THE EFFECT OF USD EXCHANGE RATES, INFLATION AND FOREIGN INVESTMENT AND INDONESIA FOREIGN EXCHANGE RESERVES

Kadek Rissa Karisna Pramita, Made Kembar Sri Budhi
Faculty of Economics and Business, University of Udayana, Bali, Indonesia

ABSTRACT: The purpose of this study was to analyze the direct effect of the US Dollar exchange rate, inflation rates, foreign investments against the value of Indonesian exports and foreign exchange reserves. In this study, the source of the data used are secondary data time series. The sample used in this study was 23 years of data contained in the 1995-2018 year. The analysis technique used is path analysis. The results showed the US Dollar Exchange Rate positive and significant effect on Indonesian exports value. The inflation rate should not adversely affect Indonesia's export value. Foreign investment is not a positive effect on Indonesia's export value. US Dollar exchange rate and a significant positive effect on Indonesia foreign exchange reserves. The inflation rate and a significant negative effect on Indonesia foreign exchange reserves. Foreign investment and significant positive effect on Indonesia foreign exchange reserves. Export value of positive and significant effect on Indonesia foreign exchange reserves through Indonesia foreign exchange reserves.

Keywords: dollar exchange rate as the inflation rate, foreign investment, exports, Indonesia foreign exchange reserves.

I. INTRODUCTION

In each country has currency in the country stating the price of goods and services (Asmanto and Suryandari, 2008). An increase in the exchange rates would cause a rise in the prices of goods in the country and this led to rising prices for exported and imported goods. If the value of domestic currency declined and the value of foreign currency increases, will lead to increased exports. Dollar exchange rate and a significant positive effect on exports (Sita Larasati and Kembar Sri Budhi, 2018).

Cahyadi research and Sukarsa which states that the value of the US dollar exchange rate and a significant positive effect on the Export of Goods Made Paper and Paper in Indonesia Period 1988-2012. It is strengthened with Sukirno theory (2004) which states that if the value of the dollar appreciation and the value of domestic currency has depreciated then it will lift export volume.

Inflation and exchange rates significant effect partially and simultaneously to the Indonesian export commodities to the South Korean electronics before AKFTA 2011 (Arning Princess et al, 2016). Higher exports with low import rate is not affected by the appreciation of the currency (Abeysinghe dnd Lin Yeok, 1998) According to the Mundell-Fleming (in Mankiw 2003: 306-307) states that there is a negative correlation between the rate of economic growth, where the higher rate then net exports (difference between exports and imports) is getting lower. Rising inflation, the cost of production of export goods will be higher so as to make exporters less than the maximum in production this resulted in competitiveness for export of goods to be reduced as exports more expensive and decrease the export. There is a relationship between the direction of the foreign exchange reserves to foreign exchange (Kaligis et al, 2017).

Pure research and Yogi Swara Lestari (2016) stated Foreign investments have a significant effect of foreign exchange reserves. When compared with the acquisition of the current account ie net exports, the value of capital transactions is much greater. Judging from the amount of the composition of foreign exchange reserves to the value of the bond increases. The role of foreign investment has been able to increase its foreign exchange reserves. The increase in value is not only obtained from investing activities were exchanged for local currency, but in the long-term investment can increase the value of economic sectors, namely goods and services. Economic openness is needed to improve the efficiency of the economy. This is done to improve the utilization of labor and capital available so as to increase the efficiency of the national production.
Research conducted by Stiglitz and Yusuf (2001) and Weiss (2005) which says that any increase in the production capacity of the manufacturing sector will improve the ability of a country’s exports. Increased exports of a country will ultimately improve the trade balance. Countries that experienced positive growth in the trade balance and the high, meaning that every year these countries have increased trade balance or have a trade surplus. The increase in the trade surplus can be caused by an increased flow of FDI into the country and the growth of the manufacturing sector and economic growth (Mulianta Ginting, 2015).

