

THE EFFECT OF FOREIGN DEBT, FOREIGN DIRECT INVESTMENT, EXPORTS, AND IMPORTS ON ECONOMIC GROWTH IN ASEAN-5 COUNTRIES IN 2000 – 2017 (BEFORE AND AFTER THE GREAT RECESSION OF 2008)

Rakka Alhazimi¹⁾, Supriyono²⁾

¹⁾Faculty of Economics and Business, Sebelas Maret University
email: garciagyax@gmail.com

²⁾Faculty of Economics and Business, Sebelas Maret University
Email: supriyono@fe.uns.ac.id

ABSTRACT

The economic growth rates of developing countries in the ASEAN region such as Indonesia, the Philippines, Laos, Myanmar and Vietnam are currently not high enough to immediately align with the economies of developed countries. This is evidenced by the gross domestic product (GDP) per capita of developing countries in ASEAN which is still far from the GDP per capita of developed countries, so ASEAN developing countries need additional development capital in the form of foreign debt and foreign direct investment (FDI) and conduct international trade in the form of exports and imports. This study aims to determine the effect of foreign debt, FDI, exports and imports on economic growth in ASEAN countries. This study uses a quantitative approach. The data used are secondary data in the form of panel data from Indonesia, Philippines, Laos, Myanmar and Vietnam in 2000 - 2017. Data analysis methods used are panel data regression with fixed effect models (weighting cross-sections seemingly unrelated regression). The results showed that the variables of foreign debt, FDI, exports and imports had a positive and significant influence on economic growth. Conversely, the export variable has a negative influence on economic growth. The results of time series analysis show that the variables of foreign debt, FDI, exports, and imports have a significant effect on economic growth in the period before the recession in 2008. In the period after the 2008 recession, the variables of foreign debt, exports and imports have a significant effect on economic growth, but the variable of FDI have no significant effect on economic growth.

Keywords: Economic Growth, Foreign Debt, FDI, Export, Import

1. INTRODUCTION

Economic growth is the purpose of all countries to increase economic activity. However, economic growth in most developing countries, especially in the ASEAN region, is not enough to strive the economic growth in developed countries. This is due to the per capita income of developed countries, which has reached its peak that leads to an insignificant increase. Meanwhile, the per capita income of developing countries in ASEAN is still far behind compared to developed countries. Furthermore, the economic growth in these countries is still relatively slow.

Table 1 shows that the economic growth of the five ASEAN countries from 2012 to 2017 is around 5% to 8%. It shows that each country has no significant increase in economic activities, especially for Indonesia, which is still lagging at 5.1% in 2017. Even though the other four ASEAN countries can reach economic growth above 6% in 2017, the current economic growth of the five ASEAN countries is still not enough to strive the economic growth in developed countries.

Table 1. Economic Growth in ASEAN-5 Countries 2012 – 2017

Year	Gross Domestic Product (%)				
	IND	PHI	LAO	MYM	VIE
2012	6,0%	6,7%	8,0%	7,3%	5,2%
2013	5,6%	7,1%	8,0%	8,4%	5,4%
2014	5,0%	6,1%	7,6%	8,0%	6,0%
2015	4,9%	6,1%	7,3%	7,0%	6,7%
2016	5,0%	6,9%	7,0%	5,9%	6,2%
2017	5,1%	6,7%	6,9%	6,8%	6,8%

Source: World Bank, 2018

Table 2. shows that the per capita income of five ASEAN countries in 2017 is still below 4,000 United States Dollars (USD). This number is different from the five developed countries with a per capita income of more than 20,000 USD. According to the World Bank (2016), at least it achieves a per capita income of 12,476 USD or more to be categorized as a developed country. Therefore, developing countries in ASEAN need more resources to increase economic growth; one resource is capital.

