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Impact of foreign direct investment on economic development in CIS countries

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Abstract

This study examines the factors influencing the inflow of foreign direct investment (FDI) to the CIS countries in the period from 2012 to 2021. The analysis focuses on macroeconomic variables affecting FDI such as: GDP growth, consumer price index (CPI), trade openness, political stability, ESG indicators and return on equity (ROE). This study uses FGLS regression, which shows that GDP growth, trade openness and consumer price index affect FDI inflows. GDP growth and trade openness positively correlate with FDI, unlike CPI. However, variables such as political stability, ESG indicators and return on equity were found to be statistically insignificant in this context. This study highlights the importance of economic growth and trade liberalization. Recommendations for further research to optimize FDI inflows are also discussed.

***Keywords*:** FDI; GDP growth; trade openness; CPI; ESG; ROE; CIS countries

1. Introduction

Foreign Direct Investment (FDI) is a significant catalyst of international economic growth. It is largely regarded as a primary source of economic growth, contributing to the formation of capital, technology transfer, employment generation, and overall market development. Developing economies, in turn, are largely reliant on FDI as an essential source of external finance that complements domestic savings and encourages industrialization. As compared to other international financial flows like foreign aid or portfolio investment, FDI tends to be accompanied by long-term commitment on the part of multinational corporations (MNCs), leading to persistent economic growth.

FDI supports economic development through the introduction of new technology, human capital development through knowledge transfer, and competition among domestic firms. It encourages global value chain integration, which is essential for economies that want to enhance their competitiveness. FDI can also act as a stabilizer during economic crises since foreign investors have long-term stakes in the recipient economies. The Commonwealth of Independent States (CIS) offers a unique and heterogeneous economic environment, with the former Soviet Union nations that have experienced major economic changes during the last three decades. The economies have shifted from centrally planned to different extents of market-based systems, with dissimilar methods towards foreign investment policies and economic liberalization. Such a shift has impacted FDI flows into the area, and hence the impact of FDI is an appropriate subject of study. CIS countries have different economic characteristics, with some states—Russia, Kazakhstan, and Azerbaijan, to name a few—being natural resource-endowed, while others, such as Tajikistan, Kyrgyzstan, and Moldova, are agriculture-, remittance-, or light industrialization-based. Having diversified economic structures is an opportunity to research how FDI engages with the different sectors and influences economic development. The aim of the study is to analyze the impact of Foreign Direct Investment on economic development in CIS countries. This study seeks to understand how FDI influences key factors such as GDP, CPI, political stability, trade openness, ESG, and ROE in these nations. Previously, numerous studies have been conducted globally on the topic of FDI however, there is a noticeable lack of research specifically focusing on FDI in CIS countries.. This study is aimed at resolving this issue.

2. Literature Review

FDI is an important factor in global economic development for all countries in the world. Much of the economic literatures suggests that FDI affects labor productivity, the level of exports, and the settlement of competition, which leads to a faster development of the country's economy. With the right approach and the right policy, FDI can become an important component in the development of any country, including the CIS. FDI is seen as a catalyst for the modernization of economic development in the CIS countries. As has been previously reported in the literature, in 2007, the inflow of FDI to the CIS countries increased and in 2011 the inflow of FDI amount was

equal to 90%. In those years, it was decided to transfer FDI to countries with economies in transition and the allocated funds from the CEE countries were sent to the CIS countries. The largest inflow was received by the Russian Federation, 50% of the inflow to the CIS countries. Thus, by strengthening economic reforms and strengthening institutions, as well as the correct ability to use natural resources, the country has become the most attractive for foreign investment (Rafique, 2014) . Russia, Kazakhstan and Ukraine occupy leading positions in terms of foreign investment inflows. The countries of Tajikistan and Moldova have become comparatively the least attractive for FDI. Since these countries have limited investment opportunities and many problems with the development of the financial sector, this makes these countries less interesting compared to others. Therefore, for the development of the economy, it is very important for the CIS countries to develop the ability to attract FDI (Minashkin & Sysoeva, 2022). . The dynamics of FDI allocation in developed and developing countries are very different. Developed countries attract FDI because of their developed economies. Such reliability is more favorable for foreign direct currencies. Meanwhile, developing countries rely on FDI to develop infrastructure and meet the country's needs. FDI fills the gap between savings and the required level of investment (Safiuddin & Samad, 2015) . Foreign direct investment is a key factor determining a country's economic growth, as it is the transfer of technology from developed countries to developing ones (Chenaf-Nicet & Rougier, 2016) . In 1990, competition began between developed and developing countries for the right to foreign direct investment by reducing taxes and providing subsidies (Sabir & Khan, 2018) .

