# The Impact of the COVID-19 Pandemic on the Evolution of Investment Markets in Central and Eastern Europe

ALEKSY KWILINSKI, RAFAL REBILAS, DMYTRO LAZARENKO, NADIIA STEZHKO, HENRYK DZWIGOL

## Abstract

The COVID-19 pandemic profoundly affected the economies of Central and Eastern Europe, particularly investment activities. Said impact varied, with some countries maintaining or boosting their investment attractiveness, while others suffered drastically. Understanding these dynamics is vital due to the key role of investment in economic growth, job creation, and competitiveness. The literature review highlights gaps in understanding the pandemic's impact on investment in Central and Eastern Europe. These gaps include limited analysis of sector-specific investment market transformations, the inadequate assessment of the pandemic's influence on investment behaviours, and insufficient research on effective measures to enhance investment activity. This study aims to evaluate the effect of the COVID-19 pandemic on investment attractiveness and enterprise activities in Central and Eastern European countries. Utilising methods such as dialectical scientific cognition, system and statistical analysis, and regression analysis (examining the relationship between FDI and GDP), the research uncovers imbalances in investment activity due to the pandemic. It identifies a direct correlation between GDP and investment volumes and examines sectoral disproportions and national/regional investment peculiarities. The study delves into the pandemic-induced shift in investor orientation and caution, as well as the effects of subsequent COVID-19 waves and macroeconomic policies on investment and economic growth. It addresses how the pandemic exacerbated income inequality and social tensions, influencing investment stability and decisions. In conclusion, the pandemic prompted cautious investment behaviour and a partial investor reorientation. Future research should investigate the detailed impact of the pandemic on the investment attractiveness of specific Central and Eastern European

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countries, providing a deeper understanding of how the pandemic affected investment market transformations and investor decisions.

Key words

investment, COVID-19, financial imbalances, Central and Eastern Europe.

## Introduction

In the aftermath of the COVID-19 pandemic, the Central and Eastern European (CEE) investment landscape is at a critical turning point. The extensive impact of the pandemic has significantly altered the region's previously stable investment markets, causing disruptions and, in certain instances, hastening changes. This paper explores how the pandemic has necessitated a reassessment of risk perceptions and priorities across various industries and regions amidst economic volatility and changing investor sentiment. The focus is on identifying emerging trends that could potentially redefine the CEE investment landscape in the post-pandemic era, underscoring both the opportunities and challenges.

The research seeks to dissect the complexities of these transformations, recognising the resilience and adaptability of the CEE region in confronting adverse conditions. It aims to provide a detailed perspective on the changing narrative of the post-pandemic investment market, highlighting significant aspects such as the acceleration of digitalization, a greater emphasis on sustainability, and the re-evaluation of risk management practices. The objective is to present a comprehensive overview of the forces reshaping the investment landscape during these transformative times.

The COVID-19 pandemic, one of the most impactful crises in recent history, has had widespread effects on numerous facets of life, including the economy. The CEE countries, with their relatively young and rapidly evolving economies, have not been spared. This strategically significant region, due to its geopolitical and geographical position, has encountered formidable challenges during the pandemic. These challenges include a decrease in investment volumes, shifts in investment structures, and a redirection of investor focus to other countries and sectors, accompanied by a decline in GDP, increased unemployment, and diminished investment activity.

Quarantine measures have had a severe impact on the economies of the CEE region, resulting in reduced production and sales, limitations on services, and heightened unemployment, all of which have significantly influenced investment activities. Nonetheless, certain enterprises have adapted to these conditions, benefitting from the augmented demand for pandemic-related goods and services.

According to the European Commission, there was a 22% decrease in foreign direct investment in the CEE in 2020 compared to 2019, the largest reduction in over a decade (European Commission, 2023). Furthermore, the global stock market crash on 12 March 2020 precipitated a recession in the region. Christine Lagarde (2008), the President of the European Central Bank, indicated that without prompt actions in response to the pandemic, Europe might experience an economic shock akin to the 2008 crisis.

Therefore, an investigation into the investment processes in CEE during this crisis

is imperative, considering the critical importance of investment in economic growth. A decline in investment could lead to the further deterioration of the economic conditions in the region.

This article provides an in-depth analysis of the dynamic shifts in the CEE investment market, elucidating the comprehensive impact of the COVID-19 pandemic. It seeks to detail the initial market shocks and the subsequent adjustments in investment strategies, illuminating the transformative path of the investment landscape.

The structure of the paper includes an introduction that sets the context and outlines the research objectives, followed by an extensive literature review. The methodology section describes the research approach and data analysis techniques utilised. Subsequently, the research findings are presented, with the discussion section interpreting these findings within the framework of existing knowledge. The paper culminates with a summary of the findings, their implications, and proposals for future research directions.

## 1. Literature review

For the literature review, the Scopus database, along with its integrated analytical capabilities, and VOSviewer software were employed. These tools provided a robust framework for conducting a comprehensive and detailed analysis of the literature.

The selection of Scopus for the literature review in this research was influenced by the comparative evaluations by Mongeon and Paul-Hus (2016), Pranckute (2021), and Singh et al. (2021). These evaluations highlight the comprehensive journal scope of Scopus and its proficiency in the analysis of bibliographic data. When contrasted with Web of Science (WoS), Scopus exhibits a broader spectrum of journals, especially in fields such as social sciences and humanities. This extensive scope makes Scopus highly suitable for in-depth and diverse literature reviews.

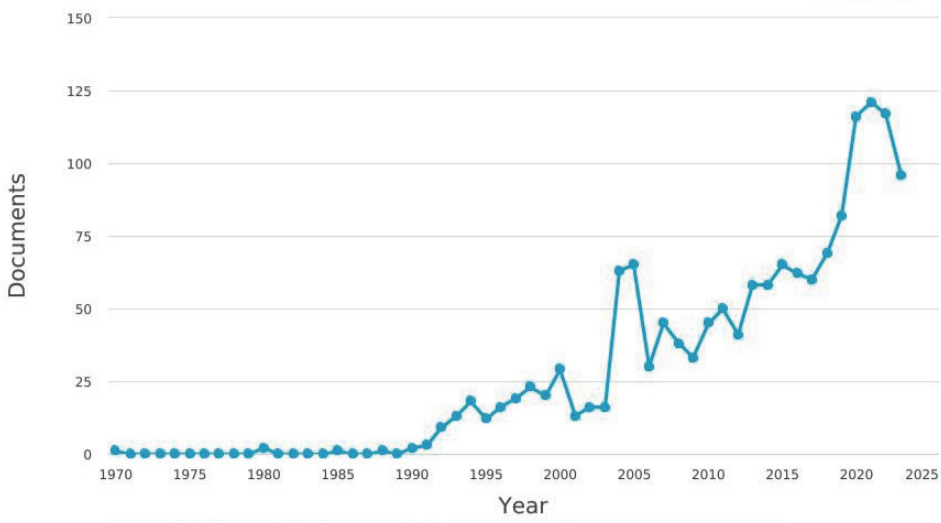
Scopus comes equipped with a suite of sophisticated analytical tools that are pivotal for detailed bibliometric analysis. These tools are crucial for monitoring citation patterns over periods, analysing trends in publications, and evaluating the impact of particular articles, journals, or authors. Scopus also allows for the generation of intricate reports that illuminate aspects of research performance, collaborative trends, and emerging academic areas. An important aspect of Scopus is its ability to create graphical representations such as citation maps, which are essential to a deeper understanding of the linkages between different research areas and the progression of scholarly disciplines.

In conjunction with Scopus, VOSviewer stands out as specialised software for creating and analysing bibliometric maps. Its primary advantage is its capacity for the graphical depiction of bibliometric data, which is immensely beneficial for visualising complex relationships in large data sets. VOSviewer excels in generating maps from various data forms, including co-citation, bibliographic coupling, and co-authorship networks. The software is user-friendly for interpreting sizable bibliometric maps and offers multiple perspectives such as density and cluster density views to aid in comprehension. VOSviewer utilises sophisticated mapping techniques, including the VOS mapping method, and features such as zoom, scroll, and search functions, enhancing the analysis and exploration of intricate bibliometric maps (van Eck and Waltman, 2010).

To refine the literature search, specific constraints were applied. The search parameters were set to include only the "article title, abstract, keywords" in the "search within" query. The "search documents" query was formulated using the keywords "investment AND Central AND Eastern AND Europe". Furthermore, a timeframe from

1970 to 2024 was specified, with the focus solely on articles published in English and appearing in scholarly journals. These criteria yielded a total of 862 documents. The trend in the publication of these documents over time is depicted in Figure 1. Upon analysing the publication trends based on the specified parameters, the decision was made to narrow the timeframe to a 20-year period, from 2003 to 2023. This adjustment was implemented to enhance the empirical reliability and validity of the research study.

