al., 2023). Debt and risk have become one of the most emerging debates on Islamic bond studies in the last decade (Fauzi et al. 2023).

Inflation has an impact on FDI inflows in ASEAN. According to Bank Indonesia, inflation is a sustained increase in product prices over a certain period of time. Inflation

can cause a decline in investment, development inhibition, economic instability, and a decline in public welfare (Carissa & Khoirudin, 2020). Rising inflation can reduce the quality of products produced by companies, and the cost of raw materials for production will increase, which will ultimately reduce profits (Barorah et al., 2019). High inflation also has negative impacts such as decreasing production and demand for goods due to price increases. This condition can affect investment activities in a country because investment costs are getting higher so that investor interest decreases (Sulaksono, 2018).

The next factor that can attract FDI is the exchange rate. The exchange rate indicates the price of a country's currency compared to foreign currencies (Ilmi, 2017). Export and import prices are greatly influenced by the value of a country's currency, if this value is changed it will affect economic welfare (Subanti et al., 2019). Exchange rate fluctuations will always occur in line with changes in a country's economic conditions. The theory of interest rate parity states that investors must adjust risk to ensure that their investment returns are equal in each country. Investment returns will increase if the currency of the investment destination country weakens.

Trade openness can also affect the entry of FDI in a country. Trade openness and financial sector openness are increasingly inevitable, especially in the current era of globalization. This openness reflects the reduction of trade barriers, both in the form of tariffs and non-tariffs, as well as the increasing smoothness of capital mobility between countries (Pratiwi, 2020). Trade openness can make it easier for foreign companies to enter the domestic market. This can increase the desire of capital owners to invest in countries with high trade openness. Trade liberalization provides a new direction to encourage large-scale export activities to increase economic growth (Kurniawan et al., 2021).

In addition to the above factors, the workforce can also affect the entry of foreign direct investment. The workforce includes individuals who have reached working age including those who are already working, not working, and are looking for work. They are considered as potential resources that can drive, initiate, and run development in a country. The more workers involved in production activities, the more output the company produces (Al Akbar, 2022). This study explores the influence of gross domestic product (GDP), inflation rate, exchange rate, trade openness, and labor force on FDI in 8 ASEAN countries. FDI is key to economic sustainability, especially in developing countries. The economic development of ASEAN-8 countries is certainly inseparable from the important role of foreign direct investment. ASEAN-8 consists of Indonesia,

Malaysia, Singapore, Thailand, the Philippines, Brunei Darussalam, Vietnam, and Cambodia. These countries are countries with great potential to attract a lot of foreign investment with high GDP, stable inflation rates, strengthening exchange rates, broad international trade openness, and a quality workforce. This makes the ASEAN-8 region an interesting object to study regarding variables that influence foreign direct investment in the region. Thus, further research is needed to understand the variables that influence FDI in the 8 ASEAN countries.

METHOD

This study uses quantitative methods and utilizes secondary data from the World Bank. The data used consists of time series and cross-section data, so the panel data analysis method is used to analyze it. Panel data consists of time and space dimensions, combining the characteristics of cross-section data with time series data (Pratiwi, 2020). Time series data were obtained from 2005-2022 with cross-section data on 8 ASEAN member countries, namely Indonesia, Malaysia, Singapore, Thailand, the Philippines, Brunei Darussalam, Vietnam, and Cambodia. The data analysis method used is quantitative analysis using panel data regression. This study uses panel data regression to determine differences between individuals or in each ASEAN country (A'yun & Khasanah, 2022). The following is the formulation of the panel data regression model for this study:

$$FDI_{it} = \beta_0 + \beta_1 PDB_{it} + \beta_2 INF_{it} + \beta_3 NT_{it} + \beta_4 TO_{it} + \beta_5 AK_{it} + \varepsilon_{it}$$

Information:

FDI	= Foreign Direct Investment
PDB	= Gross Domestic Product
INF	= Inflation
NT	= Exchange Rate
TO	= Trade Openness
AK	= Labor Force
β_0	= Constant
$\beta_1 \beta_2 \beta_3 \beta_4 \beta_5$	= Regression Coefficient
i	= 8 ASEAN countries
t	= Period 2005-2022
ε	= Error Term

The analysis technique used in this study is the panel data regression analysis method. According to (Widarjono, 2007) three approaches can be used to estimate panel data regression models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To determine the best estimated model, the Chow Test and Hausman Test are applied.

Common Effect Model (CEM)

Common effects are easiest to do by combining time series data and cross-sectional data in panel data and then estimating using Ordinary Least Square (OLS). This approach does not show time factors and entity factors so that the behavior of individuals is assumed to be constant over time.