2.1 Theoretical framework

The Structure-Behavior-Efficiency (SCP) system conducts a comprehensive analysis of the factors influencing foreign direct investment. In the structure of the GDP market, trade openness and political stability are economic outcomes affecting FDI. In the CIS countries, factors of inflation and trade play a crucial role in research. The SCP concept provides a systematic understanding of how the macroeconomic factors that determine the structure of FDI in the region interact (Bain, 1959) .

2.1.1 Variables of the study

Dependent Variables**:**

FDI Inflows: Foreign direct investment (FDI) is an international investment aimed at participating in a foreign firm or establishing a branch. Which indicates the investor's involvement (De Santis, 2012). Measured as the net inflow of foreign direct investment (% of GDP).

Independent Variables (factors affecting the dependent outcomes)

Macro-Level Variables:

GDP Growth: GDP is about the total value of goods and services produced in a certain period of time. Reflects economic stability and growth potential for FDI. The high level of GDP growth makes the country more attractive for FDI, so has positive effect (Hussain, Yang, Yali, & Nazir, 2020) .

Consumer Price Index (CPI): It is an economic indicator that measures the average change in prices of goods and services, and is more often used to measure the cost of living and the rate of inflation. Low attracts FDI, as it indicates the stability of the economy and reduces the transaction costs of foreign companies (Kang, 2012) . The high level of CPI negatively influences FDI.

Trade openness: This reflects the ease of doing business internationally and affects export performance. A high degree of trade openness can increase the attractiveness of foreign direct investment, as it facilitates access to foreign markets, so it affects positively on FDI (Kang, 2012) .

Political Stability: Political stability is the definition of decision-making powers in a society that have been influenced by political behavior. Political stability is a critical determinant of FDI, it reduces the risk for the investors (Ake, 1975) . It has a positive effect on FDI.

ESG Indicators: Strong ESG performance attracts investors focused on long-term returns.

Return on Equity (ROE): This is a financial coefficient that measures the profitability of a company in relation to capital. It shows how effectively the company uses its capital, so it can positively affect FDI.

Table 1. Variables and expected relationship

Category	Variable	Expected Relationship
Dependent	FDI	Positive
Independent (macro-level)	GDP growth	Positive
Independent (macro-level)	Political stability	Positive
Independent (macro-level)	CPI	Negative
Independent (macro-level)	Trade openness	Positive
Independent (macro-level)	ESG indicators	Positive
Independent (macro-level)	ROE	Positive

2.2 Hypothesis

H1: GDP growth positively influences FDI inflows.

H2: Political stability enhances FDI inflows by creating a secure and predictable environment for investors, reducing risks associated with political disruptions and instability.

H3: CPI has negative effects on FDI inflows.

H4: Trade openness positively affects foreign direct investment.

H5: ESG indicators attract higher FDI inflows

H6: ROE has a positive impact on FDI

3. Methodology

This section will cover the research directions, the variables used, populations and samples, the time frame of the study and the source of data collection. All the variables taken in the "Methodology" section are used to collect data for the final goals of the study. When writing this project, a mixed approach will be used, which will consist of both quantitative and qualitative methods. Since the study of the impact of foreign direct investment on the CIS countries is a complex approach, the mixed method is most suitable. The quantitative approach will show a statistical approach to the relationship between FDI and key economic indicators such as GDP growth, Political stability, CPI, Trade openness, ESG indicators, ROE. By incorporating qualitative insights, this research will move beyond statistical patterns to explore why certain CIS countries are more attractive to foreign investors and how variations in policy frameworks influence investment dynamics. A regression analysis and correlation tests will be conducted to determine the strength of the relationship between FDI and economic growth in the region. The goal is to establish whether higher levels of FDI lead to significant improvements in macroeconomic indicators. In the presence of heteroskedasticity and autocorrelation in the regression residuals, the Feasible Generalized Least Squares (FGLS) method will be employed to obtain more efficient and consistent results.

3.1 Population and sample

This study includes quantitative data and is aimed at analyzing the contribution of foreign direct investment (FDI) economic development. The study will use CIS country performance and data from 2012-2021 year. The CIS countries participate in the research: Kazakhstan, Russia, Moldova, Ukraine, Tajikistan, Turkmenistan, Uzbekistan, Armenia, Azerbaijan, Belarus, Kyrgyzstan.

