



## THE EFFECT OF INTEREST RATES, THE LEVEL OF COMPETITIVENESS ON FOREIGN EXCHANGE RESERVES IN EMERGING MARKET COUNTRIES IN 2020-2023 WITH THE COVID-19 PANDEMIC AS A DUMMY VARIABLE, FACULTY OF ECONOMICS, UNIVERSITAS NEGERI JAKARTA

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### Abstract

This study aims to determine the effect of interest rate, competitiveness and covid-19 Pandemic on emerging market Foreign Exchange Reserves. The research method used in this study is a quantitative approach. The data used in this study are panel data from the seventeen countries in emerging market from 2020 to 2023 which are collected through documentation techniques. The test result show that the variables of interest rate, competitiveness have a positive and significant effect on emerging market foreign exchange reserves. Meanwhile, covid-19 pandemic variable has a significant negative effect on emerging market foreign exchange reserves. Simultaneously, all research variables have a significant effect on emerging market foreign exchange reserves. The coefficient of determination test in this study shows a 65% influence on foreign exchange reserves and the remaining 35% in explained by other variables outside the study.

**Keywords:** Foreign Exchange Reserves, Interest Rate, Competitiveness, Covid-19 Pandemic, Emerging Market

### INTRODUCTION

The Corona Virus or Covid-19 Pandemic was first detected in the Wuhan market, China in December 2019. The virus was indicated to have come from captive-bred wild animal meat in the Wuhan market which has caused international health concerns (Zhao et al., 2020). Since the Covid-19 pandemic, many countries' economies have experienced setbacks due to the implementation of regional restrictions which have resulted in economic disruption. At the end of 2021, significant imbalances between trading partners and products still remained and not all losses from the previous sharp decline had been fully recovered (OECD, 2022).

Current economic conditions are starting to recover from the Covid-19 pandemic. Various sectors of life have started to run well. One of them is in the trade sector. With economic integration to increase the volume of trade in goods and services, strengthen capital and state mobility, increase production and production efficiency, as well as the competitiveness of the products produced (Abidin, 2019). Export and import activities have started to grow in several regions, including emerging market countries. Emerging Market countries consist of countries that are still in the process of economic development (Oktaviani et al., 2019). According to the 2018 Indonesian economic

report, emerging market countries made the largest contribution to the global economy, namely 2.9%. Meanwhile, advanced market countries are around 1.8 (III, 2018).

Until the end of 2020, world trade was still showing weakness after increasing in 2018. This was partly due to the unresolved trade war between the United States and China and the impact of the Covid-19 pandemic. The trade war has caused the GDP of the US and China to decline (Itakura, 2020). Apart from causing loss of life, the Covid-19 outbreak also has a significant impact and poses serious challenges to economic development in countries throughout the world (Gil-alana, 2020). Based on research (Wang & Huang, 2021), in the context of sustainable development, it is stated that the Covid-19 pandemic has become a significant challenge for developing countries when compared to developed countries.

Based on regional classification, the impact of this outbreak was highest in developing countries in Asia, while developing countries in Europe experienced the lowest impact. (Chakraborty & Maity, 2020) stated that Covid-19 could significantly hamper economic development in China, the United States and throughout the world. Until the end of 2022, the Covid-19 pandemic was declared over in several countries such as the United States and the European Union. This was followed by WHO stating that the Covid-19 Pandemic would end in early 2023 (Health Service, 2023).

Foreign exchange reserves are used as a benchmark for a country's economy in determining how much trade is carried out internationally (Suripto, Nurmalingda Novayadi & Kurniawan, 2023). Adequate foreign exchange reserves are important to maintain macroeconomic stability (Kuncoro & Pardede, 2024). For this reason, it can be seen in the picture below regarding foreign exchange reserves in Emerging Market countries.

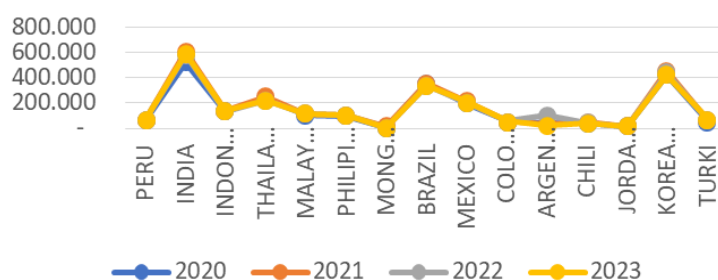


Figure 1 Foreign Exchange Reserves

Source: Trading Economics (2024)

The graph above shows the movement of foreign exchange reserves from several emerging market countries from 2020 to 2023. Most emerging market countries' foreign exchange reserves experienced a decline due to the Covid-19 pandemic and began to increase in the following years. This is because the spread of the Covid-19 pandemic has been overcome and the world economy is starting to recover.