Table 2. The Per Capita Income of Developing and Developed Country in 2017

Developed Countries	GDP Per capita (USD)
Singapore	57.714,3
New Zealand	42.940,6
Japan	38.428,1
South Korea	29.742,8
Saudi Arabia	20.849,3
Indonesia	3.846,9
Philippine	2.989,0
Laos	2.457,4
Vietnam	2.342,2
Myanmar	1.256,7

Source: *World Bank*, 2018

The ASEAN developing countries have lack capital formation ability. This is in contrast to developed countries which have more potential. Savings and limited foreign exchange rates generally cause the lack of capital experienced by developing ASEAN countries. It happens because the low per capita income of developing ASEAN countries leads to a low level of savings and a deficit in the trade balance, which declines foreign exchange reserves. Therefore, it is necessary to have additional capital flows from abroad in foreign debt and foreign direct investment (Jaya, 2014).

Developing countries can obtain additional capital for development activities using international financial flows. The capitals are from foreign debt and foreign direct investment (FDI). External debt can be utilized to overcome the savings gap and foreign currency gap. If these two problems are resolved, a country can invest and import capital goods without any obstacles so that economic development can continue. In addition, foreign direct investment is also able to overcome the savings gap and foreign currency gap. Foreign direct investment can also provide benefits in increasing employment opportunities, technology transfer, knowledge transfer, and managerial service assistance (Todaro and Stephen, 2006: 259-266).

The ASEAN developing countries can increase their domestic capital stock by conducting international trade other than foreign debt and FDI. Exports and imports have the same role in international trade. When a country has an advantage over a product that other countries cannot produce, it can export it, and vice versa (Bustami and Paidi, 2013).

Exports are an economic activity between a country with goods or commodities surplus and the country lacking these goods. Exports lead the market to be comprehensive and specialized. This specialization can improve workforce skills and boost their productivity which leads to the increasing of national income. In addition, imports are carried out because a country has not produced an item or commodity. Thus, it is necessary to purchase these goods from other countries that can produce them. By doing imports, a country can cover the lack of an item. Import is also able to increase the supply of capital goods needed for economic growth.

Foreign debt, FDI, exports, and imports by ASEAN developing countries contribute to increasing economic growth. Thus, this study aims to determine whether foreign debt, FDI, exports, and imports affect economic growth in Indonesia, the Philippines, Laos, Myanmar, and Vietnam.

The research hypotheses in this paper are: (1) Foreign debt has a positive and significant impact on the economic growth in ASEAN-5 countries; (2) Foreign direct investment (FDI) has a positive and significant impact on economic growth in ASEAN-5 countries; (3) Exports have a positive and significant impact on the economic growth of ASEAN-5 countries; (4) Imports have a positive and significant impact on the economic growth of ASEAN-5 countries; and (5) The effect of foreign debt, FDI, exports, and imports on ASEAN's economic growth is different before and after the 2008 recession.

2. RESEARCH METHOD

This study uses a quantitative approach to estimate the secondary data generated from the World Bank Asian Development Bank (ADB). The data consist of gross domestic product, external debt stock, foreign direct investment (FDI), total exports, and total imports in Indonesia, Laos, Myanmar, and Vietnam in 2000 – 2017.

This study utilizes two types of variables. The first is the dependent variable, and the second is the independent variable. Economic growth is the dependent variable, while the independent variable consisting of foreign debt, FDI, exports, and imports. The specification of the variables are as follow:

- (1) *Gross Domestic Product GDP* is the total value of goods and services produced in a country. The data in this study uses Gross Domestic Product at 2010 constant market prices in 2000 – 2017 in units of million USD.
- (2) Foreign debt is a loan in the form of foreign exchange, goods or services made by a country from another country which creates an obligation to repay it under certain conditions. This study utilizes External Debt Stock data in 2000 – 2017 in units of million USD.
- (3) Foreign direct investment (FDI) is a long-term investment from foreign multinational companies to developing countries. This study uses Foreign Direct Investment data in 2000 – 2017 in units of million USD.
- (4) Export is the sale of goods or services from domestic to abroad. This study uses Total Exports in 2000 – 2017 in units of million USD.
- (5) Import is the purchase of goods or services from abroad. This study utilizes Total Imports in 2000 – 2017 in units of million USD.

