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Analysis of Factors Affecting Indonesia's Non-Oil and Gas Export to China

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ABSRACT: The research objectives to be achieved to analyze the effect of economic variables impact on value Indonesia's non-oil and gas exports in China. The effect GDP Real of China country, exchange rate, inflation of the destination country, the interest rate of China and Foreign direct invesment by using lag on the Value of Indonesia's non-oil and gas exports in China. The data used in this research is secondary data, from 2007 Quarter 1 - 2018 Quarter, Thisresearch was conducted using the Autoregressive Distributed Lag (ARDL) Method. The results of the analysis show that variable GDP Real of China, China's inflation and China's FDI in Indonesia at lag 4 had a positive and significant effect on indonesia non migas exports in China at the long term. While exchange rate had a negative and significant effect. however, in the short term that GDP Real of China country, exchange rate, interest rate of China Country, and FDI had significant effect on indonesia non migas exports in China.

KEYWORDS*: Indonesia's non-oil and gas exports in China, China's GDP Real, exchange rates, China's inflation, China's interest rates and FDI flows.*

I. INTRODUCTION

International trade activity had been carried out by the government as an effort to create a prosperous society and improve the standard living of the state. Because international trade had the impact on the overall national production as well as contributes to the provision of employment opportunities for the community. The opening of international trade will benefit the country concerned as a whole because the advantage exceed the disadvantage [1]. Profit of international trade can seen in terms of exports, which are in the form of increased income, increase in foreign exchange and can expand job opportunities. The international trade process consists of two activities, export and import.

Export activities had important role in the growth domestic economy. Therefore, the government is developing exports by issuing several policies in order to increase the export of goods and services produced, especially non-oil and gas commodities. Non-oil and gas commodity was chosen because the price of petroleum in the world market has experienced a decline in recent years. So that state revenue from oil and natural gas has decreased very significantly. To overcome this situation, the government is trying to diversify its revenues towards increasing production and increasing exports of non-oil and gas commodities and services.

Indonesia's non-oil and gas commodities are exported to several states, like America, European Union, Asia etc. According to the Statistics Indonesia's non-oil and gas export flow for the last few years had increased, especially in China [2]. The value of Indonesia's non-oil and gas exports in China in 2017 Indonesia's non-oil and gas exports in China reached 41.14 percent. This proves that trade relations between China and Indonesia are good trade partner well, especially in the non-oil and gas sector.

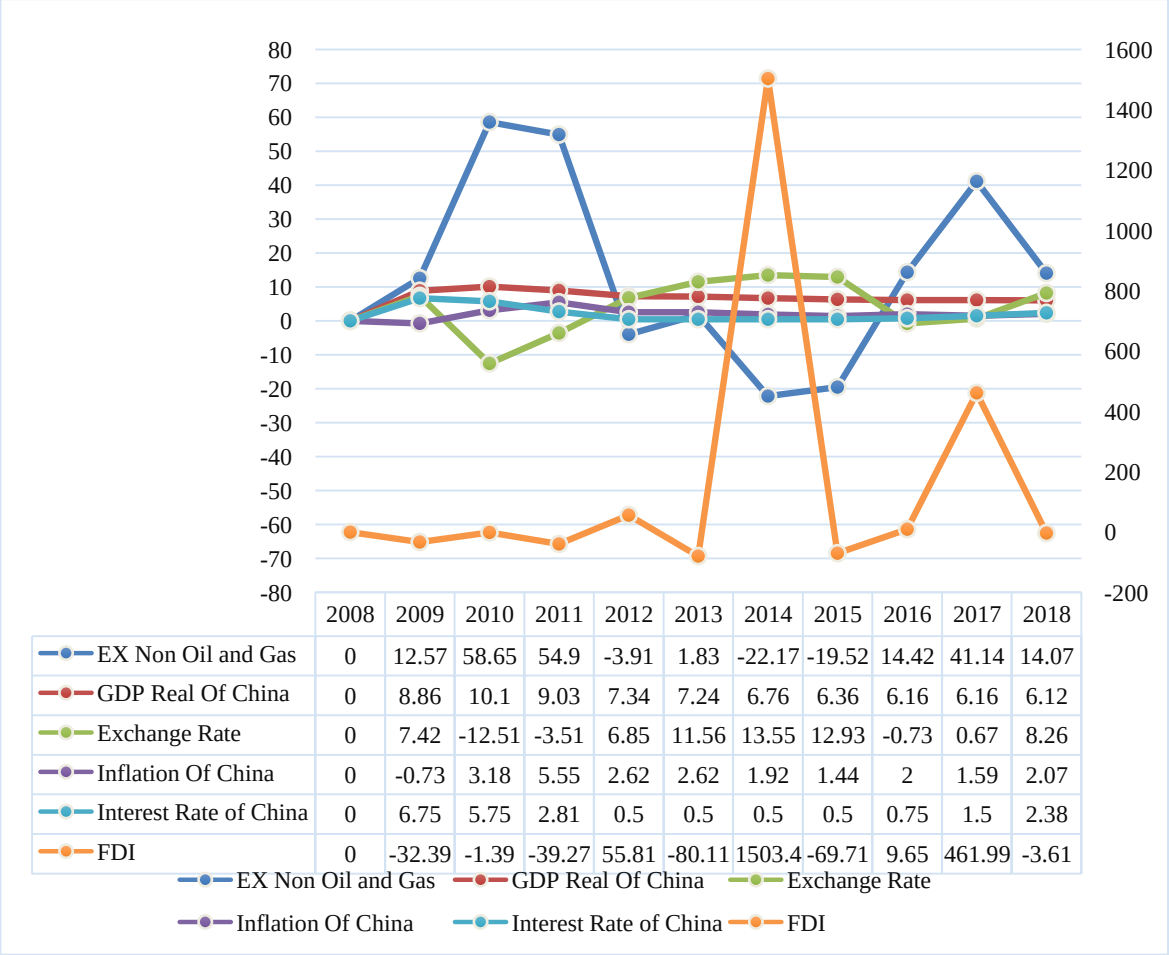
Progress of Indonesia's non-oil and gas exports to China is influenced by internal and external conditions, both from the economic side of the country of origin and the country of export destination (China) [1]. Economic factors had affect exports include: First, consumer tastes for goods produced domestically and abroad. Second, the price of goods outside and inside the country. Third, the exchange rate (Kurs). Fourth, consumer income at home and abroad. Fifth, the cost of carrying goods, Sixth, government policy towards trade. Export activities of a country are influenced by the flow of FDI, a change in FDI will affect to composition aof the countrys export [3].

