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THE EFFECT OF EXCHANGE RATE AND INFLATION ON INDONESIAN EXPORTS IN 1989-2019

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Abstract

This study aims to determine the effect of the exchange rate on Indonesian exports and the effect of inflation on Indonesian exports. The research model used in this study is the VECM (Vector Error Correction Model) with the Eviews 10 program tool. Using time series data in the time range used is 1989 to 2019 the type of data used is secondary data obtained from the site the official website of the relevant institutions such as the Central Statistics Agency, Bank Indonesia and other institutions. The results of the study that the exchange rate had a significant negative effect on exports in the short term from lag 1 to lag 4 had a coefficient value of -56,60425, - 55,73478, -46,13207 and -50,60992. Long term, the exchange rate had no significant effect on exports with a coefficient value of 25.8964. The estimation result of the VECM model in the short term inflation variable has a significant negative effect on lags 1 and 2 and the coefficient level is - 8.732157 and -6.818958 while in the long term there is a significant positive effect with a coefficient value of 8.58546.

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh nilaitukar terhadap ekspor Indonesia dan pengaruh inflasi terhadap ekspor Indonesia. Model penelitian yang di gunakan dalam penelitian ini adalah VECM (Vector Error Correction Model) dengan alat bantu program Eviews 10. menggunakan data time series pada rentang waktu yang pakai adalah tahun 1989 sampai dengan tahun 2019 jenis data yang di gunakan yaitu data sekunder diperoleh dari situs resmi laman Lembaga bersangkutan seperi Badan Pusat Statistik, Bank Indonesia serta Lembaga lain. Hasil penelitian nilaitukar berpengaruh negatif signfikan terhadap ekspor dalam jangka pendek dari lag 1 sampai dengan lag 4 memiliki nilai koefisien yaitu -56.60425, -55.73478, -46.13207 dan -50.60992 jangka Panjang nilai tukar tidak berpengaruh signifikan terhadap ekspor dengan nilai koefisiean sebesar 25.8964. Hasil estimasi model VECM dalam jangka pendek variabel inflasi berpengaruh negatif signifikan pada lag 1 dan 2 dan tingkat koefisien

-8.732157 dan -6.818958 sementara dalam jangka Panjang terdapat pengaruh postif signifikan dengan nilai koefisien 8.58546.

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INTRODUCTION

Natural resources owned by each country cause disparities in producing goods or services in accordance with the natural resources owned by that country. The many kinds of people's needs of various types along with the times demand an increase in the production of various commodities. With this fact encourage international trade.

International trade describes the act of buying and selling goods or services carried out by two different countries. Trade is carried out with the aim of meeting the needs of each country, with the occurrence of international trade will benefit the country concerned as a whole because the profits obtained exceed the losses (Mankiw, N., 2006). Through trade, profits are generated, thereby increasing state income, increasing investment and expanding employment opportunities. Products that exist in the country are not only sold domestically but are marketed abroad so that the national income of a country has increased (Wulandari & Zuhri, 2019).

International trade activities are divided into two parts, namely exports and imports. The activity of purchasing goods from abroad is the meaning of import, while the notion of export is the act of sending goods from within the country to abroad.

Export is one of the important variables for a country's macro economy. Usually the higher the export number, the more open the country's economy is in the world economy (Wardhana, 2011).

Figure 1.1
Development of Indonesian Exports in 1989 – 2019

Source: Indonesian Central Statistics Agency, processed

Based on the graph, the graphic pattern tends to fluctuate up and down although towards an increasing direction, non-oil and gas commodities contribute more to Indonesia's export volume, this is influenced by the increase in the production of goods to be marketed compared to oil and gas in the form of raw materials which cannot be produced. updated so that it forms a downward pattern, meaning that it is increasingly experiencing a decline. In 1993 in a report published by the World Bank with the category "The East Asian Miracle" Indonesia became one of eight countries which included a combination of having fast economic growth during the 1965-1990 period along with reducing poverty and income inequality, this award was given for the success Indonesia in developing the manufacturing sector is not half-hearted, this success even beats other Asian countries, namely Thailand, Malaysia and the Philippines.

Exports are one of the main sources of foreign exchange for the country. Since 1983 the specialization of exports for Indonesia has been promoted. After that, exports as attention accelerated economic growth coincided with the shift of the industrialization strategy, initially concentrating import substitution industries into export promotion industries (Marpaung & Purba, 2017). the stages have an impact on increasing the number of outputs and the rate of economic growth.

The development of exports as one of the macroeconomic indicators has not been able to maximally encourage the economic growth of the Indonesian state. Analysis of the International Trade Center shows that the share of global export demand for goods exported by Indonesia from 2012 to 2016 was almost negative, but the export volume of this commodity was very high. Indonesian exports, which make up the majority of world exports, were still low at less than (20%) (Parikesit et al. al., 2018) The government is currently paying more attention to exports in order to be able to encourage the Indonesian economy in the current era of globalization. According to (Mankiw, 2006) one of the factors that affect exports is the exchange rate (exchange rate) which determines the amount of domestic currency against the value of foreign currencies.