Fixed Effect Model (FEM)

The fixed effect estimation model assumes that each entity has a varying or unequal intercept, while between entities have the same slope. To differentiate the intercept between entities, dummy variables are utilized in this approach and are called Least Squares Dummy Variables (LSDV). The advantage of this model is its ability to identify differences in individual factors and time factors and does not require the assumption that the error components are not interrelated with the independent variables.

Random Effect Model (REM)

This model assumes that each entity has a different intercept, where the intercept is a random variable. This approach is very useful when the entities in the sample are taken randomly and are representative of the population. This model also assumes that errors may be correlated across data and time lags. Random effects incorporate unequal variances across time and between entities into the error, so this approach is called the Error Component Model (ECM). This method helps predict panel data where the error term is likely to be correlated across entities and across time. (Widarjono, 2007).

Chow Test

The Chow test is used to determine whether the Fixed Effect Model (FEM) or Common Effect Model (CEM) is most appropriate for estimating panel data.

Hausman Test

The Hausman test aims to determine the best approach between the Random Effect Model (REM) or the Fixed Effect Model (FEM).

RESULTS AND DISCUSSION

Table 1. Descriptive Statistic

Variable	Obs	Mean	Std. dev	Min	Max
FDI	141	22.50331	1.556326	18.2910	25.67092
GDP	144	25.7152	1.451896	22.56271	27.90797
Inflation	144	3.508169	3.789556	-1.260506	24.09685
Exchange Rate	144	4510.241	7207.539	1.249567	23271.21
Trade Openness	144	141.1283	92.18665	32.97218	437.3267
Labor Force	144	3.51e+07	3.83e+07	175084	1.38e+08

Source: Data processed.

Table 1 shows that the FDI variable has an average value of 22.50331 with a standard deviation of 1.556326. A standard deviation value that is smaller than the mean value indicates that the level of data accuracy is high.

The GDP variable shows an average value of 25.7152 with a standard deviation of 1.451896. This means that the data distribution tends to be normal. The inflation variable has a mean value of 3.508169 with a standard deviation of 3.789556. A larger standard deviation value indicates that the data has a greater level of variability or uncertainty. The exchange rate variable has a mean value of 4510.241 with a standard deviation of 7207.539, which means that the data has a greater level of variability or uncertainty. The trade openness variable has a mean value of 141.1283 with a standard deviation of 92.18665. The trade openness variable has a standard deviation that is smaller than the mean value, meaning that the data has high accuracy and the data distribution tends to be normal. Meanwhile, the labor force variable shows a mean value of 3.51e+07 with a standard deviation of 3.83e+07. The labor force variable has a standard deviation that is greater than the mean value, meaning that the data has a greater level of variability or uncertainty.

Table 2. Logaritma Variable

Original Variable	Initial Unit	Logaritma Variabel	Change of Units
PMA	USD	FDI	percent (%)
GDP	USD	PDB	percent (%)

Source: Data processed.

This study underwent a change in the logarithmic form of the variable which aims to change the data scale to be more linear and make it easier to interpret the results. The PMA and GDP variables which originally had USD units after changing the logarithmic form became percent (%). This change in units can help in overcoming non-linearity

problems that can occur in data, such as when it has a very asymmetric distribution or has a very large value.

Table 3. Regression Estimation Model

Variabel	CEM		FEM		REM	
	<i>Coef</i>	<i>Prob</i>	<i>Coef</i>	<i>Prob</i>	<i>Coef</i>	<i>Prob</i>
PDB	0.7712	0.000	1.3622	0.000	0.8349	0.000
INF	0.0136	0.416	0.0147	0.359	0.0098	0.547
NT	0.0000	0.061	-0.0001	0.033	0.0000	0.050
TO	0.0083	0.000	0.0013	0.603	0.0075	0.000
AK	1.60e-09	0.648	1.63e-08	0.365	-1.05e-09	0.794
Cons	1.2719	0.426	4.2502	0.003	-0.1679	0.926

Source: Data processed.

Table 3 is the estimation result of the three regression models which shows that each model has different results. The CEM test result shows that the GDP and trade openness (TO) variables positively affect FDI with a probability of 0.000 below the significance level of 0.05. Meanwhile, the inflation (INF), exchange rate (NT), and labor force (AK) variables do not affect FDI because they have a probability value > 0.05 . The FEM test result shows that only the GDP and exchange rate (NT) variables affect foreign investment because they have a probability value < 0.05 while the other variables have no effect. The REM test shows that there are four variables that affect foreign direct investment (FDI), namely GDP, exchange rate (NT), and trade openness (TO). Meanwhile, inflation (INF) and labor force (AK) have no effect.

