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The Role of Government Intervention in Stabilizing Exchange Rates: Case Studies of Indonesia, Japan and Türkiye in the Global Economic Context

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Abstract
In the context of the global economy, this research analyzes the role of government intervention in stabilizing currency exchange rates in Indonesia, Japan and Türkiye. This study uses a quantitative approach to look at the different monetary policies implemented by the governments of these three countries to overcome changes in exchange rates caused by international markets. To determine how effective government intervention is in maintaining economic stability, data collected from various sources, including economic statistics and central bank reports, is analyzed. The research results show that government intervention has a significant effect on the exchange rate, but its effectiveness varies depending on the economic and political conditions of each country. It is hoped that these findings will help policymakers create better strategies to stabilize the exchange rate amidst ever-changing global economic challenges.
Keywords: government intervention, exchange rate stability, monetary policy, global economy.

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1. Introduction

A stable exchange rate is very important for a country's economy, because it can influence international trade, investment flows and inflation (Ismail & Kadir, 2020). In the context of an increasingly integrated global economy, exchange rate fluctuations can be a significant challenge for developing countries such as Indonesia, as well as developed countries such as Japan and countries with developing economies such as Turkey (Kumar & Singh, 2021).

Government intervention in the foreign exchange market is often carried out to reduce exchange rate volatility and create a more stable environment for economic actors (Huang & Zhang, 2022). In Indonesia, for example, Bank Indonesia has implemented various monetary policies and direct interventions to maintain the stability of the rupiah exchange rate against the US dollar (Putra & Sari, 2021). Meanwhile, Japan, which has long struggled with deflation and slow economic growth, intervened to prevent excessive yen strengthening (Tanaka, 2023).

Turkey, on the other hand, faces unique challenges with high inflation and recurring currency crises, where government intervention is crucial to restore market confidence (Yilmaz & Demir, 2022). Through this research, it is hoped that the effectiveness of various intervention strategies implemented by the three countries in a dynamic global economic context can be identified, as well as their implications for future economic policies (Santos & Lee, 2023).

2. Research Methods

This research uses a quantitative approach with the aim of analyzing the influence of interest rates, inflation and foreign exchange reserves on currency exchange rates. The data used is time series data obtained from official sources such as Central Bank reports and international financial institutions during the 2019-2023 period. The data analysis technique was carried out using the multiple regression test method, where the exchange rate is the dependent variable and interest rates, inflation and foreign exchange reserves are the independent variables. Before carrying out regression analysis, this research ensures that the data meets classical assumptions. Normality Test to see whether the residuals are normally distributed. Multicollinearity test to detect a strong linear relationship between independent variables. Heteroscedasticity test to test whether the residual variance is constant or not. Autocorrelation test to find out whether there is a correlation between residuals in a certain time period. The results of testing classical assumptions will determine the validity of the regression model used. With this approach, research is expected to provide a comprehensive understanding of the factors that influence currency exchange rates in the context of the global economy.

3. Result

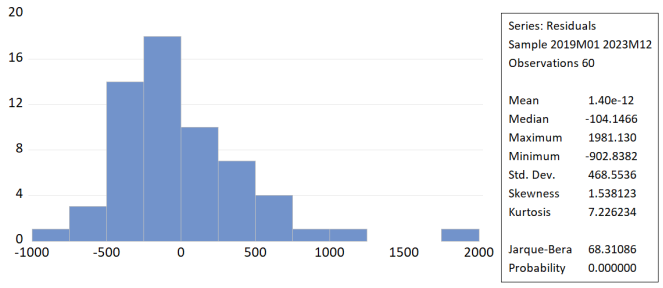
- **Indonesia**

Dependent Variable: NILAI_TUKAR_USD_IDR
Method: Least Squares
Date: 12/11/24 Time: 10:33
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10684.45	1472.810	7.254471	0.0000
SUKU_BUNGA_IDR	97.15242	74.07348	1.311568	0.1950
CADANGAN_DEVISA_IDR	0.021734	0.009815	2.214234	0.0309
INFLASI_IDR	191.7093	53.64082	3.573944	0.0007

