

A STUDY ON THE GLOBAL RISK EFFECT ON THE FOREIGN DIRECT INVESTMENT LEVEL

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ABSTRACT

This study aims to determine the impact of global risks on the dynamics of foreign direct investment (FDI) trends in the countries of the Visegrad group (V4) and the Republic of Serbia. The results obtained in this study demonstrate that in the period from 1990 to 2018, Poland attracted the most FDI among the V4-group countries and that the FDI amount is greatly dependent on exposure to global risks. Based on the available data, the analyzed relationship is projected for the period up to 2022. The expected volume of future FDI is different for each of the countries, and it is believed that Hungary could receive the most FDI among the countries of the V4 group. Moreover, the Republic of Serbia could be a follower of the V4 group regarding the expected FDI because of its increasing economic development, as well as significant possibilities for further economic growth.

Keywords: FDI, V4 group, the Republic of Serbia, global risk, economic risk, societal risk, environmental risk

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INTRODUCTION

Currently, individuals and companies have been exposed to various global risks regarding economic development. According to the World Economic Forum (WEF) [1], a global risk is defined as an uncertain event or condition that can have a significant impact on several countries or industries in the next 10 years. Global risks include various types of risks, such as economic, environmental, geopolitical, societal, and technological risks. Considering the current situation in Serbia caused by the COVID-19 pandemic on the gross domestic product (GDP), this study analyzes on foreign direct investment (FDI) level in the Visegrad group (V4) countries and the Republic of Serbia in the period of 1990–2021. In the analyzed period, different risks had different impacts and probabilities of appearance.

Numerous studies have shown a relationship between global risks and the level of FDI. According to [2][3], recession and the world economic crisis have a direct impact on the volume of attracted FDI and the economy, particularly GDP. In [4][5], the authors demonstrated that regional cooperation, European Union (EU) accession, and integration, as types of global risks, have a direct effect on the FDI volume that inflows into a certain country and its achieved GDP. In [2][6][7][8], it has been shown that political risks, including corruption, risks in commodity prices, political instability in emerging markets (e.g., political and parliamentary elections), political instability in developed markets, BREXIT, and COVID-19 pandemic, have a certain impact on the volume of attracted FDI and GDP of the analyzed country.

Motivated by the aforementioned studies, this study aims to determine the impact of global risks on the FDI trend dynamics in specific economies. The main goal is to examine the relationship between the economic growth and development of countr considering the GDP level. This study that the FDI for the economic development of a country by global risks, including the overall business environment, economic crisis, political risks, positions in relevant institutions, and pandemics.

The rest of this paper is organized as follows. Section 2 the analysis. Section 3 defines the evaluation metrics and methods. Section 4 presents the obtained results and a discussion. Finally, Section 5 concludes this work and gives future work directions.

FDI LEVEL ANALYSIS

This study considers five European countries, the countries. The V4 group was established s the Czech Republic, Hungary, Poland, and Slovakia aim of regional cooperation between the countries and thus attract more interest from foreign investors and, eventually, ensuring more rapid entry of these countries into the EU and NATO [6]. During 1998, 2008, and 2013, there was a significant decline in the FDI due to the economic crisis in the world economy. In [9], a negative between the economy could be used time-series analysis the five countries.

Since the V4 group was established and the member countries started opening their economies, numerous investors have shown great interest in investing in these countries. Primarily, investments were predominantly directed to tradable sectors of the economy, particularly the manufacturing sector, which is characterized by generating a high percentage of exports. Nevertheless, a significant volume of investment was focused on the non-tradable sectors, including the service sector. Currently, the V4 group is economically far ahead of most other EU countries [7].

The inflow of foreign capital mostly the privatization process, cross-border mergers and acquisitions (M&A), and greenfield investments, which significantly characterized the V4-group countries [4], where they have all been dominant. It should be noted that inflows of FDI into Central and Eastern Europe (CEE) have countries have a relatively large of FDI, such as the V4-group countries. By the end of 1999, the CEE's inward FDI stock USD 110 billion Poland (USD 30 billion), Hungary (USD 19 billion), and the Czech Republic (USD 16 billion), which together accounted for almost three-fourths of the total inward FDI stock in the CEE. The FDI inflows in Poland, which, by far, has been the leading FDI recipient for a second consecutive year, increased every year since 1990. Obviously, foreign investors were attracted by the large domestic market. the Czech Republic in 1998privatization policiescluded foreign participation, whereas the second round of privatization, which followed the example of other countries, such as Hungary, successfully involved foreign firms. Because of the lumpy nature of cross-border M&A sales, as well as FDI inflows, into the region, they have largely fluctuated over the years. In 1999, the countries