Table 4. Model Selection Test Results

Best Model Selection	
Diagnostic Tools	
Chow Test	0.000
Hausman Test	0.000

Source: Data Processed

From the test results above, it can be concluded that the probability value of the Chow test is 0.000 and the Hausman test is 0.000. Both have probability values < 0.05 so that H_0 is rejected. This means that the appropriate model for panel data regression is the Fixed Effect Model (FEM). Because the model selection process has produced the same conclusion that the Fixed Effect Model (FEM) was selected as the best model, there is no need to conduct a Lagrange Multiplier (LM) test.

Table 5. Fixed Effect Model (FEM) Results

FEM			
Variable	Coefficient	T-count	Prob
PDB	1.3622	7.99***	0.000
INF	0.0147	0.92	0.359
NT	-0.0001	-2.16**	0.033
TO	0.0013	0.52	0.603
AK	1.63e-08	0.91	0.365
Cons	-12.8188	-3.02***	0.003

Source: Data processed.

The constant value in the analysis results of table 5 shows a value of -12.82, meaning that if the independent variables (GDP, inflation, exchange rate, trade openness, and labor force) are constant, then FDI will also be constant with a value of -12.82. The GDP variable positively affects FDI because it has a probability value of $0.000 < 0.05$ and a coefficient of 1.36. This means that for every 1% increase in GDP, FDI will increase by 1.36%. The exchange rate variable (NT) has a probability value of $0.033 < 0.05$ and a coefficient of -0.00. This means that for every 1% increase in the exchange rate, FDI will decrease by 0.0001%. Meanwhile, the inflation variable (INF), trade openness (TO), and labor force (AK) do not affect FDI because they have a probability value of > 0.05 .

Table 6. Simultaneous Test Results (F Test)

Prob > F	0.0000
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Source: Data processed.

Based on the results of the F test conducted, the Prob F-statistic value was obtained at 0.0000. This value is smaller than the significant value of F 0.05 so that it can be stated that the independent variables simultaneously affect the dependent variables.

Table 7. Statistical t-Test Results

Variable	Coefficient	T-count	T-Table	Prob	Information
PDB	1.3622	7.99	1.98	0.000	Significant
INF	0.0147	0.92	1.98	0.359	Not Significant
NT	-0.0001	-2.16	1.98	0.033	Significant
TO	0.0013	0.52	1.98	0.603	Not Significant
AK	1.63e-08	0.91	1.98	0.365	Not Significant
Constanta	-12.8187	-3.02	1.98	0.003	Significant

Source: Data processed

The results of the statistical t-test show that:

1. The GDP variable has a t-count value of $7.99 > 1.98$ t-table, which means that GDP has a significant influence on FDI.

2. The inflation variable (INF) has a t-count value of 0.92 < 1.98 t-table, meaning that inflation does not affect FDI.
3. The exchange rate variable (NT) has a t-count of 2.16 > 1.98 t-table, meaning that the exchange rate has a significant effect on FDI.
4. The trade openness variable (TO) has a t-count of 0.52 < 1.98 t-table, so trade openness does not affect FDI.
5. The labor force variable (AK) shows a t-count value of 0.91 < 1.98 t-table, so the labor force does not affect FDI.

Table 8. R² Determination Test Results

R-Squared	0.4716
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Source: Data processed

Based on the results of the determination test (R²) in table 4.9, the R-squared value is 0.4716 or equivalent to 47%. So it can be interpreted that the variables GDP, inflation rate, exchange rate, trade openness, and workforce can explain the FDI variable by 47% and other variables not included in the model used provide explanations for other parts.

The results of the analysis on the GDP variable have a probability value of 0.000 which is lower than the alpha value of 0.05 and a coefficient value of 1.36, which means that GDP has a positive and significant effect on FDI in 8 ASEAN countries from 2005-2022. If GDP increases by 1%, FDI will increase by 1.36%. This finding is supported by (Aslam, 2023) which confirms that GDP has a positive impact on FDI in ASEAN countries. Similar research by (Rahajeng, 2016) also proves that GDP has a positive impact on FDI flows in 5 ASEAN countries.