3.2 Econometric model

Based on theoretical background, we use the following empirical model to analyze the impact of institutions on FDI:

$$FDI=b1+b2(GDP)+b3(Political\ stability)+b4(CPI)+b5(Trade\ openness)+b6(ESG)+b7(ROE)+u$$

3.3 Resources and data collection

The data collection is aimed at quantitative data on companies from the CIS countries related to foreign direct investment in economic growth. Dependent variable includes foreign direct investment itself. Independent variables include GDP growth, Political stability, CPI, Trade

openness, ESG indicators, ROE. To collect data, the following will be used the World Bank data (www.worldbank.org).

4. Findings and Discussion

A descriptive analysis of the independent variables to the dependent variables is presented in Table 2. The table includes the number of observations, mean, standard deviation, min and max of each variable. From descriptive statistics four negative indicators can be noted: in minimum FDI -4.854847, GDP Growth -10.07889, Political stability -2.020833, CPI -8.849693. The largest mean and standard deviation show trade openness. Mean=79.131819, standard deviation=27.2469. ESG has the lowest mean 1.341671 with standard deviation equal 2.915613.

Table 2. Descriptive statistics

Variable	Observations	Mean	St.dev.	Min	Max
FDI	110	3.279353	2.888344	-4.854847	17.13123
GDP Growth	110	3.37349	4.254722	-10.07889	13.93
Political stability	110	3.299144	7.399827	-2.020833	59.21974
CPI	110	8.872009	9.301886	-8.849693	75.27737
Trade Openness	110	79.13819	27.2469	29.1923	153.0853
ESG	110	1.341671	2.915613	0.07515	9.600259
ROE	110	9.600259	9.53924	-29.70935	42.23133

Note-complied by the author

4.1 Multicollinearity, heteroskedasticity and autocorrelation test

To start regression analysis, it is important to test multicollinearity, heteroskedasticity and autocorrelation. From Table 3 it can be concluded that FDI and GDP growth have weak positive correlation equal to 0.1543, this indicates a slight relationship between them. The least correlation shows FDI and ROE -0.0042 implying that ROE does not directly encourage FDI.

Table 3. Correlation matrix

	FDI	GDP Growth	Political Stability	CPI	Trade Openness	ESG	ROE
FDI	1.0000						
GDP Growth	-0.1543	1.0000					
Political stability	-0.0135	-0.0048	1.0000				
CPI	-0.1112	-0.1051	0.7014	1.0000			
Trade Openness	0.1310	-0.1979	0.3258	0.2632	1.0000		
ESG	0.1013	0.1859	-0.1398	0.0229	-0.2036	1.0000	
ROE	-0.0042	0.1870	0.0937	-0.0182	-0.0233	0.1372	1.0000

Table 4. Variance Inflationary Factor (VIF) of regression model

Variable	VIF	1/VIF
Political Stability	2.25	0.444502
CPI	2.13	0.837420
Trade Openness	1.19	0.837420
ESG	1.15	0.870110
GDP Growth	1.13	0.888617
ROE	1.08	0.888617
Mean VIF	1.49	0.927864

Multicollinearity is a high degree of linear relationship between variables, leading to incorrect answers (Kim, 2019) . By assessing multicollinearity among independent variable VIF show 1.49 which is below 5% indicating that there is no multicollinearity issue in Table 4. In this case regression analysis can proceed without concern for multicollinearity. The value assumed by the perturbation term is determined independently of its values in all other observations, therefore population covariance ui and uj equal to 0. If these conditions are not met, it is assumed that the disturbing factor is subject to autocorrelation (Stock, & Watson, 2007) . One of method in determining autocorrelation is Wooldridge test in Table 5. Hence p-value (Prob>F) equal to 0.0012 which is less than 1%, given that there is autocorrelation. This may be solved by using FGLS method (Table 7).

Table 5. Wooldridge test

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1,10)=20.005
Prob>F=0.0012

In Table 6, Likelihood-ration (LR) test shows us that prob> chi2=0.2587 which is more than 10% significance level which assume that there is no heteroskedasticity.