Poland and the Czech Republic privatization programs [10]. 1993 to 2013, FDI inflows Poland and the Czech Republic, account for roughly USD 170 billion and USD 96 billion, respectively; meanwhile, the FDI inflows in Hungary and Slovakia were approximately USD 89.0 billion and USD 35.0 billion, respectively [7]. the Czech Republic Hungary (\$ 4,387). In 2013, the participation of the FDI in the GDP was the highest in Hungary in the entire V4 group, where the GDP reached 81%; then followed the Czech Republic, with a GDP of 64% [4]; meanwhile, in the two other countries of the V4 group, namely Poland and Slovakia, the GDP was lower, but it was still above 50%. Thus, the average increase in FDI inflow in the V4 group was 1.77%, as shown in Table 2.

for the Republic of Serbia, changed from the Federal Republic of Yugoslavia to the Republic of Serbia. Further, the Republic of Serbia faced various global risks from influential countries and Europe from 1991 to 2008, including many EU sanctions and NATO bombing in 1999, which directly and significantly affected the economic inflows in this country. In fact, it could be concluded that, in the mentioned period, political instability in the Republic of Serbia FDI inflow. Further, in the mentioned period, there were eight presidential and seven parliamentary elections in the Republic of Serbia, and a severe lack of financial resources for investment. Furthermore, the later period elections; namely, there were four parliamentary and three presidential elections in the Republic of Serbia, high political risk the FDI flows. However, [11] dominant motive for. Finally, according to analyses conducted by foreign investment promotion agencies, the fields of information, data mining, and communications, represent the most promising aspects for attracting FDI in the transition countries [12].

Table 1: Inflow FDI in USD billion from 1993 to 2013 and participation of the FDI stock into the GDP of the V4-group countries in 2013 in percent

Country	Inflow FDI (in USD billion)		FDI stock into GDP (%)
	1993–2003	2004–2013	
Hungary	34.6	54.1	81.1
Czech Republic	38.1	58.4	64.2
Poland	54.2	115.8	51.7
Slovakia	12.3	22.7	54.5

Consequently, considering all facts mentioned in the UNCTAD's World Investment Reports in the analyzed period, it could be concluded that: a) global risks expressed in the form of recession, world economic crisis, regional cooperation, EU accession and integration, political risks (e.g., BREXIT, political instability in the emerging markets, political instability in developed markets, and elections), risks in commodity prices, and the COVID-19 pandemic have had a significant influence on the FDI level in the five countries considered in this study; b) the five countries showed the same decreasing trend of the FDI level in 2008, 2013, 2017, and 2020, which was due to the same severe global risks the five countries faced in terms of the FDI flows.

EVALUATION METRICS AND METHODS

In this study, the Pearson correlation is used to determine the relationship between the FDI and the GDP in the 1990–2018 period, and it is calculated by Eq. (1), where N is the number of indicators in the relation; X_i is an independent indicator i ; Y_i is a dependent indicator i ; $\bar{x}$ and $\bar{y}$ denote the average values of relevant indicators.

$$r = \frac{\sum_{i=1}^N (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^N (x_i - \bar{x})^2 \sum_{i=1}^N (y_i - \bar{y})^2}} \quad (1)$$

In this study, the FDI is considered an independent indicator, and the GDP is considered a dependent indicator. The Pearson correlation values and their meanings are as follows: ± 0 – ± 0.2 : no relation; ± 0.21 – ± 0.4 : weak relation; ± 0.41 – ± 0.6 : mid relation; ± 0.61 – ± 0.8 : strong relation; ± 0.81 – ± 1 : very strong relation. Further, the FDI inflow in the five analyzed countries is predicted for the period of three years, namely from 2019 to 2021, using a linear trend [13] based on the related data given in the World Investment Report 2020 [8] and the experience with the global economic crisis in 2008 [10][14].