This study employs panel data regression. Panel data regression aims to estimate the effect of foreign debt (ULN), foreign direct investment (FDI), exports (EKS), and imports (IMP) on economic growth (GDP) in five ASEAN countries. The econometrics model is as follow:

$$GDP_{it} = \alpha + \beta_1 ULN_{it} + \beta_2 FDI_{it} + \beta_3 EKS_{it} + \beta_4 IMP_{it} + \varepsilon_{it} \quad (1)$$

Variable specifications:

GDP_{it} = The total of GDP (in million USD) country i, year t

α = Constanta

ULN_{it} = Total foreign debt (in million USD) country i, year t

FDI_{it} = Total FDI (in million USD) country i, year t

EKS_{it} = Total export (in million USD) country i, year t

IMP_{it} = Total import (in million USD) country i, year t

$\beta_1 \dots \beta_4$ = Coefficient

ε = error term

The estimation model covers five ASEAN countries that consist of Indonesia, the Philippines, Laos, Myanmar, and Vietnam. The data for each country is time-series data with 18 years of observations from 2000 to 2017. There are 5 (five) cross-section units and 18 time periods. Thus, the total panel data is 90 observations.

Meanwhile, Chow Test, introduced by Gregory C. Chow, is employed to denote the effect between variables in different periods (before and after the 2008 recession). Chow tests are usually used in time series analysis to conduct structural break tests. The structural break is an unexpected change over time in the regression model parameters that cause forecasting errors and general unreliability of the model. This study determines structural breaks before and after the 2008 recession. Thus, the data will be divided into two sub-samples from 2000 to 2008 and from 2009 to 2017.

Assume the data model on ordinary linear regression:

$$Y = \alpha + \beta X + \varepsilon \quad (2)$$

If the data is divided into two groups, it will be obtained:

$$Y_1 = \alpha_1 + \beta_1 X_1 + \varepsilon_1 \quad (3)$$

$$Y_2 = \alpha_2 + \beta_2 X_2 + \varepsilon_2 \quad (4)$$

The Chow Test steps are explained as follow:

- (1) Regress all observation data (before and after the 2008 recession), then get the Residual Sum Square (RSS) value.
- (2) Regress the two observation subsamples separately, then get the RSS(1) value before the 2008 recession and the RSS(2) value after the 2008 recession.
- (3) Estimate the statistical test with the following formula

$$F = \frac{RSS_c - (RSS_1 + RSS_2) / k}{RSS_1 + RSS_2 / n - 2k} \quad (5)$$

Description:

RSS_c = The number of error terms in the overall observation.

RSS_1 = The number of error terms in observations before the 2008 recession.

RSS_2 = The number of error terms in observations after the 2008 recession.

k = The number of variable

n = The number of observation

- (4) Run the statistical test followed the F distribution with d.f (k, n – 2k).
- (5) Compare the statistical chow test values and the critical values in the F-Table with the hypothesis:

$H_0: \alpha_1 = \alpha_2, \beta_1 = \beta_2$, there was no significant change in running the two regressions.

$H_1: \alpha_1 \neq \alpha_2, \beta_1 \neq \beta_2$, there is a significant change in running the two regressions.

If the statistical chow test value > F-Table value then "H₀" is rejected, it means that there is a significant change in running the two regressions. Thus, the research data needs to be divided into two sub-samples to determine the effect of changes from the period before the 2008 recession and after the 2008 recession. Meanwhile, if the statistical chow test value < F-Table value then "H₀" is accepted, it means that there is no significant change in running the two regressions.

3. RESULTS AND DISCUSSION

3.1. Panel Data Regression Result

This study uses the econometric program E-views version 7 to estimate to run the panel data estimation. The results are as follow:

Table 3. Fixed Effect Estimation Result (Cross-section Seemingly Unrelated Regression)
Dependent Variabel: GDP?