Table 6. Likelihood-ratio (LR) test

Likelihood-ration test	LR chi2(96) =104.55
(Assumption: homo nested in hetero)	Prob>chi2 =0.2587

Below provided the same econometric model from methodology part with results from FGLS model:

FDI=1.455384 + 0.1080986(GDP growth) + 0.038424(Political stability) - 0.06760161(CPI) + 0.0228156(Trade openness) + 0.1884235(ESG) - 0.0180176(ROE) + u

Table 7. Cross sectional time series FGLS regression

Cross-sectional time series FGLS regression

Coefficients: generalized least squares

Panels: homoskedastic

Correlation: no autocorrelation

Estiamted covariances =1 Number of obs=104

Estimated autocorrelations=0 Number of groups=11

Estimated coefficients=7 Obs per group:

Min=5, Avg=9.454545, Max=10

Wald chi2(6) =10.50

Prob> chi2=0.1050

FDI	**Coef.**	**Std.Err.**	**z**	**P> (z)**	**(95% Coef. Interval)**	
GDP Growth	0.1080986	0.0675426	1.60	0.109	-0.0242825	0.2404797
Political Stability	0.038424	0.0525451	0.73	0.465	-0.06445625	0.1414105
CPI	-0.0676016	0.0404788	-1.67	0.095	-0.1469386	0.0117353
Trade Openness	0.228156	0.0107423	2.12	0.034	0.0017612	0.0438701
ESG	0.1884235	0.1310777	1.44	0.151	-0.0684841	0.4453311
ROE	-0.0180176	0.0280383	-0.64	0.520	-0.0729717	0.0369365
_cons	1.455384	0.9874744	1.47	0.141	-0.4800303	3.390798

The econometric model examines the factors determining foreign direct investment in the CIS countries. Table 6 shows the key variables: GDP growth, political stability, consumer price index (cpi), trade openness (tradeopenness), efficiency ratio (ESG) and return on equity (roe). According to the model specifict variables such as GDP growth, CPI <10% significance level and trade openness <5%, which indicates meaningful link with FDI. The GDP growth coefficient shows a positive result of 0.1080986, which indicates that an increase in GDP growth by 1% affects an increase in foreign direct investment by 0.1080986%. According to economic theory, high growth rates increase the level of market potential and attract foreign investors (2015). We accept hypothesis 1 and conclude that GDP growth has a positive impact on FDI. The relationship

between foreign direct investments and the consumer price index is shown with a negative coefficient of -0.676016, which indicates that high inflation rates increase the consumer price index. This creates economic uncertainty, which negatively affects foreign direct currencies. Early studies may be an example of these statements, so in South Africa, inflation had a negative impact on the level of foreign direct investments (Tsaurai, 2018) . Regarding the results hypothesis 3 will be accepted. The opportunity for open trade opens the door to positive FDI inflows. The CIS countries are open for trade, so they attract foreign direct investment. In FGLS regression, open trading shows a positive percentage. A panel regression analysis of developing countries showed a similar result that when countries are open for trade, the level of foreign currency in the country increases (Liargovas & Skandalis, 2012) . The hypothesis 4 will be accepted. The rest variables such political stability (0.038424), ESG (0.1884235) and ROE (- 0.0180176) are not statistically significant and does not exert any influence on FDI. Thus, we reject our second, fifth and sixth hypothesis.

5. Conclusion, Implications, and Recommendations of the Study

The key factors influencing foreign direct investment (FDI) in the CIS countries were studied. Empirical research included macroeconomic variables such as GDP growth, consumer price index (CPI), trade openness, political stability, ESG and return on equity (ROE) indicators, and FDI inflows. The research covered the period from 2012 to 2021 and used the World Bank database. In case of regression N<T, so feasible generalized least square method (FGLS) was chosen. The benefit of this method is considering issues such as autocorrelation and heteroscedasticity. GDP growth has a positive effect on FDI. The high economic growth rate in the country encourages foreign investors to invest in economically developing countries such as the CIS. These data confirm previous economic theories and studies. High inflation creates economic instability. The atmosphere is scaring away foreign investors. This is evident from the demonstrated results of negative coefficients in relation to FDI. Open trade has a positive impact on FDI in the CIS countries. Expanded market access has made the CIS countries attractive for foreign direct investment, similar conclusions have been drawn in other developing countries. However, variables such as political stability, ESG indicators and return on investment turned out to be statistically insignificant. This means that their impact on attracting foreign direct investment (FDI) in the CIS countries has not been proven in the framework of the study. The probable reason may be insufficient implementation of institutional reforms or a low level of investor awareness of the importance of ESG practices in the region. For a greater inflow of foreign direct investment to the CIS countries, more attention should be paid to economic growth, support for low inflation and liberalization of trade policy. To raise ESG factors, more structured reforms and increased transparency are needed. Further research may reveal these aspects. This study complements the volume of information on FDI and the factors influencing its outflow.

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