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ECONOMETRIC MODEL FOR ENSURING FINANCIAL STABILITY DURING THE RECONSTRUCTION OF THE NATIONAL ECONOMY

Attracting foreign investment is an effective means of ensuring the economic growth of any country, Ukraine is not the exception. Thus, the relevance and importance of the study is substantiated by the creation of a favorable investment climate in Ukraine, which will allow establishing guarantees of protection of foreign investments and stability of the legal basis for the entrepreneurship performance. Let's analyze the dynamics of foreign direct investment (cumulative total) in the economy of Ukraine, million dollars. (y) depending on internal and external factors of influence, in particular GDP, mln. (x1), average monthly salary, USD (x2), gross external debt of Ukraine, billion dollars (x3), capital investment, million USD (x4) and inflation index,% (x5) using multifactor correlation-regression analysis. The selected factors have a significant impact on GDP and are selected as the most influential. The first step in constructing a multifactor regression is to determine the relationship between the selected factors of influence (Table 1).

Table 1. Results of the assessment of the relation between FDI in Ukraine (cumulative total) and macroeconomic factors

Indicator	Legend	Coefficient of determination	Regression equation
1. Gross domestic product, mln. USD	X1	$R^2 = 0,823$	$y = 0,000034x^{1,76}$
2. Average salary, USD	X2	$R^2 = 0,849$	$y = 13,312x^{1,406}$
3. Gross external debt of Ukraine, bln. USD	X3	$R^2 = 0,9401$	$y = -130,29x^2 + 7348,8x - 45049$
4. Capital investments, mln. USD	X4	$R^2 = 0,390$	$y = 0,8673x1,039$

Source: compiled by the authors considering [1;2;3]

The constructed correlation indicates the closest correlation between FDI and these factors, observed with GDP per capita in dollars (0.849), average wages in dollars (0.852) and gross external debt of Ukraine (0.810). The link between FDI and capital investment was weak, insignificant - with the inflation index. Thus, the relationship between foreign direct investment and inflation in Ukraine is insignificant. We find out using the method of multifactor correlation analysis, which of the factors determine the change in the resultant feature - FDI. Among the selected factors are the following: GDP million dollars. (x1), average monthly salary, USD (x2), gross external debt of Ukraine, billion dollars (x3) and capital investments, million USD (x4). Using the Regression function in MS Excel) we will build a model (Table 2). The multiple coefficient of determination of the multifactor model of the obtained coupling equation is 0.99. The bond density is characterized by a correlation coefficient and determination. In the obtained regression model, the latter is respectively equal to 0.97. This means that the variation in foreign direct investment by 97% is due to changes in the studied factors and less than 3% depends on other factors not taken into account. Table 3 shows the calculated values of the factor characteristics

for 2023 and the corresponding normalized values required for the calculation of the FDI forecast (cumulative total).

Table 2. Regression analysis of the model of foreign direct investment

Regression statistics					
Plural R ²	0,99				
R ²	0,97				
Rationed R ²	0,97				
	df	SS	MS	F	Significance F
Regression	4	9360268576,54	2340067144,14	151,09	1,72162E-12
Remainder	16	247803234,79	15487702,17		
Together	20	9608071811,33			
	Coefficients	Standard error		t- statistics	
Y- crossing	33746,75	858,78		39,30	
Variable X1	18049,85	859,45		21,00	
Variable X2	-8251,78	858,89		-9,61	
Variable X3	-66,51	856,06		-0,08	
Variable X4 -	-5711,02	689,40		8,28	

Source: compiled by the authors considering [1;2;3]

Table 3. Forecast of FDI on the basis of factor and performance characteristics

Indicator	Coefficient of determination	Regression equation	2023 year	Normalized values
Gross domestic product, mln. USD	R ² = 0,8283	$y = 19,874t4 - 830,06t3 + 10388t2 - 30999t + 57747$	159871,37	0,99
Average salary, USD	R ² = 0,8516	$y = 0,0496t4 - 2,0441t3 + 25,821t2 - 83,972t + 121,81$	327,96	0,72
Ukraine's external debt, bln. USD	R ² = 0,9875	$y = -0,0138t3 + 0,4962t2 - 3,0491t + 12,073$	20,205	-0,12
Capital investments, mln. USD	R ² = 0,7365	$y = -0,6364t5 + 38,803t4 - 837,19t3 + 7324,2t2 - 20317t + 20409$	$y = -0,6364t5 + 38,803t4 - 837,19t3 + 7324,2t2 - 20317t + 20409$	1,09
Foreign direct investment (cumulative total) in the economy of Ukraine, mln. USD: $Y = 33746,75 + 18049,85 X_1 - 8251,78 X_2 + 6651,34 X_3 - 5711,02 X_4$			39476,46	

According to the four-factor model built in 2023, the volume of FDI (cumulative total) is 39476.46 million dollars. Despite the positive forecasts of the NBU on increasing foreign direct investment flows, forecast calculations based on the model indicate the opposite situation - a decrease in FDI in 2023. Improving long-term forecasting of foreign direct investment based on econometric modeling will form a strategy for investment policy.

References

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