R-squared	0.296107	Mean dependent var	14614.45
Adjusted R-squared	0.258398	S.D. dependent var	558.4776
S.E. of regression	480.9404	Akaike info criterion	15.25370
Sum squared resid	12953005	Schwarz criterion	15.39333
Log likelihood	-453.6111	Hannan-Quinn criter.	15.30832
F-statistic	7.852497	Durbin-Watson stat	0.855457
Prob(F-statistic)	0.000184		

Based on the results of the multiple regression test, it shows that the IDR interest rate is not statistically significant (Prob = 0.1950), while IDR foreign exchange reserves have a significant effect with a coefficient of 0.021734 at the 5% level (Prob = 0.0309), although the effect is small. IDR inflation has a significant and large impact with a coefficient of 191.7093 (Prob = 0.0007), indicating that an increase in inflation influences an increase in the USD/IDR exchange rate. Overall, the model has an R-squared of 29.61% and an adjusted R-squared of 25.84%, which shows that its predictive ability is still low. The significant F-statistic (Prob = 0.000184) indicates this model is valid, but the Durbin-Watson value of 0.855457 indicates the potential for positive autocorrelation in the residuals.



Based on the results of the residual normality test in the regression analysis between the USD/IDR exchange rate and interest rates, foreign exchange reserves and inflation, it shows that the residuals are not normally distributed. The

Jarque-Bera value of 68.31 with a probability of 0.0000 rejects the null hypothesis at a significance level of 1%. The residual distribution has a positive skewness of 1.538 and kurtosis of 7.226, which indicates a leptokurtic distribution with many outliers and a long tail on the right side.

Variance Inflation Factors
Date: 12/11/24 Time: 10:37
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2169168.	562.6806	NA
SUKU_BUNGA_IDR	5486.880	32.09525	1.430310
CADANGAN_DEVISA...	9.63E-05	453.0579	1.184971
INFLASI_IDR	2877.338	7.529408	1.237919

Based on the results of the Variance Inflation Factors (VIF) analysis, it shows that there is no significant multicollinearity problem between independent variables in the regression model which uses IDR interest rates, IDR foreign exchange reserves and IDR inflation to predict the USD/IDR exchange rate. The IDR interest rate has a VIF of 1,430, foreign exchange reserves of IDR of 1,184, and inflation of IDR of 1,238, all of which indicate a low level of multicollinearity. With a VIF value below 10, it can be concluded that the regression model does not experience serious multicollinearity, so that the results of the estimated regression coefficients can be interpreted reliably without distortion from the linear relationship between the independent variables.

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	2.668727	Prob. F(9,50)	0.0130
Obs*R-squared	19.46962	Prob. Chi-Square(9)	0.0215
Scaled explained SS	52.79909	Prob. Chi-Square(9)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 12/11/24 Time: 10:39
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.17E+08	34295318	3.411520	0.0013
SUKU_BUNGA_IDR^2	-16101.94	156266.9	-0.103041	0.9183
SUKU_BUNGA_IDR*CADANGAN_DEVIS...	53.96294	17.53927	3.076693	0.0034
SUKU_BUNGA_IDR*INFLASI_IDR	44589.72	99671.56	0.447367	0.6565
SUKU_BUNGA_IDR	-7306870.	3572632.	-2.045234	0.0461
CADANGAN_DEVISA_IDR^2	0.004589	0.001513	3.033972	0.0038
CADANGAN_DEVISA_IDR*INFLASI_IDR	-14.91515	15.65652	-0.952648	0.3454
CADANGAN_DEVISA_IDR	-1482.292	447.6063	-3.311598	0.0017
INFLASI_IDR^2	-26272.79	55908.96	-0.469921	0.6405
INFLASI_IDR	1905093.	2053333.	0.927805	0.3580

R-squared	0.324494	Mean dependent var	215883.4
Adjusted R-squared	0.202902	S.D. dependent var	543227.4
S.E. of regression	484995.1	Akaike info criterion	29.17268
Sum squared resid	1.18E+13	Schwarz criterion	29.52173
Log likelihood	-865.1803	Hannan-Quinn criter.	29.30921
F-statistic	2.668727	Durbin-Watson stat	1.854295
Prob(F-statistic)	0.013014		

Based on the results of the heteroscedasticity test using the White Test, it shows that the regression model is likely to experience heteroscedasticity problems. With an F-statistic of 2.668727 (Prob = 0.0130) and Obs*R-squared of 19.46962 (Prob = 0.0215), the null hypothesis about homoscedastic residuals is rejected at the 5% significance level. This indicates that the residual variance is not constant, which can lead to inefficient estimation and inaccurate standard errors of the coefficients.