Factor affecting export value of a country is GDP real export destination country. Increase in GDP real could indicate an increase in income so that had impact on people's consumption in a country. The Real GDP of the Export Destination Country determines the flow exports non migas to that country [4]. In addition, the exchange rate also an important variable in Indonesia's export nonoil and gas activity. Fluctuation of rupiah

exchange rate against foreign currencies has an effect on Indonesia's non-oil and gas export activities, when the rupiah exchange rate weakens, an increase in the price of Indonesian imports of foreign products decreases the productivity of domestic industries that use imported raw materials for goods.

In addition, inflation is a major economic problem of a country that affects on value of export non migas Indonesia to China. Inflation is an increase in overall prices and deflation is a decrease in the overall price level [5]. When inflation, the people's purchasing power will decrease so that the level of consumption of goods and services will decrease. The increase in the price of domestic products encourages people to seek alternative offers from other countries that are cheaper. This means when high inflation in China, the value of Indonesia's non-oil and gas exports will increase.

The Changes of interest rate variable also affects the value of Indonesia's exports in China, high interest rates in China makes people prefer to save money rather than hold money so that people's purchasing power for goods and services product decreases as a result of Indonesia's exports in China decreasing. In addition, another economic variable that affects the value of Indonesia's non-oil and gas exports is foreign direct investment from China. FDI and a country's export performance are positively correlated,increase FDI from importing countries makes investors feasible in the medium term, and over time this FDI could lead to larger changes in the export composition of the country of origin [6].



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
EX Non Oil and Gas	0	12.57	58.65	54.9	-3.91	1.83	-22.17	-19.52	14.42	41.14	14.07
GDP Real Of China	0	8.86	10.1	9.03	7.34	7.24	6.76	6.36	6.16	6.16	6.12
Exchange Rate	0	7.42	-12.51	-3.51	6.85	11.56	13.55	12.93	-0.73	0.67	8.26
Inflation Of China	0	-0.73	3.18	5.55	2.62	2.62	1.92	1.44	2	1.59	2.07
Interest Rate of China	0	6.75	5.75	2.81	0.5	0.5	0.5	0.5	0.75	1.5	2.38
FDI	0	-32.39	-1.39	-39.27	55.81	-80.11	1503.4	-69.71	9.65	461.99	-3.61

Figure 1. Development GDP Real Of China, Rupiah Exchange Rate, Inflation, Chinese FDI Flows in Indonesia and Indonesia's Non-Oil and Gas Exports to China

Source : Bank Indonesia, World Bank, IMF, Fx Sauder

Based on Figure 1, explain that China's real GDP rate fluctuated from 2008-2018. Increase in the real GDP of the Destination Country reflects an increase in purchasing power of commodity is higher. in the end, it will encourage Indonesia's non-oil and gas exports in the Destination Country. The occurrence of a phenomenon in 2013, the growth rate of China's real GDP decreased by 7.24 percent which should have reduced indonesia's decrease non-oil and gas exports but was followed by an increase in the rate of non-oil and gas exports by 1.83 percent, the same thing also happened in 2016. The table shows that the variable Value The rupiah exchange rate also experienced a fluctuating rate from 2008 to 2018. In 2010 there was an appreciation of the rupiah exchange rate of 12.51 percent. However, the rate of Indonesian non-oil and gas exports in China experienced 58.65 percent.