Based on the results of previous research and theories that have been put forward, then proposed the following hypothesis.

1. US Dollar exchange rate and foreign direct investment has positive effect on Indonesia foreign exchange reserves.
2. US Dollar exchange rate, foreign investment, and the export value of positive effect on Indonesia foreign exchange reserves.
3. The inflation rate negatively affect the value of Indonesian exports and foreign exchange reserves.
4. Their indirect effect US dollar exchange rate, inflation and foreign investment to the foreign exchange reserves through Indonesia foreign exchange reserves.

II. RESEARCH METHODS

The research location is dilingkup state of Indonesia consists of 34 provinces. Indonesia was chosen as the study site because the State of Indonesia is a developing country that needs foreign exchange reserves to trade. The object of this study is look at the effect of the US dollar exchange rate, inflation rate and foreign investments against the value of Indonesian exports and foreign exchange reserves. So the focus of this research is on the value of total exports and Indonesia foreign exchange reserves.

Secondary data in this study are the US dollar exchange rate, inflation, foreign investment, exports and Indonesia foreign exchange reserves in 1995-2018. This research was conducted by collecting data from Bank Indonesia, the Central Bureau of Statistics, economic journals and internet searches related to this research.

Data analysis techniques used in this study is the technique of path analysis (path analysis). The analysis technique used in testing the amount of the contribution shown by the path coefficient for each path diagram of causal or causal relationship between the independent variables on the dependent variable.

III. RESULTS AND DISCUSSION

To compile structural equations is used, then the first data obtained is processed and calculated using SPSS version 20.0 in order to obtain the results of the analysis as shown in Table 1 and Table 2.

Table 1. Results of Regression 1

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients</th>
<th>standardize Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>9.157, 4.853</td>
<td>1.887, 0.074</td>
<td></td>
</tr>
<tr>
<td></td>
<td>US Dollar Exchange Rate</td>
<td>0.848, 0.341</td>
<td>2.488, 0.022</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inflation</td>
<td>-0.304, 0.219</td>
<td>-1.386, 0.181</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PMA</td>
<td>-0.411, 0.302</td>
<td>-1.362, 0.188</td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Export
R2 = 0.380
F = 4.080
F sig = 0.021

Secondary data, 2019
Based on the results of Table 1 sub-structural equation 1 is as follows.
Y1 = β1X1 - β2X2 - β3X3 + e1
Y1 = 0.453X1 - 0.246X2 -0.249X3

Table 2. Results of Regression 2

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients</th>
<th>standardize Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>-7.152, 2.024</td>
<td>-3.534, 0.002</td>
<td></td>
</tr>
<tr>
<td></td>
<td>US Dollar Exchange Rate</td>
<td>0.915, 0.150</td>
<td>0.597, 6.101</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inflation</td>
<td>-0.249, 0.088</td>
<td>-2.826, 0.011</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PMA</td>
<td>0.648, 0.121</td>
<td>0.781, 5.349</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Export</td>
<td>0.315, 0.086</td>
<td>0.385, 3.664</td>
<td></td>
</tr>
</tbody>
</table>
a. Dependent Variable: Foreign Exchange Reserves

\[
R^2 = 0.870 \\
F = 31.711 \\
F \text{ sig} = 0.000
\]

Secondary data, 2019

Based on the results of Table 2 the sub-structural equation 2 is as follows.

\[
Y_2 = \beta_4X_1 - \beta_5X_2 + \beta_6X_3 + \beta_7Y_1 + e_2 \\
Y_2 = 0.597X_1 - 0.247X_2 + 0.481X_3 + 0.385Y_1
\]

Value Estimated Standard Errors

To determine the value \( e_1 \) that indicates the amount of variance explained by the exports that are not variables US Dollar exchange rate, inflation and foreign investment can be calculated by the formula.

\[
e_1 = \sqrt{1 - R^2_1} \\
= 0.787
\]