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	13.31986	Prob. F(2,54)	0.0000
Obs*R-squared	19.82129	Prob. Chi-Square(2)	0.0000

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 12/11/24 Time: 10:40
Sample: 2019M01 2023M12
Included observations: 60
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	750.4015	1288.610	0.582334	0.5628
SUKU_BUNGA_IDR	-24.29558	62.67591	-0.387638	0.6998
CADANGAN_DEVISA_IDR	-0.004859	0.008582	-0.566157	0.5736
INFLASI_IDR	6.361834	44.81243	0.141966	0.8876
RESID(-1)	0.634912	0.134597	4.717134	0.0000
RESID(-2)	-0.106904	0.142504	-0.750179	0.4564

R-squared	0.330355	Mean dependent var	1.40E-12
Adjusted R-squared	0.268351	S.D. dependent var	468.5536
S.E. of regression	400.7843	Akaike info criterion	14.91936
Sum squared resid	8673917.	Schwarz criterion	15.12880
Log likelihood	-441.5809	Hannan-Quinn criter.	15.00128
F-statistic	5.327945	Durbin-Watson stat	1.929925
Prob(F-statistic)	0.000474		

Based on the results of the Breusch-Godfrey Serial Correlation LM Test analysis, it shows that there is autocorrelation in the residuals up to 2 lags, with an F-statistic of 13.31986 (Prob = 0.0000) and Obs*R-squared of 19.82129 (Prob = 0.0000), which indicates that the null hypothesis is rejected at a significance level of 1%. The residual first lag coefficient (RESID(-1)) of 0.634912 (Prob = 0.0000) shows a significant effect, while the second lag coefficient (RESID(-2)) of -0.106904 (Prob = 0.4564) is not significant.

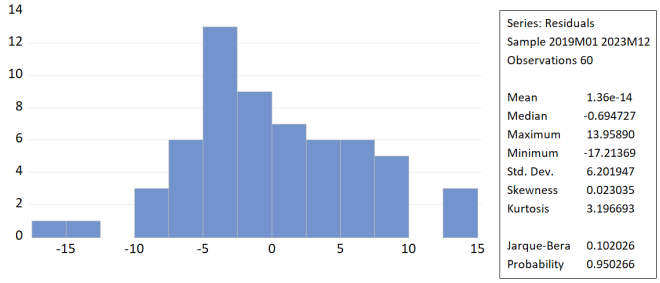
- **Japan**

Dependent Variable: NILAI_TUKAR_USD_JPY
Method: Least Squares
Date: 12/11/24 Time: 10:51
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	126.2913	33.89897	3.725521	0.0004
CADANGAN_DEVISA_JPY	-1.26E-05	2.48E-05	-0.507701	0.6136
INFLASI_JPY	8.547159	0.971207	8.800556	0.0000

R-squared	0.836021	Mean dependent var	119.7830
Adjusted R-squared	0.830268	S.D. dependent var	15.31561
S.E. of regression	6.309815	Akaike info criterion	6.570796
Sum squared resid	2269.384	Schwarz criterion	6.675514
Log likelihood	-194.1239	Hannan-Quinn criter.	6.611757
F-statistic	145.3032	Durbin-Watson stat	0.404056
Prob(F-statistic)	0.000000		

Based on the results of regression analysis, it shows that this model measures the influence of JPY foreign exchange reserves and JPY inflation on the USD/JPY exchange rate. JPY foreign exchange reserves have a small negative impact on the exchange rate (coefficient -1.26e-05, Prob = 0.6138), but it is not significant. JPY inflation has a significant and positive effect on the USD/JPY exchange rate, with a coefficient of 8.547159 (Prob = 0.0000). This model explains 83.60% of the exchange rate variation (R-squared = 0.836021), and is significant overall (F-statistic = 145.3032, Prob = 0.0000). A Durbin-Watson of 0.404056 indicates possible positive autocorrelation, which needs to be addressed.