**Figure 1.** Documents by year

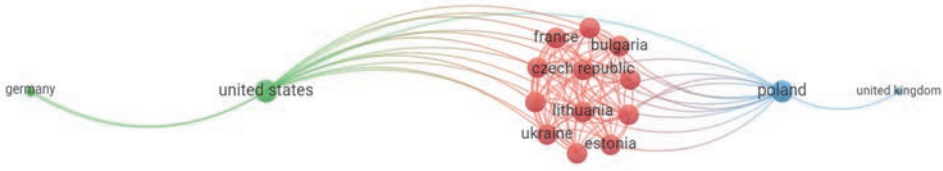



**Source:** own elaboration using Scopus data and tools (Scopus, 2023)

Following the refinement of the search time interval, the total number of relevant papers was narrowed down to 722. These articles were then downloaded and imported into VOSviewer for further in-depth analysis.

Subsequently, an analysis was conducted to segregate and cluster researchers based on their article publication volume (as depicted in Figure 2). The Republic of Poland and the United Kingdom emerged as frontrunners in the volume of research studies. In the second tier, the United States and Germany were notable for their contributions. Hungary, Romania, Italy, France, Austria, Bulgaria, the Czech Republic, the Netherlands, China, Spain, Lithuania, Ukraine, and Estonia shared the third tier in terms of the number of studies conducted on this topic.

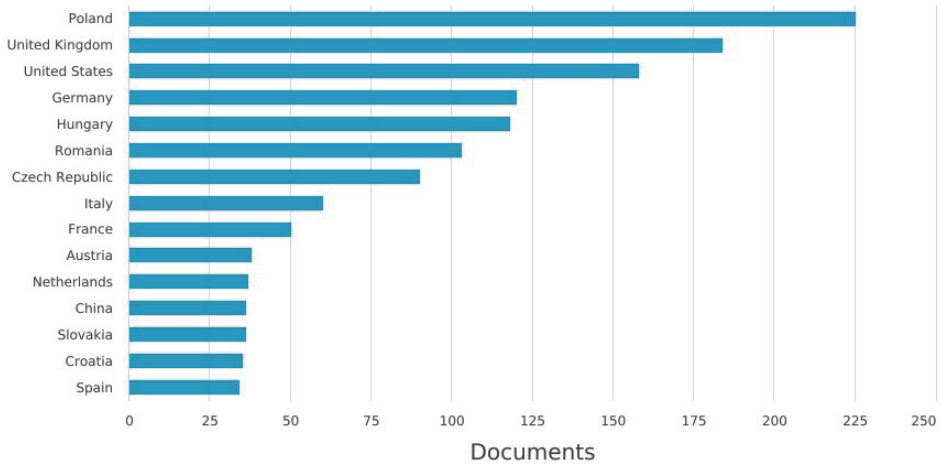
**Figure 2.** Countries




**Source:** own elaboration using Scopus (2023) data and VOSviewer tool (van Eck and Waltman, 2010)

Figure 3 shows the number of studies by country.

**Figure 3.** Documents by country or territory

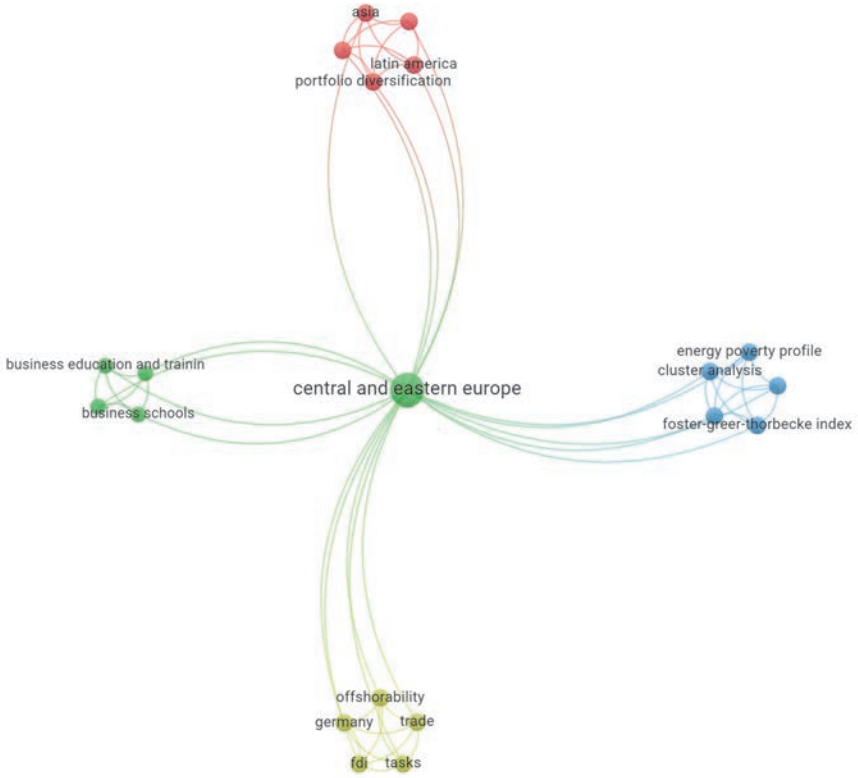



**Source:** own elaboration using Scopus data and tools (Scopus, 2023)

Figure 4 illustrates the results of clustering key words and research directions based on the number of studies conducted. Adhering to the criteria of the sampling, all article themes are linked to the search focused on Central and Eastern Europe. The clustering results have led to the formation of four distinct clusters, representing various interconnected themes related to "Central and Eastern Europe":

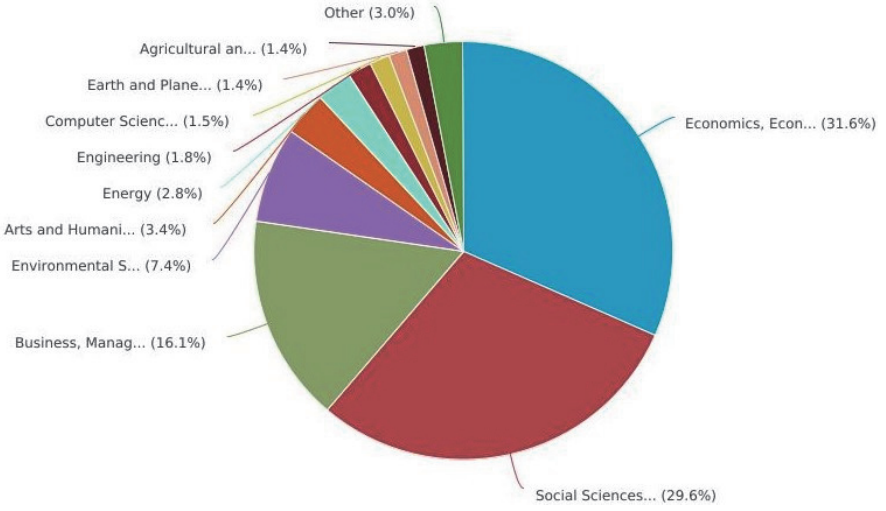
1. The first cluster encompasses topics related to business schools, business education, and training.
2. The second cluster includes subjects such as Latin America, the Middle East, North Africa, Asia, and the portfolio mix.
3. The third cluster focuses on trade, tasks, offshorability, foreign direct investment (FDI), and Germany.
4. The fourth cluster pertains to housing, costs, energy poverty, partitioning around medoids, and the Foster-Greer-Thorbecke Index.

**Figure 4.** Topics




**Source:** own elaboration using Scopus (2023) data and the VOSviewer tool (van Eck and Waltman, 2010)

**Figure 5.** Documents by subject area




**Source:** own elaboration using Scopus data and tools (Scopus, 2023)

Figure 5 shows the correlation of studies according to subject areas.

The next stage in the research process entailed a detailed examination of the studies that were of the greatest relevance to the central theme of this investigation. This involved systematically evaluating the content, methodologies, and findings of these selected studies to extract insights directly applicable to the scope and objectives of the current research.

Research by Vilchynska et al. (2023) offered a detailed microeconomic analysis of the impact of the COVID-19 pandemic, with a specific focus on household expenditures in Central and Eastern Europe. This study underscored the considerable reduction in household income and the shift towards savings rather than investments, leading to significant changes in expenditure patterns across diverse sectors. The stability of education costs during this economic shift emerged as a key finding, suggesting the resilience of the education sector during crises.

Gajewski and Kutan's (2023) study employed a dynamic econometric model to dissect the varied effects of the pandemic on Polish enterprises, distinguishing these impacts by both region and industry. This research provides critical insights into the asymmetric impacts of government support, shedding light on the disparities in economic recovery efforts and offering valuable policy implications.

