






“Assessment of countries’ international investment activity in the context of ensuring economic security”

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ASSESSMENT OF COUNTRIES' INTERNATIONAL INVESTMENT ACTIVITY IN THE CONTEXT OF ENSURING ECONOMIC SECURITY

Abstract

For the vast majority of countries, creating a favorable investment environment, which determines the possibility of attracting foreign capital, is a prerequisite for economic growth, addressing issues of national interests and a sufficient level of economic security. The presented article aims to assess the development of international investment activities to ensure countries' investment security as components of economic security. Using multidimensional evaluation methods, construction of complex indicators, methods of statistical grouping, measurement of stochastic relationships, the integrated level of investment security of Central and Eastern European countries is determined. The assessment results showed that such countries as Estonia, the Czech Republic, Latvia, Poland, Hungary, and Romania have the highest level of investment security and are among the countries that have strengthened their investment security positions over the period. The countries' evaluation shows that 46% of the countries surveyed were classified as countries with a safe level of investment development. According to the results of correlation analysis, it was determined that the Investment Security Index is more correlated with the state of the investment climate of the country; in the group of Central and Eastern European countries, there is a close correlation with the level of investment attractiveness, which means that for these countries, macroeconomic stability and stable dynamics of socio-economic growth are the factors determining investment opportunities. The obtained results should be considered to identify the basic risks of the investment environment.

Keywords

investment, security, attractiveness, climate, Investment Security Index, integrated indicator

JEL Classification

F21, F52

INTRODUCTION

In contemporary conditions of world economic development, the rapid growth of foreign investment turned out to be the most important factor and simultaneously resulted from globalization and strengthening of integration. Almost all sectors and fields of the economy have a real need for a significant amount of investment resources; so many countries' development depends directly on global flows of foreign direct investment. For countries with insufficient amount of investment sources, it is preferable to attract foreign investment, which becomes a prerequisite for economic growth and solving many social and economic problems, particularly securing national interests and a high level of economic security. Thus, the formation of favorable investment climate, increased investment process, and attractiveness of individual sectors and territories are the main determinants that create the conditions for providing the country with investment resources. Accordingly, their assessment and monitoring are relevant in terms of forming a favorable and safe investment environment.

The study's main purpose is to determine the directions of international investment activities development in the world in terms of investment security.

The objectives of the study are:

- identification of trends and patterns of international investment activities development;
- research of the essence and specific features of the “investment security of the country” concept, which determines the features of its level assessment;
- development of tools for quantitative assessment and analysis of the investment security level, which is mainly based on the multidimensional evaluation methodology;
- development of integrated Investment Security Index, substantiation of its structure and features of calculation;
- assessment of the countries investment security level, in particular a sample of Central and Eastern European countries, using the proposed methodological tools;
- identification of factors that influence the formation of the countries investment security level and allow to determine the risks of the investment component of security.

The structure of the study is presented in the following sections. Section 1 contains a descriptive analysis of the relevant literature on the development of investment processes, investment attractiveness, and the formation of the investment climate regarding socio-economic development and competitiveness. It also comprises a comparative assessment of international rankings, which consider a system of factors related to the formation of countries' investment attractiveness and their positions in the global economic environment. Section 2 contains the methodological tools for assessing the level of the investment component of economic security. Section 3 is devoted to the assessment of trends and patterns of international investment processes development, contains the results of integrated investment security indices calculations by sample of countries (109 countries), determination of Central and Eastern European countries' positions by the level of investment security, results of grouping the countries by investment security level, assessment of factors influencing the investment security level. The last section contains conclusions based on the results of the calculations.

1. LITERATURE REVIEW

The development of international investment activity has been studied for many decades by scientists around the world. Bailey (2005) provides an overview of financial markets, focusing on investment's main economic principles. Molyneux and Valdez (2013), in their work “Introduction to global financial markets,” comprehensively investigated commercial and investment processes, particularly those on the markets of the developing countries. They also analyzed the factors and consequences of modern global financial crises.

The impact of foreign direct investment on integration processes in Central and Eastern Europe and key factors (market size, labor cost, trade liberalization) that are important for attracting FDI to the region, were studied in the work of Günther and Kristalova (2016). Labaye et al. (2013) stud-

ied the role of investment in the post-crisis recovery of the economies of Central and Eastern Europe; grounded the need to develop a strategy that would expand high-value exports, stimulate productivity in the domestic sector, revive foreign direct investment, and increase domestic savings.

The analysis of the impact of the economic crisis on the flow of foreign direct investment in Central and Eastern Europe is also paid attention to in the works of researchers from the Wrocław University of Economics and Business (Stawicka, 2015). Various analytical approaches to assessing the investment gap in CEEC countries over the past twenty years have been used by Bubbico et al. (2017). Kornecki (2011) focused on Polish leadership in FDI flows among CEEC. Popescu (2014) studied the main trends in research on the FDI role in economic growth, the impact of tax poli-

cy on direct investment, and the determinants of foreign direct investment inflows in the Central and Eastern European region. Kalotay and Hunya (2000) studied the correlation between privatization processes and the inflow of foreign direct investment. The issue of risks impeding the development of the investment environment and local capital market and opportunities for investors in Central and Eastern Europe was raised in the works of Silvestri (2019) and Ash (2017).