Based on the results of the residual normality test for the regression between the USD/JPY exchange rate and foreign exchange reserves and the Japanese inflation rate, it shows that the residuals are normally distributed. The Jarque-Bera statistical test produces a value of 0.102026 with a probability of 0.950266, which is greater than the significance level of 0.05, so the null hypothesis that the residuals are normally distributed is not rejected. The distribution parameters show a mean residual that is close to zero (1.36e-14), a skewness of 0.023035 which indicates distribution symmetry, and a kurtosis of 3.196693 which is slightly higher than the normal distribution.

Variance Inflation Factors
Date: 12/11/24 Time: 10:53
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1149.141	1731.774	NA
CADANGAN_DEVISA..	6.15E-10	1635.517	3.410072
INFLASI_JPY	0.943242	5.434326	3.410072

Based on the results of the Variance Inflation Factor (VIF) analysis, it shows that there is no significant multicollinearity problem in the regression model between the USD/JPY exchange rate and Japan's foreign exchange reserves and inflation. The Centered VIF value for JPY foreign exchange reserves and JPY inflation was 3.410072 respectively, which indicates a low and acceptable level of multicollinearity, well below the threshold of 10. Although the Uncentered VIF value is quite high, the lower Centered VIF value indicates that multicollinearity is not a problem. problem.

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	5.303161	Prob. F(5,54)	0.0005
Obs*R-squared	19.75945	Prob. Chi-Square(5)	0.0014
Scaled explained SS	19.58671	Prob. Chi-Square(5)	0.0015

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 12/11/24 Time: 10:54
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7989.424	8807.109	-0.907156	0.3684
CADANGAN_DEVISA_JPY^2	-4.50E-09	4.76E-09	-0.945604	0.3486
CADANGAN_DEVISA_JPY*INFLASI_JPY	-0.000168	0.000341	-0.492870	0.6241
CADANGAN_DEVISA_JPY	0.012008	0.012945	0.927603	0.3577
INFLASI_JPY^2	8.458187	8.793034	0.961919	0.3404
INFLASI_JPY	207.7140	469.5677	0.442351	0.6600

R-squared	0.329324	Mean dependent var	37.82307
Adjusted R-squared	0.267225	S.D. dependent var	56.53157
S.E. of regression	48.39233	Akaike info criterion	10.69120
Sum squared resid	126458.1	Schwarz criterion	10.90063
Log likelihood	-314.7360	Hannan-Quinn criter.	10.77312
F-statistic	5.303161	Durbin-Watson stat	1.094068
Prob(F-statistic)	0.000492		

Based on the results of the heteroscedasticity test using the White Test, it shows that there is a heteroscedasticity problem in the regression model between the USD/JPY exchange rate and Japan's foreign exchange reserves and inflation. With an F-statistic of 5.303161 and a probability of 0.0005, and an Obs*R-squared of 19.75945 with a Chi-Square

probability of 0.0014, the null hypothesis which states there is no heteroscedasticity is rejected at the 1% significance level.

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	48.28385	Prob. F(2,55)	0.0000
Obs*R-squared	38.22755	Prob. Chi-Square(2)	0.0000

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 12/11/24 Time: 10:56
Sample: 2019M01 2023M12
Included observations: 60
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.04032	21.10553	0.665244	0.5087
CADANGAN_DEVISA_JPY	-1.01E-05	1.54E-05	-0.655372	0.5150
INFLASI_JPY	-0.443069	0.605034	-0.732304	0.4671
RESID(-1)	0.892089	0.134208	6.647059	0.0000
RESID(-2)	-0.106449	0.142300	-0.748061	0.4576

R-squared	0.637126	Mean dependent var	1.36E-14
Adjusted R-squared	0.610735	S.D. dependent var	6.201947
S.E. of regression	3.869463	Akaike info criterion	5.623764
Sum squared resid	823.5009	Schwarz criterion	5.798292
Log likelihood	-163.7129	Hannan-Quinn criter.	5.692032
F-statistic	24.14193	Durbin-Watson stat	1.901633
Prob(F-statistic)	0.000000		

Based on the results of the Breusch-Godfrey Serial Correlation LM Test, it shows that there is an autocorrelation problem in the residuals of the regression model between the USD/JPY exchange rate and Japan's foreign exchange reserves and inflation. The F-statistic of 48.28385 with a probability of 0.0000 and Obs*R-squared of 38.22755 with a Chi-Square probability of 0.0000 indicates that the null hypothesis is rejected, indicating the existence of autocorrelation. The RESID(-1) coefficient is statistically significant, indicating the strong influence of the previous period's residuals on the current one, while RESID(-2) is not significant.

