Analysis of Factors Affecting the Rupiah Exchange Rate Against the US Dollar 2000-2022

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Abstract:
This research analyzes the factors influencing the rupiah exchange rate against the US dollar. This research was conducted to analyze the factors that influence the Rupiah exchange rate against the United States Dollar for the 2020-2022 period.

Methodology:
This research is based on secondary data, specifically time series data, obtained from reputable sources such as the websites of the Ministry of Trade of the Republic of Indonesia, Bank Indonesia, and the Central Statistics Agency. The data were meticulously processed using the robust method of multiple linear regression analysis, ensuring the reliability and validity of the findings.

Findings:
The results of the research show that inflation has a positive effect and a significant effect on the Rupiah exchange rate, Exports have a negative effect and no significant effect on the Rupiah exchange rate, Imports have a positive effect and have no significant effect on the Rupiah exchange rate, Foreign exchange reserves have a positive effect and have a significant effect on the Rupiah exchange rate. Simultaneously or simultaneously Inflation, Exports, Imports and Foreign Exchange Reserves have a significant effect on the rupiah exchange rate.

Implication:
Inflation, exports, imports and foreign exchange reserves influence the rupiah exchange rate against the US dollar. Inflation has a positive impact, while exports have a negative impact, and imports are insignificant. Foreign exchange reserves provide a significant positive impact.

INTRODUCTION
Bank Indonesia (BI) noted that from January 1 to October 19, 2022 (year to date), the rupiah exchange rate had depreciated by 8.03 percent compared to the level at the end of 2021. BI Governor Perry Warjiyo Kompas.com (2022) said the US dollar's strength significantly caused the depreciation. The rupiah depreciation is caused by increasing global financial market uncertainty due to tightening monetary policy in various developed countries such as the US. The increase in the US benchmark interest rate (Fed Funds Rate), predicted to be higher with a longer cycle, will encourage strengthening the US dollar currency, thus putting downward pressure or depreciation on the exchange rate in various countries, including Indonesia. The pressure of weakening exchange rates is getting higher with increasing global financial market uncertainty, and in emerging market or developing countries, including Indonesia, foreign portfolio investment outflows also exacerbate it; the strengthening of the US dollar causes the rupiah Rupiahken amidst high global energy and food prices.

According to Albab and Nugraha (2022), inflation is a continuous price increase over a certain period. Currency exchange rates are also determined by supply-demand or the relationship of supply and demand for currencies. In the law of demand, the quantity of a suitable demand will continue to be inversely proportional to the price of the good; that is, if the price of the good rises, the quantity of the good demanded will decrease; conversely if the price of the good falls, the quantity of the good demanded will increase or increase.
Apart from inflation, fluctuations in the Rupiah exchange rate are strongly influenced by export activities, and changes in these activities will affect the Rupiah exchange rate (El Yudha, 2020). Exports are sending and selling domestic goods abroad, while export value is the total price of a commodity or product obtained from sales abroad (Wulandari & Lubis, 2019). Sedyaningrum et al. (2020) agree that exports are the sending and selling goods and services from within the country to abroad. The increasing amount of exports causes demand for domestic currency to rise and the exchange rate to strengthen.

Indonesia's exports consist of various goods or commodities directed to various countries. However, the composition needs to be balanced; certain types of commodities dominate the composition of goods exported, so total export revenues depend very much on the export results of these commodities (Yusuf, 2019). Observation results show that the development of Indonesian exports tends to increase. The lowest exports occurred in Indonesia in 2001, amounting to 56,320.90 million dollars; the highest occurred in 2022, amounting to 291,904.3 million dollars. This increase was due to global economic recovery, encouraging increased Indonesian exports (Ministry of Trade, 2021). The export variable shows positive and significant results. The higher exports indicate that the country is increasingly developing and receiving much foreign currency, which is one source of the country's foreign exchange reserves.

Imports are the activity of purchasing and bringing goods from abroad into the country. In contrast, the value of imports is the total price of a commodity or product obtained from purchasing goods abroad, according to Wulandari & Lubis (2019). Imports greatly influence a country's economic growth, as explained by Hecksher Ohlin's theory. Putra (2022) states that a country will import products/goods that use production factors that the country does not or rarely have.