Previous research by the authors aimed at identifying the current priorities of innovative countries' development strategies confirmed that attracting foreign investment in all its forms and investing in human capital is a prerequisite for economic growth and improving the competitiveness of countries (Bezzubchenko et al., 2019). Further research continues the scientific search in the context of the investment component impact on the level of economic security of the region, in particular the region of Central and Eastern Europe.

The attractiveness of a country for foreign investors is determined by the state of investment climate, common trends in socio-economic and political development, level of its competitiveness, and overall image of a country in the global environment. In the research of these features, the most significant points are the key international ratings based on the calculation of integrated indices, which in different aspects reflect the level of investment attractiveness of countries. Among such indexes, the most popular are the Doing Business Index, Corruption Perceptions Index, Global Competitiveness Index, and Human Development Index.

Ease of Doing Business Index (DBI) is grouped into 10 categories, i.e., business registration, obtaining a construction permit, connecting to the electricity grid, property registration, lending, minority investors' protection, taxation, international trade, ensuring the execution of contracts, and resolving insolvency issues. According to the World Bank experts' average estimates, one rating point on the ease of DBI brings the state about USD 500-600 million of investments (World Bank, 2019a).

Corruption Perceptions Index (CPI), according to which an annual ranking of countries in the

world is compiled by Transparency International since 1995. Countries in the ranking are ordered by the level of corruption, which is based on entrepreneurs and analysts' estimates. In 2012, Transparency International revised the methodology for building the index to compare the current and previous year's estimates. CPI 2018 is calculated based on 13 surveys and expert assessments on public sector corruption in 180 countries, from 0 (very corrupt) to 100 (no corruption) (Transparency International, 2019).

Economic Freedom Index (EFI) measures government policies and economic conditions in 186 countries. Since 1995, the Heritage Foundation has annually been tracking the progress of economic freedoms around the world. EFI focuses on four key aspects of the economic environment and measures 12 specific components of economic freedom, i.e., rule of law (property rights, government integrity, judicial efficiency); government size (government spending, tax burden, fiscal health); regulatory efficiency (business freedom, labor freedom, monetary freedom); open markets (trade freedom, investment freedom, financial freedom) (Heritage Foundation, 2019).

Global Competitiveness Index (GCI), according to which an annual ranking of countries in the world has been compiled by the World Economic Forum since 1995. The index consists of 12 subindexes, which are divided into 4 groups: enabling environment (institutions, infrastructure, ICT adoption, macroeconomic stability); human capital (health skills); markets (product market, labor market, the financial system, market size); innovation ecosystem (business dynamism and innovation capability) (World Economic Forum, 2018).

Human Development Index (HDI) is an index for comparative assessment of poverty, literacy, education, life expectancy, health, social security, longevity, ecology, crime level, and human rights adherence. The index was developed in 1990 and has been used since 1993 by the UN in annual reports (UNDP, 2018).

The rating positions of CEEC, according to these indexes, are demonstrated in Table 1.

Table 1. Central and Eastern European countries' ranks by indexes

Source: Authors' compilation based on the international organizations' reports from World Bank (2019a, b), Transparency International (2019), Heritage Foundation (2019), World Economic Forum (2018), United Nations Development Program (UNDP) (2018).

Country	CPI	DBI	EFI	GCI	HDI
Albania	97	65	52	76	69
Bulgaria	75	50	37	51	52
Croatia	59	51	86	68	46
Czech Republic	39	30	23	29	26
Hungary	63	48	64	48	43
Poland	35	27	46	37	32
Romania	61	45	42	52	52
Slovak Republic	56	39	65	41	36
Slovenia	36	37	58	35	24
Estonia	20	12	15	32	30
Latvia	43	19	35	42	39
Lithuania	37	16	21	40	34
Belarus	69	38	104	-	50
Russian Federation	136	35	98	43	49
Ukraine	120	76	147	83	88
Moldova	116	44	97	88	107

2. METHODS

To determine the level of investment security of the world's countries, the study proposes a methodological approach for assessing the economic security investment component, which involves the implementation of the following stages:

- to define the essence and structure of the integrated Investment Security Index;
- to form a sample of countries according to which the analysis and evaluation will be carried out;
- to form a system of input parameters according to a sample of countries for a certain period of retrospection;
- to choose a method for standardizing input parameters to bring them to a comparative form and include them in the corresponding integral indexes;
- to determine the weight of individual parameters and select the aggregation form for the source index;

- to assess and analyze the world's countries by the level of investment security;
- to determine the features and patterns of countries' development from the position of forming a sufficient level of investment security;
- to determine the limit values of indexes, which enables them to be used as criteria for safety or danger zones.