Interest rates are one of the main indicators in financial markets that have a significant influence on the economy as a whole. When interest rates increase, it will affect the increase in foreign exchange reserves, and vice versa (Drobyshevsky, 2017). Not only that, in the process of trade between countries, the level of competitiveness is also one of the important indicators to improve the economy and foreign exchange reserves of a country. When countries have a high level of competitiveness compared to other countries, it means that the country has a high advantage and opportunity to enter the market.

Until now, there has been quite a lot of research on foreign exchange reserves, including on the influences that make the ups and downs of foreign exchange reserves, but research that discusses the time period during the covid-19 pandemic and after the pandemic and the factors that influence it are still underrepresented. Therefore, this study aims to analyze the effect of interest rates, the level of competitiveness and the covid-19 pandemic as a dummy variable on foreign exchange reserves in Emerging Market countries.

## **LITERATURE REVIEW**

### **Foreign Exchange Reserves**

Foreign exchange reserves are a reflection of the difference between demand and supply of domestic money (Yanto, 2018). Foreign exchange reserves are foreign currency deposits by central banks and monetary authorities. These savings become assets stored in several reserve currencies such as dollars, euros or yen. Later it is used to guarantee obligations, namely local currency issued and reserves of various banks stored in the central bank by the government or financial institutions (Senen et al., 2020). Foreign exchange reserves that are too high (accumulated foreign exchange reserves) have static and dynamic impacts; The static impact can sacrifice domestic spending (because it is not used to import necessities), so it can reduce levels of welfare, while the dynamic impact is that it can increase income from investments in capital-intensive trade sectors (Korinek & Servén, 2016).

### **Interest Rate**

Interest rate is the amount charged in excess of the principal amount by the lender from the borrower. In the case of the recipient, the person who deposits the money to the bank or any financial institution also provides additional income considering the time value of the money, referred to as interest received by the depositor (Korinek & Servén, 2016). Rising interest rates can increase borrowing costs and make it difficult for people and companies to access credit. This causes a decrease in consumer spending and business investment, which can slow economic growth. On the other hand, lowering interest rates can make it easier for individuals and businesses to access credit and increase consumer spending and business investment, increasing economic growth. Interest rates are the price of money used to invest in the hope of getting a profit from the use of these funds. With

interest rates, someone can project clearly when making decisions to spend or save the wealth they have.

### **Competitiveness**

Competitiveness can be defined as "the extent to which, under free and fair market conditions, a country can produce goods and services that meet foreign competition tests while maintaining and expanding the real income of its people" (OECD, 1992). . Therefore, a country's competitiveness is closely related to its trade performance, which is often known as international competitiveness performance. This performance plays a crucial role in determining the level of economic prosperity for the country's population (Bierut & Kuziemska-Pawlak, 2017). The competitiveness index indicator can be a measurement to measure the level of competition between countries (Ruzekova et al., 2020). The ability to remain competitive and increase efficiency in carrying out its responsibilities is the main goal for every country (Okunevičiūtė Neverauskienė et al., 2020).

### **Covid-19 Pandemic**

The Corona Virus or Covid-19 Pandemic was first detected in the Wuhan market, China in December 2019. The virus was indicated to have come from captive-bred wild animal meat in the Wuhan market which has caused international health concerns (Zhao et al., 2020). Since the Covid-19 pandemic, many countries' economies have experienced setbacks due to the implementation of regional restrictions which have resulted in economic disruption. At the end of 2021, significant imbalances between trading partners and products still remained and not all losses from the previous sharp decline had been fully recovered (OECD, 2022).

### **Population**

This research obtained data and information related to the problem under study, so the researchers conducted research in Indonesia. The dependent or dependent variable used is foreign exchange reserves in 17 emerging market countries. Independent variables include interest rates, level of competitiveness and the Covid-19 pandemic as dummy variables. The period used is data from 2020 to 2023.

### **METHOD**

This study examines the effect of interest rate, competitiveness on foreign exchange reserves in emerging market and covid-19 pandemic as dummy variable. The type data used in this study is secondary data obtained from the Trading Economics, International Monetary Fund (IMF) and CEIC data. The secondary data used is a combined panel data of time series and cross section from 2020 to 2023. Interest rates variable (X1) uses reference interest rate, competitiveness variable (X2) uses

competitive index and Covid-19 Pandemic (X3) as variable dummy, during the covid-19 period (0) and after covid-19 period (1).

## RESULTS AND DISCUSSION

### Model Testing Result

#### Selection of Estimation Results

#### Chow Test

Table 1. Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	77.558425	(16,48)	0.0000
Cross-section Chi-square	223.745188	16	0.0000

Source: Output EViews12

Based on the table above, it can be seen that the Cross-section Chi-square probability value is 0.0000 ( $\leq 0.05$ ), which rejects H0. So according to the Chow test, the selected model is the Fixed Effect Model (FEM), then the Hausman test is next.

