

Relationship of Foreign Direct Investment and Other Macro Variables in Malaysia: ARDL Approach

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Abstract

Our study seeks to determine the long-term and short-term connections among various variables related to foreign direct investment such as economic growth, export value, and interest rates in Malaysia. We take data from the World Bank as a secondary source for the years 2000 to 2020. From our estimation results, we find that the variables we estimate have Economic growth and foreign direct investment at long and short run relationships, in addition to export and direct investment from abroad worth, which at the short run, the economic growth have significant positive effect on foreign direct investment. Accordingly, the value of exports has a strong beneficial impact on foreign direct investment. In contrast to the considerable inverse link between interest rates and foreign direct investment, this indicates that with increasing economic growth and the value of exports in the short term, the foreign direct investment will also increase, it is different from interest rates, whose increase in the short term will actually have an effect on decreasing Malaysia welcomes foreign direct investment.

Keyword : Foreign direct investment, economic growth, export value, interest rate, Malaysia.

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Background

One of the developing countries that adhere to an open economy in running its economic at Malaysia. The function of local and foreign parties cannot be separated from the stability of economic progress. As a result, large finances or investment funding are required to achieve equitable economic growth in Malaysia (Chen & Zulkifli, 2013). Limited funding is a problem in developing a country's economy. One source of financing to cover the limited burden of developing the economy in Malaysia is the investment (Fadhil & Almsafir, 2015).

Economic growth in the country will be accompanied by increased economic development. Any country's economy can grow and cannot be separated from the role of investment (Astuti & Prabowo, 2021). When an investment shock occurs in a country, it will have a significant effect on the national income of that country. One of the government's efforts to explore sources of domestic investment is to attract sources of financing from abroad, namely foreign investment. The existence of investment coming in by foreign parties will support long-term development financing and is more profitable when compared to financing sourced from foreign debt (Munjal, Varma, & Bhatnagar, 2022; Widarni & Bawono, 2021).

Foreign Investment is a flow of capital originating from abroad that moves to the private sector either through Foreign Direct Investment or indirect investment. Some observers consider foreign direct investment to be more beneficial than investing in the form of a portfolio (Mensah & Mensah, 2021). This is because of the influence given by foreign direct investment, namely the transfer of knowledge, capital, and technology that is really felt. It is different with portfolios

or indirect foreign investments which are called bad cholesterol because they are fluctuating, vulnerable to economic turmoil, and do not have a significant influence on development in the real sector (Magazzino & Mele, 2022).

Foreign Direct Investment (FDI) is often done in countries that do not have restrictions and have the potential for economic growth. FDI is needed to address the investment-savings gap in underdeveloped nations. When compared to other kinds of capital, FDI is a long-term capital flow that is difficult to facilitate to make the economy volatile (Musibau, Yusuf, & Gold, 2019).

Foreign Direct Investment helps Malaysia to achieve stable national development. In concept, according to Anetor, (2020) foreign investment has more benefits in driving the economic growth of a country because it does not cause foreign debt or repayment obligations. Investment of foreign direct are having some impact on better economic growth and development. Economic growth is represented in a country's rising ability to supply economic products to its population. Institutions and technological progress, significant ideological shifts are required to be able to increase these capabilities. Good economic growth will certainly attract investors to invest in the country (Ali, Ali, & Dalmar, 2018). Ding (2021) states that a country must be able to guarantee the minimum needs of its citizens by targeting economic growth as measured by GDP. According to Uddin, Ali, & Masih (2020), GDP is the value produced by a country in one year in producing all goods and services. In accordance with this understanding that GDP can be used as a good measurement medium for people's lives, how when GDP increases it will increase people's living standards.

In the Malaysian economy, the international trade sector plays an important role because it provides direct benefits to the trade sector for the overall national production and contributes to the provision of job opportunities for the community (Hussain & Shah, 2021). Therefore, exports are an important source of foreign exchange and serve as a financing tool for efforts to maintain economic stability and implement development. The need for foreign exchange will continue to grow along with the increase in development, therefore exports must continue to be increased for economic development to encourage economic growth in the country (Kacou, Kassouri, Evrard, & Altuntaş, 2022).