In his research, Fahmi (2019) shows that exports and imports do not directly influence the rupiah exchange rate per USD but can indirectly influence the exchange rate through capital inflow, inflation and interest rates. It is different; according to Wijaya (2020), the value of imports significantly affects the exchange rate. Foreign exchange reserves influence exchange rate fluctuations against the US dollar. According to Adiyadnya (2019), foreign exchange reserves are assets from abroad within a certain period and are controlled by the monetary authority. Meanwhile, according to Emmanuel (2020), foreign exchange reserves are foreign currency, deposits and foreign bonds held by the Central Bank and the monetary authority of a country.

Foreign exchange reserves are an essential indicator that shows the strength and weakness of a country's economic conditions within the authority of Bank Indonesia and the government. The country's foreign exchange reserves are crucial to avoiding economic and financial crises. If this economic crisis occurs, if we look at it from a balance of payments perspective, it will cause a decrease in the country's foreign exchange reserves. Foreign exchange reserves tend to decrease due to the use of foreign exchange reserves, which continue to restrain the rate of increase in the Rupiah exchange rate against the US Dollar.

The relationship between the exchange rate and foreign exchange reserves can be explained through the price mechanism. According to Keynesian theory, if, for some reason, the exchange rate experiences appreciation (foreign currency increases and local currency decreases), then this can cause the price of exported goods to be higher than that of imported goods. This condition affects increasing exports and decreasing imports. If exports are more significant than imports, this can cause a surplus in the International Balance of Payments, increasing the position of a country's foreign exchange reserves and vice versa. Therefore, according to Keynesian theory, assuming ceteris paribus, the relationship between the exchange rate and foreign exchange reserves is negative.

The information above shows that the exchange rate is vital in determining a country's economic conditions and macroeconomic variables. So, a policy is needed to reduce the exchange rate so it does not fluctuate too much. The right policy can only be set simply by knowing what factors cause changes in exchange rates. Apart from that, for the business world, fluctuating exchange rates can make it difficult to determine the level of costs and profits in the future. In this research, the exchange rate is the rupiah Rupiaht, the dollar. Many factors cause the rupiah
exchange rate against the dollar to fluctuate, both appreciating and depreciating. One of the factors that influence exchange rate fluctuations is macroeconomic factors.

**Inflation.** Structuralist theory is a theory based on experience in Latin American countries. This theory emphasizes the rigidity (inflexibility) of the economic structure of developing countries. Several studies on inflation in developing countries have shown that inflation is not solely a monetary phenomenon but also a structural or cost-push inflation phenomenon. There are economic shocks originating from within the country, for example, crop failure (due to external factors changing seasons too quickly, natural disasters, or things related to foreign relations, for example, worsening terms of trade and foreign debt, and foreign exchange rates can cause price fluctuations in the domestic market.

**Export.** Export is selling goods carried out across national borders to obtain profits, which individuals, companies or countries can carry out by applicable regulations (Murtala, 2022). Exports are removing goods from the Indonesian customs area and moving them to the customs area of another country. The payment process for this shipment can be via Letter of Credit (L/C) or non-L/C method; each method has risks and benefits (Ministry of Trade, 2023).

**Import.** Imports can also be interpreted as the legal activity of moving products or commodities between other countries, generally being part of trade activities (Sunardiyaningsih & Pradiptha, 2022). Import is the activity of bringing goods from abroad into the customs territory of another country. His understanding explains that import activities involve two countries, which could be represented by the interests of two companies in two countries.

**Foreign Exchange Reserves.** Foreign exchange reserves are reserves of several foreign currencies by Bank Indonesia that are used for development financing purposes, as well as foreign liabilities consisting of import financing and other payments related to other parties. As the country owns national wealth, foreign exchange reserves are managed by the Central Bank (Islami, 2018). According to Rahmawati (2020), foreign exchange reserves, or what is often called Official Reserve Assets, are all foreign assets controlled by the monetary authority and can be used at any time, which can be used to finance imbalances in the balance of payments in order to stabilize the monetary system by intervening in the foreign exchange market.

**Rupiah exchange rate.** The exchange rate is the price of one currency against another, in this case, the Rupiah Rupiaht, the US Dollar currency that must be paid to buy the US Dollar currency (Panjaitan et al., 2021). The currency exchange rate, or the exchange rate, is the price of one unit of foreign currency in domestic currency, or it can also be said to be the price of domestic currency against foreign currency (Sulaiman, 2019).

**METHODS**

The research location is disclosed to show the scope of the research area. Research location. The type of research data used is quantitative data with time series analysis for the observation period from 2000 to 2022 in Indonesia. In this research, secondary data was obtained directly from the official website (Web) of Bank Indonesia (BI) and the Indonesian Central Bureau of Statistics (BPS). Data from the BI website showed the rupiah exchange rate against the US dollar, Indonesian foreign exchange reserves, and inflation.