In addition, inflation variable, which high inflation in China can affect on increase rate of non-oil and gas exports. In 2009, China's inflation decreased by 0.73 percent followed by an increase in the rate of non-oil and gas exports by 12.57 percent in China. Meanwhile, the interest rate showed a phenomenon in 2016 that China's state interest rate increased by 0.75 but followed by an increase in Indonesia's non-oil and gas exports in China. In contrast to the FDI variable, in 2014 China's FDI flow increased by 1503.44 percent so that it could encourage Indonesia's non-oil and gas exports to China. However, the value of Indonesia's non-oil and gas exports in 2014 decreased by 22.17.

Connection with the explanation before, the fluctuate conditions in development of non-oil and gas exports in China cannot be separated from the macroeconomic influence from both the country of origin and the country of export destination. This research was conducted determine and analyze that affect value of Indonesia's non-oil exports to China because this non-oil and gas export is one of the assessments of the international trade performance of a country, especially Indonesia.

II. LITERATURE REVIEW

2.1 International trade theory

International trade is very profitable for every country, especially to create prosperity, increase foreign exchange, open employment and increase prosperity, increase foreign exchange, open employment opportunities and increase economic development. International trade is an economic activity of a country to specialize and there is an exchange of goods and services between countries, Smith concludes that a State must specialize in exporting commodities where a country has absolute advantages [7]. Another classic theory where international trade is about the theory of comparative advantage, even though a country is less efficient (has absolute weaknesses) against other countries in the production of both commodities [8].

2.2 Export Concept Theory

Export is important international trade activities, An open economy or four-sector economy is an economic system that involves the foreign trade sector which is characterized by export (X) and import (M) activities. Export is a foreign trade activity that sends and sells goods and services to foreign markets. Export activities lead to a flow of goods foreign market, from that receive income which is referred to as foreign exchange had come to the country [9].

Export is activity of produced various kinds of goods and services at domestic and then sold foreign market [10]. Net exports (net exports) are the value of exports minus value of imports, which serves to determine whether a country is a buyer or seller on the world market. So that net exports are also referred to as the trade balance.

2.3 Factors affecting the Value of Indonesia's non-oil and gas exports to China

There are factors that can affect the development of a country's exports to export destination country, this influence can come from domestic and foreign conditions [9].These factors are divided into two parts, there are pull factor and push factor. Pull factors are conditions created by a recipient country to attract goods and services product, such as a stable and efficient macroeconomic environment.

The determining factor for a country export demand is the export price, rupiah exchange rate (IDR), and the real GDP of destination country. When the rupiah currency appreciates, the product is relatively more expensive on the international market. In addition, the economic factor that affects the export value of developing countries is the inflation rate. There is a positive relationship between the real GDP of the destination country and the value of exports, while the exchange rate has a negative effect on the flow of exports in the destination country [4]. The determinants of a country nonoil and gas export are the economic conditions of importing country, result of this research variable GDP real of the destination countries and FDI have a positive effect on exports destination country [11], while the rupiah exchange rate has a negative correlation with export flows.

That A country's exports to a destination country are influenced by the destination country's real GDP, exchange rates, interest rates, FDI flows from importing countries, price levels and total production [12]. In this study, it can be seen that the real GDP of the importing or export destination countries, the exchange rate of FDI flows and total production in the long run have a significant effect on the flow of zambia exports in the export destination countries. However, interest rates and price levels in the long run do not have a significant effect. In the short run, the real GDP of the destination country, the exchange rate and the flow of FDI have a significant effect on the zambian export flow.

There is a direct effect between the increase in GDP Real of the Destination Country and domestic exports. The increase in GDP Real which is high causes the demand for goods and services product to also increase. GDP Real explains that the production and consumption of society will in turn generate demand for products, and this demand will generate a production response by companies in that country and shape import demand to trading partner countries [7].

There is negative correlation between the real effective exchange rate on a country's export demand both in the long and short term at a predetermined lag [13]. The relationship between the real exchange rate and net exports, the lower of exchange rate, cheaper the price of domestic goods relative to foreign goods and the greater net exports in a country. Conversely, if exchange rate appreciates, the value of domestic goods is relatively more expensive than foreign ones.

Inflation has an important role in influencing international trade between countries. If the domestic inflation rate is too high, it will reduce the competitiveness of goods and services in the international market. However, if the inflation rate in the importing country is high, relative prices in the country are relatively more expensive while the prices abroad are relatively cheaper. This condition makes a difference in price level, because when inflation in a country is high compared to other countries, the high cost of production will reduce the competitiveness of a country compared to other countries [14], So that it will encourage import transactions to control inflation.

There is a negative relationship between movements in interest rates on non-oil and gas export flows in developing countries [15]. That means when an increase in interest rates occurs, it will encourage people to save money so that the purchasing power of an item decreases as a result of which the demand for goods decreases, in the end has an impact on the flow of exports indonesia in destination country.The effect of FDI flows in exporting countries shows a positive relationship, [6] The role of FDI flows into the host country is very important because it can encourage export performance carried out by that country, which with FDI promotes the country's exports and increases capital. so that the export value increases.

