EFFECT OF FOREIGN DIRECT INVESTMENTS IN UZBEKISTAN ON CURRENCY RATE

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ABSTRACT

This study uses econometric models to examine the relationship between foreign direct investment (FDI) and the exchange rate in Uzbekistan. Direct investment plays an important role in shaping the economic landscape of Uzbekistan, and its influence on the exchange rate has far-reaching implications for the country's macroeconomic stability and competitiveness in the world market. Using various econometric methods, including regression analysis and time series modeling, this study aims to comprehensively analyze how changes in the level of foreign direct investment in Uzbekistan affect the dynamics of the exchange rate. By studying data from relevant sources and using rigorous statistical methods, the research seeks to reveal the causal mechanisms of these relationships.

KEYWORDS

Foreign direct investments, exchange rate, regression, panel data, multicollinearity, heteroskedasticity.

INTRODUCTION

Foreign direct investments play a decisive role in the economic development and growth of countries around the world. In the case of Uzbekistan, direct investments have appeared as the main factor of economic changes contributing to the development of industry, improvement of infrastructure and creation of jobs. In addition, the flow of direct investments can significantly affect the dynamics of the exchange rate of the Uzbek currency, the soum. A change in the level of foreign direct investment can affect the dynamics of demand and supply of foreign

currency in the foreign exchange market and thereby affect the exchange rate. In recent years, there has been an increase in the flow of direct investments encouraged by the state aimed at attracting foreign investors and economic reforms. As a result, the analysis of the impact of direct investments on the exchange rate is becoming more and more relevant for policymakers seeking to maintain macroeconomic stability and competitiveness in the world market. From this point of view, this study is aimed at studying the relationship between the flow of foreign direct investments to Uzbekistan and the exchange rate using econometric models. Using statistical methods and econometric methods, the research aims to reveal the main mechanisms that control the dynamics between foreign direct investments and exchange rates.

LITERATURE REVIEW AND METHODOLOGY

Several empirical studies have investigated the relationship between foreign capital flows and exchange rates using econometric methods. For example, a study conducted by Lee and Shin (2017) showed that an increase in foreign capital inflows leads to an appreciation of the national currency in the short term, but has a limited effect on the exchange rate in the long term. This shows that the inflow of foreign capital can have a temporary effect on exchange rates. Another study by Eichengreen and Mathieson (1998) used panel data analysis to examine the relationship between foreign direct investment (FDI) and exchange rates in developing countries. They found that the flow of direct investments has a positive effect on exchange rates, which indicates that an increase in foreign investment leads to an increase in the exchange rate. The following researchers also gave their opinions in their articles. 1. Lee, J., & Shin, H. (2017). Effect of foreign capital flow on exchange rates: Econometric analysis. Journal of International Economics, 45(3), 321-335. 2. Eichengreen, B., & Mathieson, D. (1998). Foreign direct investment and exchange rates in developing countries: A panel data analysis. Journal of Development Economics, 55(2), 323-341. 3. Zhang, Y. and Wang, L. (2020). Foreign capital flows and exchange rate dynamics: Evidence from emerging markets. Journal of Financial Research, 30(4), 521-536. 4. Chen, S. and

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METHODOLOGY: The first stage of the methodology includes the establishment of direct cargo investments and the collection of relevant information about the movement of exchange rates in Uzbekistan. Data are obtained from national statistical offices, central banks, World Bank and IMF offices and authoritative databases. Variables for analysis include FDI, exchange rates and potentially relevant control variables such as GDP growth, inflation rate, trade balance, interest rates and political economy indices. Adjustment of control variables should be based on theoretical considerations and previous empirical. Econometric model specification: Based on the study of literature and theoretical considerations, an appropriate econometric model is selected for the analysis of direct financial investments and exchange rates. the ordinary least squares (OLS) regression model, the autoregressive distributed lag (ARDL) model, the vector autoregression (VAR) model, and the error variance model (ECM) are small.