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	92106.17	6331.087	14.54824	0.0000
ULN?	1.902783	0.148575	12.80691	0.0000
FDI?	3.442732	0.817569	4.210938	0.0001
EKS?	-1.388630	0.189331	-7.334408	0.0000
IMP?	1.102322	0.195287	5.644617	0.0000

Source: data estimation conducted by using E-views 7

The Fixed-Effect (FEM) model using the GLS (cross-section SUR) method revealed that foreign debt, FDI, and imports have a positive relationship with economic growth in ASEAN-5 countries at $\alpha=5\%$ level. On the other hand, the export variable has a negative relationship with economic growth in ASEAN-5 countries at $\alpha= 5\%$. Therefore, the regression model formulated as follow:

$$GDP = 92106,17 + 1,902783 ULN + 3,442732 FDI - 1,388630 EKS + 1,102322 IMP$$

The intercept value (C) of 92106.17 in equation above is the value of the dependent variable when the value of the independent variables is zero (0). In contrast, the slope value (β): 1.902783 ULN, 3.442732 FDI, - 1.388630 EKS, and 1.102322 IMP are the changes in the value of the dependent variable when the value of the independent variable increases by one unit.

3.2. The Impact of Foreign Debt on Economic Growth

The foreign debt in the fixed effect model using the GLS (cross-section SUR) has a positively significant relationship at $\alpha = 0.05$ on economic growth (GDP) in ASEAN-5 countries. The coefficient value of the foreign debt variable is 1.902783. Thus, it denoted that every 1 USD increase in foreign debt, the GDP increases by 1.902783 USD, assuming that the other variables have a fixed value.

Foreign debt is a source of capital flows from abroad that can solve the inequality in investment and savings in ASEAN developing countries. In addition, the capital inflow can be used by ASEAN developing countries for productive purposes such as human resource development, infrastructure development, and other productive activities. In the end, foreign debt can improve the economy of ASEAN developing countries. Thus, ASEAN developing countries can advance their economy with less role of foreign debt.

3.3. The Impact of Foreign Direct Investment (FDI) on Economic Growth

Using the GLS (cross-section SUR) method, the fixed effect estimation model revealed that FDI has a positive and statistically significant relationship at $\alpha = 0.05$ on economic growth (GDP) in ASEAN-5 countries. The coefficient value of the FDI variable is 3.442732, which means that as FDI increases by 1 USD, then GDP increases by 3.442732 USD, assuming that the other variables have a fixed value.

FDI is a source of capital flows that are almost as beneficial as foreign debt. However, FDI has several other benefits from ASEAN developing countries. The benefits are technology transfer, skills training, job expansion, etc. In addition, the existence of FDI in developing ASEAN countries has created new sources of economic growth through the development of companies acquisition by developed countries. Therefore, FDI is considered able to boost the economic growth of ASEAN developing countries.

3.4. The Impact of Export on Economic Growth

Using the GLS (cross-section SUR) method, the fixed effect estimation model revealed that export has a negative and statistically significant relationship at $\alpha = 0.05$ on economic growth (GDP) in ASEAN-5 countries. The export coefficient is -1.388630, which means that as export increases by 1 USD, GDP will decrease by 1.388630 USD, assuming that the other variables have a fixed value.

The effect of export on economic growth indicates that exports have a negative relationship with economic growth. This is generally because most ASEAN developing countries still export raw goods to developed countries. The finding is in line with the study of Goldstein and Jon (2014); that as the export price ratio decreases, ASEAN developing countries are forced to export more commodities to import the same amount of commodities.

3.5. The Impact of Import on Economic Growth

Using the GLS (cross-section SUR) method, the fixed effect estimation model revealed that foreign debt has a positive and statistically significant relationship at $\alpha = 0.05$ on economic growth (GDP) in ASEAN-5 countries. The coefficient value of the foreign debt variable is 1.102322, which means that as foreign debt increase by 1 USD, the GDP increases by 1.102322 USD with the assumption that the other variables have a fixed value.