III. METHODOLOGY

This research uses ARDL method and using eviews 9, ARDL is a regression method that includes the lag of both the dependent and independent variables simultaneously. The ARDL estimator will produce consistent long-term coefficients. One of the advantages of this ARDL approach is that it produces consistent estimates with good long-run coefficients. A regression model that includes a variable value that explains the present value or the past value (lag) of the dependent variable as one of the explanatory variables is called Autoregressive Distributed Lag (ARDL) [16]. This model can distinguish the short-term and long-term responses of the dependent variable to a unit change in the value of the explanatory variable.

If observed variables form a co-integrated set of variables, then the suitable dynamic model for finding short-term balance is the Error Correction Model (ECM). Furthermore, the error correction model will be a valid model if the co-integrated variables are supported by the Error Correction Term (ECT) which is statistically significant negative.In the ARDL specification, the maximum lag order must be determined, selecting the optimal lag will take advantage of the information criteria obtained from the Akaike Information Criteria (AIC). The optimal lag will be found in the model specification which gives the minimum AIC value. In general, the ARDL regression model in the short and long term is as follows:

The short-term estimate can be seen as follows:

$$\Delta(\text{LogY}_t) = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i}\Delta \log Y_{t-1} + \sum_{i=1}^{n} \alpha_{2i}\Delta \log X1_{t-1} - \sum_{i=1}^{n} \alpha_{3i}\Delta \log X2_{t-1} + \sum_{i=1}^{n} \alpha_{4i}\Delta X3_{t-} \sum_{i=1}^{n} \alpha_{5i}\Delta (X4_{t-1}) + \sum_{i=1}^{n} \alpha_{6i}\Delta \log X5_{t-1} + \alpha_{7i}ECT_{-1} + \varepsilon_{1t} \quad \text{(1)}$$

Error Correction Term (ECT) indicates the speed of adjustment and shows how quickly the variable returns to long-run equilibrium. ECT should have a coefficient of statistical significance and be negative. Meanwhile, long-term relationships can be analyzed using the ARDL equation as follows:

$$\Delta(\text{LogY}_t) = \beta_{0i} + \sum_{i=1}^{n} \beta_{1i}\Delta \log Y_{t-1} + \sum_{i=1}^{n} \beta_{2i}\Delta \log X1_{t-1} - \sum_{i=1}^{n} \beta_{3i}\Delta \log X2_{t-1} + \sum_{i=1}^{n} \beta_{4i}\Delta(X3_{t-1}) - \sum_{i=1}^{n} \beta_{5i}\Delta(X4_{t-1}) + \sum_{i=1}^{n} \beta_{6i}\Delta \log X5_{t-1} + \varepsilon_{1t} \quad \text{(2)}$$

Where :

Y = Export to China
X1 = China's State PDB
X2 = Value Exchange
X3 = Inflation of China's
X4 = Interest Rates of China’s
X5 = Foreign Direct Investment
Et = Error term
Δ = Lag

Broadly speaking, the steps that will be taken for econometric analysis using this method are as follows:

- Test the stationarity of the variable data in the research model, both at the level and the first difference level.
- Testing the cointegration of the Model with the bound-test cointegration test method
- Optimal lag testing
- Estimating the selected ARDL model in the long and short term
- Analyze the output to determine short-term dynamics and long-term dynamics
- Performing the Model Stability test on the estimated ARDL Model

- Selecting models and conducting diagnostic tests to test whether there are violations of the basic econometric assumptions.

IV. RESULTS AND DISCUSSION

4.1 Stationarity Test

The ARDL method ensures whether the data is stationary at the level, difference 1 or difference 2, because the ARDL method is not suitable for stationary data in difference 2. To test whether there is a unit root in the data series used, a stationarity test is carried out using Augmented Dickey Fuller (ADF). can be seen in Table 1:

Table 1.Stationarity test results with the ADF method

Variable	URT test on	Trend and determinist	ADF test	CV (5%)	Stationary
LogY	Level	Trend and intercept	-2,149	-3,508	Not
	1st difference	Trend and intercept	-8,435	-3,510	Yes
logX1	Level	Trend and intercept	-2,947	-2,926	Yes
	1st difference	Trend and intercept	-3,243	-3,510	Not
logX2	Level	Trend and intercept	-2,168	-3,510	Not
	1st difference	Trend and intercept	-4,760	-3,150	Yes
X3	Level	Trend and intercept	-3,968	-3,508	Yes
	1st difference	Trend and intercept	-6,088	-3,515	Yes
X4	1 st difference	Trend and intercept	-5.809	-3,510	Yes
logX5	Level	Trend and intercept	-3,191	-3,496	Yes
	1st difference	Trend and intercept	-7,693	-3,526	Yes

Source: by Eviews 9

Where :

Y = non-oil and gas exports

X1 = PDB of the Export Destination Country (China)

X2 = Exchange Rate

X3 = Inflation

X4 = Interest Rate

X5 = FDI of the Destination Country in Indonesia

Table 1. stationarity test result with Augmented Dickey Fuller method with confidence degree of 9.5 percent. Where non-oil and gas exports (logY),variable Log X2 and X4 are stationary at the 1st difference withADF test value less (more or less negative) than the critical value (CV), the hypothesis H0 which states that there is a unit root data is rejected. Variable X3 and LogX5 variables are stationary at level and the 1st difference with the ADF test value is less (more negative) than the critical value (CV), the hypothesis H0 which states that the data has a unit root is rejected, so the logY, X2, X3 and logX5 were not subject to unit root tests.