Meanwhile, the data obtained from BPS is in the form of export and import values. This study uses quantitative and qualitative data. According to the source, the data used in this study are secondary and primary. The data analysis technique used is multiple linear regression analysis.

**RESULTS AND DISCUSSION**

Descriptive statistics analyze data by describing or illustrating the collected data. Table 1 shows the results of the descriptive statistical analysis.

**Table 1. Descriptive Statistics Test Results**
The Rupiah Exchange Rate (Y) variable has a minimum value of 7100.00, a maximum value of 15731.00 and an average (mean) of 11236.4348. With a standard deviation value of 2474.74345, the maximum increase in the average value of the rupiah exchange rate variable is 2474.74345, while the maximum average decrease is -2474.74345.

The Inflation variable (X1) has a minimum value of 2.78, a maximum value of 17.11 and an average (mean) of 7.6222. A standard deviation value of 3.16429 means that the maximum increase in the average value of the inflation variable is 3.16429, while the maximum average decrease is -3.16429.

The Export variable (X2) has a minimum value of 56320.90, a maximum value of 291904.30 and an average (mean) of 143519.3957. With a standard deviation value of 59352.83207, the maximum increase in the average value of the Export variable is 59352.83207, while the maximum average decrease is -59352.83207.

The Import variable (X3) has a minimum value of 60962.10, a maximum value of 237447.10 and an average (mean) of 138009.9957. With a standard deviation value of 47167.42498, the maximum increase in the average value of the Import variable is 47167.42498, while the maximum average decrease is -47167.42498.

The Foreign Exchange Reserves variable (X4) has a minimum value of 34724.00, a maximum value of 144905.38 and an average (mean) of 95423.8928. With a standard deviation value of 32091.10603, this means that the maximum increase in the average value of the Foreign Exchange Reserve variable is 32091.10603, while the maximum average decrease is -32091.10603.

The regression analysis results using the Statistical Program of Social Science (SPSS) version 20.0 for Windows can be seen in Table 2 below.

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange Rates on the United States Dollar</td>
<td>23</td>
<td>7100</td>
<td>15731</td>
<td>11236.4348</td>
<td>2474.74345</td>
</tr>
<tr>
<td>Inflation</td>
<td>23</td>
<td>2.78</td>
<td>17.11</td>
<td>7.6222</td>
<td>3.16429</td>
</tr>
<tr>
<td>Export</td>
<td>23</td>
<td>56320.9</td>
<td>291904.3</td>
<td>143519.3957</td>
<td>59352.83207</td>
</tr>
<tr>
<td>Import</td>
<td>23</td>
<td>60962.1</td>
<td>237447.1</td>
<td>138009.9957</td>
<td>47167.42498</td>
</tr>
<tr>
<td>Foreign exchange reserves</td>
<td>23</td>
<td>34724</td>
<td>144905.38</td>
<td>95423.8948</td>
<td>32091.10603</td>
</tr>
</tbody>
</table>

Valid N (listwise) | 23

Source: Processed data (2024)

Table 2. Multiple Linear Regression Analysis Test Results

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Unstandardized</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
</tr>
<tr>
<td>Inflation</td>
<td>306.515</td>
</tr>
<tr>
<td>Export</td>
<td>-0.013</td>
</tr>
<tr>
<td>Import</td>
<td>0.023</td>
</tr>
<tr>
<td>Foreign exchange reserves</td>
<td>0.071</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Exchange Rates on the United States Dollar

Source: Processed data (2024)
The multiple linear regression analysis results in Table 2 above allow the regression equation to be prepared as follows: 

\[ \eta = 802.399 + 306.515 + (-0.013) + 0.023 + 0.071 + \varepsilon. \]

A constant value of 802,399 states that inflation (X1), exports (X2), imports (X3) and foreign exchange reserves (X4) are said to be constant or the growth is equal to zero, so the value of the Rupiah Exchange Rate (Y) is 802,399 rupiah.

Inflation (X1) has a positive regression coefficient value of 306,515, meaning that if inflation increases by 1%, the rupiah exchange rate (Y) will decrease by 306,515 rupiah, assuming the other independent variables are constant.

Exports (X2) have a negative regression coefficient of -0.013, meaning that if exports increase by 1%, the rupiah exchange rate (Y) will decrease by 0.013 rupiahs, assuming the other independent variables are constant.