In their 2023 study, Hegerty and Weresa investigated the factors driving innovation in the medical sector during the pandemic. Their research emphasised the influence of macroeconomic variables and R&D investments on medical innovation across EU nations, particularly focusing on Central Europe. The study notably revealed how fluctuations in the real exchange rate affect patent applications in Central and Eastern Europe, thus providing a nuanced perspective on the region's innovation landscape.

Purcărea et al. (2022) explored the changes in sustainable consumer behaviour in Romania, highlighting the pandemic's role in expediting digital adoption and green business practices. This study offers significant insights into the adaptability of the Romanian retail sector to these changes, reflecting the evolving dynamics of consumer-retailer interactions in the post-pandemic environment.

A paper by Bălăcescu et al. (2021) addressed the increased adaptability to teleworking across Europe, a trend greatly accelerated by the pandemic. The study categorised European countries based on their digital readiness and teleworking adaptability, identifying disparities and potential strategies to harness the benefits of the digital environment.

Cao et al. (2021) examined the repercussions of COVID-19 on Sino-Bulgarian economic relations within the context of China's "Belt and Road" Initiative and the "17+1" mechanism. This study offers a distinctive view on how the pandemic has reshaped bilateral economic relations and trade dynamics, underlining the changing landscape of international economic collaboration.

Lewkowicz (2020) provided an insightful analysis of the Three Seas Initiative, focusing on regional cooperation in Central Europe amid the pandemic. The paper assesses the initiative's investment fund and projects, presenting both the opportunities and challenges within the region's economic framework.

Gorynia et al. (2022) presented a comparative analysis of the investment development paths (IDP) of Central and Eastern European countries, emphasising the impact of EU membership on foreign direct investment. This paper illuminates the ways in which economic integration affects both inward and outward FDI, contributing to the broader discourse on EU integration and investment trends.

A 2019 study by Gorynia et al. explored the influence of institutional reforms on the investment development path in CEE economies. Integrating insights from institutional theory into the IDP framework, this research offers a comprehensive analysis of how institutional changes shape both inward and outward FDI, highlighting the complexities of post-transition economic development in the region.

Moreover, the investigation into the impact of the COVID-19 pandemic on investment market evolution in Central and Eastern Europe is enriched by an array of scholarly contributions from esteemed economists and researchers. Vernon L. Smith's seminal work (1982) laid the groundwork by elucidating the interplay between international investment and the life cycle of global goods production. John H. Dunning (1958) notably advanced this field by harmonising the growth trajectories of direct investment across countries at various levels of industrialisation.

Contemporary research has significantly broadened these perspectives. D. Li and J. M. Cruz (2022) delved into the factors contributing to a safe investment environment, with a particular focus on sustainability and consumer payment preferences. Yaroshenko et al.'s (2023) study examined the social protections for cross-border and seasonal workers in Europe during the COVID-19 pandemic and other international crises. In the same vein, Herrera-Echeverri et al. (2022) highlighted the competitive struggles of export-oriented companies in global markets, especially in relation to attracting foreign direct investment.

Kentor et al. (2023) undertook an in-depth analysis of the wide-reaching effects of global economic integration on international investment, including military investment. Klayme et al. (2023) explored the mechanisms through which countries have tightened control over corporate investments during the pandemic. Curtale et al. (2023) investigated the pandemic's influence on European tourism demand, while Geels et al. (2022) offered practical strategies to improve investment risk management amid pandemic-induced challenges. Additionally, Caetano et al. (2023) scrutinised the environmental impacts of private investments in energy infrastructure.

In a post-COVID context, K. Forbes et al. (2023) shed light on the transformations in financial investment activities and enterprise resilience to pandemic-related disruptions. J. Paul and M. Feliciano-Cestero's 2021 research centred on foreign direct investment within multinational and transnational corporations. J. Scott Davis and A. Zlate (2023) probed the global financial cycle and capital movements in European nations during the pandemic. T. Walmsley et al. (2023) offered a macroeconomic perspective on the effects of the COVID-19 pandemic in diverse regions worldwide.

Additionally, a substantial number of the papers present a thorough exploration of diverse aspects impacted by the COVID-19 pandemic. These studies encompass a wide range of topics, including sustainable development and green investments, the acceleration of digital transformation, shifts in the global economy, regional development, advancements in agriculture, and the overall stability of economic systems within Central and Eastern Europe. This breadth of research illustrates the multifaceted effects of the pandemic across various sectors and geographical regions.

Thus, for example, Chen et al. (2021, 2023) and Dzwigol et al. (2023) collectively analysed the green competitiveness of businesses and the role of environmental regulation in renewable energy and innovation. These studies highlight the shift towards sustainable practices in businesses and investments, accentuated by the pandemic. Arefieva et al. (2021) contributed to this theme by discussing sustainable development management, which ties into the broader narrative of how

companies have adapted their sustainability strategies during the pandemic. Spicka (2018) and Spicka et al. (2019) focused on green investments, specifically in the agricultural sector, providing insights into the pandemic's impact on agricultural sustainability and biogas investments.

Dzwigol (2019, 2021a, 2021b, 2022a, 2022b, 2023) offers an extensive body of work on new management trends and sustainable development, which is instrumental in understanding how management practices have evolved in response to the economic challenges posed by the pandemic. Karnowski et al. (2021) and Karnowski and Rzońca (2023) provided analyses centred around the financial sector's response to climate challenges and economic stability in Poland, respectively, underlining the financial and economic repercussions of the pandemic.

Kwilinski (2019, 2023) and Kwilinski et al. (2019, 2023a, 2023b) explored the integration of blockchain technology in accounting and the evolution of e-commerce, reflecting on how digital transformation has been accelerated by the pandemic. Miśkiewicz (2019) and Miśkiewicz et al. (2022) delved into the impacts of Industry 4.0 and cryptocurrency trading, offering insights into how these technological trends have influenced economic stability and investment strategies during the pandemic.

Kwilinski et al. (2022) and Hussain et al. (2021) together examined the broader economic and social impacts of the pandemic. They explore international migration drivers and the effects of globalisation on the ecological footprint, providing a comprehensive view of how global crises such as COVID-19 have reshaped economic and social landscapes.

Letunovska et al. (2022, 2023) contributed to understanding the interplay between public health and regional economic development during the pandemic, offering a critical analysis of how health issues have influenced regional economic strategies.

Stępień et al. (2023) focused on the sustainability and technological advancements in small farms, particularly in Poland, Romania, and Lithuania, highlighting how the agricultural sector has adapted to the challenges and opportunities presented by the pandemic.

Kharazishvili and Kwilinski (2022) introduced a novel approach using artificial intelligence to determine national security indicators which are relevant to an assessment of economic security during the uncertain times brought about by the pandemic.

Szczepańska-Woszczyna et al. (2022a, 2022b) assessed the economic convergence among EU countries and key competencies in R&D project management, providing valuable insights into how the pandemic has influenced economic integration and innovation management within the high-tech sector. Collectively, these sources contribute to a comprehensive understanding of the multifaceted impacts of the COVID-19 pandemic on investment markets in Central and Eastern Europe, encompassing shifts in various sectors and regions, and highlighting both challenges and emergent opportunities in the global economic landscape.

Simultaneously, the examination of these scholarly sources reveals that several aspects concerning the transformative effects of the COVID-19 pandemic on the investment processes in Central and Eastern European (CEE) countries are yet to be fully addressed. These identified gaps in existing research have guided the selection of the study's topic, objectives, and scope. Consequently, the primary aim of this article is to conduct a comprehensive analysis of the COVID-19 pandemic's influence on the investment appeal of CEE countries and the operational dynamics of enterprises within this region. This study endeavours to fill the existing research void by shedding light on how the pandemic has reshaped investment landscapes and business activities in these countries.

## 2. Methodology

The research methodology employed in this study is grounded in the principles of modern economic theory and incorporates insights from the scientific works of eminent domestic and foreign scholars specialising in the field of investment during the COVID-19 pandemic. Throughout the research process, the dialectical method of scientific cognition was utilised, accompanied by a comprehensive array of general scientific methods and approaches. These included:

1. System analysis and theoretical generalisation: Applied to the examination of the theoretical foundations of investment and the transformation of the economy in Central and Eastern European (CEE) countries. This approach facilitated the development of a conceptual and categorical framework to understand the essence of investment attractiveness in these countries.
2. Logical generalisation: Ensured the coherence and consistency of the objectives set within the research.
3. Statistical analysis methods: These methods were pivotal in examining the empirical data characteristic of countries' investment attractiveness and in identifying the relationships between various factors influencing this attractiveness.

A key methodological tool used in this study was correlation analysis, often used in economic analysis to investigate interdependencies within a general population comprising random variables with a normal distribution. The prerequisites for conducting this analysis included a sufficient number of observations, a well-defined set of factor and result indicators, and their quantitative measurement and documentation in information sources. The primary objectives of the correlation analysis were:

- Determining the nature of relationships;
- Measuring the strength or density of these relationships;
- Identifying the influence of various factors on the resultant attribute.