While variable LogX1 stationary data at the level level with the ADF test value less (more or less negative) than the critical value (CV), the hypothesis H0 which states that there is a unit root data is rejected at the level level. It can be concluded that the ADF value of each variable is stationary at the 1st difference level and none of the variables is stationary at the 2nd difference level. So that the ARDL method is an appropriate method in this research method.

4.2 Cointegration Test

In conducting the cointegration test, the tested variables must pass the Unit Root Test. Cointegration test is carried out to determine the possibility of a long-term relationship between the independent variable and the dependent variable.

Tabel. 2 Result Bounds Test

A ARDL Bounds Test		
S statistical Test	Value	k
	5,792255	5
Ccriritical Value Bounds		
Significance	I0 Bound	I1 Bound
1 10%	2.26	3.35
5 5%	2.62	3.79
2.2.5%	2.96	4.18
1 1%	3.41	4.68

Source : by using eviews 9

In the trace statistic value, the value obtained is greater than the critical value at the 5% level, thus proving that there is a cointegration between the free variable and the dependent variable. So in this researchthere is a long-term relationship between the independent and dependent variables. The bound test cointegration test by seeing if the f-statistical value is greater than the value I (1) Bound test, it can be concluded that there is cointegration between the independent variable and the dependent variable. The value of the F statistic is above I (1) bound 5.79> 3.35, so it can be concluded that the independent and dependent variables in the study have long-term cointegration.

4.3 Optimal Lag Test

In this research, the determination of the lag length is used by Akaike information criteria approach. The optimum lag test results can be seen in grafic below:

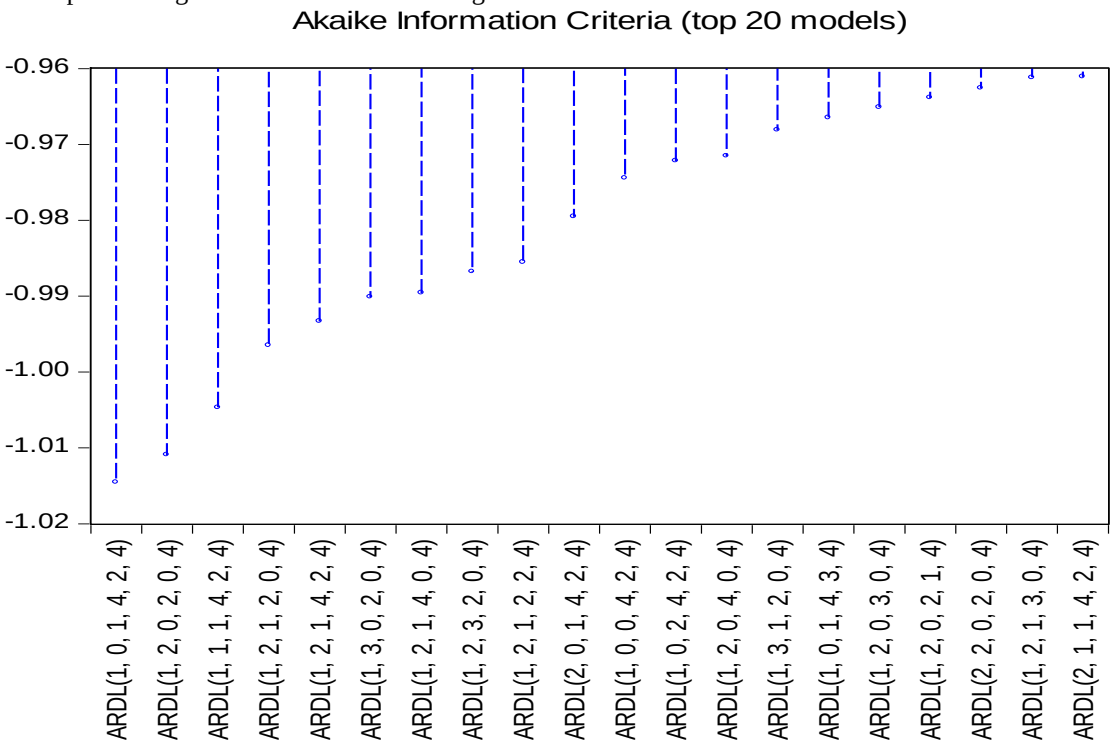


Figure 2: Optimal Lag Test Result

Source ; Result of Eviews 9

Based on the Figure above, there are several models that consist of a collection of lags. However, the appropriate model and lag used for the ARDL method in this research is ARDL at lag (1,0,1,4,2,4) because it has a smaller standard error than other ARDL models.The next step will be to estimate the ARDL regression with a lag (1,0,1,4,2,4). By using the best lag, it is expected that the ARDL regression results will provide BLUE estimation results.