#### Hausman Test

Table 2. Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	3	1.0000

Source: Output EViews12

Based on the Hausman test output, a probability value of 1.0000 is obtained, ( $\geq 0.05$ ). This shows that Ho is accepted. So, it can be concluded that the Random Effect Model (REM) is the best model in this research and needs to be continued with the Lagrange Multiplier test.

#### Classic Assumption Test

#### Normality Testession Test

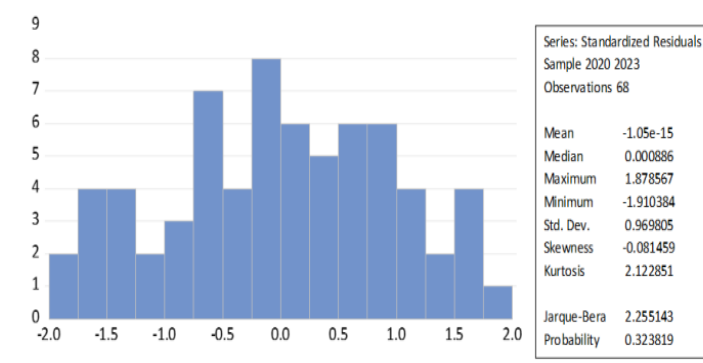


Figure 2. Normality Test

Source: Output EViews12

Based on the figure above, the Jarque-Bera probability value is 0.650683 ( $\geq 0.05$ ), meaning that  $H_0$  is accepted and the normality assumption is met. So, it can be concluded that the residuals are normally distributed.

### Multicollinearity Test

Table 3. Multicollinearity test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.435976	30.10978	NA
Interest Rate	0.000256	2.395773	1.553184
Competitiveness	9.46E-05	25.68602	1.449204
Foreign Exchange Reserves	0.063494	2.192523	1.096262

Source: Output EViews12

Based on the test output, based on the calculations in the table above, it can be seen that none of the VIF values are above 10 (VIF values range from 1.096262 to 1.553184). So it can be concluded that in this research there is no multicollinearity problem in the regression model.

### Heteroscedasticity Test

Tabel 3. Heteroskedasticity test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Interest Rate	-0.017444	0.016041	-1.087450	0.2809
Competitiveness	-0.006695	0.009753	-0.686437	0.4949
Foreign Exchange Reserves	-0.168605	0.252614	-0.667441	0.5069

Source : Output E Views 12

Based on the test output, the probability of all variables is greater than 0.05, so it can be concluded that there is no heteroscedasticity problem in the regression model.

### Multiple Linear Regression Test

The test result can be seen as follows:

Table 4. Random Effect Model (REM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.712077	0.651070	8.773363	0.0000
Interest Rate	0.033791	0.015778	2.141700	0.0360
Competitiveness	0.098012	0.009592	10.21764	0.0000
Foreign Exchange Reserves	-0.073854	0.248463	-1.927245	0.0477

Source: Output EViews12

$$Y = 5.712077 + 0.033791 + 0.098012 - 0.073854 + \epsilon$$

## Hypothesis Test

### T Test

In this study, the t-statistical probability used is 0.05 (5%). Based on the t-statistic output, it shows that the variables of interest rate, competitiveness and covid-19 pandemic have an effect on foreign exchange reserves in emerging market with a significance value of 0.05. In this study, the t-table value is based on the df (n-k) formula where (n) is the number of observational data used, namely 68 and (k) is the number of variables in the study, namely 4 variables. Then  $df (68-4) = df (64)$ . So, with a df64 value and a probability level of 0.05 the t-table value is 1,669.

1. The Interest Rate variable has a t-value of  $2.141700 > t\text{-table of } 1.669$  and a significance value of  $0.0360 \leq 0.005$ , so it can be said that road stability has a significant and positive effect on foreign exchange reserves in emerging market.
2. The Competitiveness variable has a t-value of  $2.141700 > t\text{-table of } 1.669$  and a significance value of  $0.0000 \leq 0.005$ , so it can be said that competitiveness has a significant and positive effect on foreign exchange reserves in emerging market.
3. Covid-19 Pandemic variable has a t-value  $-1.927245 > t\text{-table of } 1.669$  and a significance value of  $0.0477$ , so it can be said that covid-19 pandemic has a significant and negative effect on foreign exchange reserves in emerging market.