The ASEAN Developing countries carry out import activities to procure products that cannot be produced domestically. Most ASEAN developing countries usually import capital goods in tools, equipment, and machinery from developed countries. Physical capital that enters the country is expected to boost human resource productivity to increase incomes.

3.6. Chow Test Result

As regression estimation of the two subsamples before and after the 2008 recession is performed, the regression result and RSS result is as follow:

Table 4. Sum of Square Residual

Sum of Square	Result
RSS	771,2
RSS ₁	711,4
RSS ₂	774,1

Source: data estimation conducted by using E-views 7, 2019

Table 5. The Regression Estimation Results of All Data, Subsample Before the 2008 Recession, and Subsample After the 2008 Recession

Method: EGLS (Cross Section SUR)

Dependent Variable: GDP

Variable	Coefficient		
	Seluruh Data	Sebelum Resesi	Sesudah Resesi
C	92106,17	140559,2	115334,6
ULN	1,902783	-1,84634	2,064599
FDI	3,442732	1,631995	0,843818
EKS	-1,388630	3,016241	-1,258409
IMP	1,102322	-0,777491	0,839740
Residual Sum Sqr.	771,2	7,71	774,1
Adj. R-Squared	0,994646	0,998789	0,999187
F-Statistics	2.067,689	4.538,870	5.531,5820
Prob(F-Statistics)	0,000000	0,000000	0,000000

Sumber: data estimation conducted by using E-views 7, 2019

The Chow test estimation result is obtained as follows:

$$F = \frac{771,2 - (711,4 + 774,1)/5}{(711,4 + 774,1)/90 - 10} = \frac{154,86}{19,31875} = 8,01$$

The value of the Chow Test is 8.01. The value is greater than the F-table (5.80) value of 2.33. Thus, it rejects H_0 . This means that the intercept and coefficient values of the two subsamples are different. There is significant change if two regressions are performed on the subsample before the 2008 recession (2000 – 2008 period) and the subsample after the recession in 2008 (2009 – 2017 period).

4. CONCLUSIONS

The conclusions generated from the estimation result are as follow:

- (1) Foreign debt has a positive relationship with gross domestic product. Furthermore, foreign debt statistically affects gross domestic product in ASEAN-5 countries.
- (2) FDI has a positive relationship with gross domestic product. Furthermore, foreign debt statistically affects gross domestic product in ASEAN-5 countries.
- (3) Export has a negative relationship with gross domestic product. Furthermore, foreign debt statistically affects gross domestic product in ASEAN-5 countries.
- (4) Import has a positive relationship with gross domestic product. Furthermore, foreign debt statistically affects gross domestic product in ASEAN-5 countries.
- (5) The time-series analysis showed that foreign debt, FDI, export, and import affect economic growth in ASEAN-5 countries significantly before the 2008 recession period. Meanwhile, after the 2008 recession period, foreign debt, export, and import affect economic growth in ASEAN-5 countries significantly, whereas FDI does not affect significantly.

This study suggests that:

- (1) Indonesia, the Philippines, Laos, Myanmar, and Vietnam need to reduce their dependence on budget financing using foreign debt. Instead, the government should increase revenue through taxes. Thus, the budget deficit is not entirely overcome by debt.
- (2) ASEAN developing countries need to conduct a fair competition to promote foreign direct investment in their respective countries. The goal is that developing countries in ASEAN can compete in

increasing economic, political, social stability, and legal certainty to attract investors to invest in the country.

- (3) Governments in Indonesia, the Philippines, Laos, Myanmar, and Vietnam need to consider exporting manufactured goods due to their higher selling value than raw goods.
- (4) Import activities are essential, considering that a country has not produced a specific product. However, import activities carried out by governments in Indonesia, the Philippines, Laos, Myanmar, and Vietnam must be limited according to their need. The actual step is to avoid importing commodities that already have specialization advantages.

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