To execute the correlation analysis, the following sequential stages were undertaken:

1. Establishing cause-and-effect relationships: This initial stage involved identifying factors and selecting those that most significantly impact the resultant indicator.
2. Formation of the correlation and regression model: This stage entailed evaluating the collected information, choosing the type and form of relationship, and compiling the model. Additional statistical criteria, such as mean square deviation and the coefficient of variation, were utilised.
3. Determination of correlation characteristics: At this stage, link indicators were determined.
4. Statistical evaluation of relationship parameters: This involved the economic interpretation and evaluation of the significance of correlation coefficients, assessing how selected factors explain the variation of the resultant indicator and their applicability in addressing practical issues.

In the first stage of analysis, the relationships between the resultant and factor attributes were determined, considering the nature of dependence, direction of action, and analytical expression. The second stage involved the assessment of initial data for the study, forming a model of stochastic relationships.

The correlation coefficient was calculated using the following formula:

$$\rho=M((x-a)/\sigma x^*(y-b)/\sigma y), (1)$$

where a = Mx; b = My are the distribution centres of x and y, while σ2x and σ2y are their dispersions.

When accurately employed, correlation methods enable the discernment of the intrinsic nature of interrelational processes. It is

essential to recognise that correlations manifest not in isolated instances but generally across numerous cases. These causative links do not always exhibit direct correspondence; instead, they present varying degrees of correlation. Within the framework of correlation theory, two primary objectives emerge: firstly, to ascertain the theoretical form of the relationship through regression analysis, and secondly, to quantify the intensity of this relationship via correlation analysis.

The task of determining the theoretical form of the relationship (regression analysis) involves identifying the functional relationship that most accurately encapsulates the essence of the observed correlation. Meanwhile, the measurement of the density of the relationship (correlation analysis) requires the utilisation of specific indicators to gauge the extent to which the observed correlation approximates the underlying functional relationship. This methodology is crucial for understanding the dynamics of economic relationships (Dzwigol, 2022b; Kharazishvili and Kwilinski, 2022; Stezhko et al., 2020).

For this particular study, we focused on indicators from Central and Eastern European countries for the period of 2015-2022. These indicators included gross domestic product, exports, imports, and foreign direct investment, which was considered a relative value. The correlation analysis was conducted to elucidate the ramifications of the COVID-19 pandemic on the influx of foreign investment and, more broadly, on the economic development of Central and Eastern European nations.

The empirical data underpinning this analysis were sourced from a combination of reputable databases, including Eurostat, the National Statistical Offices of various CEE countries, the World Bank, and the State Statistics Service of Ukraine. This diverse collection of data ensures a comprehensive and nuanced understanding of the economic impacts and trends across the region in the context of the COVID-19 pandemic.

## 3. Research results

The COVID-19 pandemic has catalysed significant alterations in investment promotion strategies across Central and Eastern Europe, underscoring a renewed emphasis on infrastructure and service sectors. While investments targeting the utilisation of production factors, resources, and affordable labour remain vital, the scope for attracting such investments has begun to diminish. This trend necessitates a strategic pivot towards bolstering domestic and regional demand for services. Notably, investments in the green (ecological) and blue high-tech economies, along with infrastructure and domestic services, are emerging as pivotal areas with substantial potential to contribute to the achievement of sustainable development goals.

Adjustments in policy direction, prompted by the pandemic and reflected in specific regulatory measures, do not inherently signify designated funding for a particular sector. However, they can serve as indicators of potential accelerated growth in these sectors. A nuanced understanding of the sectors earmarked for promotion under the European Green Deal (EGD) is instrumental in forecasting the trajectory of investment flows into these areas in the foreseeable future.

In the context of EU investment policy, the nations of Central and Eastern Europe warrant particular attention. The COVID-19 pandemic has uniformly impacted investment climates across these countries, albeit to varying degrees. Slovenia, Hungary, and Croatia have been among the most severely affected, witnessing investment declines exceeding 2% between 2019 and 2022. Conversely, Poland, Romania, and Slovakia have been relatively less impacted, experiencing investment reductions of less than 1% in the same period (as illustrated in Table 1).

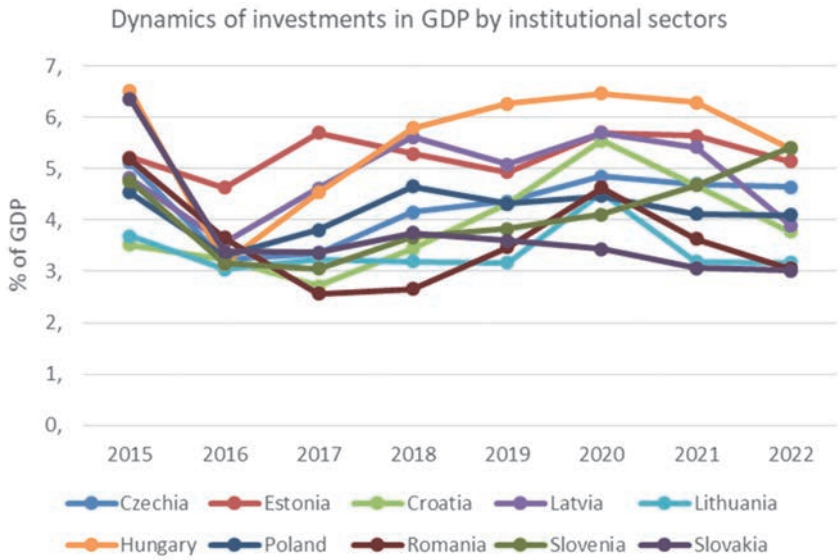
**Table 1.** Share of investment in GDP in Central and Eastern European countries

| Country | Year | | | | Change from 2019 to 2022 |
|---|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 | |
| Czechia | 23.9% | 22.0% | 21.9% | 22.2% | -1.7% |
| Estonia | 24.5% | 20.4% | 21.6% | 22.8% | -1.7% |
| Croatia | 21.2% | 17.7% | 20.1% | 20.9% | -0.3% |
| Latvia | 23.8% | 19.7% | 21.4% | 22.2% | -1.6% |
| Lithuania | 24.3% | 20.6% | 22.2% | 23.1% | -1.2% |
| Hungary | 24.1% | 22.0% | 22.8% | 23.5% | -0.6% |
| Poland | 23.3% | 20.6% | 21.9% | 22.9% | -0.4% |
| Romania | 22.8% | 20.0% | 21.4% | 22.2% | -0.6% |
| Slovenia | 21.9% | 17.5% | 20.4% | 21.3% | -0.6% |
| Slovakia | 23.8% | 21.7% | 22.3% | 22.6% | -1.2% |

**Source:** own elaboration based on data from the European Commission (2023)

An analysis of the dynamics of investment as a percentage of GDP across different institutional sectors of the economy is presented in Figure 6. This analysis provides valuable insights into the shifting landscape of investment distribution, highlighting the resilience and adaptability of certain sectors and economies within the Central and Eastern European region in the face of the challenges posed by the pandemic.

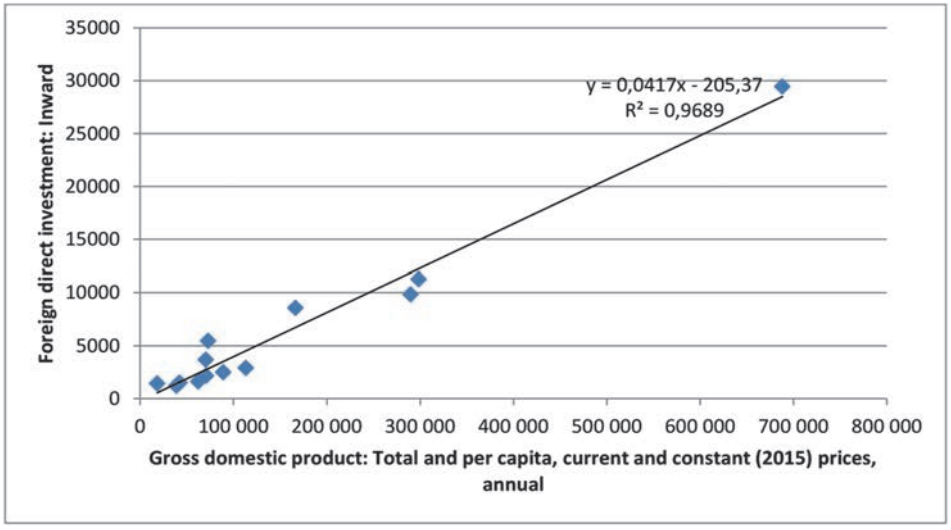
**Figure 6.** Share of investment in the GDP of Central and Eastern European countries by institutional sector