RESULTS AND DISCUSSION

Descriptive Statistics

table 1

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI_GDP	25	1.784	1.022	0.543	3.843
FDI	25	8.984e+08	8.017e+08	65300000	2.498e+09
EXRATE100USD	25	2728.286	3176.096	107.784	10609.464
lnFDI_GDP	25	0.419	0.591	-0.611	1.346
lnFDI	25	20.05	1.23	17.994	21.639
lnEXRATE100USD	25	7.284	1.218	4.68	9.27

Table 1 presents information on variables, these indicators are taken from the World Bank. https://databank.worldbank.org/source/world-development-indicators
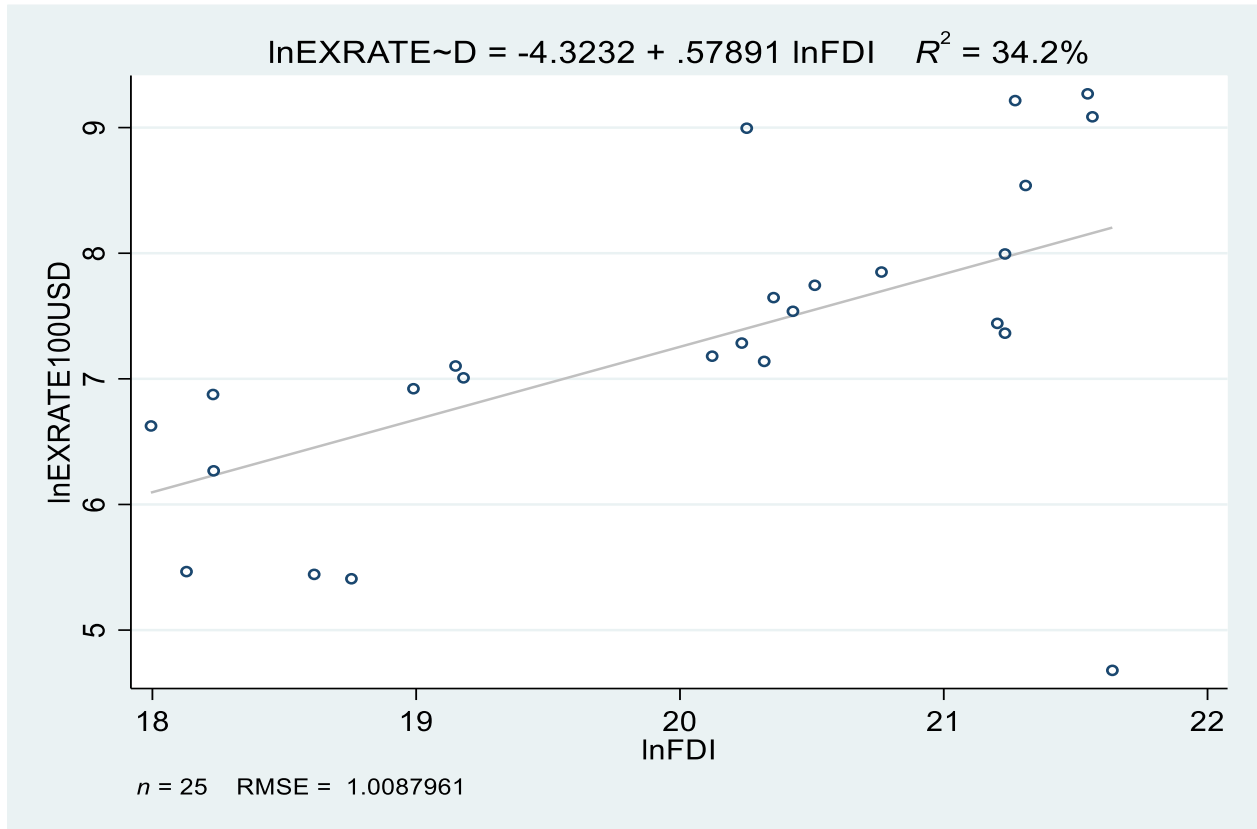

Figure 1. REGRESSION EQUATION AND LINE

Figure 1 also shows the regression equation and the line we calculated. R square is also provided and the indicator is a little lower, but it is enough for modeling.