To determine the value of \( e_2 \) which shows the variance reserves that are not explained by the US dollar exchange rate, inflation, FDI and exports then calculated using the formula.

\[
e_2 = \sqrt{1 - R^2_2} \\
= 0.360
\]

Total value of the coefficient of determination

To check the validity of the model, there are indicators for the examination, which is the coefficient of determination total the results are as follows.

\[
R^2_m = 1 - (e_1)^2 - (e_2)^2 \\
= 1 - (.787)^2 - (.360)^2 \\
= 1 - 0.620 - 0.129 \\
= 0.251
\]

Information:

\( R^2_m \) = The coefficient of determination total
\( e_1, e_2 \) = The standard error estimates

The coefficient of determination total of 0.251 means that 25 percent of the variation of foreign exchange reserves is affected model established by the US dollar exchange rate, inflation, FDI and export while the remaining 75 percent is effect by other variables outside the model established.

Relationships direct and indirect effect as in the following table.

<table>
<thead>
<tr>
<th>variable relations</th>
<th>Effect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>( X_1 \rightarrow Y_1 )</td>
<td>.453</td>
<td></td>
</tr>
<tr>
<td>( \rightarrow X_1 Y_2 )</td>
<td>0.597</td>
<td>0.174</td>
</tr>
</tbody>
</table>

\[
S_{\beta_1\beta_7} = \sqrt{\beta_7^2S^2_{\beta_1} + \beta_1^2S^2_{\beta_7}} \\
= \sqrt{(0.315)^2(0.341)^2 + (0.848)^2(0.086)^2} \\
= \sqrt{(0.099)(0.1162) + (0.719)(0.007)}
\]
\[ Z = \frac{\beta_1 \beta_7}{\sqrt{S^2_{\beta_1}} \times \sqrt{S^2_{\beta_7}}} \]

Based on the results calculated in the amount of 2.11 \( z > 1.96 \) then H0 is rejected and H1 accepted. This means that exchange rate USD indirect effect of the foreign exchange reserves through Indonesia foreign exchange reserves.

**The indirect effect of inflation on the level of foreign exchange reserves through Indonesia foreign exchange reserves**

\[ S_{\hat{\beta}_2 \beta_5} = \sqrt{\beta_2^2 S^2_{\hat{\beta}_5} + \beta_3^2 S^2_{\hat{\beta}_7}} \]

\[ = \sqrt{(0.315)^2(0.219)^2 + (-0.304)^2(0.086)^2} \]

\[ = \sqrt{(0.099)(0.047) + (0.092)(0.007)} \]

\[ = \sqrt{(0.0046) + (0.0006)} \]

\[ = 0.072 \]

\[ Z = \frac{\beta_2 \beta_7}{S_{\hat{\beta}_2} S_{\hat{\beta}_7}} \]

\[ = \frac{0.072}{0.095} \]

\[ = -1.319 \]

Based on the results of arithmetic that is equal to -1.319 \( z > 1.96 \) then H0 and H1 rejected. This means that the inflation rate does not affect indirectly to reserves through Indonesia foreign exchange reserves.

**The indirect effect of foreign direct investment to foreign exchange reserves through Indonesia foreign exchange reserves**

\[ S_{\hat{\beta}_3 \hat{\beta}_5} = \sqrt{\beta_3^2 S^2_{\hat{\beta}_5} + \beta_3^2 S^2_{\hat{\beta}_7}} \]

\[ = \sqrt{(0.315)^2(0.302)^2 + (-0.411)^2(0.086)^2} \]

\[ = \sqrt{(0.099)(0.091) + (0.1689)(0.007)} \]

\[ = \sqrt{(0.009) + (0.001)} \]

\[ = 0.1 \]

\[ Z = \frac{\beta_3 \hat{\beta}_7}{S_{\hat{\beta}_3} S_{\hat{\beta}_7}} \]

\[ = \frac{0.1}{0.1} \]

\[ = -1.29 \]

Based on the results of arithmetic -1.29 \( z > 1.96 \) then H0 rejected and H1 accepted. Foreign investment does not affect indirectly to reserves through Indonesia foreign exchange reserves.
The direct effect of the US dollar exchange rate against Indonesian exports

Based on the results of the analysis conducted, a value standardized coefficient beta as 0.453. T value of 2.488 with a significance value <0.05, it can be concluded that the US dollar exchange rate and a significant positive effect on Indonesian exports. This shows that if the US dollar exchange rate appreciation will increase the value of Indonesian exports.