The exchange rate as one of the various factors that decide the direction of international trade. The current free-floating exchange rate system is formed by supply and demand in the foreign exchange market (forex) indicating the price of a country's currency. Changes in the exchange rate can renew the relative value of an item that is cheaper or more expensive, so the exchange rate is often used as a tool to advance competitiveness (drive exports) (Ginting, 2013) in international trade, of course, there are various types of different currencies, so there needs to be a agreement on one type of currency to be used.

(Mankiw, N., 2006) "The exchange rate or the exchange rate between two countries is an agreement between residents of the two countries at the price level to trade with each other" If the value of the domestic currency has decreased against foreign currencies, it is called depreciation. Meanwhile, if the domestic currency experiences a strengthening or an increase in foreign currencies, it is called appreciation. Sukirno (S. Sukirno, 2012: 408) Explains that when the Rupiah exchange rate drops or when there is a currency devaluation, exports will increase. because in foreign markets the country's exports will be cheaper. This statement is supported by the results of research by Jan Horas and Annaria (2017) which shows that the exchange rate (Rp/USD) partially has a positive and significant effect on Indonesia's export volume. Research conducted by Bekti Setyorani (2018) found that in the long term and short term there is a significant positive relationship between the number of exports, the exchange rate and the money supply.

According to the Head of the Central Statistics Agency (BPS), Suryamin stated that the weakening of the rupiah against the USD did not have any impact or effect on the increase in the value of Indonesia's exports. “Yesterday, when the Rupiah weakened, no one took advantage of it to boost the value of exports. When the Rupiah drops, exports don't go up” Suryamin at the BPS Headquarters, Jakarta, Friday (15/4/2016) (Afrianto, 2016)

Inflation is a factor that affects international trade activities. For developing countries such as Indonesia, Inflation is one of the problems that is often experienced. The definition of inflation is where the country's economic conditions increase prices for goods and services in general continuously for a long period of time. Countries experiencing inflation can cause price increases (Saputro & Mustika, 2015). Increased inflation causes the cost of producing export products to become more expensive including the costs and prices of goods used in producing goods such as machinery, transportation vehicles, etc.

According to Ball (Ball, 2005, p.: 281) When inflation increases, the price of domestic goods will be more expensive so that the resulting product loses competitiveness in the

international market and causes exports to decline or have a negative correlation. This statement is supported by the results of research (Muhtadi, 2020) which found that inflation had a significant negative effect on Indonesian electricity export equipment. Research conducted by (Widodo & Darmawan, 2020) shows that the level of inflation has a negative and insignificant impact on coffee exports. Then research by (Yanti & Sudirman, 2017) found that inflation had a negative and significant effect on exports. Research (Sander, 2019) found the results of his research entitled analysis of the effect of inflation, investment, the United States Dollar exchange rate and Gross Domestic Product (GDP) in Indonesia in 2000-2017, partially inflationary variables had a positive and significant impact on exports in Indonesia in 2000-2017. 2017.

Based on the phenomena described above and the theoretical basis above, the researcher is interested in finding out the factors that influence Indonesian exports, namely the exchange rate and inflation, so this study entitled the effect of exchange rates and inflation on Indonesian exports in 1989 - 2019.

METHOD

The research model used in this study is the VECM (Vector Error Correction Model) using the Eviews 10 program tool. The Timeseries approach was chosen in processing the variables to be tested using the VECM (Vector Error Correction Model) analysis technique, namely to find out or obtain an overview related to the interaction of exchange rates, inflation and exports, the data used is time series data in this study using data from 1989 - 2019.

According to (Firdaus, 2020) VECM is a restricted form of VAR, this additional restriction must be given due to the existence of a data form that is not stationary at the level, but is cointegrated. The cointegration restriction information is utilized by VECM in its specifications, so that there is a speed of adjustment from short to long term. In carrying out the VECM method, there are several steps that need to be taken to get the correct estimation results, namely stationarity test, optimal lag selection, stability test, cointegration test, VECM model regression, Granger Causality test, Impulse Response Function (IRF), and Forecast Error Variance. Decomposite (FEVD)

RESULTS AND DISCUSSION

The VECM (Vector Error Correction Model) method, first introduced by Engle and Granger, is designed to solve problems caused by an imbalance between the short and long term. Prior to the formation of a feasible VECM model, it has been tested for stationarity, lag length, stability and cointegration tests.

The main condition that must be fulfilled is that there is data that is not stationary at this level, this is an indication for the formation of the VECM model. The results of the VECM Model testing in the long term along with the short term exchange rate and inflation variables as independent variables and the dependent variable export variables are as follows.