In carrying out international trade activities, especially exports, the reference in determining the high and low prices of these commodities is the exchange rate or the exchange rate where the exchange rate is a comparison between the price of one country's currency and that of another country. So that when the value of the currency increases, it will benefit the exporting country and vice versa. When the exchange rate falls, it will trigger imports by countries that want to meet their needs (Tarakçı, Ölmez, & Durusu-Çiftçi, 2022). This study tries to find out how the short and long run connection among several variables related to foreign direct investment such as economic growth, export value, and interest rates in Malaysia.

Research Method

We take data from the World Bank as a secondary source, namely data from 2000 to 2020, the following variables will be analyzed using two different time series models. The country's GDP is used the measure about the growth in economic at this research. Economic growth (EG), Export value (EXV), and interest rate (IR) are independent variables of this study because they serve as indicators of how these three variables are related in the long and short term with foreign direct investment as the dependent variable. We use the following econometric model:

$$FDI_t = \beta_0 + \beta_1 FDI_{t-1} + \beta_2 FDI_{t-2} + \beta_3 EG_t + \beta_5 EG_{t-1} + \beta_6 EG_{t-2} + \beta_7 EXV_t + \beta_8 EXV_{t-1} + \beta_9 EXV_{t-2} + \beta_{10} IR_t + \beta_{11} IR_{t-1} + \beta_{12} IR_{t-2} + e_t$$

Where the investment of foreign direct is FDI, the growth of economy indicated as EG, Export value is EXV, the interest rate is IR, the error term is e, and time series is t. In this study, dynamic ARDL was applied. According to Khan et al.(2020) when the independent variables experience a shock, the ARDL model may be used to study, simulate, and predict it. If there is a cointegration relationship between research variables, ARDL simulation models may be used.

Result and Discussion

Table 1 displays descriptive data based on the study's variables.

Table 1. Descriptive Statistics

	FDI	EG	EXV	IR
Mean	3.109659	4.559798	183.7642	2.454163
Median	3.166124	5.332139	202.1928	2.825945
Maximum	5.074455	8.858868	251.9165	11.78239
Minimum	0.056692	-5.646940	89.55542	-3.903382
Std. Dev.	1.297198	3.173540	54.24402	3.660239
Skewness	-0.715932	-1.961798	-0.498874	0.564025
Kurtosis	3.197876	6.695058	1.852284	3.617165
Jarque-Bera	1.828215	25.41705	2.023661	1.446715
Probability	0.400874	0.000003	0.363553	0.485121
Sum	65.30283	95.75576	3859.048	51.53742
Sum Sq. Dev.	33.65443	201.4271	58848.27	267.9470
Observations	21	21	21	21

The results of descriptive statistics are expressed in terms of mean, min, max, and Std Dev. FDI Mean 3,109, FDI Min 0,056, FDI Max 5,074, FDI Std Dev 1,297. EG Mean 4,55, EG Min 89,55, EG Max 8,858, EG Std Dev 3,173, and so on. A stationary test should be done before utilizing the ARDL model to predict the value. By analyzing the error component, which includes any chance of autocorrelation if the series is not stationary, Augmented Dickey-Fuller (ADF) may determine whether the series is not stationary. The following are the outcomes:

Table 2. Unit Root Test On EG, CO2, LE And CDD Data

Variable	Unit Root	ADF Test stat.	Signif.	Description
foreign direct investment (FDI)	Level	-3.898162	0.0087	Stationer
Economic Growth (EG)	Level	-3.865447	0.0089	Stationer
export value (EXV)	Level	-1.310330	0.6038	
	First Diff	-4.495066	0.0025	Stationer

interest rates (IR)	Level	-5.983987	0.0001	Stationer
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FDI, EG, and IR data are stationary in the original data, while the EVX data are stationary in the first difference. Since all the data are stationary, we can continue to estimate the ARDL.

Tabel 3. The ARDL Test Of Bound

Test Stat.	Value	Significant	I(0)	I(1)
F-stat.	3.379055	5%	2.79	3.67
K	3	2.5%	3.15	4.08
		1%	3.65	4.66

Asymptotic : n=1000

Result on limit test of ARDL figure shown in Table 4, the model's F-statistical value of 3.379055 is more than the upper limit value at the 5 percent level and even greater than the upper limit value at the 2.5 percent level and 1 percent level. This shows that the four variables studied in this study, namely foreign direct investment, economic growth, export value, and interest rates, are cointegrated across time, or the four variables move in the same direction.