When time-series data show approximately rectilinear motion and the values of the first differences are approximately equal, the linear trend, that is, the line function, best suits the empirical data. The theoretical function of the trend is defined as follows:

$$Y_t = \beta_0 + \beta_1 x. \quad (1)$$

The estimated trend function is defined by:

$$\bar{y}_t = b_0 + b_1 x, \quad (2)$$

where $\bar{y}_t$ represents an estimated average value of the observed phenomenon; x is a data-denoting time; b_0 and b_1 are estimates of parameters β_0 and β_1 , respectively, and their values are obtained by the least squares method that minimizes the sum of the squares of the vertical deviations of the trend line from the original time series, and it is expressed by:

$$\sum_{i=1}^n [y_i - (b_0 + b_1 x)] = \min. \quad (3)$$

The following normal equations can be solved by b_0 and b_1 :

$$\sum y = nb_0 + b_1 \sum x, \quad (4)$$

$$\sum yx = b_0 \sum x + b_1 \sum x^2. \quad (5)$$

$$(X_1, Y_1), (X_2, Y_2), \dots, (X_n, Y_n), \quad (6)$$

$$b_1 = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}. \quad (7)$$

In this study, the following b indicators were considered: GPD pc/GPD growth (%); GDP pc/ FDI net inflows (USD); GDP pc/ FDI net inflows (% of GDP); GDP pc/ FDI net outflows (USD); GDP pc / FDI net outflows (% of GDP); GDP growth (%) / FDI net inflows (USD); GDP growth (%) / FDI net inflows (% of GDP); GDP growth (%) / FDI net outflows (USD); GDP growth (%) / GDI net outflows (% of GDP); FDI net inflows (USD) / FDI net outflows (USD); FDI net inflows (USD) / FDI net outflows (% of GDP); FDI net inflows (% of GDP) / FDI net outflows (USD); FDI net inflows (% of GDP) / FDI net outflows (% of GDP); FDI net outflows (USD) / FDI net outflows (% of GDP). The value of each of the b indicators was calculated for both separate and average values for the five analyzed countries. Finally, x value was added for each coming year to estimate the FDI from 2019 to 2021 for all the analyzed countries.

The main sources of information included available UNCTAD data, World Bank, IMF, OECD, and official national public sources having available data in the period from 1990 to 2018 [15][16][17][18][19]. In the reports of UNCTAD and OECD for 2019 and 2020, the aggregate figures for the world and international and regional integrations were provided, and they were also used in this study.

RESULTS

The Pearson correlation calculated for the period of 1990–2018, in Table 2, Poland received 44% of the total FDI inflows to the V4-group countries, while the Czech Republic, Hungary, and Slovakia received 23%, 21%, and 11% of the total FDI inflows, respectively [7].

Table 2: Pearson correlation values for the five analyzed countries from 1990 to 2018

Country	Pearson correlation value	FDI – GDP relationship
Poland	0.723	Strong
Czech Republic	0.597	Moderate
Slovakia	0.471	Weak
Hungary	0.148	No relationship
Republic of Serbia	0.484	Weak

As mentioned before, the FDI inflows to the V4-group countries privatization process favorable. For instance, the increase in the Polish market has significantly improved Poland's attractiveness regarding foreign investments. Motivated by this improvement achieved in Poland, since 2000, in the Republic of Serbia, the transition economic has been focused on attracting more FDI through the privatization process, aiming to provide additional financial resources and realize economic modernization. However, in 2017, it was stated that the results had not met expectations due to numerous disputed privatizations and a certain amount of capital with a dubious origin. The main limiting factor in the Republic of Serbia is a high country's risk long-term business climate. 2000 to 2012, average annual level of net 1.2 billion euros, and from 2001 to 2012, real growth

at an average annual rate of 1.1% was achieved. In 2003, 2005, 2007, 2008, 2009, and 2011, the net FDI exceeded the EUR 1.0 billion euros, and from 2008 to 2012, an average annual growth of net FDI of 0.66% was realized, reaching an average annual value of FDI of 1.2 billion euros [20].

The V4-group countries joined the EU on 1 May 2004 as weak economies with a large growth potential. In [21], Erste Research proved that thanks to access to the EU, V4 had achieved a 1% higher annual growth of their GDP after joining the European Union (in early 2004). Currently, the V4 group is the EU's fourth largest exporter in the EU28 and the second largest carmaker in the EU, following Germany. The FDI record in the V4 group was reached in 2007 when Poland received an FDI amount of 23.5 billion dollars, which was approximately 80% more than the FDI realized in 2004 and about 15% more than that obtained in 2006. In 2008, the FDI flow in Poland decreased by more than 37% compared to the previous year, which was mainly due to global economic risks and market trends. The impact of the global economic crisis on the FDI in Poland was overcome in 2011, but in 2012, the FDI again declined significantly by more than 82% compared to the previous year due to a sevenfold decrease in the invested capital volume in 2012.