Table 1.1
Estimation Results of the VECM Model in the Short Run of Exports against Exchange Rates and Inflation

No	Variabel	Coefficient	T-statistics	Description
1	D(EKS(-1)	-0.656151	-2.96538	Significant
2	D(EKS(-2)	-0.628869	-2.43006	Significant

3	D(EKS(-3)	-0.296084	-1.32596	Not significant
4	D(EKS(-4)	-0.060603	0.27984	Not significant
5	D(NLT(-1)	-56.60425	-3.41805	Significant
6	D(NLT(-2)	-55.73478	-2.64414	Significant
7	D(NLT(-3)	-46.13207	-2.57128	Significant
8	D(NLT(-4)	-50.60992	-3.39252	Significant
9	D(INF(-1)	-8.732157	-1.90213	Significant
10	D(INF(-2)	-6.818958	-2.07661	exhibited significantly
11	D(INF(-3)	-2.642854	-1.31496	Not significant
12	D(INF(-4)	0.382102	0.41528	Not significant
R-Squared 0.776809				
Adj. R-squared 0.553619				

Source: processed by Eviews 10

The estimation of the short-term VECM model is shown in Figure 4.1 based on the estimation results with the condition that if the t statistic > t table (1.701), the estimation results are considered to have a significant effect. The results of the VECM model test in the short term, the variables that affect exports, namely exports at lag 1 to 2, with coefficient values of -0.656151 and -0.628869 have a significant negative effect.

Then the variable exchange rate from lag 1 to lag 4 has a significant negative effect on exports having coefficient values, namely -56,60425, -55,73478, -46,13207 and -50,60992, meaning that if the exchange rate has increased by one unit in the previous year, exports will decrease by the coefficient value in the previous year. the following year to the fourth year. And the inflation variable has a significant negative effect on lags 1 and 2 and the coefficient level is -8.732157 and -6.818958 meaning that if there is a decrease in inflation by one unit in the previous year, exports will increase in exports in the current year and in the second year by -8.732157 and -6.818958. The amount of the independent variable explains the dependent variable at 77.68%, which means 22.23 is influenced by other factors outside of this study.

Table 1.2
VECM Estimation Results in the Long Term

Variabel	**Coefficient**	**t-statistics**
(NLT(-1))	25.8964	0.45682
(INF)(-1))	8.58546	7.26917

Source: processed by Eviews 10

Hypothesis :
Ho = Has no effect
H1 = has influence

In order to find out the estimation results above, use the comparison of the results of t-statistics with t-tables, if t-table > t-statistics then H0 is accepted and H1 is

rejected and if t-table <t-statistics then H0 is rejected and H1 is accepted. Then the estimation results above:

a. The exchange rate of the independent variable which has a t-statistic of 0.45682 which is smaller than the t-table value of 1.701 H0 is accepted and H1 is rejected, there is no significant effect with a coefficient value of 25.8964, meaning that if there is an increase in the exchange rate equivalent to one unit, it is assumed that other factors are considered constant, so there will be increase in exports by 25,8964.

b. The independent variable inflation has a t-statistic value of 7.26917 > t-table 1.701, then H1 is accepted and H0 is rejected. There is a significant positive effect with a coefficient value of 8.58546, meaning that if inflation increases by one unit, exports will soar by 8.58546 with estimates of other variables considered stable.

The causality test or what is often called the causal test, this test aims to determine the relationship between export variables, exchange rates and inflation, either a one-way relationship or a two-way relationship.

Table 1.3
Granger Causality Test

Null Hypothesis :	obs	F - statistic	Prob.
NLT does not Granger Cause EKS	26	1.40462	0.2783
EKS does not Granger Cause NLT		0.82641	0.5502
INF does not Granger Cause EKS	26	0.85398	0.5334
EKS does not Granger Cause INF		0.62019	0.6867
INF does not Granger Cause NLT	26	1.71208	0.1925
NLT does not Granger Cause INF		1.94480	0.1462