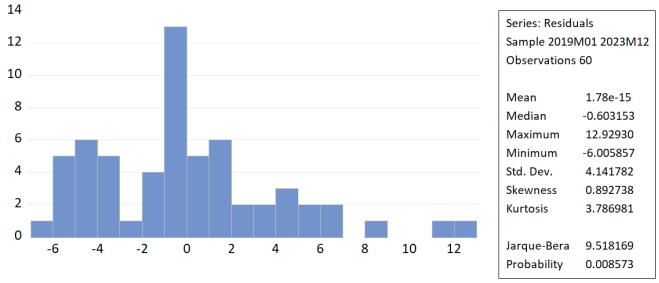
- **Türkiye**

Dependent Variable: NILAI_TUKAR_USD_TRY
Method: Least Squares
Date: 12/11/24 Time: 10:58
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.639772	2.931267	0.218258	0.8280
SUKU_BUNGA_TRY	0.227525	0.082667	2.752318	0.0080
CADANGAN_DEVISA_TRY	6.32E-06	4.97E-05	0.127114	0.8993
INFLASI_TRY	0.226084	0.023194	9.747658	0.0000

R-squared	0.684275	Mean dependent var	12.57517
Adjusted R-squared	0.667361	S.D. dependent var	7.371104
S.E. of regression	4.251275	Akaike info criterion	5.796655
Sum squared resid	1012.107	Schwarz criterion	5.936278
Log likelihood	-169.8997	Hannan-Quinn criter.	5.851270
F-statistic	40.45646	Durbin-Watson stat	0.131138
Prob(F-statistic)	0.000000		

Based on the results of regression analysis, it shows that TRY interest rates and TRY inflation have a significant influence on the USD/TRY exchange rate, while TRY foreign exchange reserves are not significant. The TRY interest rate coefficient of 0.227525 and the TRY inflation coefficient of 0.226084 are significant at the 1% level, indicating that an increase in each of these variables will increase the USD/TRY exchange rate. The model has an R-squared of 0.684275, which explains 68.43% of exchange rate variability, and an F-statistic of 40.45646 indicates the overall model is significant.



Based on the results of the residual normality test for the regression model between the USD/TRY exchange rate and interest rates, foreign exchange reserves and inflation in Turkey, it shows that the residuals are not normally distributed. The Jarque-Bera value of 9.518169 with a probability of 0.008573 rejects the null hypothesis that the residuals are normally distributed at the 1% significance level, indicating a deviation from the normal distribution. Even though the mean residual is close to zero, the skewness of 0.892738 indicates positive skewness and the kurtosis of 3.786981 indicates a leptokurtic distribution with a sharper peak. The residual histogram shows an asymmetric distribution with outliers on the right side.

Variance Inflation Factors
Date: 12/11/24 Time: 11:00
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	8.592328	28.52487	NA
SUKU_BUNGA_TRY	0.006834	7.265194	1.255989
CADANGAN_DEVISA...	2.47E-09	39.25660	1.380967
INFLASI_TRY	0.000538	3.239214	1.111842

Based on the results of the Variance Inflation Factor (VIF) analysis, it shows that there is no significant multicollinearity problem in the regression model between the USD/TRY exchange rate and interest rates, foreign exchange reserves and inflation in Turkey. The Centered VIF values for the TRY interest rate (1.255989), TRY foreign exchange reserves (1.380967), and TRY inflation (1.111842) are all well below the threshold of 10, indicating low multicollinearity among the independent variables. This means that the regression coefficient for each variable can be interpreted reliably without bias due to a strong linear relationship.