4.4 Result Estimation Of Method ARDL

Lag is suitable in this research with a lag (1,0,1,4,2,4), This lag is used because it has a smaller error than other models. ARDL method uses a maximum lag length of 4 in estimating the existing model. Based on the model selection using SBC and AIC, it shows the results of the ARDL model specifications (1,0,1,4,2,4).

Table 3 show ARDL estimation output, variable of Indonesia's non-oil and gas exports in China in the previous year has a positive but insignificant effect at 5 percent significance level. Its meansan increase in non-oil and gas exports in the previous year had an impact on the increase in non-oil and gas exports in the current year, but not significant.Variable X1 uses lag 0, X2 on lag 2, X3 lag 4, X4 2 and X5 at lag 4,This means that China's Real GDP this year affects the current value of non-oil and gas exports, the exchange rate in the second quarter previously affected the current flow of non-oil and gas exports, Inflation and FDI in the previous fourth quarter affected the current exchange rate while interest rates in the second quarter previously affected the current value of Indonesia's non-oil and gas exports. However, the estimation results in Table 3, there is one variable that does not affect the flow of non-oil and gas exports.

Table 3. ARDL Regression Results

Dependent Variable: LY
Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LY(-1)	0.123291	0.167321	0.736850	0.4698
LX1	1.825350	0.557750	3.272705	0.0038
LX2	-2.844305	0.609650	-4.665473	0.0001
LX2(-1)	1.042967	0.748080	1.394192	0.1786
X3	0.028527	0.020383	1.399562	0.1770
X3(-1)	0.009900	0.020170	0.490834	0.6289
X3(-2)	0.071506	0.020730	3.449315	0.0025
X3(-3)	-0.000686	0.018907	-0.036304	0.9714
X3(-4)	0.037321	0.019814	1.883574	0.0742
X4	-0.002250	0.045717	-0.049219	0.9612
X4(-1)	0.088731	0.058742	1.510518	0.1466
X4(-2)	-0.100861	0.048113	-2.096327	0.0490
LX5	0.012305	0.030383	0.405011	0.6898
LX5(-1)	0.076158	0.029417	2.588909	0.0175
LX5(-2)	0.076121	0.033457	2.275234	0.0340
LX5(-3)	0.033707	0.029608	1.138462	0.2684
LX5(-4)	0.085182	0.028528	2.985956	0.0073
C	-0.139822	3.172692	-0.044070	0.9653

R-squared	0.952013	Mean dependent var	14.07301
Adjusted R-squared	0.911224	S.D. dependent var	0.419723
S.E. of regression	0.125058	Akaike info criterion	-1.014563
Sum squared resid	0.312790	Schwarz criterion	-0.238865
Log likelihood	37.27671	Hannan-Quinn criter.	-0.738576
F-statistic	23.33986	Durbin-Watson stat	2.221594
Prob(F-statistic)	0.000000		

Source : Result Of Eviews 9

Estimated parameters obtained from the ARDL model (1,0,1,4,1,2) are as follows:

$\Delta LogY = 0.12\ \Delta LogYt\text{-}1 + 1.82\ \Delta Log\ X1t - 2.84\ \Delta LogX2t\text{-}1 + 0.03\ X3t\text{-}4 - 0.03\ X4t\text{-}1 + 0.08\ \Delta Log\ X5t_{-2} - 0.13$ .....”(3)

The results of method ARDL show that R * Squared obtained are 0.95, it means that 95 percent of the independent variables affect the dependent variable or 95 percent of the variables X1, X2, X3, X4, and X5 simultaneously affect the value of export non migas Indonesia in China. Table 1.3 shows that variable X1 with lag 0 is positive and statistically significant at a significance level of 5 percent with a coefficient value of 1.82, followed by variable X2 at lag 0 which is negative and significant with a coefficient value of -2.84.The X3 variable using lag 4 at the past value of tfourth is positive but not statistically significant. However, at lag 2, the variabel X3 is positive and statistically significant. The variable X4 with lag 2 on the second past value is negative and significant. Furthermore, variable X5 using lag 4 is positive and significant.

After the ARDL estimation regression test and cointegration test are carried out, the next estimate can be calculated in the short term and long term from the model. It can be seen because the independent variables are cointegrating to the dependent variable. Then the next stage is to estimate in the long term and short term for the ARDL model using the selected ARDL model. The estimation results can be seen in the table below:

Table 4. Results of Short Run and Long Run Coefficients

Dependent Variable: LY
Selected Model: ARDL(1, 0, 1, 4, 2, 4)

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LX1)	1.825350	0.557750	3.272705	0.0038
D(LX2)	-2.844305	0.609650	-4.665473	0.0001