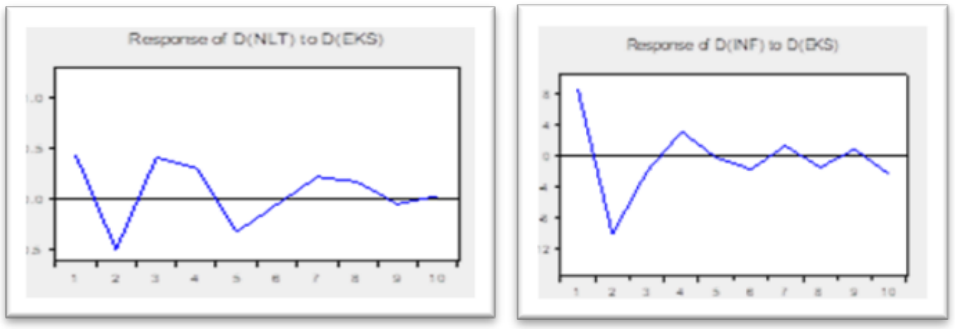
Source: processed by Eviews 10

The Granger causality test has provisions if the value of significance (0.05) > probability value, then there is a causal relationship between these variables. There is no one-way or two-way relationship between the exchange rate and the export probability of 0.2783 > , the results of the inflation test on exports and exports on inflation are 0.5334 and 0.6867 greater than the value of and the inflation variable with the exchange rate does not have a unidirectional or two-way relationship with the probability value. 0.1925 and 0.1462 > (0.05).

1. IRF (impluse Response Function)

The duration of the effect of the shock*(shock)*experienced nilaitukar free variables and the dependent variable export inflation When the short-term and long-term.

Figure 1.1
Result of Impulse Response Function (IRF) Estimation



Source: processed by Eviews 10
i. the effect of the exchange rate on exports ii. Effect of inflation on exports

The vertical axis describes the magnitude of the response value with a percentage (%) and the horizontal axis describes the time period (quarters). The results of the analysis of the image above are as follows: a. The exchange rate response to the shock received by exports for 10 periods experienced fluctuations, period 1 decreased in a negative direction then increased from period 2 to period 4, starting to find depreciation in period 5 and then increasing until period 9. and go to the original line which implies that the shock experienced is only temporary or not permanent. b. The inflation response for 10 periods to the shock in the export variable, at the beginning of the inflation period experienced a negative shock but in the 2nd period and later it tends to be on the horizontal line which indicates that inflation does not need a long time to overcome the shock in exports.

2. **Forecast Variance Decomposition (FEVD)**

The magnitude of the influence of the independent variable in this study is the variable exchange rate and inflation as well as the dependent variable exports. This test estimates the magnitude of the participation of the Exchange Rate (NLT), Inflation (INF) variable on the export variable (EKS).

Figure 1.2
Variance Decomposition . test results

Variance Decomposition of D(EKS):

Period	S.E.	D(EKS)	D(NLT)	D(INF)
1	49.10013	100.0000	0.000000	0.000000
2	73.27047	59.22812	29.89686	10.87502
3	88.02698	53.58437	34.56248	11.85315
4	96.60801	51.76229	29.66136	18.57635
5	102.2451	46.74962	36.58032	16.67006
6	108.5653	49.40762	33.34070	17.25168
7	112.0518	49.19903	33.16527	17.63570
8	118.0632	53.13967	29.95996	16.90036
9	124.3045	52.61793	29.81081	17.57126
10	127.9581	52.35117	30.83701	16.81181

Source: processed by Eviews 10

Based on the results of the Variance decomposition test above, in the first period the instability of EKS was influenced by the share of EKS itself with a value of 100%, but for the next period it was explained by other variables, namely the exchange rate of 29.89% and the contribution of the inflation variable of 10.87%. the largest variance value

is NLT with a contribution of 36.58% in period 5 and the largest contribution to inflation with a value of 18.57% in period 4.

CONCLUSIONS AND RECOMMENDATIONS

The conclusion of this study is that the effect of the exchange rate on exports with the VECM modeling is known in the short term from lag 1 to lag 4 to have a significant negative effect on exports having a coefficient value of -56,60425, -55,73478, -46,13207 and -50,60992. the exchange rate has increased by one unit in the previous year, then exports will decrease by the coefficient value in the following year until the fourth year. And in the long term there is no significant effect in accordance with the theory stated by sadono sukirno in his book when the rupiah exchange rate drops or there is a devaluation currency, then exports will increase, the hypothesis is accepted.

The effect of inflation on exports with the VECM modeling variable in the short term inflation has a significant negative effect on lags 1 and 2 and the coefficient levels are -8.732157 and -6.818958, meaning that if there is a decrease in inflation by one unit in the previous year, exports will increase in exports in the current year and in the previous year. the second is -8.732157 and -6.818958 and the lags 3 and 4 are not significant. In accordance with the theory put forward by Ball, 2005) When inflation increases, the price of domestic goods will be more expensive so that the resulting product loses competitiveness in the international market and causes exports to decline. Long-term inflation has a significant positive effect with a coefficient value of 8.58546, the hypothesis is accepted.

Based on this research, the researcher has several suggestions including the following:

1. The Indonesian government, which has the authority to maintain a stable exchange rate when depreciation occurs, will encourage export demand. However, the rupiah exchange rate needs to be monitored within a reasonable depreciation limit.
2. The government should keep the inflation rate at a reasonable level and pay attention to the quality of the commodities traded in order to be able to compete in the international market, so that exporters will be interested in buying these commodities.

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