Based on the conducted research, it is established that investment security as one of the components of the country's economic security is a complex characteristic that determines:

- first, the ability of the national economic system to attract, accumulate and maintain sufficient investment resources;
- second, the ability of the national economic system to effectively use the attracted investment resources to ensure sustainable economic growth and a high level of the country's competitiveness;
- third, the level of independence and self-sufficiency of the national economic system according to which social and economic stability is ensured, technological modernization of the economy takes place, and living standards and well-being of the population are ensured.

Thus, the definition of investment security as the achieved cumulative level of domestic and foreign investments, on the one hand, and the state in which the optimal level of national and foreign investment is achieved for the economy, determines the features of assessing the level of investment security.

With this in mind, an integrated assessment of an investment security level is proposed, which is quantitatively expressed by an index with the following structure (Table 2).

Thus, it is proposed to distinguish in the structure of the integrated Investment Security Index three components-sub-indexes, each of which expresses certain features and is characterized by a separate set of indicators. A system of indicators that form sub-indices, including both complex indicators

(ratings) and individual quantitative individual parameters, characterize the features of countries' investment development and patterns of macro-economic dynamics. The main requirement for individual parameters is not an absolute form of measurement but a relative expression through time comparisons (relative values of dynamics) or spatial relationships (relative values of comparison or intensity), which enables to take into account the size of the national economic system and conduct a comparative analysis of their development in terms of trends and patterns of formation of the investment security level.

Thus, while developing the integrated Investment Security Index, the following subindexes were identified: Investment climate (S1), Investment attractiveness (S2), and Investment activity (S3).

Table 2. Investment Security Index

Source: Authors' development.

Subindexes	Indicators	Type of indicator
Subindex 1. Investment climate (S1)	Ease of Doing Business Index (I_{s11})	Disincentive (D)
	Corruption Perceptions Index (I_{s12})	Incentive (I)
	Index of Economic Freedom (I_{s13})	Incentive (I)
	Global Competitiveness Index (I_{s14})	Incentive (I)
	Human Development Index (I_{s15})	Incentive (I)
	Ease of Doing Business Index (I_{s16})	Incentive (I)
Subindex 2. Investment attractiveness (S2)	GDP growth, % (I_{s21})	Incentive (I)
	GDP per capita, USD (I_{s22})	Incentive (I)
	Inflation rate, % (I_{s23})	Disincentive (D)
	Unemployment rate, % (I_{s24})	Disincentive (D)
	Export, % of GDP (I_{s25})	Incentive (I)/ Disincentive (D)
Subindex 3. Investment activity (S3)	FDI, % of GDP (I_{s31})	Incentive (I)/ Disincentive (D)
	Gross capital formation, % of GDP (I_{s32})	Incentive (I)
	FDI, % of gross capital formation (I_{s33})	Incentive (I)
	Domestic to FDI ratio (I_{s34})	Incentive (I)
	FDI, % of world FDI (I_{s35})	Incentive (I)

The country's investment attractiveness and the level of investment activity of the subjects are related to the level of favorability of the investment climate and are more indicative as characteristics (factors) of investment security.

The investment climate is a subindex that includes assessing the most influential indexes and ratings of countries. Each of the mentioned indexes has its main focus, particularly on reflecting the state of affairs regarding property rights and their management, ease of opening and running a business, outsourcing attractiveness, investment potential, overall competitiveness, etc. Therefore, each of them does not fully disclose the country's investment climate by itself, but they complement each other and give a comprehensive image of the overall level of quality of the investment climate as a complex category.

Investment attractiveness is a subindex consisting of estimates of the most important macro-economic indicators for investors that characterize the trends in economic development, namely the growth rate of GDP; GDP per capita; level of inflation; unemployment rate; share of exports in GDP.

Investment activity is a sub-index that characterizes the intensity of investment activity in the country. It includes relative indicators that consider the level of attraction of external investment resources and the development of domestic investment over a certain period. It includes the share of foreign direct investment in GDP, the share of gross capital accumulation in the economy in GDP, the share of foreign direct investment in gross capital accumulation, and the ratio between domestic and foreign investment.

The study formed a sample of 170 countries evaluated according to 14 parameters for the period 2008–2018 (taken into account in 2008, 2010, 2012, 2014, 2016, and 2018). Observations amounted to 14280 units. The main sources of statistical information are UNCTADStat (UNCTADStat, 2019) and the World Bank Open Data (World Bank, 2019b). Considering the lack of data on individual parameters for some countries of the world (they were excluded from the sample), the sample population for which the corresponding integral estimates were calculated equaled 109 countries.