**Source:** own elaboration based on data from the European Commission (2023)

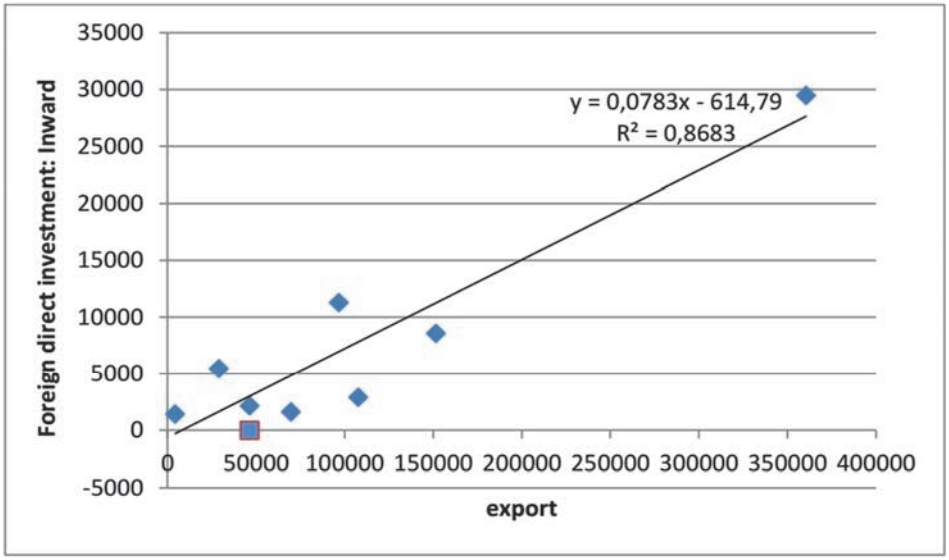
To comprehensively assess the influence of the COVID-19 pandemic on investment dynamics and economic expansion, the research utilised regression analysis to explore the correlation between foreign direct investment (FDI) volumes and gross domestic product (GDP) across Central and Eastern European countries (illustrated in Fig. 7). Additionally, the study examined the interrelationships among exports, imports, and FDI, providing a multifaceted view of the economic impact (depicted in Figs. 8-11). This approach enabled a nuanced understanding of how the pandemic has affected investment trends and overall economic health in these regions.

**Figure 7.** The correlation between gross domestic product and foreign direct investment in the CEE countries for the period of 2019–2022



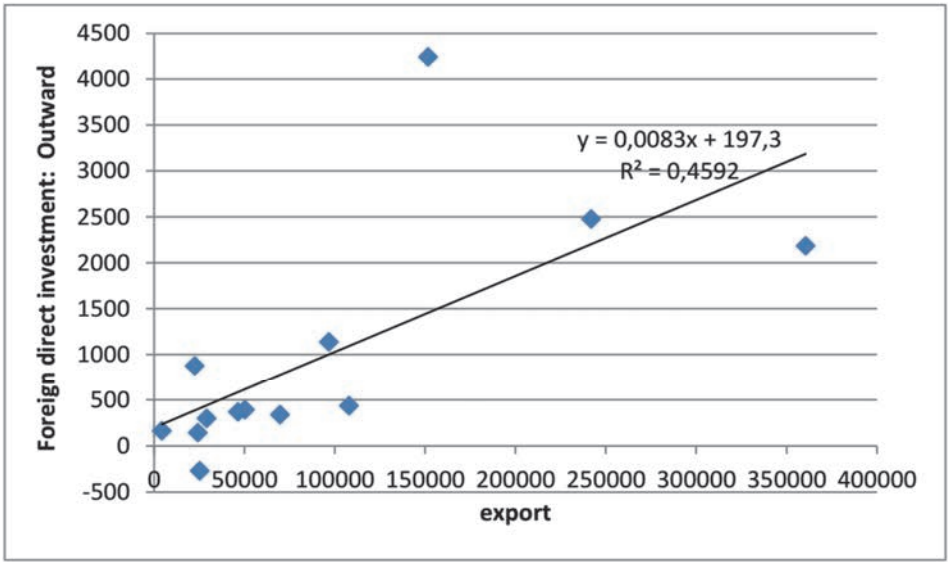

**Source:** own elaboration based on data from the European Commission (2023)

**Figure 8.** The correlation between exports and foreign direct investment in the CEE countries for the period of 2019–2022



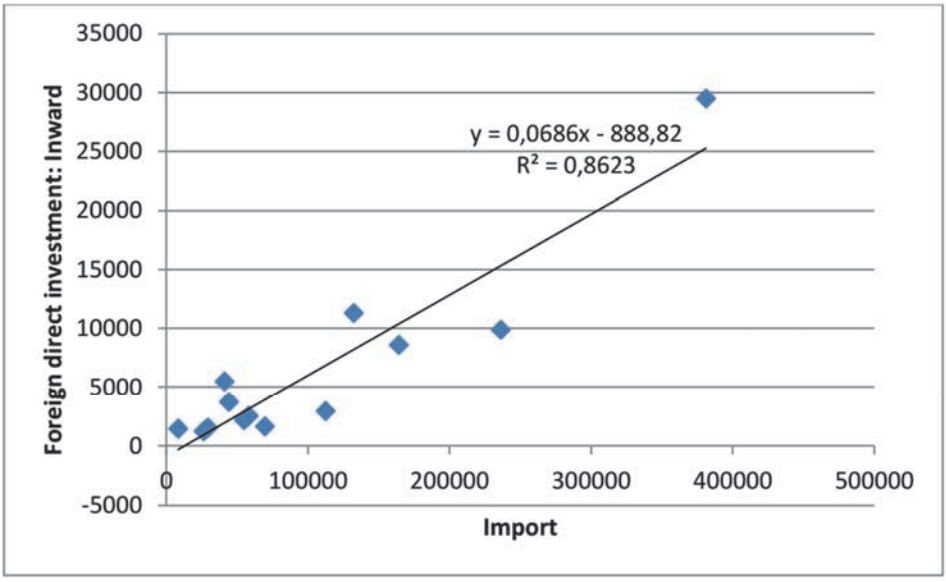

**Source:** own elaboration based on data from the European Commission (2023)

**Figure 9.** The correlation between exports and foreign direct investment from CEE countries for the period of 2019–2022



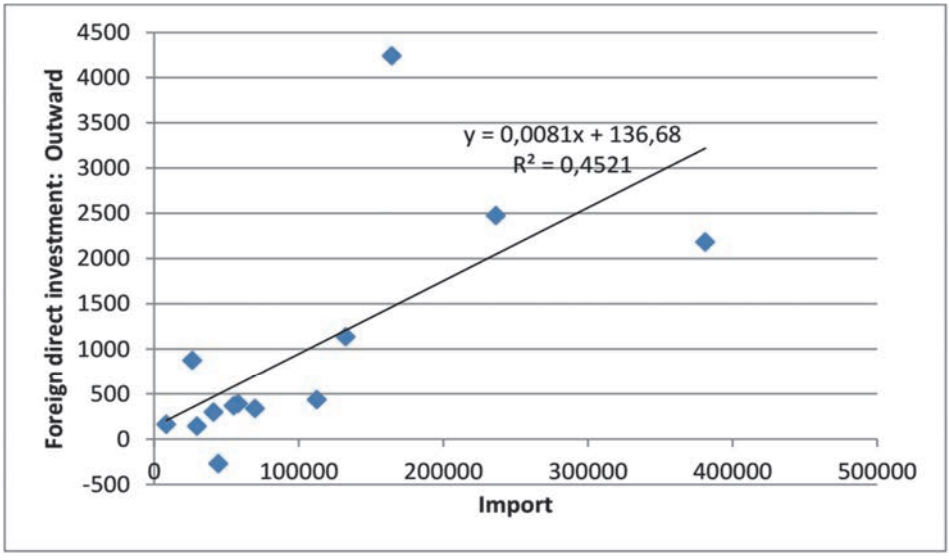

**Source:** own elaboration based on data from the European Commission (2023)

**Figure 10.** The correlation between imports and foreign direct investment in CEE countries for the period of 2019-2022




**Source:** own elaboration based on data from the European Commission (2023)

**Figure 11.** The correlation between imports and foreign direct investment from CEE countries for the period of 2019–2022




**Source:** own elaboration based on data from the European Commission (2023)

To investigate the impact of the COVID-19 pandemic on investment activity and economic growth, a regression analysis was conducted to explore the relationship between foreign direct investment (FDI) volumes and gross domestic product (GDP) in Central and Eastern European (CEE) countries for the period of 2019-2022. The analysis also examined the interconnections between exports, imports, and FDI.