Export transactions are trade by removing the goods from the territory of a country that complies with applicable regulations. Export is one of the important factors in improving a country's economic growth because exports are one source of state income. Exports will increase the consumption capacity of a country, as well as provide access to scarce resources and international markets with the potential to export various products. One of the factors that most affect demand for exports is the exchange rate or the exchange rate. In the case of appreciation of the US dollar exchange rate against Indonesian rupiah exchange rate will increase the value of Indonesia's exports. These findings are consistent with research conducted by Sri Budhi Larasati and Kembar (2018) and Thi Thuy et al., (2019) which stated that the US dollar exchange rate and a significant positive effect on the value of exports.

The direct effect of inflation on Indonesian exports

Based on the results of the analysis conducted, a value standardized coefficient beta as -0.246. T value of -1.386 with a significance value 0.181 > 0.05, it can be concluded that inflation has no effect on Indonesian exports. However, inflation increases production costs will increase in height and cause producers to be overwhelmed in production and ultimately lowers the value of exports. The results are consistent with research conducted by Sri Budhi Larasati and Kembar (2018) who stated inflation and no significant negative effect on exports. Besides, Indonesia exports mostly raw materials that are needed by a country for business continuity or the country so that inflation does not affect the export of Indonesia. In sectors such as tourism services exports are not affected by inflation but the season (high season or low season). Travelers usually arrange their holiday programs that will be done so that tourists still go to Indonesia despite whether or not inflation.

The direct effect of FDI on exports Indonesia

Based on the results of the analysis conducted, a value standardized coefficient beta as -0.249. T value of -1.362 with a significance value 0.188 > 0.05, it can be concluded that PMA has no effect on Indonesian exports. The flow of foreign direct investment (FDI) or foreign direct investment has not been able to significantly increase exports of the domestic industry. So far, foreign investors who invest tend to simply take advantage of the domestic market to reap the business benefits. Investments from foreign investors who invest in Indonesia are due to develop a business that exploit the market potential of Indonesian society. Like for example, the food and beverage industry sector so that it is only produced and distributed in Indonesia. Investors who invest in Indonesia mostly invest in the metal industry sector.

The direct effect of the exchange rate of US dollar against Indonesia foreign exchange reserves

Based on the results of the analysis conducted, a value standardized coefficient beta as 0.597. T value of 6.101 with 0.000 significance value <0.05, it can be concluded that the US dollar exchange rate and a significant positive effect on Indonesia foreign exchange reserves. This shows that if the US dollar exchange rate appreciation will increase Indonesia foreign exchange reserves.

In the event of exchange rate appreciation of a country then the price for the country exported goods decreased and vice versa prices of goods imports will increase. The higher exchange rate of a country, then the country has a strong economy, so as to obtain more foreign reserves.

Foreign exchange reserves which many suggest that the country has a great ability to conduct economic transactions (exports) and international finance. If the rupiah strengthens supported by stable economic conditions that Indonesia foreign exchange reserves will also increase, it is because of the encouragement investors who are interested in investing in domestic financial markets that will lead to a surplus in the current account so that the foreign exchange reserves will also increase. The results are consistent with research conducted by Kusuma Juniantara and Sri Budhi (2012), which states that US dollar exchange rate and a significant positive effect on Indonesia foreign exchange reserves.