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	2.658418	Prob. F(9,50)	0.0133
Obs*R-squared	19.41875	Prob. Chi-Square(9)	0.0219
Scaled explained SS	23.57213	Prob. Chi-Square(9)	0.0050

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 12/11/24 Time: 11:01
Sample: 2019M01 2023M12
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-70.03059	108.1170	-0.647730	0.5201
SUKU_BUNGA_TRY^2	-0.147642	0.108084	-1.365996	0.1781
SUKU_BUNGA_TRY*CADANGAN_DEVIS...	0.000153	8.36E-05	1.823782	0.0742
SUKU_BUNGA_TRY*INFLASI_TRY	-0.010519	0.035525	-0.296105	0.7684
SUKU_BUNGA_TRY	-4.873970	3.800519	-1.282449	0.2056
CADANGAN_DEVISA_TRY^2	-3.86E-08	3.08E-08	-1.251405	0.2166
CADANGAN_DEVISA_TRY*INFLASI_TRY	1.29E-06	2.16E-05	0.059725	0.9526
CADANGAN_DEVISA_TRY	0.002660	0.003731	0.713031	0.4791
INFLASI_TRY^2	-0.026482	0.008298	-3.191424	0.0024
INFLASI_TRY	2.696383	1.855150	1.453458	0.1523

R-squared	0.323646	Mean dependent var	16.86845
Adjusted R-squared	0.201902	S.D. dependent var	28.39827
S.E. of regression	25.36997	Akaike info criterion	9.456021
Sum squared resid	32181.77	Schwarz criterion	9.805079
Log likelihood	-273.6806	Hannan-Quinn criter.	9.592557
F-statistic	2.658418	Durbin-Watson stat	0.713178
Prob(F-statistic)	0.013321		

Based on the results of the heteroscedasticity test using the White Test, it shows that there is a heteroscedasticity problem in the regression model between the USD/TRY exchange rate and interest rates, foreign exchange reserves and inflation in Türkiye. The F-statistic is 2.658418 with a probability of 0.0133 and Obs*R-squared is 19.41875 with a probability of 0.0219, indicating the presence of heteroscedasticity in the model.

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	175.1407	Prob. F(2,54)	0.0000
Obs*R-squared	51.98578	Prob. Chi-Square(2)	0.0000

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 12/11/24 Time: 11:02
Sample: 2019M01 2023M12
Included observations: 60
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.646427	1.091674	-0.592143	0.5562
SUKU_BUNGA_TRY	-0.073952	0.034453	-2.146443	0.0363
CADANGAN_DEVISA_TRY	3.07E-05	1.90E-05	1.615707	0.1120
INFLASI_TRY	-0.005472	0.008703	-0.628812	0.5321
RESID(-1)	1.103615	0.132173	8.349771	0.0000
RESID(-2)	-0.176509	0.139144	-1.268532	0.2100

R-squared	0.866430	Mean dependent var	1.78E-15
Adjusted R-squared	0.854062	S.D. dependent var	4.141782
S.E. of regression	1.582236	Akaike info criterion	3.850195
Sum squared resid	135.1875	Schwarz criterion	4.059630
Log likelihood	-109.5059	Hannan-Quinn criter.	3.932117
F-statistic	70.05626	Durbin-Watson stat	1.641423
Prob(F-statistic)	0.000000		

Based on the results of the Breusch-Godfrey Serial Correlation LM Test, it shows that there is significant autocorrelation in the residuals of the regression model of the USD/TRY exchange rate on TRY interest rates, TRY foreign exchange reserves and TRY inflation, especially in the first lag. With an F-statistic of 175.1407 (Prob = 0.0000) and Obs*R-squared of 51.98578 (Prob = 0.0000), the null hypothesis of no autocorrelation is rejected. The previous period's residual (RESID(-1)) has a significant influence on the current residual (Prob = 0.0000), while the previous two periods' residual (RESID(-2)) is not significant. The TRY interest rate has a significant effect on the residual (Prob = 0.0365), while TRY foreign exchange reserves and TRY inflation do not show a significant effect.