It is important to note that the derived models are adequately aligned with experimental data. The statistical characteristics of these models are significant according to Fisher's F-criterion, exhibiting high $R^2$ and R coefficients. This allows one to draw economic conclusions based on these findings. A high correlation coefficient (R=0.9689) indicates a dense relationship between the data calculated by the regression equation and the empirical data, demonstrating a direct correlation between GDP volume and investment. In other words, an increase in investments positively affects GDP volume.

Based on the research, it is observed that the Balkan countries were most severely affected by the COVID-19 pandemic. The volume of FDI in these countries decreased by 30% in 2020 compared to 2019, marking the largest decline in the last 12 years. This decrease in investment was influenced by several factors, including quarantine measures leading to business closures and limited economic activity, uncertainty regarding global economic prospects, and increased production and logistics costs. Additionally, the Balkan countries were particularly vulnerable to the pandemic due to their weaker healthcare systems and relatively lower income levels.

The closure of borders triggered a chain reaction; transportation links with the global economy were disrupted, and export-oriented production was severely affected (World Investment Report, 2023).

According to UNCTAD (2023), the crisis exacerbated the particular challenges faced by countries with structurally weak and vulnerable economies in attracting FDI. The prospects for FDI in CEE countries are extremely unfavourable. These countries' reliance on commodity production investments, which are negatively impacted by shocks in oil and commodity prices, plays a significant role.

The pandemic led to a notable increase in energy prices. Oil, natural gas, and coal prices reached record highs in 2022.

The analysis of the COVID-19 pandemic's impact on investment activities in Central and Eastern European countries reveals varying degrees of economic disruption across the region. Given this backdrop, it becomes pertinent to focus on specific countries that exemplify unique aspects of these challenges. Albania, in this case, emerges as a particularly significant example due to its unique economic structure and the notable intensity of the pandemic's impact there.

The COVID-19 pandemic exerted a considerable negative influence on investments across all sectors of Albania's economy, providing an insightful case study of the pandemic's broader economic ramifications. This impact was most pronounced in sectors crucial to Albania's economic framework, particularly in the production of goods. Industries such as mining and quarrying, as well as utilities such as electricity, gas, water supply, and waste management, were significantly affected. These sectors are vital components of Albania's industrial landscape and serve as key contributors to its GDP. The detailed extent of this impact is encapsulated in Table 2, which presents a comprehensive overview of the effects of the pandemic on these critical sectors.

**Table 2.** Investment volumes by economic sectors in Albania (million EUR)

| Investment sector | 2017 | 2018 | 2019 | 2020 | 2021 | Change from 2019 to 2021 |
|---|---|---|---|---|---|---|
| All market producers | 231,713 | 238,145 | 241,821 | 193,880 | 174,008 | -28.1% |
| Goods producers | 160,174 | 146,305 | 150,117 | 92,209 | 81,176 | -44.5% |
| Mining and quarrying | 30,389 | 18,528 | 18,784 | 6,615 | 4,357 | -76.8% |
| Manufacturing | 33,128 | 33,540 | 28,553 | 25,312 | 22,987 | -19.6% |
| Electricity, gas, water supply, and waste management | 70,876 | 55,335 | 76,742 | 25,252 | 17,326 | -77.5% |
| Construction | 25,781 | 38,903 | 26,038 | 35,031 | 36,506 | 40.5% |
| Services producers | 71,539 | 91,840 | 91,704 | 101,670 | 92,832 | 1.2% |
| Trade | 33,262 | 44,259 | 40,498 | 39,140 | 34,965 | -14.0% |
| Accommodation and food services | 5,968 | 7,712 | 10,378 | 9,810 | 17,755 | 70.3% |
| Transport, information, and communication | 13,270 | 15,489 | 16,153 | 21,351 | 15,958 | -2.1% |
| Services | 19,039 | 24,379 | 24,675 | 31,369 | 24,154 | -4.4% |

**Source:** own elaboration based on data from the Institute of Statistics (INSTAT) (2023)

This focused examination of Albania not only highlights the specific challenges faced by the country but also sheds light on potential recovery paths and resilience strategies that could be relevant to other countries in the region experiencing similar difficulties.

All economic sectors in Albania are reliant on foreign investments, which experienced a significant decrease due to the pandemic. However, the service-producing sectors were less impacted by the pandemic, with some areas, such as accommodation and food services, even witnessing an increase in investments. This can be attributed to the heavier reliance of these sectors on domestic consumption, which was less affected by quarantine restrictions.

Overall, it is anticipated that Albania's investment market will gradually recover from the effects of the pandemic in the medium term. However, this recovery is expected to be slow and uneven.

In the context of Albania, an interesting dichotomy is observed in the investment patterns across different sectors. While traditional industries which are heavily dependent on foreign investment faced a downturn, service-oriented sectors demonstrated resilience, underlining the diverse impact of the pandemic on the Albanian economy. This resilience in service sectors, buoyed by domestic consumption, suggests a potential area of focus for economic recovery strategies.

As Albania navigates the post-pandemic landscape, the investment market's path to recovery will likely be marked by cautious optimism, with sector-specific trends playing a crucial role in shaping the overall economic resurgence.

As mentioned earlier, Romania experienced the least impact from the pandemic among the Central and Eastern European (CEE) countries. In 2020, net investment in the national economy increased by 0.1% compared to 2019. The dynamics of net investment in the economy, presented in the national currency and broken down by structural components compared to 2019, are shown in Table 3.

**Table 3.** Dynamics of investment in the Romanian economy

| Investment sector | 2020 – prices in million lei | in % compared to 2019 | Structure, % | |
|---|---|---|---|---|
| | | | 2019 | 2020 |
| **Total** | 106,195.3 | 100 | 100 | 100 |
| – New construction works | 57,834.8 | 109.3 | 50.1 | 54.5 |
| – Equipment (including vehicles) | 36,553.1 | 91.2 | 37.7 | 34.4 |
| – Other expenses | 11,807.4 | 89.5 | 12.2 | 11.1 |

**Source:** own elaboration based on data from the National Institute of Statistics (2023)

Romania's relative resilience in the face of the pandemic underscores a notable aspect of the region's economic landscape. The slight increase in net investments during a globally challenging year highlights the country's robust economic underpinnings and potential for continued growth amidst adversity. Table 3 provides a detailed breakdown of these investments, offering insight into which sectors and components contributed most to this resilience.

This data is particularly significant as it not only reflects Romania's economic stability during a period of global uncertainty but also may serve as an indicator for potential investment opportunities and areas of growth within the country. Understanding the nuances of Romania's investment landscape during the pandemic can provide valuable lessons for other CEE countries navigating similar challenges.

In 2020, investment in new construction amounted to a total of 57,834.8 million lei, which represents 54.5% of the total amount, compared to 50.1% in 2019. Investment in equipment (including vehicles) also increased to 36,553.1 million lei, accounting for 34.4% of the total amount, compared to 37.7% in 2019. Investment in construction and trade/services significantly increased.

In 2020, net investment, predominantly from the private sector, amounted to 80,904.7 million lei, which is 76.2% of the total amount, compared to 76.6% in 2019. Investment in this sector was mainly oriented towards the acquisition of new construction works and equipment (including vehicles).

The volume of FDI in the Baltic countries decreased by 25% in 2020 compared to 2019. This decline was also significant, albeit less so than in the Balkan countries.

The Estonian economy also suffered losses from the COVID-19 pandemic. Investments in buildings, structures, and land significantly increased from 2019, while investments in vehicles remained relatively unchanged. The pandemic most heavily impacted the sale of tangible investment goods, which decreased by almost 50% from 2019 (Table 4).

**Table 4.** Volumes of investment in the Estonian economy by sector (thousand EUR)

| Sector | 2019 | 2020 | 2021 | 2022 | Change from 2019 to 2022 |
|---|---|---|---|---|---|
| Investment in tangible fixed assets (included financial leasing) | 2,374,475.3 | 2,572,200.9 | 2,909,811.8 | 4,243,220.0 | 79.1% |
| Investment in buildings and structures | 880,650.7 | 762,121.0 | 1,153,870.4 | 1,457,856.8 | 65.5% |
| Investment in vehicles | 420,870.2 | 304,290.2 | 435,340.8 | 520,558.2 | 23.7% |
| Investment in computers | 70,923.6 | 63,303.8 | 116,946.8 | 148,317.2 | 109.2% |
| Investment in other equipment, machinery, and inventory | 950,839.5 | 1,137,496.9 | 1,082,749.2 | 1,646,536.8 | 73.2% |
| Investment in land | 51,958.6 | 100,985.0 | 101,904.5 | 169,049.0 | 221.5% |
| Sales of tangible investment goods | 573,278.8 | 521,432.6 | 722,901.8 | 858,210.8 | 53.2% |

**Source:** own elaboration based on data from Statistics Estonia (2023)

According to data from the Estonian Department of Statistics, the effects of the COVID-19 pandemic were significantly felt in the Estonian economy, especially in the fourth quarter of 2021. During this period, overall investment in the country declined by 38.4%. This downturn was primarily driven by a drastic reduction in enterprise investment in software and databases, which plummeted by 93.9%. Additionally, there was a notable decrease in household investment in real estate, which fell by 12.6%. In contrast, there were areas of growth: investment in transportation equipment by enterprises increased by 36.2%, and there was a 12.4% rise in investment in other machinery, equipment, and defence systems.

