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CONTENTS

THE ATTRACTIVENESS OF THE RUSSIAN FEDERATION FOR CHINESE INVESTMENTS UNDER THE CURRENT GEOPOLITICAL TENSIONS

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Abstract: As the West has sanctioned the Russian Federation as a form of protest to the Russian policy towards Ukraine, Moscow has turned to its closest partner in terms of political visions and strategic objectives, i.e., to China, to support its economy and pave the way for resource development and exploration energy with the help of Chinese capital. Although China declares itself neutral regarding the invasion of Ukraine by the Russian Federation, stating that it wants peace talks leading to a political agreement between Ukraine and the Russian state, the communication between these two countries with close political views is at an all-time high level so far. China has managed to absorb Russian exports boycotted by Western states and to fill the gap left by the largest withdrawal of foreign investors from the Russian Federation. The investment cooperation between the Russian Federation and China remained quite stable in comparison to the great retreat of the Western companies after the outbreak of the Ukrainian war and the imposition of international sanctions. Against his background, the research has the objective to analyse the current patterns of the investment relations between the Russian Federation and China, by presenting the current changes of the Russian investment framework under the Ukrainian war and identifying the Russian sectors that attracted the major part of Chinese investments.

Key-Words: foreign direct investment (FDI), Russian Federation, China, Russian-Ukrainian war

JEL Classification: F00, F21, F30

1. Introduction

In the wake of the Russian-Ukrainian war and the subsequent sanctions imposed by Western powers on Russian Federation, studying the dynamics of foreign direct investment (FDI) flows between the Russian Federation and China assumes heightened significance. Against the backdrop of escalating geopolitical tensions and economic uncertainties, analyzing this aspect provides valuable insights into the evolving global economic landscape and the strategic choices of major powers.

The war in Ukraine has significantly altered the geopolitical environment, prompting widespread repercussions on global economies and trade relations. As Western states applied sanctions on Russian Federation in response to its military actions, including restrictions on access to financial markets and technology transfers, this state has turned increasingly towards alternative economic partners, particularly China.

China's role as a major economic power and its growing influence in global affairs make it a crucial player in shaping the current economic landscape. Understanding the patterns and trends in FDI flows between Russia and China provides key insights into the extent to which these two nations are deepening economic ties amid geopolitical shifts.

Moreover, analyzing FDI flows between Russia and China offers valuable implications for the broader global economy. As traditional economic alliances are reshaped and new partnerships emerge, the strategic choices made by Russia and China have ramifications beyond their bilateral relations, impacting regional and global economic dynamics.

Furthermore, studying FDI flows in the context of the Russian-Ukrainian war and Western sanctions sheds light on the resilience and adaptability of nations in navigating geopolitical challenges. It offers lessons on how countries maneuver through economic constraints and geopolitical pressures to maintain economic stability and growth.

In this complex geopolitical environment, understanding the motivations, patterns, and implications of FDI flows between Russia and China becomes imperative for policymakers, economists, and businesses worldwide. It provides critical insights into the shifting power dynamics, economic interdependencies, and potential pathways for international cooperation and competition amidst global uncertainty.

2. The „no-limits" partnership between the Russian Federation and China

The Russian Federation and China share a complex, multifaceted relationship dating back to the 17th century, when Peter I ceded the territory north of the Amur River as far as the Stanovoy Range and kept the territory between the Argun River and Lake Baikal. Over the history, these two countries have been both allies and enemies, growing closer in recent decades because of the complementarity of their economies, close political visions, geographical proximity, and shared strategic goals. When considering the chronological evolution of the Chinese-Russian partnership, several key cornerstones must be noted.

Firstly, after the WWII and in the Cold War Early Period China and the Russian Federation (back then the Soviet Union) were close allies under communist ideologies, collaborating extensively until the late 1950s. Secondly, the Ideological Split[1] and the border conflict occurred. The Sino-Soviet split in the 1960s led to ideological divergence and a brief but intense border conflict in 1969[2], straining relations severely. After the Soviet Union's collapse in 1991, China and Russian Federation gradually rebuilt their partnership, focusing on mutual interests and strategic cooperation. During 1991 and 2014 (in the Pre-Crimean crisis era) economic cooperation thrived, with significant energy deals and trade agreements reinforcing their partnership, culminating in strengthened ties before the Crimean crisis. After the USSR collapse the economic cooperation played a crucial role in maintaining and rebuilding ties, providing a pragmatic basis for partnership despite ideological splits and historical conflicts.