Import (X3) has a positive regression coefficient value of 0.023, meaning that if imports increase by 1%, the rupiah exchange rate (Y) will increase by 0.023 rupiah, assuming the other independent variables are constant.

Foreign exchange reserves (X4) have a positive regression coefficient of 0.071. If foreign exchange reserves increase by 1%, the rupiah exchange rate (Y) will increase by 0.071, assuming the other independent variables are constant.

**The Effect of Inflation on the Rupiah Exchange Rate.** The results of this research show that inflation has a positive and significant effect on the Rupiah Exchange Rate, so the hypothesis is accepted, which states that the inflation variable has a positive and significant effect on the rupiah exchange rate, so the hypothesis is accepted. The results of this research are research conducted by Vilia Daleno et al. (2023), Khamidah W, and Sugiharti (2021), Erriv Wijaya (2020), and Anisa Fahmi (2019), resulting in research that has a positive and significant effect on the exchange rate rupiah. Meanwhile, the results of research conducted by Dusana Halawa (2023), Pawer Darasa et al. (2021), and Arya Diana et al. (2019) say that inflation has no effect, which means it is not in line with the results of this research which results that inflation has a positive and significant effect on rupiah exchange rate.

**The Effect of Exports on the Rupiah Exchange Rate.** The results of this research show that exports have a negative and insignificant effect on the Rupiah exchange rate, so the hypothesis is rejected, which states that, individually, the export variable has a negative and significant effect on the Rupiah Exchange Rate variable. Exports that have a negative and insignificant influence on the Rupiah exchange rate against the United States dollar in the opposite direction mean that the shock in exports will respond negatively to the exchange rate. The results of this research are from Anisa Fahmi (2019) and Kadek Data and Martini (2019), showing that exports have a negative and insignificant effect on the rupiah exchange rate. Meanwhile, research conducted by Vilia Daleno et al (2023), Syafidin and Sugiharti (2022), and Mira Adhista (2022) is contradictory, namely research that exports have a positive and significant effect on the rupiah exchange rate.

**The Effect of Imports on the Rupiah Exchange Rate.** This research shows that imports have a positive and insignificant effect on the rupiah exchange rate, so the hypothesis is accepted, which states that the import variable has a positive and significant effect. The direct effect of the imported variable on the rupiah exchange rate per USD is positive and insignificant. Based on the estimation results, sufficient evidence is obtained to conclude that the imported variable indirectly positively affects the rupiah exchange rate. The results of the research align with research conducted by Anisa Fahmi (2019), which shows that imports have a positive and insignificant effect on the rupiah exchange rate.

**The Influence of Foreign Exchange Reserves on the Rupiah Exchange Rate.** This research shows that foreign exchange has a positive and significant effect on the rupiah exchange rate, so the hypothesis is rejected, which states that the Foreign Exchange Reserve variable has a negative and significant effect on the rupiah exchange rate. The results of the research are in line with research conducted by Khamidah, W and Sugiharta (2021), Arista et al. (2021) and Hasim, H (2019), which showed that foreign exchange reserves have a positive and significant effect on the rupiah exchange rate. Meanwhile, Paryan and Hasfi (2023) produced research that
contradicts this, namely that foreign exchange reserves have a negative and insignificant effect on the rupiah exchange rate.

CONCLUSION

Based on the results of the analysis and discussion described above, the following are the conclusions of the results of this research:
1. Inflation, Exports, Imports and Foreign Exchange Reserves significantly impact the rupiah's exchange rate against the US dollar.
2. Inflation positively and significantly affects the rupiah exchange rate against the US dollar.
3. Exports have a negative and insignificant affect the rupiah exchange rate against the US dollar.
4. Imports positively and insignificantly affect the rupiah exchange rate against the US dollar.
5. Foreign exchange reserves positively and significantly affect the rupiah exchange rate against the US dollar.

Suggestion. The government must review policies from a monetary and fiscal perspective to improve the condition of the rupiah exchange rate, which often depreciates. One of the instruments used to control the rupiah exchange rate is to maintain the inflation level and improve export-import activities. By controlling this, the exchange rate can be appreciated. Apart from that, Bank Indonesia or the central bank is expected to be able to work together with regional governments and the central government in coordinating various macroeconomic sectors, as well as maintaining a stable exchange rate. For future researchers, it is hoped that the results of this research can be used as a reference and consideration for developing research, especially research related to factors that can influence the rupiah exchange rate against the US dollar, such as interest rate variables, GDP, JUB, tax revenues. as well as others.

REFERENCE