Market Size Hypothesis argues that the size of a country's market influences foreign investment decisions. According to this hypothesis, the larger the market size of a country, the greater its attractiveness to foreign investors. Market size is usually measured by Gross Domestic Product (GDP). Thus, this hypothesis shows that GDP plays an important role in determining foreign investment decisions. Countries with larger GDPs have larger markets that offer greater profit opportunities, thus attracting multinational companies to invest. In addition, high economic growth is often followed by an increase in demand for goods and services, which creates new opportunities for foreign companies to achieve higher profits (Rahajeng, 2016). Economic development carried out by countries in the world has the aim of improving the quality of its people which includes several aspects (Nandatari, 2023)

The results of the data analysis prove that inflation has no effect on FDI in 8 ASEAN countries. This finding does not support the hypothesis that inflation has a negative effect on FDI. However, this finding is similar to research (Hoang & Bui, 2015) which proves that inflation does not affect FDI inflows in ASEAN. The study (Aviantih, 2023) also proves that inflation has no effect on FDI in 5 ASEAN countries.

ASEAN has relatively low inflation with an average of below 10% per year so it does not affect investors' decisions to invest. Investors have confidence that stable or controlled inflation will not affect their profits. In addition, inflation is considered a normal condition that does not affect investment decisions because the public and producers are accustomed to existing inflation expectations.

The results of the analysis prove that the exchange rate has an effect on foreign direct investment in 8 ASEAN countries. This result proves that the hypothesis that the exchange rate has a positive effect on FDI is rejected. Similar research by (Putri et al., 2021) which reveals that the exchange rate has a negative and significant effect on FDI. The research (Davis & Akbar, 2022) also proves that the exchange rate has a negative effect on FDI flows in ASEAN.

When a country's currency appreciates against a foreign currency, it means that it becomes more expensive for investors to invest. Foreign investors need to exchange more foreign currency to buy domestic assets. As investments become more expensive, foreign investors may look for more profitable or lower-cost alternatives in other countries. They will consider exchange rate risk as part of their overall risk analysis. If the risk is too high, they may choose not to invest or withdraw existing investments. Additionally, when a country's currency appreciates, it means that the value of foreign currency investments will be reduced when converted back into the local currency. This can make investments less attractive to foreign investors. The results of the analysis prove that trade openness has no effect on FDI in 8 ASEAN countries. This result proves that the hypothesis of trade openness having a positive effect on FDI is rejected. This result is similar to the research (Setyadharma & Fadhilah, 2021) and (Tanaya et al., 2015). The results of the study show that trade openness does not influence the decision of foreign capital owners to channel their capital in the ASEAN region.

Internalization Theory states that multinational corporations (MNCs) choose to invest abroad to capitalize on their competitive advantages in the global marketplace. Trade openness is only one factor that allows MNCs to enter new markets; the theory emphasizes that other factors play an important role in attracting FDI. Technological

superiority, strong brands, and access to resources are more dominant considerations for MNCs in their investment decisions. Thus, trade openness is only one of the many aspects that MNCs must consider in their global expansion. The presence of other more dominant factors means that trade openness does not always contribute to encouraging FDI.

The results of the analysis show that the labor force has no effect on FDI in 8 ASEAN countries. This result proves that the hypothesis that the labor force has a positive effect on FDI is rejected. This result is similar to the research (Nisa & Juliprojanto, 2022) which states that the labor variable is not significant to FDI. This research is also in line with research (Wage, 2020) which shows that the workforce does not affect foreign direct investment. The influence of the workforce on FDI is not significant because the large number of workers who do not all meet the qualifications or do not meet the wishes of investors (Bintoro, 2022).

If the workforce is inadequate and does not have the skills that match the needs of the industry, foreign companies may look for investment locations in other countries. This condition can create additional risks and can affect investors' decisions to invest in the country.

CONCLUSION

Based on the analysis results obtained from this study, the following can be concluded:

1. Gross domestic product (GDP) has a positive effect on FDI in 8 ASEAN countries. If a country experiences a 1% increase in GDP, FDI will increase by 1.36%. Investors are more interested in investing in countries with high GDP because companies will gain higher profits due to increased demand for goods and services.
2. Inflation does not affect FDI flows in 8 ASEAN countries. This is because ASEAN countries have relatively low inflation with an average of below 10% per year so that it does not affect the decision of foreign investors to invest their capital.
3. The exchange rate has a negative effect on FDI flows in 8 ASEAN countries. Every 1% increase in the exchange rate, FDI will decrease by 0.0001%. When a country's currency strengthens, this means that the value of investment profits in foreign currency will decrease when converted back to local currency. This can make investment less attractive to foreign investment.

4. Trade openness has no effect on FDI in 8 ASEAN countries. Trade openness is only one of the various aspects considered by MNCs in global expansion. Other more dominant factors make trade openness not always involved in encouraging FDI.
5. The workforce has no effect on FDI in 8 ASEAN countries. If the workforce is inadequate and does not have skills that match the needs of the industry, foreign companies may look for investment locations in other countries. This condition can create additional risks and can affect investors' decisions to invest in the country.

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