D(X3)	0.028527	0.020383	1.399562	0.1770
D(X3(-1))	-0.071506	0.020730	-3.449315	0.0025
D(X3(-2))	0.000686	0.018907	0.036304	0.9714
D(X3(-3))	-0.037321	0.019814	-1.883574	0.0742
D(X4)	-0.002250	0.045717	-0.049219	0.9612
D(X4(-1))	0.100861	0.048113	2.096327	0.0490
D(LX5)	0.012305	0.030383	0.405011	0.6898
D(LX5(-1))	-0.076121	0.033457	-2.275234	0.0340
D(LX5(-2))	-0.033707	0.029608	-1.138462	0.2684
D(LX5(-3))	-0.085182	0.028528	-2.985956	0.0073
CointEq(-1)	-0.876709	0.167321	-5.239683	0.0000

Cointeq = LY - (2.0820*LX1 -2.0547*LX2 + 0.1672*X3 -0.0164*X4 + 0.3233 *LX5 -0.1595)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LX1	2.082047	0.435630	4.779395	0.0001
LX2	-2.054657	0.428389	-4.796241	0.0001
X3	0.167179	0.051216	3.264195	0.0039
X4	-0.016402	0.032031	-0.512065	0.6142
LX5	0.323339	0.109748	2.946184	0.0080
C	-0.159485	3.613600	-0.044135	0.9652

Source : Result of Eviews 9

Short Run Equations

"$DlogY = 1.82\ DlogX1_t - 2.84\ DlogX2t - 0.03\ DlogX3_{t-3} + 0.10\ DlogX4_{t-1} - 0.08\ DlogX5_{t-3} - 0.87ECT$"..... (4)

Long Run Equations

"$\Delta logY = -0.15 + 2.08\ \Delta logX1_t - 2.05\ \Delta logX2_{t-1} + 0.16\ X3_{t-4} - 0.016\ X4_{t-2} + 0.32\ \Delta logX5_{t-4}$….."(5)

In the short term, Indonesia's export non migas flow in China is influenced by the LogX1, Log X2, X4 and Log X5 variables on the lag (0,1,4,4). For the variables LogX1, X4 are positive and significant in the short term. This means that the increase in the GDP Real of the destination country of China in the current year, the increase in the interest rate of the destination country in the previous second quarter, the increase in FDI in the previous fourth quarter will affect Indonesia's non-oil and gas export flow in China at this time.

Whereas for variable X2 in lag 1 with a coefficient that has a negative value affects the flow of Indonesia's non-oil and gas exports in the short term. This means that the appreciation of the rupiah exchange rate in the previous quarter will reduce the value of Indonesian non-migas exports to China. In the short term the variables X1, X2, X4 and the variable X5 have an influence on variable Y in the short term. However, for variable X4 (inflation) at lag 4 it does not affect Y.

ARDL estimation in the short term shows that the variables logX1, log X2, X4 and log X5 causes shocksto the export value in the Destination Country (China. The occurrence of shaking from the GDP real of China, exchange rate, interest rates of China and FDI flows have an effect on Indonesia's non-oil and gas exports in China, this happens because an increase in GDP real of China at this time, high interest rate in China at previous 2nd quarter and the high increase in FDI in the previous 4 quarters will increase public demand for import goods and services. For Variabel X2, when the rupiah exchange rate depreciation that will encourage the high demand for non-oil and gas exports in the destination country of China. Because when the rupiah depreciated, the value of Indonesian goods and services became low price in foreign markets.

From the ECT score/ CointEq 0.87 with a probability of 0.00, meaning that there is cointegration in the model.The negative ECT coefficient value of -0.87 means that if there is an imbalance in the past it is -1 percent, the value of non-oil and gas exports in China Country will decrease by 0.87 percent. If there is an imbalance in the past of 100 percent, the value of Indonesian non-oil and gas exports in the China Country will decrease by 87 percent. It can be concluded that the adjustment process for Indonesian non-oil and gas exports in China to return to its original state will have to wait several years

The results of the long-term coefficient can be seen in the table 1.4 that the variable logX1 at lag 0, X3 at lag 4, variabel Log X5 at lag 4 with a positive coefficient and significant at the 5 percent significance level. The Variable LogX1 coefficient value is 2.08, variabel X3 value is 0.16, and the variable log X5 is 0.32 value. Changes in these three variables in the long run have an effect on the logY variable where the other

variables are constant. This means there is an increase in the current variable X1 at this time will lead increase of value export non migas Indonesia. While, an increase variable X3 and X5 in the previous 4 quarters in the long run will increase the current value of the Y variable.

Meanwhile, the Log X2 variable at lag 1 is negative and significant at the 5 percent significance level with a coefficient value of -2.05. This shows that the log X2 variable in the previous quarter affects the logY variable in the long run by considering the other variables constant. This means that a decrease in log X2 of 1 percent will increase the LogY variable (Indonesian non-oil and gas exports In China) by 2 percent.

Seen in the Table 4, The value of variable X4 at lag 2 is negative but not significant. This means that variable X4 does not have a significant effect on the logY variable in the long run. It can be concludedthat the variables of the Destination Country's Real GDP (X1), Exchange Rate (X2), Inflation (X3) and FDI flows (X5) affect Indonesia's non-oil and gas export flows in the main export destination country (China) in the long run. However, the interest rate does not affect the variable of Indonesia's non-oil and gas exports to China in the long run.