The dynamism of this relationship has intensified in 2014, when the international sanctions imposed as a response to the annexation of Crimea by the Russian Federation determined it to strengthen political, military, and economic links with China (Radin et al., 2021). As these sanctions have limited Russian trade and restricted the access to international markets, Russian authorities embarked on a so-called „pivot to the East" strategy, emphasizing „friendly" relations with China, and increased investment between the two emerging markets.

Following the invasion of Ukraine in 2022, Russian dependence on China's economic and political support increased, rising China's advantage in this relationship. Moreover, in February 2022, in the context of the opening of the Beijing Winter Olympics, Xi Jinping and Vladimir Putin emphasized that both countries aim to promote a „no-limits" partnership that „goes beyond an alliance" (China Power Team, 2022; Jarmon, 2023). The joint statement issued later stated that this bilateral relationship has been more resilient than any post-Cold War alliance and that the partners want to overturn the current U.S.-led liberal international order.

The invasion of Ukraine tested the „no-limits" partnership between the Russian Federation and China. Although China declares itself neutral regarding the invasion of Ukraine by the Russian Federation, stating that it wants peace talks leading to a political agreement between Ukraine and the Russian state, the communication between these two countries with close political views is at an all-time high level so far. Contacts between Chinese

[1] The ideological split between China and the Soviet Union, known as the Sino-Soviet split, occurred in the late 1950s and early 1960s due to leadership and ideological differences. Mao Zedong's China and Nikita Khrushchev's Soviet Union diverged on the direction and implementation of communist ideology. Mao criticized Khrushchev's de-Stalinization policies and perceived them as a betrayal of true Marxist-Leninist principles. Moreover, both countries prioritized their national interests, leading to conflicting foreign policies. China opposed Soviet policies towards the West and its approach to coexistence with capitalist countries.

[2] The Sino-Soviet border war of 1969 was a brief but intense military conflict over territorial disputes along the Ussuri River, highlighting the deep ideological and geopolitical rift between China and the Soviet Union.

President Xi Jinping and his Russian counterpart, Vladimir Putin, have intensified since the outbreak of the war (CRS, 2023).

At the same time, although China has given assurances to the West that its support for the Russian Federation will not cross certain lines, it seems that there is a difference between what the Chinese state says and what it does. China has managed to absorb Russian exports boycotted by Western states and to fill the gap left by the largest withdrawal of foreign investors from the Russian Federation.

Although the ties between these two countries significantly increased, there are doubts regarding the strength of this relationship (Radin et al., 2021; Fong and Maizland, 2024). Some experts underline that Russian pivot to east is more rhetorical and political than economically substantial (CNBC, 2016), being based on similar perceptions of US hegemony and a common fear of NATO expansion in Europe (Simpson, 2023; Jochheim, 2023). According to Andrieu (2024), this alliance is not a solid and a long-term one, but rather a temporary rapprochement that has been strengthened by the Ukrainian war, being characterized by a fragility based on structural imbalances and mutual mistrust. Moreover, it is hindered by important divergence of interests between these two countries, but also by the economic weakness of the Russian Federation, which slows the existing projects, mainly in the field of energy and military technologies (Alexeeva and Lasserre, 2018).

3. Literature review

The existing literature approaching the Russian-Chinese economic relations is focused mainly on their bilateral energy cooperation, given that energy has laid at the heart of their relations since the fall of the USSR. Moreover, the major role of the energy sector for the Russian economy, but also the aim of China to gain access to energy resources led to an increased number of studies in this field (Jakobson, 2011; Poussenkova, 2013; Six, 2015; Chow, 2015; Kaczmarski and Kardaś, 2016). At the same time, the research in investment cooperation remains quite limited, being focused on two aspects, firstly, on the challenges regarding the Russian-Chinese investment cooperation, and, secondly, on the patterns of Chinese investment in the Russian Federation under the „Belt and Road Initiative" (BRI). For instance, Gao (2012) analysed the choice of Chinese foreign direct investment (FDI) in the Russian Federation from the perspective of the industry, and put forward the corresponding benchmark of industrial choice. Li (2013) investigated the problems and reasons for Chinese investment in the Far East of the Russian Federation. The investment strategy of China under the BRI is presented also by Li (2015) and Kravchenko et al. (2020), while Yin (2018) identified the risks for Chinese investments in the Russian Federation from the legal perspective. Moreover, recent papers argue that the Russian Federation needs China to realize many of its goals for infrastructure development and resource extraction, while China is eager to access the Arctic's economic potential and enhance its technological prowess (Stronski and Ng, 2018). However, Chinese investment is not materializing as broadly as Russian authorities would like, while Beijing often uses its economic leverage to extract favorable commercial terms. These developments could be a reason for conflict between Russia and China for the control and influence of the Far East (Bifolchi, 2024). However, from our knowledge, there are almost no studies that address the Russian-Chinese investment cooperation in the context of the war in Ukraine.