In 2020, foreign direct investment (FDI) in the V4 countries saw a reduction of approximately 20% compared to 2019. Although this decline was less severe than that experienced in the Balkan countries, it was still substantial. The factors contributing to the reduced investment volume in these countries were similar to those in the Balkans. However, the V4 nations, with their more developed economies and stronger healthcare systems, demonstrated less vulnerability to the impact of the pandemic than their Balkan counterparts.

The COVID-19 pandemic in Poland had a pronounced impact on various sectors (Table 5), with the most significant effects observed in public sector investment. Data indicate a substantial contraction in investment across different public sectors:

- General public sector investment plummeted by 46.6%.
- Public enterprises with more than nine employees faced a 44.6% reduction.
- Budgetary institutions and territorial units within the public sector saw a decrease of 48.1%.

**Table 5.** Trend of change in investment by sector in Poland (thousand EUR)

| Sector | 2019 | 2020 | 2021 | Change from 2019 to 2021 |
|---|---|---|---|---|
| Public sector | 150,117 | 92,209 | 81,176 | -46.6% |
| Public sector, enterprises with more than 9 employees | 108,598 | 66,087 | 59,505 | -44.6% |
| Public sector, budgetary units, territorial government units | 41,519 | 26,122 | 21,671 | -48.1% |
| Private sector, enterprises with more than 9 employees | 92,067 | 78,955 | 97,011 | 5.4% |
| Total | 242,184 | 171,164 | 178,187 | 5.8% |

**Source:** own elaboration based on data from Statistics Poland (2023)

These sectors are directly or indirectly funded by the government, which encountered significant budgetary constraints due to the pandemic. Consequently, there was a notable reduction in investment expenditures within these public sectors.

In contrast, the private sector, particularly in enterprises employing more than nine people, exhibited a 5.4% growth in investment. This sector demonstrated greater resilience to the adverse effects of the pandemic compared to the public sector, primarily due to its independence from direct government financing. Moreover, the private sector was able to invest more strategically to adapt to the new economic environment and capitalise on emerging opportunities.

In Hungary, the COVID-19 pandemic exerted its most substantial influence on investments within diverse sectors of the economy, likely encompassing a wide array of businesses such as restaurants, hotels, and tourism operators (Table 6). These enterprises were particularly hard-hit by the pandemic, with many being forced to temporarily shut down or scale back operations. Consequently, investments in these sectors experienced a sharp decline in 2020.

**Table 6.** Trend of change in investments by sectors in Hungary (thousand EUR)

| Sector | 2018 | 2019 | 2020 | 2021 | Change from 2019 to 2021 |
|---|---|---|---|---|---|
| Buildings and structures | 417,961,879 | 34,676,611 | 88,729,635 | 61,414,552 | 14.7% |
| Machinery and equipment | 39,433,432 | 23,026,067 | 2,239,517 | 10,1367,038 | 2.5 times |
| Land | 102,554,480 | 81,398,285 | 9,421,9371 | 19,363,789 | 18.9% |
| Other | 2,195,616 | 510,357 | 59,235,512 | 15,719 | 0.7% |

**Source:** own elaboration based on data from the Hungarian Central Statistical Office (2023)

This analysis underscores the differential impacts of the pandemic on investment trends in Poland and Hungary. The Polish public sector, heavily reliant on government funding, faced significant investment challenges, highlighting the vulnerability of state-dependent sectors during economic downturns. Conversely, the resilience of Poland's private sector reflects the flexibility and adaptive capacity of businesses not tethered to government finances.

In Hungary, the widespread impact across various economic sectors, especially those reliant on consumer interaction such as hospitality and tourism, illustrates the broad-based economic vulnerabilities to pandemic-induced disruptions. The sharp decline in investment in these sectors reveals the fragility of businesses heavily dependent on physical customer engagement.

The COVID-19 pandemic has led to a notable transformation in the investment structure across countries in Central and Eastern Europe (CEE). Investors have become more cautious, shifting their focus towards sectors less sensitive to economic fluctuations, such as technology, pharmaceuticals, and healthcare.

The response to COVID-19 has been a significant component of the investment policy in CEE countries. Governments in these nations implemented various measures to mitigate the adverse impact of the pandemic on foreign direct investments (FDI). Common strategies included providing financial support to pandemic-affected businesses. This encompassed subsidies, concessional loans, and tax benefits. Governments also introduced measures to create a favourable investment climate, including simplifying regulatory requirements, improving infrastructure, and developing human capital. Additionally, some CEE countries introduced protective measures for their domestic industries against foreign takeovers, including restrictions on the sale of controlling stakes in domestic companies to foreign investors.

Poland implemented a support programme for small and medium-sized businesses, including subsidies for capital investments and concessional loans. The Czech government introduced a support programme for the tourism sector, offering grants for marketing and advertising. Hungary launched a support programme for the technology industry, including grants for research and development. These measures are expected to positively impact the investment climate in CEE countries in the short term. However, there is also a risk that these interventions could lead to increased protectionism and trade restrictions, potentially adversely affecting the global economy.

In 2022, there were notable differences in the recovery pace between Central and Eastern Europe. Central Europe maintained an economic growth rate of 4.7% in 2022, but Eastern Europe's growth rate halved to 1.4%, indicating slower recovery rates and potential variations in investment activity. Simultaneously, strengthened economic activity in the Eurozone and rising commodity prices contributed to increased exports and remittances, providing additional support for recovery processes in the region. The investment market in CEE countries is expected to continue its recovery in 2024. However, it is likely to evolve at a slower pace than before the pandemic.

## 4. Discussion

The research indicates that the coronavirus pandemic has had a profound impact on the global economy, leading to a reduction in overall investment levels by more than 50%. This aligns with the findings of researchers such as Bjarne Steffen et al. (2020), who highlighted the pandemic as a socioeconomic crisis, as opposed to merely a health crisis. Their studies emphasised the various quarantine forms that led to a 3.5% contraction of the global economy in 2020, increased unemployment, and reduced investment activity.

The impact of the pandemic varied across different sectors and industries. Jiaqi Shi et al. (2023) pointed out the devastating global consequences due to strict social distancing, travel bans, and lockdowns. Different sectors accumulated numerous lessons in combating COVID-19, demonstrating the varying degrees of resilience and adaptability.

The study reveals that, despite the economic and political interconnections among European countries, anti-epidemic

measures were diverse and depended on the severity and timing of implementation (Werth et al., 2021). This resulted in varied investment patterns in the CEE region. While some countries maintained or even boosted their investment attractiveness, others suffered drastic reductions.

While the primary focus of this study is on the Central and Eastern European (CEE) countries, incorporating Ukraine into the comparative analysis is essential due to its unique geopolitical positioning. As a country straddling the Eastern edge of Europe and with close historical and economic ties to both CEE nations and Russia, Ukraine's experience offers valuable insights into how geopolitical factors can influence investment dynamics in times of global crises, such as the COVID-19 pandemic.

Ukraine's economy, already grappling with challenges such as political instability and ongoing conflict, has faced additional strains due to the pandemic. This situation is markedly different from the CEE countries, most of which are EU members and have more stable political environments and stronger economic support systems. The comparative analysis allows for an understanding of how these distinct geopolitical and economic conditions can impact investment patterns differently.

For Ukraine, the consequences are similar, despite a 7% increase in direct foreign investments in 2019 (see Table 7). In the first 10 months of 2020, investment inflows amounted to $220 million. Over the past 30 years, Ukraine has been subject to a chronic lack of investment. Since the dawn of Ukrainian independence, the Ukrainian economy has attracted approximately $50 billion in U.S. dollars. In contrast, Poland amassed about $240 billion in investments over the same period. This disparity is linked to the higher level of investment risk in Ukraine, reflected in credit ratings, and currently exacerbated by the ongoing conflict. To enhance the country's attractiveness to investors, it is necessary to create incentives, such as a unified coordination body for investors, tax holidays, and industrial parks.