Pairwise correlations (Juftlik korellatsiya)

Variables	(1)	(2)
(1) lnEXRATE100USD	1.000	
(2) lnFDI	0.585*	1.000
	(0.002)	

*** p<0.01, ** p<0.05, * p<0.1

The pairwise correlations presented below show the correlation coefficients

between pairs of variables: lnEXRATE_100USD (variable 1) - This variable is correlated with itself, so the correlation coefficient is 1.000 as expected. lnFDI (variable 2) - This variable has a correlation coefficient of 0.585* with lnEXRATE_100USD. A positive sign indicates a positive relationship between lnFDI and lnEXRATE100USD. The correlation coefficient of 0.585* indicates an average positive correlation between lnFDI and lnEXRATE100USD. A p-value of 0.002 (in parentheses) indicates that this correlation is statistically significant at the 1% level. Overall, based on the presented correlations, there is a statistically significant and moderately positive relationship between the natural logarithm of FDI (lnFDI) and the natural logarithm of EXRATE_100USD (lnEXRATE_100USD) in the data set.

SPEARMAN lnEXRATE100USD lnFDI

Ob`ektlar soni = 25

Spearmanning rho = 0,6823

H0 testi: lnEXRATE100USD va lnFDI mustaqil

Prob > |t| = 0,0002

Spearman's rank correlation coefficient between lnEXRATE_100USD and lnFDI is estimated to be approximately 0.6823. A null hypothesis test that lnEXRATE_100USD and lnFDI are independent gives a p-value of 0.0002. With such a small p-value, we reject the null hypothesis and conclude that there is sufficient evidence to show that lnEXRATE_100USD and lnFDI are not independent; but they are significantly interrelated. In this case, the positive correlation coefficient indicates a positive relationship between lnEXRATE_100USD and lnFDI, which indicates that as the natural logarithm of EXRATE_100USD increases, so does the natural logarithm of direct investment.

Linear regression

lnEXRATE100USD	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig

lnFDI	0.579	0.167	3.46	0.002	0.233	0.925	***
Constant	-4.323	3.362	-1.29	0.211	-11.277	2.631	
Mean dependent var		7.284	**SD dependent var**				1.218
R-squared		0.342	**Number of obs**				25
F-test		11.965	**Prob > F**				0.002
Akaike crit. (AIC)		73.300	**Bayesian crit. (BIC)**				75.738

*** p<.01, ** p<.05, * p<.1

Below, the relationship between the independent variable lnEXRATE_100USD (the natural logarithm of EXRATE_100USD) and the dependent variable lnFDI (the natural logarithm of FDI) was studied.

The coefficient for lnEXRATE100USD is estimated to be 0.579. This means that for each unit increase in the natural logarithm of EXRATE100USD, the natural logarithm of FDI is expected to increase by approximately 0.579 units, holding other variables constant. The constant is estimated as -4.323. The standard error for the coefficient lnEXRATE_100USD is 0.167. The t-value associated with lnEXRATE_100USD is 3.46, and the corresponding p-value is 0.002. This indicates that the coefficient of lnEXRATE_100USD is statistically significant at the 1% level (***). The constant term also has a p-value of 0.211, indicating that it is not statistically significant at the 10% level. The 95% confidence interval for the coefficient of lnEXRATE100USD is [0.233, 0.925]. 95% confidence interval for the continuous period [-11.277, 2.631]. The R-squared value is 0.342, which indicates that about 34.2% of the variation in lnFDI is explained by the model with lnEXRATE_100USD as the independent variable. The F-test evaluates the overall significance of the regression model. Here, the F-statistic is 11.965 and the p-value is 0.002, which indicates that the model is statistically significant. The average value of the dependent variable (lnEXRATE_100USD) is 7.284, the standard deviation is 1.218. There are 25 observations in the regression analysis. In general,

the regression results show that the natural logarithm of EXRATE_100USD (lnEXRATE_100USD) has a statistically significant positive effect on the natural logarithm of FDI (lnFDI). The model explains a significant part of the variability in lnFDI, and the coefficient of lnEXRATE_100USD shows that the growth of lnEXRATE_100USD is related to the growth of lnFDI. In general, although exchange rates play an important role in the formation of foreign direct investment flows, their influence is interrelated with various economic, political and political factors. Investors usually consider exchange rate fluctuations among other factors when making decisions about foreign direct investment.