At the stage of selecting the method for standardizing parameters, z -standardization (or z -scores) was selected. For each indicator x_{ij} (i – indicator, j – country), the average across countries \bar{x}_i , and the standard deviation across countries σ_i are calculated.

$$I_{ij}(I) = \frac{x_{ij} - \bar{x}_i}{\sigma_i}, \quad (1)$$

$$I_{ij}(D) = \frac{\bar{x}_i - x_{ij}}{\sigma_i}. \quad (2)$$

In the research, the most widespread method of linear aggregation that means the summation of weighted and normalized individual indicators was applied:

$$ISI = S1^{0.33} + S2^{0.33} + S3^{0.33}, \quad (3)$$

$$S1 = I_{S11}^{0.2} + I_{S12}^{0.2} + I_{S13}^{0.2} + I_{S14}^{0.2} + I_{S15}^{0.2}, \quad (4)$$

$$S2 = I_{S21}^{0.2} + I_{S22}^{0.2} + I_{S23}^{0.2} + I_{S24}^{0.2} + I_{S25}^{0.2}, \quad (5)$$

$$S3 = I_{S31}^{0.2} + I_{S32}^{0.2} + I_{S33}^{0.2} + I_{S34}^{0.2} + I_{S35}^{0.2}. \quad (6)$$

Based on the methodological provisions mentioned above, appropriate calculations and analysis of the countries' development were carried out, in particular the countries of Central and Eastern Europe (CEEC), which, following the international practice of classifications in terms of the investment component of security, include Albania, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, the Slovak Republic, Slovenia, Estonia, Latvia, Lithuania, Belarus, Russian Federation, Ukraine, Republic of Moldova.

3. RESULTS AND DISCUSSION

3.1. Assessment of trends and patterns of international investment processes development

First of all, it should be noted that the dynamics and structure of global investment flows are undulating, which is due to the uneven cyclical development of the world economic system. Since the early 1970s and in 2018, global investment flows have undergone one upward trend: from the early 1990s to 2007, and two downward trends: from the early 1990s to the present time. Thus, in 2015–

2016, there was a slight recovery in global FDI, but this trend was unstable due to an increase in global political instability, military conflicts in several countries, and lack of a clear understanding of trends in the further development of the world economy. In 2018, global foreign direct investment totaled USD 1.29 trillion, which is 13% less than in 2017 (USD 1.43 trillion) and 30.5% lower than in 2016 (USD 1.87 trillion). To a large extent, this decline is because in the past three years, multinational companies in the United States have dramatically increased the volume of repatriation of profits accumulated abroad and a decrease in the cost of cross-border mergers and acquisitions and corporate restructuring.

Of particular interest is the dynamics of the distribution of FDI inflows and outflows in a country group by the level of economic development. It should be noted that the share of FDI in different groups of countries is characterized by certain changes that occurred after the financial and economic crisis of 2007. Thus, in 2018, almost half (54%) of global FDI fell on developing countries, 43% – developed countries, and 2.6% belonged to countries with economies in transition.

Analyzing the trend of FDI development in individual countries, it should be noted that the interest of investors in developing countries is growing from year to year. Thus, in 2014, FDI flows to these countries exceeded foreign capital flows to developed countries for the first time in the world economy's history. This is largely because this group of countries could successfully counteract the impact of unfavorable conditions of the world economy in the post-crisis period and increased competition between these countries for attracting foreign capital. In 2018, FDI inflows remained stable at USD 706 billion. The increase was only 2% compared to the previous year in 2017, which means a gradual recovery in FDI inflows after falling by 14% to USD 646 billion in 2016. The most popular among investors is the countries of East Asia, namely China and India, which have a huge economic potential and are the most attractive for investment.

As for developed countries, it should be noted that over the past 10 years, FDI inflows to these countries decreased by 27% and in 2018 reached the

lowest level (USD 557 billion) after the global financial and economic crisis. It should also be noted that after 2015–2016, the trend of FDI growth changed dramatically when the annual inflow of investment exceeded USD 1 trillion. This situation was caused by a significant decrease in investment flows to Europe by 73% to only USD 100 billion in the United States (–18%), there was also a reduction in investment to USD 226 billion.

In countries with economies in transition, direct investment inflows continued to decline in 2018 to USD 34 billion., which was USD 34 billion less than in 2017. This is one of the lowest figures in the past 10 years and almost 50% lower than in 2016 (USD 64 billion). This decline can be explained primarily by the geopolitical situation's uncertainty and insufficient investment activity in the natural resources sector. Also, the decline in FDI flows to countries in transition resulted from a sharp drop in investment inflows in the Russian Federation, which was only 50% compared to 2017. The reduction in investment affected most of the CIS countries.

Despite the global trend in recent years to reduce financial investments, FDI is carried out in Central and Eastern Europe, for which the problem of attracting foreign capital is quite relevant. The determining factor in the dynamics of FDI in these countries is the rapid demonstration of the economy's openness, the liberalization of the regulatory system, and the high rate of market transformation of the economy. It should be noted that the inflow of FDI to CEE countries is unstable and is subject to the influence of geopolitical factors and changes in the situation on the world markets. Thus, after the global financial crisis, FDI flows to these countries gradually increased until 2013 (USD 79.2 billion), but they failed to reach the pre-crisis level of USD 155.5 billion. From 2013 to the present time, the amount of accumulated FDI has decreased by 24% due to the instability of economic growth in the EU countries. In 2018, the share of this region in the global volume of attracted direct investment amounted to 4.6%, i.e., USD 60.12 billion, which is 14% (USD 9.20 billion) lower than the figure of 2017 and 18% (USD 14.03 billion) lower than the figure of 2016. This capital is largely concentrated in four countries: Poland (USD 11.47 billion or 19%), Hungary (USD 6.38 billion or 10.6%), Russia (USD 13.32 billion or

22%), and the Czech Republic (USD 9.48 billion or 15.8%). It accounts for about three-quarters of the total volume of foreign direct investment in Central and Eastern Europe.

Thus, the intensity of investment flows in the countries of Central and Eastern Europe is quite low. The region's potential for attracting foreign investment remains largely untapped. Considering this, the main task should be to create a stimulating investment climate to increase the interest of foreign investors in investing in the real economy, but at the same time, serious attention should be paid to ensuring national security. All this will contribute to the effective investment and innovation development of the countries of this region.

3.2. Assessment of the economic security investment component

Using the proposed tools, assessing the integrated investment security indexes for the sample countries was carried out. Table 3 shows the estimates for CEEC. Estonia 0.678, Czech Republic 0.643, Latvia 0.602 are at the highest level; Ukraine 0.394, Moldova 0.444, Russia, and Albania 0.465 have the lowest ratings. Regarding the dynamics of investment security indexes, countries can be divided into two groups: those that have strengthened their positions on investment security (ISI increased over the period 2008–2018), and those whose level of investment security has deteriorated (ISI decreased over the period 2008–2018).

Thus, in the first group of countries, there is the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Romania, while the growth rates for countries differ significantly. Thus, Latvia (12.3%), Estonia (9.2%), and Poland (8.4%) showed the highest growth rate for 2008–2018. Hungary (4.8%) and Romania (2.9%) demonstrated moderate growth rates. Insignificant growth is typical for the Czech Republic and Lithuania (0.8% each). The second group of countries includes Albania, Bulgaria, Croatia, Moldova, Russia, Slovakia, Slovenia, and Ukraine. Ukraine (–26.1%), Moldova (–13.1%), Russia (–8.8%), and Croatia (–7.5%) turned out to have the highest rates of decline in investment security indexes. Moderate rates of decline are typical for Slovenia (–5.5%), Slovakia (–4.9%), Bulgaria (–2.8%), and Albania (–1.7%).

Table 3. Investment security indexes of the of CEEC in 2008–2018

Source: Authors' calculations.

CEEC	Investment Security Index						Growth rate, % 2018–2008
	2008	2010	2012	2014	2016	2018	
Albania	0.473	0.460	0.433	0.435	0.463	0.465	–1.7
Bulgaria	0.567	0.479	0.497	0.505	0.519	0.551	–2.8
Croatia	0.521	0.462	0.460	0.453	0.481	0.482	–7.5
Czech Republic	0.638	0.612	0.594	0.596	0.627	0.643	0.8
Estonia	0.621	0.594	0.629	0.648	0.640	0.678	9.2
Hungary	0.562	0.510	0.536	0.579	0.522	0.589	4.8
Latvia	0.536	0.497	0.548	0.560	0.553	0.602	12.3
Lithuania	0.591	0.533	0.556	0.578	0.577	0.596	0.8
Moldova	0.511	0.432	0.429	0.452	0.429	0.444	–13.1
Poland	0.550	0.551	0.545	0.565	0.577	0.596	8.4
Romania	0.543	0.464	0.510	0.506	0.534	0.559	2.9
Russia	0.510	0.473	0.489	0.438	0.434	0.465	–8.8
Slovakia	0.612	0.568	0.531	0.531	0.550	0.582	–4.9
Slovenia	0.640	0.578	0.551	0.562	0.570	0.605	–5.5
Ukraine	0.533	0.370	0.425	0.305	0.371	0.394	–26.1

Table 4 shows the positions of Central and Eastern European countries in the ranking of countries in the world according to the integrated Investment Security Index and its components.

Thus, among the countries of Central and Eastern Europe, Estonia (8th position, which is 20 points higher than in 2008) was ranked among the top-10 countries in terms of investment security; top-50 countries included Slovenia (30th position, which is 9 points lower than in 2008), Poland (32nd position, which is 13 points higher than in 2008), Lithuania (33rd position), Hungary (36th position, which is 7 points higher than in 2008), Slovakia (37th position, which is 7 points lower, which is 6 points lower than in 2008). The lowest positions were taken by Ukraine (91st position in 2018 compared to 50th in 2008) and Moldova (73rd position in 2018 compared to 57th in 2008).

According to the subindexes, the best position is for Estonia, according to Subindex 1. Investment climate (17th place), Hungary and Slovenia, according to Subindex 2. Investment attractiveness (8th and 9th places), and both Estonia and Russia, according to Subindex 3. Investment activity (35th and 41st places).

The calculated indexes were used as indicators of danger in the aspect of investment processes development. Namely, the Investment Security Index's average level was calculated (0.52 in 2018), which enabled to divide countries into two groups (with a relatively safe and dangerous level of the investment component of security). As a result of calculating the standard deviation of the Investment Security Index (0.12 in 2018) and the Student's criterion, borderlines were determined to identify countries with an optimal level of investment development and a critically dangerous one. The distribution results are shown in Table 5.

Thus, among the countries studied, 46% are characterized by ISI values above the global average, which made it possible for them to be classified as countries with a safe level of investment development, among which Singapore and the Netherlands have ISI scores above 0.75, which enabled them to be characterized as countries with an optimal level of investment security. 54% of countries are in the group with a dangerous level (ISI below the global average), of which two countries have a fatal level of danger. The countries in this group are mainly developing countries. As for the countries in Central and Eastern Europe, 10 countries that are developed countries and are mem-

Table 4. Positions of CEEC in the rating of countries according to the level of the investment component of security

Source: Authors' calculations.

Countries	Subindex 1. Investment climate		Subindex 2. Investment attractiveness		Subindex 3. Investment activity		Investment Security Index	
	2008	2018	2008	2018	2008	2018	2008	2018
Albania	68	63	82	90	28	43	67	69
Bulgaria	55	43	37	39	5	68	41	47
Croatia	53	59	69	67	38	72	51	62
Czech Republic	28	28	18	13	35	40	22	22
Estonia	18	17	73	18	44	35	28	8
Hungary	38	40	44	8	68	75	43	36
Latvia	34	27	104	28	40	82	49	31
Lithuania	27	25	40	26	69	101	36	33
Moldova	67	77	39	46	10	80	57	73
Poland	40	36	41	16	66	85	45	32
Romania	52	42	43	37	33	65	47	44
Russia	61	67	66	75	24	41	58	68
Slovakia	35	37	21	19	53	77	30	37
Slovenia	31	31	10	9	49	93	21	30
Ukraine	70	85	4	79	61	79	50	91
Top-3 countries (2018)	Singapore New Zealand Denmark		Ireland Singapore The Netherlands		China Singapore Mozambique		Singapore The Netherlands Ireland	

bers of the EU are characterized by a relatively safe level of investment development, 5 countries, of which only Croatia is a developed EU country, and other countries are countries with economies in transition and characterized by a relatively dangerous level of development of investment processes.

According to the study results, Ukraine has the lowest rating of the Investment Security Index among CEEC, even in the group of countries with a dangerous level of investment development. This means that in the short and medium term, without the introduction of urgent effective measures to improve the country's investment status,

Table 5. Distribution of countries by level of investment security

Source: Authors' calculations.

Investment Security Index	Number/share	Countries	ISI mean
Optimal (ISI > 0.75)	2/1.8	Singapore, the Netherlands	0.78
Safe (0.52 < ISI < 0.75)	48/44.1	Ireland, Qatar, United Kingdom, South Korea, Australia, Germany, Sweden, United Arab Emirates, Iceland, Norway, Austria, Canada, United States, Denmark, New Zealand, Japan, Belgium, Cyprus, Israel, Luxembourg, Finland, Malaysia, Bahrain, France, Georgia, China, Chile, Oman, Thailand, Panama, Kuwait, Saudi Arabia, Spain, Mongolia, Portugal, Mauritius, Kazakhstan, Vietnam CEEC: Estonia, Czech Republic, Slovenia, Latvia, Poland, Hungary, Slovakia, Lithuania, Romania, Bulgaria	0.62
Dangerous (0.28 < ISI < 0.52)	57/52.3	Botswana, Italy, Mexico, Indonesia, Peru, Uruguay, Turkey, Azerbaijan, India, Philippines, Sri Lanka, Costa Rica, Colombia, Armenia, Cambodia, Dominican Republic, Jamaica, Nepal, Kyrgyzstan, Ethiopia, Mozambique, Trinidad and Tobago, Morocco, Bangladesh, Ghana, Jordan, Greece, Zambia, Honduras, Paraguay, El Salvador, Senegal, South Africa, Algeria, Côte d'Ivoire, Nicaragua, Mauritania, Tajikistan, Namibia, Pakistan, Guatemala, Egypt, Argentina, Brazil, Kenya, Cameroon, Chad, Mali, Lesotho, Nigeria, Malawi, Zimbabwe CEEC: Croatia, Russia, Albania, Moldova, Ukraine	0.43
Fatal (ISI < 0.28)	2/1.8	Burundi, Venezuela	0.24
Total	109/100.0		0.52

Ukraine will not increase the level of investment for full-fledged economic growth. In 2018 compared to 2008, Ukraine fell by 13 positions. This was facilitated by a significant drop in GDP, high inflation, low sovereign credit rating, unsettled business conditions, high level of corruption, instability of the military-political situation, etc.

It should be noted that the more the ISI value approaches 1, the higher the country's ability to accumulate and rationally use investment resources, which determines its ability to increase the level of its scientific, technical, and intellectual potential, implement expanded reproduction of fixed capital, maintain economic competitiveness and guaranteed GDP growth at the level of socio-economic development and international cooperation, create strategic reserves, preserve and restore natural resources, and ensure environmental standards at a safe level.

To identify the factors that determine the level of security, a correlation analysis was conducted for the sample of countries under study, separately for the group of countries in Central and Eastern Europe and each country in this group. The results are presented in Table 6.

So, according to a sample of all countries, ISI is more correlated with the state of the country's in-

vestment climate, which in the study was determined by the positions of countries in key international ratings and has a weak correlation with many other subindices. In addition to the investment climate level for the CEEC group, a close correlation was found with the level of investment attractiveness, which is determined by key macroeconomic indicators. In other words, for these countries, macroeconomic stability and stable dynamics of socio-economic growth determine the investment opportunities of countries. There was no correlation with the subindex of investment activity, according to which CEEC have the lowest rating positions. As for individual countries in this group, the investment climate level is closely related to the state of investment security in countries such as the Czech Republic, Latvia, Russia, Slovakia, and Ukraine. Significant investment attractiveness determines the state of investment security in all CEEC countries, except for Albania and Moldova (a moderate correlation of indices characterizes them). The level of investment activity is characterized by the highest differentiation of the correlation coefficient values with the ISI. Thus, if there is no correlation between ISI and S3 for the entire CEEC group, then in countries such as Albania, Croatia, Moldova, Russia, Slovakia, Slovenia, and Ukraine, the level of investment activity, which determines the intensity and nature

Table 6. Evaluation of correlation between the integrated Investment Security Index and its components

Source: Authors' calculations.

Countries	Pearson correlation coefficient		
	Subindex 1. Investment climate	Subindex 2. Investment attractiveness	Subindex 3. Investment activity
All countries (109)	0.93	0.32	0.44
All CEEC (15)	0.98	0.87	0.05
Albania	0.17	0.61	0.72
Bulgaria	-0.01	0.83	0.64
Croatia	-0.01	0.66	0.93
Czech Republic	0.79	0.73	0.65
Estonia	0.65	0.91	0.18
Hungary	0.11	0.74	0.46
Latvia	0.89	0.77	-0.02
Lithuania	0.63	0.90	0.18
Moldova	0.43	0.51	0.95
Poland	0.34	0.92	-0.76
Romania	0.31	0.93	0.08
Russia	0.91	0.78	0.87
Slovakia	0.97	0.82	0.89
Slovenia	0.52	0.83	0.87
Ukraine	0.72	0.97	0.85

of accumulating and using investment resources, significantly affects the overall level of investment security.

Thus, for CEEC, among the investment security risks, we should first note the possible deterioration of the overall macroeconomic dynamics, which will negatively affect investors' investment attractiveness and activity, in particular foreign ones. The instability of the macroeconomic environment and the persistence of development imbalances in the most developed EU countries also reduce the overall level of investment attractiveness and affect investment activity indicators.

In general, based on a preliminary study of the main indicators of investment attractiveness, the basic risks of the investment environment were identified and justified, including:

- *risks of the macroeconomic environment* (increase in the level of inflation, the country's public debt, violation of the stability of the national exchange rate, etc.);
- *industry risks* associated with the complexity of capital penetration in certain areas. Thus, according to the UN report, in 2018, 74 out of 112 (66%) investment policy measures are related to liberalization, in particular in such
- *national security risks*: setting new limits on foreign ownership in certain industries; introducing restrictions on the purchase of residential real estate; and introducing new requirements for the use of labor, including in public procurement;
- *institutional risks* that lead to the need to strengthen the regulatory framework for the verification of foreign investments, in particular: new rules on disclosure of information, an increase in the statutory verification period or the introduction of new sanctions for non-compliance with notification obligations, a special mechanism for the verification of foreign investments;
- *political and regulatory risks* manifested in the termination or non-completion of many international mergers and acquisitions (in 2018, 22 agreements for more than USD 50 million were blocked or cancelled), termination of transactions for reasons of national security, competition, or delays in obtaining permission from the host country authorities.

CONCLUSION

The article implements the level of investment security as an important component of economic security of countries based on the application of existing methods of multidimensional assessment, which revealed patterns of distribution of countries by investment security, classify countries by groups for equal security, compare positions and intensity of their change, systematize factors, forming the level of investment security.

The study allowed us to achieve the following results: the countries of Central and Eastern Europe are significantly behind the leading countries, except for Estonia, which is in the top-10. The vast majority of countries are included in the first half of the rating. As shown by the factor analysis, the investment climate and its overall level are the most significant factors in ensuring investment security. Despite the country's differences in CEEC, unambiguous and more significant correlation is found in the component that takes into account the overall macroeconomic indicators of countries' development; therefore, they are primarily the main determinants that constrain further more intensive growth of investment attractiveness, and thus reduce the level of investment security. In the aspect of ensuring investment security, it is advisable to take into account the risks of the investment environment, which include not only macroeconomic risks but also industrial, institutional, political, and regulatory ones.

The innovative nature of the proposed approach to assessing the level of investment security lies in the adaptation of the multidimensional assessment methodology to the specifics of the implementation of investment activities, which is reflected in the proposed structure of the proposed Investment Security Index, which consists of three subindices and 14 single indicators reflecting various aspects of the investment activities development.

From the perspective of further research in the aspect of improving the assessment tools, it should be noted that it is necessary to take into account the variation of values of individual parameters, due to which separate subindices are formed. Each of them, taking into account international expert assessments, has its possible critical (threshold) values, which can also be taken into account when forming safety indices and considered as a possible signal regarding the increase in the level of danger. Therefore, in a practical aspect, a system of parameters that make up the integral Investment Security Index can be used as the basis for monitoring and evaluating changes in the investment environment to prevent possible threats.

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REFERENCES

- Ash, S. (2017). Opportunities and risks for investors in central and east Europe. *Financial Times*. Retrieved from <https://www.ft.com/content/4248a712-07da-11e7-ac5a-903b21361b43>
- Bailey, R. (2005). *The economics of financial markets*. Cambridge University Press. Retrieved from https://assets.cambridge.org/97805218/48275/frontmatter/9780521848275_frontmatter.pdf
- Bezzubchenko, O., Zakharova, O., & Mityushkina, K. (2019). Innovative Component of Countries' Competitiveness Growth. *Advances in Economics, Business and Management Research*, 95, 146-150. Retrieved from <https://download.atlantis-press.com/article/125917637.pdf>
- Bubbico, R., Gattini, L., Gereben, Á., Kolev, A., Kollár, M., & Slacik, T. (2017). *Wind of change: Investment in Central, Eastern and South Eastern Europe*. European Investment Bank. Retrieved from https://www.eib.org/attachments/efs/economics_study_wind_of_change_investment_in_cesee_en.pdf
- Günther, J., & Kristalova, M. (2016). No Risk, No Fun? Foreign Direct Investment in Central and Eastern Europe. *Intereconomics*, 51(2), 95-99. <https://doi.org/10.1007/s10272-016-0583-1>
- Heritage Foundation. (2019). *Index of Economic Freedom*. Retrieved from <https://www.heritage.org/index/>
- Kalotay, K., & Hunya, G. (2000). Privatization and FDI in Central and Eastern Europe. *Transnational Corporations*, 9(1), 39-66. Retrieved from https://www.academia.edu/30990271/Privatization_and_FDI_in_Central_and_Eastern_Europe
- Kornecki, L. (2011). FDI in Central and Eastern Europe: Business Environment and Current FDI Trends in Poland. *Research in Business and Economics Journal*, 3, 1-12. Retrieved from <https://commons.erau.edu/db-accounting/8>
- Labaye, E., Sjatil, P. E., Bogdan, W., Novak, J., Mischke, J., Fruk, M., & Ionuțiu, O. (2013). *A new dawn reigniting growth in Central and Eastern Europe*. McKinsey Global Institute Report. Retrieved from <https://www.mckinsey.com/featured-insights/europe/a-new-dawn-reigniting-growth-in-central-and-eastern-europe>
- Molyneux, F., & Valdez, S. (2013). *An introduction to global financial*

- markets. Palgrave Macmillan. Retrieved from https://www.academia.edu/40180330/An_Introduction_to_Global_Financial_Markets
11. Popescu, G. (2014). FDI and Economic Growth in Central and Eastern Europe. *Sustainability*, 6(11), 8149-8163. <https://doi.org/10.3390/su6118149>
 12. Silvestri, R. (2019). *Unlocking the Potential of Capital Markets in Central and Eastern European Countries*. CFA Institute. Retrieved from <https://blogs.cfainstitute.org/marketintegrity/2019/01/29/unlocking-the-potential-of-capital-markets-in-central-and-eastern-european-countries/>
 13. Stawicka, M. (2015). Foreign Direct Investments in the Central & Eastern Europe Countries and the Economic Crisis. *Advances in Economics and Business*, 3(12), 577-586. <https://doi.org/10.13189/aeb.2015.031206>
 14. Transparency International. (2019). *CPI 2019 Global Highlights*. Retrieved from <https://www.transparency.org/cpi2019?/news/feature/cpi-2019>
 15. UNCTADStat. (2019). *Data Centre*. Retrieved from https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en
 16. United Nations Development Programme (UNDP). (2018). *Human Development Indices and Indicators: 2018 Statistical Update*. Retrieved from https://reliefweb.int/sites/reliefweb.int/files/reports/2018_human_development_statistical_update.pdf
 17. United Nations. (2019). *World Investment Report: Special Economic Zones*. United Nations Conference On Trade and Development (UNCTAD). United Nations Publications. Retrieved from https://unctad.org/en/PublicationsLibrary/wir2019_en.pdf
 18. World Bank. (2019a). *Investments*. Retrieved from <https://www.worldbank.org/en/search?q=investments>
 19. World Bank. (2019b). *World Bank Open Data*. Retrieved from <https://data.worldbank.org/>
 20. World Economic Forum. (2018). *Global Competitiveness Report 2018*. Retrieved from <http://reports.weforum.org/global-competitiveness-report-2018/>