### F Test

The F test is used to determine whether the independent variables together have a significant effect on the dependent variable. To do this test, the F-statistic and F-statistical probability of the multiple linear regression results are required. The test result shows the F-statistic is 39,73814 and the probability value is 0.000000 which has a value smaller than 0.05 (5%). The F-table value is through degrees of freedom (df) 1 and 2. df 1 has the formula k-1. Where (k) is the number of variables. Then df 1 is  $4-1 = 3$ . df 2 has the formula n-k-1. (n) is the number of observation samples, so that df 2 is  $68-4-1 = 63$ , based on the degrees of freedom, F-table is 2.75. So, it can be concluded that based on the F test it can be assessed that  $F_{count} > F_{table}$  ( $39.73814 > 2.75$ ) or probability  $\leq 0.05$  ( $0.000000 \leq 0.05$ ) which means that simultaneously the three independent variables affect the development gap as the dependent variable.

### Coefficient of Determination (R<sup>2</sup>)

Based on the test output, the R-squared value is 0,65, meaning that the independent variables are able to explain the dependent variable by 65% and the remaining 35% is influenced by other factors.

## **DISCUSSION**

### **Effect of Interest Rate on Foreign Exchange Reserves**

The Interest Rate variable used in this study is the reference interest rate, where the test result using panel data regression show that the interest rate has a positive effect on foreign exchange reserve. Based on the t-test output on this variable, t-value  $2.141700 >$  t-table of 1.669 and a significane value of  $0.0360 \leq 0.005$ , so  $H_0$  is rejected  $H_a$  is accepted which means that partially education has a significant positif on foreign exchange reserves.

These results are not in line with research conducted by (Juliansyah et al., 2020) which confirms that interest rates have a negative effect on foreign exchange reserves. The results of this study are supported by M.Rasyidin who states that interest rates have a positive effect on foreign exchange reserves in Indonesia. High interest rates attract foreign investment because investors are looking for higher returns. This increase in capital inflows increases the demand for domestic currency, which in turn increases foreign exchange reserves. So, the government and need to maintain the value of interest rates in order to stabilize international trade flows.

### **Effect of Competitiveness on Foreign Exchange Reserves**

The test result using panel data regression show The Competitiveness variable has a t-value of  $2.141700 >$  t-table of 1.669 and a significane value of  $0.0000 \leq 0.005$ , so it can be said that competitiveness has a significant and positive effect on foreign exchange reserves in emerging market.

This result is in line with the theory of Ohlin and Heckscher from the neoclassical school of designing a simple model to evaluate international trade using the concept of comparative advantage. The concept of competitiveness was first analyzed within the scope of the company, which refers to the ability of a company to compete successfully with other companies in local and international markets. So that the specifications of each country become an advantage over other countries, which in turn can increase foreign exchange reserves. Research also conducted by Sri Indah Nikensari, et al in 2021 states that the level of competitiveness has a significant effect on exports in EEA countries or the European Economic Area. To increase exports, a country needs to increase its competitiveness through innovation, production efficiency, investment in human resources, and other factors that affect its economic competitiveness. This is supported by research written by Kurnia Andriyani, et al (2020) that exports have a positive effect on foreign exchange reserves.

### **Effect of Covid-19 Pandemic on Foreign Exchange Reserves**

The test result using panel data regression show Covid-19 Pandemic variable has a t-value -  $1.927245 >$  t-table of 1.669 and a significane value of 0.0477, so it can be said that covid-19 pandemic has a significant and negative effect on foreign exchange reserves in emerging market.

These results are in line with the results of research from Jumaeva (2020) on the country of Uzbekistan, stating that the Covid-19 pandemic caused export revenues to decline, which could cover the trade deficit and end up depleting foreign exchange reserves (Jumaeva, 2020). The Covid-19 pandemic has dealt a heavy blow to emerging market and developing countries (EMDEs). The pandemic, the widespread restrictions imposed to contain it, and the knee-jerk reactions of many consumers and producers have led to the deepest global recession since World War II. Commodity prices plummeted, capital inflows to EMDEs reversed, and financial conditions tightened further in March and April 2020 (Kose et al., 2021).

## CONCLUSION

From the research that has been presented, it can be concluded that:

1. Interest rate through reference interest rate has a positive and significant influence on foreign exchange reserves in emerging market in 2020 – 2023, which means that an increase in interest rate has an influence in increase foreign exchange reserves in emerging market.
2. Competitiveness through competitive index has a positive and significant influence on foreign exchange reserves in emerging market in 2020 – 2023, which means that an increase in competitiveness has an influence in increase foreign exchange reserves in emerging market.
3. Covid-19 Pandemic through dummy variable has a negative and significant influence on foreign exchange reserves in emerging market in 2020 – 2023, which means that an increase in covid-19 pandemic has an influence in decrease foreign exchange reserves in emerging market.
4. Simultaneously, interest rate, competitiveness and covid-19 pandemic have a significant effect on foreign exchange reserves in emerging market.

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