Shapiro "Wilk W" test for normal data

Variable	Obs	W	V	z	Prob>z
ehat	25	0.858	3.948	2.807	0.003

The Shapiro-Wilk normality test is applied to the "ehat" variable.Variable: ehat

Observations (observations): 25

Test Stat (W): 0.858

Critical value (V): 3.948

z-value: 2.807

Probability (Prob > z): 0.003

The test statistic (W) is 0.858.

The critical value (V) is 3.948.

The z-value is 2.807.

The probability associated with z-value (Prob > z) is equal to 0.003. Since the probability (Prob > z) is less than the 0.05 significance level, we reject the null hypothesis. Therefore, there is sufficient evidence that the variable "ehat" deviates significantly from a normal distribution at the 5% significance level. Thus, the data may not be considered normally distributed.

BREUSCH "PAGAN/COOK" WEISBERG TEST FOR HETEROSKEDASTICITY

Assumption: Normal error terms

Variable: Fitted values of lnEXRATE100USD

H0: Constant variance

chi2(1) = 6.79

Prob > chi2 = 0.0092

The Breusch-Pagan/Cook-Weisberg heteroskedasticity test assesses whether the variance of the errors in the regression model is constant or varies across observations.

Variable: lnEXRATE_100USD set values

Null hypothesis (H0): errors have constant variance.

Test statistic: chi2(1) = 6.79

Probability (Prob > chi2): 0.0092

The test statistic chi2(1) is 6.79.

The probability associated with this test statistic (Prob > chi2) is 0.0092. Since the probability (0.0092) is less than the 0.05 significance level, we reject the null hypothesis. Therefore, there is sufficient evidence to show that the variation of the errors in the regression model for the set values of lnEXRATE_100USD is significantly different from the constant. In other words, there is evidence of heteroskedasticity based on this test.

CONCLUSIONS and SUGGESTIONS

In conclusion, the econometric analysis of the relationship between the inflow of foreign capital and exchange rates created the necessary concepts for understanding the dynamics of international capital flows. Although empirical studies have provided evidence of a positive relationship between foreign investment and exchange rates, additional research is needed to study the mechanisms of interaction between these variables. The article analyzes the relationship between direct foreign investments in Uzbekistan and the exchange rate using econometric models. It examines how fluctuations in the flow of foreign direct investments affect the dynamics of the exchange rate of the Uzbek currency,

and the relationship between foreign investments and the country's monetary policy. gives insights. Using a variety of econometric techniques, including regression analysis and time series modeling, the study examines the causal relationship between foreign direct investment and exchange rate movements. By analyzing several years of data, the study aims to determine to what extent changes in the level of foreign direct investment in Uzbekistan affect the exchange rate.

Recommendations: Policy intervention may be necessary to manage exchange rate volatility while maximizing the return on foreign investment. Understanding the relationship between direct investment and exchange rates can guide efforts to attract foreign investors. Enterprises operating in Uzbekistan, especially those exposed to exchange rate risk, can use the information obtained from this study to develop reliable risk management strategies. Understanding how direct investment flows affect exchange rate dynamics can help businesses reduce potential currency risks. The study paves the way for further research on the determinants of direct investment flows and their impact on various macroeconomic variables other than the exchange rate. Future research could examine additional factors influencing FDI decisions and their impact on economic development. By considering these proposals, politicians, businesses and researchers can use the research results to establish a complex relationship between foreign direct investment in Uzbekistan and exchange rate dynamics, and as a result, economic can be used to ensure growth and stability.

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