**Table 7.** Direct foreign investment (DFI) in Ukraine from 2017 to 2023 (million USD)

| Year | DFI in Ukraine | | DFI from Ukraine | | Balance | |
|---|---|---|---|---|---|---|
| **2017** | 3,692 | -118 | 8 | -8 | 3,684 | -2.9% |
| **2018** | 4,455 | 763 | -5 | -13 | 4,460 | 21.1% |
| **2019** | 5,860 | 1,405 | 648 | 653 | 5,212 | 16.9% |
| **2020** | -868 | -6,728 | 82 | -566 | -950 | -118.2% |
| **2021** | 6,687 | 7,555 | -198 | -280 | 6,885 | -824.7% |
| **2022** | 1,152 | -5,535 | 529 | 727 | 623 | -91.0% |
| **2023** | 2,468 | 1,316 | 19 | -510 | 2,449 | 293.1% |

**Source:** own elaboration based on data from the National Bank of Ukraine (2023)

From the state fund designated to combat COVID-19, totalling around US$2.5 billion, the Ukrainian government allocated US$270 million to combat unemployment, US$616 million to the healthcare system, and US$1.3 dollars for road reconstruction.

In response to the crisis triggered by the COVID-19 pandemic, the European Commission introduced a recovery plan for 2021–2027 – the EU's Next Generation or the European Union Recovery Act. This plan envisages a funding amount of EUR 750 billion, aimed at ensuring sustainable and resilient

economic recovery. Access to this funding under the Act requires member states to prepare recovery project plans, detailing their investment objectives. The priority areas to be covered by the national plans include the development of renewable energy sources, energy efficiency in buildings, intelligent and sustainable transportation, expansion of corresponding infrastructure, digitisation of government and public services, and the development of industrial data cloud capacity.

Moreover, state regulatory measures aimed at investments in the healthcare sector suggest that private enterprises can receive support if they pivot towards producing goods and services essential for combating the COVID-19 pandemic.

The priority directions of the European Green Deal present opportunities for Ukraine and its private sector, especially in areas where the EU sees potential for alliance formation. This scenario opens up a variety of opportunities for suppliers of goods or services. Although EU funding is primarily available to member states, there are several sources open to third countries as well. These opportunities enable Ukraine to align its political and economic course with the new political frameworks of the EU. Attracting investments in the Ukrainian economy under the European Green Deal and increasing Ukraine's exports to the European Union will depend on collaboration between the government and the private sector. Without consistent state policies and support for the investment climate, it will be more challenging for exporters to capture a larger share of the European market or to utilise opportunities for additional funding.

Until November 2020, Ukraine provided more support to the fossil fuel sector than to green energy. According to the Energy Policy Tracker, from the beginning of 2020, Ukraine allocated at least US$63.34 million to fossil fuel sectors either from the state budget or as expenditures of state enterprises. As for renewable energy sources, the government reduced payments under the "green" tariff by approximately US$2.2 billion until 2030, and the state enterprise "Guaranteed Buyer" owed about US$1 billion to renewable energy producers. This also pertains to policies in the fields of mobility, agriculture, and industry. The government allocated some funds to building energy efficiency; however, these programmes were operational before the pandemic and, therefore, are not part of the recovery policy.

Thus, summarising the above points, CEE countries responded to the pandemic with various measures to mitigate its adverse impact on investments. These included financial support to affected businesses, subsidies, concessional loans, tax benefits, and measures to create a favourable investment climate. However, there is a risk that these interventions could lead to increased protectionism and trade restrictions.

Looking ahead, the investment market in CEE countries is expected to continue its recovery in 2024, albeit at a slower pace than before the pandemic. This forecast is based on strengthened economic activity in the Eurozone, rising commodity prices, and increased exports and remittances.

The pandemic has underscored the need for flexible and robust economic policies that can adapt to sudden market changes. For future research, there is a need to investigate the detailed impact of the pandemic on the investment attractiveness of specific CEE countries. This will aid in understanding how the pandemic has affected investment market transformations and investor decisions.

In conclusion, the varied responses and strategies adopted by the CEE countries, as well as Ukraine, in response to the COVID-19 pandemic have highlighted the critical importance of adaptive and resilient economic policies. These measures range from direct financial support to strategic realignments towards sectors less impacted by the pandemic, such as renewable energy and digital services. The disparities in economic resilience and

recovery among these countries underscore the complex interplay between health crises and economic structures. Additionally, the geopolitical positioning of countries such as Ukraine adds another layer to this dynamic, influencing both the challenges faced and the strategies employed in navigating the impact of the pandemic.

## Conclusions

The pandemic has led to a reorientation of investor focus towards different countries and regions. Investors have become more cautious about investing in Central and Eastern European (CEE) countries, which are perceived as riskier compared to developed nations. Additionally, the European Green Deal aims to facilitate sustainable investments for both public and private sectors. The sustainable finance strategy includes creating a taxonomy of sustainable activities, a standard for EU "green" bonds, and labelling for "green" financial products, among other measures. This approach will encourage transparency and a long-term vision in capital markets.

The COVID-19 pandemic significantly impacted investment activity in CEE countries, characterised by several key trends:

- Economic slowdown: In 2022, economic growth in CEE was expected to slow to 4.1%, partly due to the pandemic, reduced fiscal support, and supply chain disruptions.
- Exacerbated income inequality and fears of social unrest could affect investment stability in CEE countries.
- Changes in consumer confidence significantly influenced investment trends in CEE. Reduced new export orders and increased uncertainty due to COVID-19, inflation, and political instability affected regional investment decisions.
- Implementing cluster models of economic integration, based on synergy, can stimulate investments in innovative productions. This approach involves enterprises collaborating in clusters, sharing experience, resources, innovations, and knowledge.

Industry 5.0, representing a modern and attractive model for circular production investment, can be a critical factor in unlocking post-COVID investment funds. Digital cognitive clones, merging human behaviour in decision-making, are seen as favourable technologies for the future hybrid of digital and human worlds, accelerating the convergence of these realms (Nahavandi, 2019; Golovianko et al., 2023).

In the context of investment market evolution during the pandemic, the concept of Industry 5.0 is of particular relevance. Unlike its predecessor, Industry 4.0, which emphasised automation and technology, Industry 5.0 focuses on the integration of human creativity and craftsmanship with technological advancements. It represents a shift towards a more sustainable, resilient, and customised production model, placing equal emphasis on economic growth and societal wellbeing. Industry 5.0 can be pivotal in addressing the new post-COVID-19 market dynamics by promoting investments that are not only technologically advanced, but also socially responsible and environmentally sustainable.

In conclusion, the varied responses and strategies adopted by CEE countries and Ukraine to the COVID-19 pandemic highlight the need for adaptive and resilient economic policies. These measures range from direct financial support to strategic realignments towards sectors less impacted by the pandemic, such as renewable energy and digital services. The disparities in economic resilience and recovery among these countries underscore the complex interplay between health crises and economic structures. Additionally, the geopolitical positioning of countries such as Ukraine adds another layer to this dynamic, influencing both the challenges faced and the strategies employed in navigating the impact of the pandemic.

The emerging concept of Industry 5.0 offers a framework for future research and investment strategies, emphasising the blend of technological innovation with human-centric approaches. This new paradigm could potentially reshape the investment landscape, fostering a more holistic and sustainable economic recovery in the post-pandemic world.

Given these observations, there are optimistic and pessimistic approaches to forecasting the post-COVID economic situation. Optimistically, the pandemic has accelerated innovation across all economic sectors, with increased legislative encouragement for funding environmental projects and a rise in automation and social responsibility. However, some trends, such as investments in companies producing parts and equipment, continue to be popular among investors. Data from 2021 indicate the beginning of the recovery of global production and renewed international cooperation, especially in investments, prompting more active work by investment promotion agencies in developed economies. The pandemic is expected to lead to controlled acceleration of global inflation rates, making the crisis recovery uneven and challenging.

In light of these developments, future research should focus on comprehensively analysing the evolving landscape of global investment following COVID-19, with a special emphasis on the role and impact of Industry 5.0. This entails a deeper exploration into how the integration of human-centric approaches with advanced technologies under Industry 5.0 is reshaping investment patterns, particularly in the context of sustainable and resilient economic growth. Such studies could provide valuable insights into the effectiveness of current investment strategies and the potential for innovative models in fostering economic recovery and growth.

Moreover, there is a need to investigate the long-term effects of the pandemic on different sectors, especially those that have shown resilience and are aligned with the principles of Industry 5.0. This includes examining the role of digital transformation, circular economy models, and green investments in driving economic recovery and sustainability.

Additionally, given the uneven recovery and varying degrees of economic resilience among countries, further research should consider the diverse geopolitical and economic contexts, particularly in CEE countries and Ukraine. This would involve assessing the effectiveness of different economic policies and investment incentives in these regions and their alignment with broader global economic trends.

Finally, the potential shifts in consumer behaviour, market demands, and global supply chains in the post-pandemic era present another crucial area for future research. Understanding these shifts will be key to identifying new investment opportunities and challenges, thereby enabling investors and policymakers to make informed decisions in a rapidly changing global economic landscape.

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