This article adds value to the existing literature by describing the current Russian investment framework under the Ukrainian war and by identifying the changing patterns of the Chinese FDI in the Russian Federation during the 2022-2023 period.

4. Methodology

To achieve the research objectives, we have employed a mixed methodology. Firstly, we have conducted a qualitative analysis of the Russian investment framework under the Ukrainian war, by presenting the data on foreign companies that suspended their operations or left the Russian Federation, between 2022-2023, but also the changes regarding the legislation on FDI adopted by the Russian government during 2022-2023, aiming to stop the retreat of foreign capital and to increase state control over it. In addition, we have carried out a quantitative analysis of the changing patterns of the Chinese FDI in the Russian Federation. The data on the amendments regarding the legislation on FDI were retrieved from the official site of the Russian government. Moreover, the Chinese FDI in the Russian Federation were gathered from the IMF database, while the data for

investment projects with Chinese participation carried out in the Far East of the Russian Federation were retrieved from the official sites of the Russian authorities.

5. The Russian investment framework under the Ukrainian war

Two years after the Russian invasion in Ukraine, the Russian economy is facing a significant decrease in the inflow of foreign capital. Thus, FDI inflows to the Russian Federation have seen a dramatic decline (-18.6 billion dollars in 2022, compared to 38.6 billion dollars in 2021), as the geopolitical climate has led various Western companies to stop or limit their activity on the Russian market (UNCTAD, 2023). As a result of unprecedented sanctions, applied by Western states as a form of protest to the Russian policy towards Ukraine, the Russian Federation has faced the so called „Great Business Retreat". Since the beginning of the Ukrainian war, more than 1000 foreign companies have announced that they are either suspending their operations or withdrawing from the Russian Federation (Yale, 2024). In the first stage, many companies suspended their activity while still making wage payments, leaving the Russian market later, e.g., the largest employers as McDonald's, Ikea, Coca Cola, Volkswagen Group, Toyota Motor Corp., Ford Motor Co., BMW AG, Hyundai Motor Co., and Renault SA etc.[3].

As a result of the withdrawal of foreign companies and the economic recession[4], in 2022, the total revenues generated by foreign companies in the Russian Federation decreased by 25% compared to 2021. However, the revenues of companies that chose to remain in the Russian market increased by 6.7% (Table 1), determined most likely by a reduced competition, which allowed the remaining companies to expand their market share and their profit margins.

Table 1: Foreign companies that suspended their operations or left the Russian Federation, during 2022-2023

Status-quo	Number of companies	Gross revenue recorded in the Russian Federation in 2021 (millions of dollars)	Gross revenue recorded in the Russian Federation in 2022 (millions of dollars)
Left the Russian market	359	93.350	-
In the process of leaving the Russian market	1.214	73.571	38.079
On hold	540	55.642	32.451
Decided to stay on the Russian market	1.615	93.058	99.372

Source: Authors' representation based on Kyiv School of Economics (2024).

According to SelfSanctions/LeaveRussia database (Kyiv School of Economics, 2024) the share of companies that have exited the Russian market tends to be correlated with the Russian government political stance towards the military aggression in Ukraine. For example, 20-30% of companies from the European Union (EU) have left the Russian Federation since the first year of the war, and at the opposite end of the spectrum, there can be find „friendly" countries (in official Russian terminology this term indicates countries which did not impose sanctions). For example, not a single company from China, Iran or the United Arab Emirates has left the Russian Federation since the outbreak of the war. Regarding the economic sectors affected by the FDI exodus, the largest share of withdrawals by foreign firms was reported in the field of advertising (25%), tourism (20%) and real estate business (21.7%). In the total number of companies that chose to leave the Russian market for good, German companies hold an important share (they represent 11% of the total number of foreign companies that stopped their operations in the Russian Federation).

[3] According to Yale (2022), which used a sample of 1,589 foreign firms active in the Russian Federation in the period before the outbreak of the war in Ukraine, 538 foreign companies had completely withdrawn from on the Russian market, while another 504 companies suspended their activities, keeping their options open for a possible resumption of economic operations.

[4] According to the current data revised by the IMF, in 2022, the GDP growth rate decreased in the Russian Federation by 1.2% (Source: https://www.imf.org/en/Countries/RUS).

Against this background, the Russian Federation tried to stop this retreat and to increase state control over foreign capital, by adopting important changes regarding its legislation on FDI (Ostapets, 2024). