Effects of Foreign Direct Investment (FDI), Trade Openness, Exchange Rate and Inflation on Manufacturing Export Commodities in Indonesia

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The value of manufacturing exports is one of the export components which has an important role in the process of Indonesian economic growth and generates foreign exchange for the import cost in order to decrease the pressure of trade and financial balance. The aim of this research is to examine and analyse the influence of inrush FDI, trade openness, and exchange rate inflation of rupiah/USD towards the long-term manufacturing export commodities. The research in 2005 used the quarter 1-2013 with the fourth quarter while the usage of the method was VECM. The empirical results suggest that there is no significant influence in trade openness towards long-term export manufacturing; but inflation, foreign direct investment and the exchange rate of rupiah/USD affect manufacturing export significantly in the long-term.

Key words: *VECM, Foreign Direct Investment (FDI), Trade Openness, Inflation and Exchange rate of Rupiah/USD.*

Introduction

The source of economic problems faced by many countries in the world is suspected to result from scarcity of commodity (Wirawan & Indrajaya, 2012). Hence to fulfill each of it's needs, a country carries out trading between countries to actualise the exchange of needs of each respective country. Every country has dependency on other countries since it cannot fulfill it's needs through domestic resources. Therefore, a country can have needs to import goods and services, whereas countries that supply certain commodities to another country are exporting (Wirawan & Indrajaya, 2012).

Exports are goods and services produced in a country and sold overseas (Mankiw, 2007). The activities of exporting are determined by relative price of a domestic product in a foreign market, the ability of a domestic product to compete in world markets and the taste of the people in the country of destination (Sukirno, 2000). Furthermore, export is one of the macroeconomic variables that has properties of interplay in an economy, meaning that if the exports of a country are increased, then the economy will improve through balance of trade (Chalid, 2012). Therefore, it can be said that exports are the engine to boost an economy and an essential part that deserves attention for continuous economic development goals of a nation (Lembang & Pratomo, 2013). Other contributions of exports for a country include the generation of foreign exchange reserves to finance imports of raw materials and the capital required in the process of production that can add value (Sutawijaya, 2010).

The rate of manufacturing export commodities is expected to increase Indonesia's balance of trade. Hence, the improvement of manufacturing export commodities in Indonesia with no impediments, can bring benefits to Indonesia as the rate of manufacturing export commodities possesses an important role in generating foreign exchange reserves through it's contribution to the total exports of Indonesia (Saimul, 2011). The reason for using manufacturing export commodities in this research is because the rate of manufacturing exports is one of the components that play an important role in the development process of Indonesia and are able to generate reserves to finance imports, thus lessening the pressure in the balance of trade and balance of payments of Indonesia.

FDI (*Foreign Direct Investment*) is one of many factors in the increase of manufacturing exports. FDI in countries will strengthen capital-intensive industries and boost manufacturing exports. FDI has a two-way impact on the *export of a host country* (Kojima, 1982). Firstly, FDI will escalate exports from *host country* to *source country*. On the other hand, FDI will decrease exports from *host country* to *source country* when they apply *full process of production in the host country*. As a result, there is no need to reimport semi-finished products to the host country. Secondly, FDI improves exports from the host country to other countries when the source country invests in a production-based host country.

Other factors that influence commodities export is trade openness of a country. Trade openness has become a popular term for the last two decades. The success of western countries, particularly the United States and members of the European Union, in improving economic performance has pushed developing countries to follow and imitate the liberalisation policies applied by the United States and the European Union (Haryadi, 2010). Currently, almost all countries have applied trade openness. This policy can be seen from the trade volume to GDP ratio of countries around the world. The commitment of developing countries to embrace trade openness is shown by many developing countries listed as members of the *World Trade Organization* (WTO). Trade openness is defined as the

abolishment of international trade policies such as taxes of import tariffs, and the regulations and administration procedures that can obstruct the flow of goods, services and capital from one border to another (Agboola, 2004). Trade openness tends to stimulate production, protect efficiency, and helps reduce the cost of production (Asongo et al., 2013). Trade openness provides an access for a country to the global market. Countries that support trade openness acquire a greater chance of using more and bigger access to capital flow, technology, cheaper imports and larger export markets. Therefore trade openness expands the global market and boosts manufacturing of export commodities.

Macroeconomic variables such as inflation also affect manufacturing export commodities. When inflation occurs, the competitiveness of manufacturing export commodities decreases. The reduced competitiveness of manufacturing export commodities is caused by more expensive prices of manufacturing export commodities that makes it difficult for exporters. Other than that, the reduced competitiveness of manufacturing export commodities caused by inflation can harm an economy, because of fewer sales and decreased foreign exchange reserves generated, resulting in a deficit balance of trade.

Exporting activities are sourced from domestic production sold or used by citizens of another country; thus export is an infection variable for revenue such as investments. Exporting activities of a country are influenced by factors such as foreign exchange rates (Ginting, 2013). The change of foreign exchange rates affects change in exports; if the real exchange rate is positive then real depreciation makes domestic products relatively cheaper and thus stimulates exports (Krugman & Obstfeld, 2005).

Based on the previous background, the purpose of this study is to analyse the effects of Foreign Direct Investment, trade openness, exchange rate and inflation on manufacturing export commmodities in Indonesia. The contributions of this research compared to previous studies include the use of VECM methodology, quarterly time series data and Indonesia as the sample of this research. The rationale that underlies this research is that manufacturing export commodities is one of the export components playing a substantial role in the growth process of Indonesia and is able to generate the reserves needed to finance imports, thus reducing pressure in the balance of trade and balance of payments of Indonesia. Moreover, the rate of manufacturing export commodities of Indonesia is higher compared with agricultural and mining exports.

Manufacturing export commodities in this research is affected by FDI, trade openness, IDR/USD (Indonesian rupiah) exchange rate and inflation. FDI has a significant influence over manufacturing export commodities of Indonesia because FDI that comes to Indonesia tends to be production-based so that the output produced by companies and factories can be exported. Trade openness is also noteworthy in affecting manufacturing export commodities

of Indonesia due to the ability to expand export markets of Indonesia. Manufacturing export activities in Indonesia are also affected by the exchange rate between the United States dollar and the Indonesian rupiah (IDR/USD). The IDR/USD exchange rate is essential to manufacturing export commodities because it determines the selling price of those manufactured commodities. Inflation also affects manufacturing exports. Inflation is taken into account as the variable that influences manufacturing export commodities. Inflation causes a rise of input prices producing expensive output prices. Expensive outputs decrease the competitiveness of manufacturing export commodities.

Theoretical Basis

Exchange Rate and Balance of Trade

The currency exchange rate of a country is divided into nominal exchange rate and real exchange rate. The nominal exchange rate is the relative price of a currency of two countries, whereas real exchange rate is related to the relative price of products between two countries (Mankiw, 2007). Mathematically, the nominal exchange rate can be calculated as follows:

$$EX_{IDR/USD} = \frac{Price_{IND}}{Price_{USA}} \dots\dots\dots\dots\dots\dots (1)$$

$EX_{IDR/USD}$ is the nominal exchange rate between Indonesia and the United States, PriceIND is the domestic price in Indonesia, while PriceUSA is the foreign price in the United States. The real exchange rate can be calculated as follows: Mankiw (2006:128).

$$EX\ Real_{IDR/USD} = EX_{IDR/USD} \times \frac{Price_{IND}}{Price_{USA}} \quad (2)$$

$EX\ Real_{IDR/USD}$ is the real exchange rate between Indonesia and the United States, $EX_{IDR/USD}$ is the nominal exchange rate between Indonesia and the United States, PriceIND is the domestic price in Indonesia, while PriceUSA is the foreign price in the United States. If the real exchange rate is low, then foreign products are relatively more expensive, whereas domestic products are relatively cheaper.

The correlation between real exchange rate and balance of trade is based on the *Mundell-Flemming* theory, according to which, real exchange rate and balance of trade are related negatively (Ginting, 2013). If the domestic real exchange rate is depreciated because of cheaper domestic price of products compared to foreign goods, so that people buy domestic rather than imported products, it will push the balance of trade to become a surplus. On the contrary, if the real exchange rate is appreciated due to more expensive prices of domestic

products compared to foreign products, so that people buy imported products rather than domestic ones, it will push the balance of trade to become a deficit (Ginting, 2013).

An open economy is characterised by international trade activities with export and import of goods and services as the indicators. Exporting activities are sourced from domestic production sold to or consumed by foreign citizens; thus export is an infection variable to revenue such as investments. Exports of a country are influenced by a few factors such as domestic price in the destination country, import prices in the destination country, income per capita of citizens in the destination country, taste of citizens of the destination country and the foreign exchange rate between two countries (Ginting, 2013). Change in export volume to exchange rate, in this case the real exchange rate, is positive meaning real depreciation makes domestic products relatively cheaper hence stimulating exports (Krugman & Obstfeld, 2005). The model of relationship of exports and real exchange rate can be expressed as follows (Blanchard, 2009):

$$Exports = f(Y^*, Ex\ Real)\ ....(3)$$

Equation (3) shows that the increase in foreign income causes a rise in exports whereas depreciation of the domestic real exchange rate will cause a rise of exports.

Investments and Manufacturing Exports

Manufacturing exports are one of the engines that boost economic growth and one important part that needs attention to achieve sustainable economic development of a country. As a consequence, the progress of manufacturing exports of a country with no obstacles whatsoever will bring benefits to a country (Montenegro & Soloaga, 2006). However, one factor that affects manufacturing export performance is foreign investments (Pit, 2008). A good investment climate will increase manufacturing export performance.

According to Petri & Plummer (2008), the relations between investments and manufacturing export growth can go both ways: investments cause manufacturing exports or manufacturing exports cause investments. Based on the research by Markusen & Venables, (1998), investments will have a positive or negative impact depending on the motives of foreign investors. There are two kinds of motives of investment to a host country which are to find markets and are oriented to trading. Market-oriented investments are investments that come to a host country to save entry and transporting fees of goods to the host country. This is because the host country has a large market share; hence investing to the host country will increase investor profit. Trade-oriented investments are done not only to seek markets, but also to do research to develop product quality in the host country.

Inflation and Manufacturing Exports

Inflation decreases the competitiveness of manufacturing export commodities. The decrease in competitiveness happens due to more expensive prices of manufacturing export commodities thus causing difficulties for exporters and the country. The country suffers losses because of the decreased competitiveness of manufacturing export commodities. According to Madura (2011), if the inflation of a country rises relative to it's trading partners, then the current account of that country will decline, ceteris paribus assumption. Consumers and companies of that country might buy more overseas goods than domestic goods so that manufacturing exports are lower than manufacturing imports.

Trade Openness and Manufacturing Exports

Change in technical progress through trade openness can increase manufacturing exports. Trade openness aims to stimulate production, protecting efficiency and helps lower the cost of production (Asongo, 2013). Trade openness provides access for a country to the global market. Countries supporting the policy of trade openness have a greater chance to larger access to capital flow, technology, cheaper imports and larger export markets. Hence, trade openness expands the global market and thus increases the manufacturing of export commodities.

The importance of trade has led economists to detect another effect from trade liberalisation. Smith (2006) stated that trade specialisation creates efficiency and rise in productivity, but the output produced from the rising productivity is determined by market size and trade is expected to open the market to absorb the output increase, generated from the increase in productivity. New trading theory argued that trade is influenced by increased returns to scale which is the result from developing companies and the consequence of trade improvement (Bongsha, 2011). Increase in trade will cause more capital accumulation, reinvestments, and increase in manufacturing productivity. Economists have observed and the majority of research shows, that trade openness has a positive impact on the manufacturing sector (Bongsha, 2011).

Previous Studies

Mwakanemela (2014) researched manufacturing exports in the African country of Tanzania. The purpose of his research was to investigate the effects of FDI, trade openness and inflation on manufacturing exports during the period of 1980-2012. The analysis tools used by Mwakanemela (2014) are OLS and VECM. The dependent variable is manufacturing exports whereas the independent variables are FDI, trade openness, and inflation. The conclusion of the research showed that the inflow of FDI and trade openness has a positive effect on

manufacturing exports of Tanzania while inflation has a negative effect on manufacturing exports. FDI, trade openness, and inflation rate are the important factors to explain changes in manufacturing exports, short-term and long-term.

Prasanna (2010) undertook research about export performances in India. The purpose of his research was to test the effects of FDI on manufacturing exports in India during the period of 1991-2007. Another aim was to test the effects of FDI on high technology manufactured goods of India during 1991-2007. Prasanna (2010) used the OLS analysis tool to test the effects of FDI on manufacturing exports and high technology manufactured exports. The conclusion of this research was that FDI has contributed more to manufacturing exports of India during 1991-2017. Moreover, FDI did not give significant contributions on high technology manufactured exports.

Berulava (2012) researched export performances of manufacturing companies. The purpose of his research was to explore the effects of service inputs on export performances of manufacturing companies during a transition economy. The Berulava research focused on the role of the service sector in affecting manufacturing export performances in a transition economy. The analysis tool used in the research was panel data regression. The results of the research gave a new insight regarding consequences from trade liberalisation in the service sector. Specifically, the positive effect of the service sector efficiency on export performances of producers is revealed. Therefore, the advancement of liberalisation reform in telecommunications, electricity, rail and road transportation, water distribution and the banking sector will stimulate the expansion of export activities of producers.

Bongsha (2011) researched manufacturing exports and trade liberalisation. The purpose of the research was to analyse the effects of liberalisation on the manufacturing sector. The object of this research by Bongsha (2011) was Cameroon, which was chosen because trade liberalisation occurred in Cameroon in late 1980. However, it's implementation was not sustainable due to the use of tariffs by the government to fix the trade deficit and increase revenue. The period of this research was during 1980-1981 (*pre-liberalisation period*) and 1992-2006 (*post-liberalisation period*). The analysis tool used in this research was VAR Panel. The conclusions of this research were the following: the relative proxy price variable from the exchange rate and imported inputs are the substantial deciding factor of manufacturing performance, membership in RTA and tariff decreases (all liberalisation indications) did not have a positive impact on bilateral trade in manufacturing; distance variable and GDP also did not affect bilateral trading in manufacturing.

Wongpit (2006) observed FDI and manufacturing export performance. The purpose of this research was to examine the effects of FDI on manufacturing exports and to investigate whether FDI qualifies as a substitute or as a complementary for manufacturing exports of

Thailand. The tool used in the research is data panel regression. The conclusion of this research by Wongpit was that FDI had a positive effect on manufacturing exports in Thailand.

Analysis Model

Research model used in this paper is adopted from the Mwakanemala (2014) research with the additional variable of foreign exchange rate supported by the Bongsha (2011) research. This research uses the method similar to the one used by Mwakanemala which is the Vector Error Correction Model (VECM) method. The VECM method is non-structural (not based on theory). The following is the model of this research:

$$
\begin{bmatrix} \Delta LEM_t \\ \Delta TO_t \\ \Delta INF_t \\ \Delta LFDI_t \\ \Delta LEX_t \end{bmatrix} = \begin{bmatrix} \Delta LEM_{t-1} \\ \Delta TO_{t-1} \\ \Delta INF_{t-1} \\ \Delta LFDI_{t-1} \\ \Delta LEX_{t-1} \end{bmatrix} + \begin{bmatrix} \alpha_{LEM} \\ \alpha_{TO} \\ \alpha_{INF} \\ \alpha_{LFDI} \\ \alpha_{LEX} \end{bmatrix} \times [\beta_{LEM}\beta_{TO}\beta_{INF}\beta_{LFDI}\beta_{LFDI}] \times \begin{bmatrix} LEM_{t-1} \\ TO_{t-1} \\ INF_{t-1} \\ LFDI_{t-1} \\ LEX_{t-1} \end{bmatrix} \quad (4)
$$

Given:
EM : Manufacturing Exports
TO : Trade Openness
INF : Inflation
FDI : Foreign Direct Investment
EX : IDR/USD Exchange Rate
L : Logarithm
α, β : Sum of linear element combination of *Xt* that is only affected by shock transitor.
t : Data time series (1980-2013)
t-1 : Time series lag period

Research Method

This research uses the quantitative approach that tests hypotheses using various testing. The quantitative approach is used to observe the effects of inflation, FDI, exchange rate and trade openness on manufacturing exports in Indonesia. Moreover, the descriptive approach is utilised to analyse the data used to support quantitative analysis as the interpretation of the VECM (Vector Error Correction Model) equation results to answer problems, hence providing conclusions for this research. The VECM analysis tool is used because VECM gives a long-term structural connection regarding the adjustments which will provide a better understanding of the economic process (Binh, 2013), following the research by Mwakanemala (2014). Data processing and the analysis model estimation of this research are done using Microsoft Excel and Eviews 8.

The method used in this research is the *Vector Error Correction Model* (VECM) method. VECM is the restricted form of VAR. Restriction was added due to the non-stationary form of data but has cointegration. VECM is often called VAR by *non-stationary time series* data that has a cointegration relations.

VECM is a theory model in econometrics analysis that can be utilised to understand the long-term relationship due to constant shocks. VECM analysis considers endogenous variables simultaneously in the model. What differentiates VECM with simultaneous equation model is that VECM does not only highlight individual variables with lag value, but is also affected by the lag value from all endogenous variables in the observed model. VECM analysis is usually assumed to contain no exogenous variables, except dummy variables.

Results and Discussion

Stationary Test

Unit root test is used to test whether there are assumptions that a time series data is not stationary. The test that is usually used is the Augmented Dickey-Fuller test. Table 1 illustrates that trade openness, inflation and the IDR/USD exchange rate are not stationary on level and intercept levels, while the variable manufacturing exports and FDI inflow is stationary in level and intercept levels because some variables are non-stationary in level and intercept levels; thus the ADF test is continued at the first difference and intercept level of this research. The results are presented in Table 1.

From Table 1, it can be concluded that manufacturing exports, trade openness, inflation, FDI inflow, and the IDR/USD exchange rate are stationary at first difference and intercept levels. It can be seen from the ADF Probability rate is smaller than 5%. This stage is done due to three non-stationary variables on level.

Table 1: ADF Test Results: Level and Intercept

Variable	Probability	Status
Manufacturing Exports	0.0025**	Stationary
Trade openness	0.0619	Non-stationary
Inflation	0.1377	Non-stationary
FDI Inflow	0.0034**	Stationary
IDR/USD exchange rate	0.2360	Non-stationary

Source: processed data

Notes: **significant at $\alpha = 5\%$

Meanwhile, the results of ADF stationary test on *first difference* are presented in Table 2. It shows that all variables are stationary at the *first difference* level.

Table 2: ADF Test Results: First Difference and Intercept

Variable	Probability	Status
Manufacturing Exports	0.0000**	Stationary
Trade openness	0.0000**	Stationary
Inflation	0.0094**	Stationary
FDI Inflow	0.0000**	Stationary
IDR/USD exchange rate	0.0069**	Stationary

Source: processed data

Notes: **significant at α = 5%

Lag optimal Determination Results

Table 3: Lag optimal Determination

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-219	NA	0.37	13.2	13.4	13.2
1	-162	94.0	0.05	11.3	12.6*	11.7*
2	-131	42.2*	0.04*	10.9*	13.4	11.8

Source: processed data

Table 3 indicates that not all criteria define the same *lag optimal* reference. The LR (*Likelihood Ratio*), FPE (*Final Preduction Error*), AIC (*Akaike Information Criteria*), and the HQ (*Hannan-Quinn Information Criteria*) recommended *lag* 2 as the *lag optimal* while the SC (*Schwarz Information*) criteria recommended lag 0 as the *lag optimal*. In this result of *lag optimal* test, the most recommended lag is chosen by looking at the most stars which is lag 2; thus the lag optimal that will be used is lag 1.

Johansen Cointegration Test Results

The cointegration test is conducted to understand the possibility of a *long-run equilibrium*. This test shows the similarity of movement and stability of relationships between the variables in the research. This research uses the Johansen's Cointegration Test.

Results of the Johansen Cointegration Test Summary shows *Akaike Information Criteria by Ranks* (rows) and *Models* (columns) has a determining specification which are *linear intercept* and *trend*. After the trend is known, the next step is to determine whether the data is cointegrated or not. If the trace probability score is less than 5 then the data is cointegrated.

Table 4: Johansen Test (Trace Statistics)

Hypothesized No. of CE(s)	Eigen value	Trace statistic	CV	Prob.**
None*	0.67	110.62	88.8	0.000
At most 1*	0.548	73.513	63.8	0.006
At most 2*	0.539	47.306	42.9	0.017
At most 3*	0.403	22.325	25.8	0.129
At most 4*	0.148	5.294	12.5	0.55

Source: processed data

Based on Table 4, it can be concluded that probability values of *trace statistic* and *eigenvalue* are smaller than *critical value* of 5 percent. The table above shows that there is a cointegration between variables used thus variables of manufacturing exports, trade openness, inflation, FDI inflow, and the IDR/USD exchange rate has a stability relationship and movement similarity in the long run. The cointegration between variables show that variables used can see short-term behaviour of a variable in the long-run by using the VECM estimation model.

Based on Table 4 it can be seen that probability values of *max eigen* and *eigenvalue* are larger than the *critical value* of 5 percent. The table illustrates no cointegration between variables used so it is considered that manufacturing exports, trade openness, inflation, FDI inflow, and the IDR/USD exchange rate do not have a stability relationship and movement similarity in the long-run.

Long-Run VECM Estimation Results

The estimation results of long-run VECM are presented on the following table:

Table 5: Long-Run VECM Estimation Results

Cointegrating Eq:	Coint Eq1	SE	t-stat
LEM(-1)	1,0000		
TO(-1)	-0,0020	0.0025	-0.829
INF(-1)	-0.0886	0.0171	-5.177
LFDI(-1)	0.4169	-0.089	4.645
LEX(-1)	2.4241	0.771	3.143
Trend	-0.0576	0.0086	-6.651
C	-36.731		

Source: processed data

According to Table 5, the long-run VECM equation can be written as follows:

$$LEM_{t-1} = 36.73 - 0.058t + 0.002OT_{t-1} - 0.089INF_{t-1} + 0.417LFDI_{t-1} + 2.424LEX_{t-1}$$
....(5)

The following is the explanation of effects of each variable in the long-run from equation 5:

1. Trade Openness Variable

Variable TO_{t-1} (Trade Openness) in the long-run has a coefficient of 0,0002. This means if variable TO_{t-1} (Trade Openness) has a 1 percent increase, it will also increase LEM (manufacturing exports) of 0,002 percent with the *ceteris paribus* assumption.

2. Inflation Variable

Variable INF_{t-1} (Inflation) in the long-run has a coefficient of 0,089 percent. This means if Variable INF_{t-1} (Inflation) has a 1 percent increase, it will increase LEM (manufacturing exports) of 0,089 percent with the *ceteris paribus* assumption.

3. FDI inflow Variable

Variable $LFDI_{t-1}$ in the long-run has a coefficient of 0.417. This means if variable FDI_{t-1} decreases 1 percent, it will increase LEM (manufacturing exports) of 0.417 percent with the *ceteris paribus* assumption.

4. IDR/USD Exchange Rate Variable

Variable LEX_{t-1} (IDR/USD exchange rate) on the long-term has a coefficient of 2,424. This means a 1 percent decrease of variable LEX_{t-1} (IDR/USD exchange rate) will increase LEM (manufacturing exports) of 2.424 percent with the *ceteris paribus* assumption.

The status column from Table 6 shows the long-term estimation results. The long-term VECM (*Vector Error Correction Model*) estimation results illustrates that inflation, FDI inflow, and the IDR/USD exchange rate has a significant effect on manufacturing exports (assuming t-statistics is absolute), while trade openness does not affect manufacturing exports significantly (assuming t-statistic is absolute).

Table 6: Long-Term t Test Results

Variable	t-stat	Critical value	Status
TO(-1)	-0.829	2.021	Not Significant
INF(-1)	-5.177	2.021	Significant
LFDI(-1)	4.6457	2.021	Significant
LEX(-1)	3.1433	2.021	Significant

Source: processed data

The long-term model analysis results show that trade openness has a non-significant positive effect on manufacturing exports, inflation positively affects manufacturing exports significantly, foreign direct investments negatively affect manufacturing exports significantly, and the IDR/USD exchange rate negatively affects manufacturing exports significantly.

Conclusion and Suggestions

Based on the results of this research and the discussion on the previous chapter, it can be concluded that the analysis results show trade openness does not have a significant effect on manufacturing exports in the long-run. Inflation, Foreign Direct Investments, and the IDR/USD exchange rate do have significant effects on manufacturing exports in the long-run.

Based on the conclusions, this research proposes the following suggestions:

1. Inflation has a significant effect on long-term manufacturing exports; thus monetary authorities are recommended to contain inflation due to the fact that it can decrease competitiveness of manufacturing exports.

2. The IDR/USD exchange rate has a negative effect on manufacturing exports in the long-run. The rise of the exchange rate will cause decreasing exports; thus Bank Indonesia and the government are advised to stabilise the IDR/USD exchange rate so that manufacturing exports run without any difficulty.

3. For future research, this paper can be cited as a reference. This research only used trade openness, FDI inflows, inflation, and the IDR/USD exchange rate as the determining factors of manufacturing exports; hence future researchers are expected to add other independent variables such as economic growth and investments. Future researchers can use other approaches such as ARDL or VAR Panel to be able to further explain variables affecting manufacturing exports.

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