Tabel 4. ARDL Analysis Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FDI(-1)	-0.299178	0.318197	-0.940229	0.3784
FDI(-2)	-0.516072	0.313450	-1.646422	0.1437
EG	0.228816	0.097827	2.338985	0.0519
EG(-1)	0.263559	0.279816	0.941902	0.3776
EG(-2)	-0.052209	0.221438	-0.235772	0.8204
EXV	0.006127	0.018099	0.338529	0.7449
EXV(-1)	-0.027643	0.026656	-1.037023	0.3342
EXV(-2)	0.025777	0.016363	1.575295	0.1592
IR	-0.083027	0.121004	-0.686153	0.5147
IR(-1)	-0.131281	0.129956	-1.010190	0.3460
IR(-2)	-0.182634	0.129766	-1.407413	0.2021
C	4.032231	2.292070	1.759209	0.1219
R-square1	0.771441	Improved R-square1	0.412276	

The R-square1 and R-square1 values of the improved ARDL models varied between 0.77 and 0.41. The Improved R-square1 value is about 0.41 this is indicates each independent variables at ARDL model, namely economic growth, export value, and interest rates, can explain 41 percent of the alterations on dependent variable the investment of foreign direct. This shows that this research model is good enough to be researched.

Judging from the ARDL estimation results, the variable EG(-2) has a coefficient value of -0.052 which indicates that the economic growth factor is a factor that affects foreign direct investment. For example, when the economic growth rate of the previous two years rose by 1% it would have resulted in the current decline in foreign direct investment of 5.2 percent. However, the EG variable has a coefficient value of 0.228 which indicates that when the current economic growth rate increases by 1 percent, it will cause an increase in foreign direct investment by 22.8 percent.

This shows that increasing economic growth will have a positive sentiment effect on the direction of investment in domestic which leads to the growth of investment of foreign direct, also in accordance together with other factors such as the value of exports where the increase also contributes to positive sentiment towards foreign direct investment in Malaysia, however, the interest rate variable gives a negative sentiment towards foreign direct investment in Malaysia.

Table 5. Analysis Results In The Long Term And Short Term

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.032231	2.292070	1.759209	0.1219
FDI(-1)*	-1.815250	0.483806	-3.752023	0.0071
EG(-1)	0.440167	0.381190	1.154719	0.2861
EXV(-1)	0.004261	0.005685	0.749423	0.4780
IR(-1)	-0.396942	0.248095	-1.599960	0.1536
D(FDI(-1))	0.516072	0.313450	1.646422	0.1437
D(EG)	0.228816	0.097827	2.338985	0.0519
D(EG(-1))	0.052209	0.221438	0.235772	0.8204
D(EXV)	0.006127	0.018099	0.338529	0.7449
D(EXV(-1))	-0.025777	0.016363	-1.575295	0.1592
D(IR)	-0.083027	0.121004	-0.686153	0.5147
D(IR(-1))	0.182634	0.129766	1.407413	0.2021

From the table above, the relationship between the FDI variable and EG(-1) is significantly positive, as well as the EXV(-1) variable which is also significantly positive, this means that in Malaysia at short run previous year's growing of economic variables with export value the previous year have a substantial impact on present investment of foreign direct. At contrast to the significant negative relationship between FDI and IR(1-) variables, this shows that the results of this analysis strengthen the ARDL estimation in Table 4 which also explains that at the short run variables of economic growth with export value had the substantial impact on present investment of foreign direct. However, interest rate variable has a substantial negative impact on investment of foreign direct in Malaysia in the short term.

Conclusion

We find that the variables we estimate have Economic growth and foreign direct investment at long and short run relationships, in addition to export and direct investment from abroad worth, which at the short run, the economic growth have significant positive effect on foreign direct investment. Accordingly, the value of exports has a strong beneficial impact on foreign direct investment. In contrast to the considerable inverse link between interest rates and foreign direct investment, this indicates that with increasing economic growth and the value of exports in the short term, the foreign direct investment will also increase, it is different from interest rates, whose increase in the short term will actually have an effect on decreasing malaysia welcomes foreign direct investment.

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