4. Discussion

- **Indonesia**

While interest rates are not statistically significant, inflation and foreign exchange reserves in Indonesia have a significant influence on the USD/IDR exchange rate. With an R-squared of 29.61%, the regression model shows low predictive ability, showing how complex the various factors that influence the Indonesian exchange rate are. In addition, there is an autocorrelation problem in the residuals, which may affect the validity of the results. Because Indonesia relies on exported goods, its exchange rate is vulnerable to changes in prices around the world. As a result, the government's monetary policy must be more flexible.

- **Japan**

Compared with Indonesia and Türkiye, Japan's intervention was more effective. The USD/JPY exchange rate is strongly influenced by JPY inflation, but foreign exchange reserves are not. As indicated by the high R-squared value (83.60%), the regression model indicates that the variables involved can be responsible for most of the exchange rate variations. Even though the normality assumption was met, it was found that there was autocorrelation in the residuals. As a result, the model must be adjusted. Japan used its economic stability to carry out more targeted interventions, such as low interest rate policies and strategic use of foreign exchange reserves.

- **Türkiye**

The USD/TRY exchange rate in Türkiye is influenced by TRY interest rates and inflation, while foreign exchange reserves are insignificant. Good predictive ability (R-squared = 68.43%) was demonstrated by the regression model; however, problems such as residual non-normality and autocorrelation indicate that management of variables that impact exchange rates fails. Türkiye's monetary policy is often unable to keep up with inflation and external factors such as geopolitical tensions, which causes the Lira currency to become highly volatile.

5. Conclusions

Research shows that government intervention is critical to stabilizing exchange rates in Indonesia, Japan, and Türkiye. However, the level of effectiveness of interventions varies depending on the economic and political circumstances of each country. Although the regression model cannot predict well, inflation and foreign exchange reserves in Indonesia significantly influence the USD/IDR exchange rate. This shows how complex the Indonesian economy is, which is influenced by monetary policy that needs to be updated and changes in commodity prices around the world.

Supported by better economic stability and focused policies, Japan demonstrated more effective intervention with inflation as the main factor. In contrast, Türkiye faces major challenges in maintaining the stability of the USD/TRY exchange rate due to high inflationary pressures and internal volatility, although the TRY interest rate has a significant influence. Problems such as autocorrelation and residual abnormality demonstrated by the three countries indicate that policies and models to stabilize exchange rates are necessary, especially amidst global economic uncertainty.

6. Suggestion

For Indonesia, intervention must be optimized through the incorporation of more adaptive monetary policies, such as managing foreign exchange reserves and controlling inflation. To reduce pressure on the exchange rate, economic diversification is important to reduce dependence on commodity exports. In addition, further research could concentrate on external elements, such as foreign capital flows and global policies that influence exchange rate stability.

Japan should continue to use its strategy of exchange rate intervention, but should pay attention to the risk of autocorrelation in economic models, which can affect long-term predictions. Meanwhile, Türkiye must improve its internal stability, especially through consistent interest rate policies and better inflation control. Monetary and fiscal policies that are aligned with global dynamics and the use of more complex analytical methods to overcome high volatility are essential for every country.

References

Ismail, A., & Kadir, A. (2020). The Impact of Exchange Rate Stability on Economic Growth: Evidence from Indonesia. Journal of Economic Studies, 47(3), 561-578.

Kumar, R., & Singh, P. (2021). Exchange Rate Fluctuations and Economic Performance: A Comparative Study of Emerging Markets. International Journal of Finance & Economics, 26(2), 123-145.

Huang, Y., & Zhang, L. (2022). Government Intervention and Exchange Rate Stability: Lessons from East Asia. Asian Economic Policy Review, 17(1), 45-67.

Putra, H., & Sari, D. (2021). Monetary Policy and Exchange Rate Interventions in Indonesia: A Review. Bulletin of Monetary Economics and Banking, 24(1), 1-15.

Tanaka, M. (2023). The Role of Currency Intervention in Japan's Economic Strategy. Journal of Asian Economics, 34(2), 98-115.

Yilmaz, K., & Demir, E. (2022). Currency Crisis and Government Response in Turkey: An Analysis. Emerging Markets Finance and Trade, 58(4), 891-910.

Santos, J., & Lee, C. (2023). Exchange Rate Policies in a Globalized Economy: Comparative Insights from Indonesia, Japan, and Turkey. Global Economic Review, 52(1), 23-41.