4.4 Stability Model

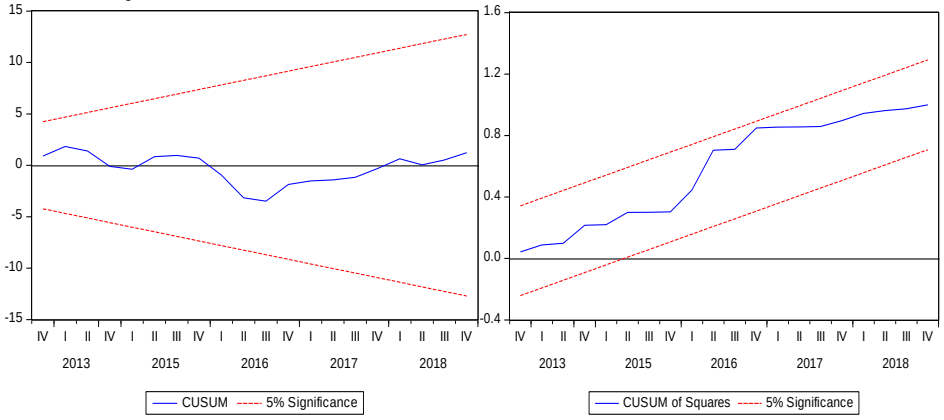


Figure 3. Model Stability Test Result

Source : Result Of Eviews 9

Based on the results of the CUSUM and CUSUMQ tests, it is known that the model is in a stable state because the cusum and cusum of square sq are still between the 5 percent significant line. This shows that the ARDL model used is stable at a significant level of 5 percent.

From the description, the ARDL estimation model using the optimal lag (1,0,1,4,2,4) indicates a cointegration between the independent variable and the dependent variable so that short and long-term estimates are made of the selected ARDL model. Taken together, the independent variable with a lag (1,0,1,4,2,4) affects the dependent variable by 0.95 which means95 percent variablebound influenced by the independent variable. Meanwhile, from the ECT / CointEq value 0.87 with a probability of 0.00, it means that there is cointegration in the model. The negative ECT coefficient value of -0.87 means that if there is an imbalance in the past of -1 percent, the flow of non-oil and gas exports in the Destination Country will decrease by 0.87 percent.

In the long run, the variable Log X1 at lag 0, X4 at lag (4) and Log X5 at lag (4) show a positive and significant effect on the value of Indonesia's non-oil and gas exports to China (Variable Y). Meanwhile, the X2 variable has a negative and significant effect on Variabel Log Y. For the short term, X2 at lag 0 and X5 at lag 4 have a negative and significant effect. However, the Rupiah exchange rate and FDI flows have a negative and significant impact in the short term. From the estimation that has been done, it can be seen that the ARDL model is stable at the 5 percent significance level. This shows that the ARDL model is suitable for use in this study.

Before the stability test, the classical assumption test was carried out on the model in this research. Result of classical assumption test, where the model is not exposed to heteroscedasticity, multicollinearity does not occur, the data is normally distributed and there is no autocorrelation. It can be concluded that the ARDL model meets the BLUE criteria.

V. CONCLUSION

Exports are important economic activities that must be of concern in developing countries, especially Indonesia. Therefore, the government is developing exports by issuing several policies in order to increase exports of goods, especially non-oil and gas commodities. In the last three years, China is the main destination country for Indonesia's non-oil and gas exports, it was recorded that in 2018 the increase in Indonesia's non-oil and gas exports in China reached 14.99 percent. The increase in non-oil and gas exports shows that there is an

increase in the productivity of the Indonesian State in the production of non-oil and gas commodities and the development of trade performance between Indonesia and its trading partner country, namely China, due to the dependence of inter-state trade. This encourages researchers to see how the influence of macroeconomic variables, both countries of origin and export destination, on the flow of Indonesian non-oil and gas exports in China.

The results of the research the variables of GDP Real China, Rupiah exchange rate, Chinese inflation, Chinese interest rates and FDI flows affect the value of Indonesia's non-oil and gas exports to China. Judging from the R* Squared value from the ARDL regression results, which is 0.95which means that each variable in the optimal lag of 1,0,1,4,1,2 affects the flow of Indonesian non-oil exports to China by 95 percent.With the R * Squared value, it shows that the influence exerted by the free variable is quite large on the Value of Indonesian non-oil and gas exports in China.

From the processed results of the stability testIt is known that the results of the CUSUM test and CUSUMQ test where the model is in a stable state because the CUSUM and CUSUMQ lines are still between the 5 percent significant line. In the long term, there are four variables that affect the flow of Indonesian non-oil and gas exports in China, there is China's GDP Real at lag 0, exchange rate at lag 1, inflation in China at lag 4 and followed by FDI flows using lag 4. The four influential variables in accordance with the theory in this study. Meanwhile, in the short term, the only ones affecting the flow of Indonesian exports to China are GDP real of China, exchange rates, interest rates and FDI flows. However, among the four variables, two of them have an effect that is inversely proportional to the theory.

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