The direct effect of inflation on the Indonesia foreign exchange reserves

Based on the results of the analysis conducted, a value standardized coefficient beta as -0.247. T value of 0.011 -2.826 with a significance value <0.05, it can be concluded that inflation has a significant negative effect on Indonesia foreign exchange reserves. This shows that if the inflation decline will increase Indonesia foreign exchange reserves.

Inflation is one of the factors affecting the level of foreign exchange reserves of a country. That is, if inflation occurs in a high state then the prices of goods and services in the country will be high. High inflation
will lead to the price of goods and services produced or offered by a country will increase so that goods and services become less competitive and exports will fall. The decrease in exports will result in reduced Indonesia foreign exchange reserves.

**The direct effect of FDI to Indonesia foreign exchange reserves**

Based on the results of the analysis conducted, obtained a standardized coefficient beta of 0.481. T value of 3.349 with a significance value of 0.000, it can be concluded that FDI positive and significant effect on Indonesia foreign exchange reserves. This shows if the FDI increase will increase Indonesia foreign exchange reserves.

Foreign Direct Investment is not only able to fill the gaps in domestic investment but is able to fill the void of foreign exchange. Concerns about adverse effects of the investment will be reduced if there is supervision and clear objectives of foreign investment. The government needs to monitor foreign investment in order to be actually allocated or used for productive activities would increase foreign exchange reserves. The results are consistent with research conducted by Indrawanto (2018) foreign investment and a significant positive effect on Indonesia foreign exchange reserves.

**The direct effect of export to Indonesia foreign exchange reserves**

Based on the results of the analysis conducted, obtained a standardized coefficient beta of 0.385. T value of 3.664 with a significance value of 0.002, it can be concluded that export positive and significant effect on Indonesia foreign exchange reserves. This shows if exports increase will increase Indonesia foreign exchange reserves.

Export activities be interpreted with expenditures - product from the market within a country and sent out of the country in accordance with the government and expect payment in foreign currency. Export is one of the international trading activities and a source of state revenue. In the export activities of a country will acquire a value sum of money in foreign currencies, or commonly referred to as foreign exchange, which is also a source of state revenue. The foreign exchange will be able to maintain the stability of the country's economy. So exports are trading activity in order to generate a stimulating domestic demand led to the emergence of a large factory industries, along with the positive structure stable and efficient social institution. Kusuma Juniantara and Sri Budhi (2012) which stated that export a significant positive effect on Indonesia foreign exchange reserves.

**The indirect effect of the exchange rate of US dollar reserves through exports Indonesia**

Based on the calculation calculated at 2.11 > 1.96, it can be concluded that US dollar exchange rate against the indirect effect of foreign exchange reserves through Indonesia foreign exchange reserves. This shows if the strengthening exchange rate will increase Indonesian exports and in the event of an increase in exports will be able to increase foreign exchange reserves in Indonesia. Due to the rising exchange rate will increase the amount of foreign currency received by the country of export and foreign exchange transactions will be entered into foreign exchange. Besides, most of Indonesia's exports are raw materials or raw materials that are needed by the industry or other countries, so the price fluctuation however not overly affect the sustainability of Indonesia's exports. The results are consistent with research Della (2018) which states that the US dollar exchange rate indirect effect of the foreign exchange reserves through exports. It shows if the strengthening exchange rate of the currency will boost exports and will be able to increase foreign exchange reserves in a country.

**IV. CONCLUSION**

Based on the research that has been done, there are implications generated by their research. It was found that with the strengthening of the US dollar exchange rate against the rupiah, the foreign consumers have a greater ability to purchase export products resulting in increased export manufacturers to perform or in other words if the rate increases, exports will also increase. Meanwhile, the inflation rate actually resulted in decreased exports which effect on exporters who were not optimal in producing export products so that export competitiveness is reduced or weakened. While the United States dollar exchange rate appreciation will increase Indonesia foreign exchange reserves.

**REFERENCE**