As mentioned above, the financial crisis significantly affected the global FDI flows. The FDI in Hungary was more affected by the financial crisis in 2009 and 2010 in both absolute and relative aspects than the other V4-group countries. The period 2011–2012 was characterized by an increase in the FDI inflow, but the National Bank of Hungary consequence of the inflow of capital in transit. In the Czech Republic the FDI in 2012 was four times 2011. The auditing and consulting company E&Y conducted [22] that Serbia attractive and second regarding the new job.

In 2017, the FDI in global figures was 18% higher than that in 2016, which was slightly higher than that in 2013. In addition, in 2017, the overall FDI in the EU decreased by 27% [17], whereas the FDI in the Republic of Serbia increased by 22% to the level of 2.9 billion American dollars, which was a result of reinvested earnings or intercompany loans, but the capital investment in new projects decreased by 10% compared to 2016 (i.e., from 505 billion American dollars in 2016 to 281 billion American dollars in 2017; the sale of Smederevska Zelezara to the Chinese company Hebei Iron & Steel had a significant impact). Therefore, the Republic of Serbia was ranked in the top five transition economies in the world regarding the FDI outflow level [17].

In 2018, the FDI in global figures was 27% lower compared to 2017. Similarly, the EU countries, the FDI flow 22% of the total global FDI inflow, in the EU countries decreased by 15%, denoting 41% of the total global FDI outflow. According to [23], political risks have still been the primary concern for investors who considered three key risks in terms of FDI: geopolitical tensions, a commodity price's changing trend, and political instability in emerging and developed markets. In 2018, the Republic of Serbia was rated as the second transitional economy in the world in terms of the FDI inflow, achieving a growth of 44% (i.e., 4.1 billion American dollars), which denoted the result of the capital investment in the existing large state-owned companies, such as Nikola Tesla Airport and RTB Bor, and establishment of the automotive cluster (Essex Europe) and R&D centers (such as Continental's Development Center in Novi Sad), as well as the third transition economies in the world at terms of the FDI outflow [18].

In 2019, the global FDI increased by 12%, but it was still below the average value in the period between 2010 and 2017. The FDI flow in the EU countries increased by 14%, 31% of the global FDI inflow outflow. The research of the EY [24][25] has indicated an impact of political risks on the FDI flow and suggested that businesses and governments in Europe must think creatively, act decisively, and focus on cohesion and collaboration.

The end of 2019 and the entire 2020 year were marked by the COVID-19 pandemic, which has had a severe impact on the economy. For instance, the sector of share trading. Based on the World Investment Report 2020 related to the expected FDI decline in 2020 (30%–40%) and the experience acquired from the global economic crisis in 2007, this study predicts the FDI inflow in the five analyzed countries for the next three years using the linear trend, as shown Table 3.

The results a decreasing trend the three-year. Hungary the most FDI, followed by the Republic of Serbia and the other V4-group countries.

This result is caused by the current level of development and the possibility of further economic growth in the five countries. Moreover, the results confirm the significance of FDI for economic growth and development and the FDI dependence on global risks. Thus, adopt policies that the UNDP 2030 Agenda for Sustainable Development [27] and all stakeholders in a country have a proactive approach to maintain the FDI on a desired level.

Table 3: The linear trend of FDI in the five analyzed countries from 2019 to 2021 (BoP, current USD million per year)

Country	2019	2020	2021
Poland	3.7564	3.8095	3.8626
Czech Republic	4.3449	4.3148	4.2847
Slovakia	3.9037	3.9280	3.9523
Hungary	6.1176	5.9784	5.8392
Republic of Serbia	5.3031	5.1404	4.9777

CONCLUSION

This study shows that global risks have a strong influence on the attracted FDI and GDP in the five analyzed countries. The results prove that a country must adopt a set of relevant policies that are in accordance with the UNDP 2030 Agenda for Sustainable Development, which includes ESG-related risk management, and investment policy packages to increase the FDI level. Considering the COVID-19 pandemic and the financial crisis in 2008, this study the FDI in the five countries the results different decreasing trend of FDI in the next three-year. is expected Hungary the Republic of Serbia,. This could be due to the current development level of the five countries and their possibility for further economic growth. It is also concluded that the Republic of Serbia has great potential for further development in digital technology-related fields, organic food production, tourism, hospitality, creative industry. However, future research could consider the impact of the pandemic on the FDI inflow in the Western Balkans.

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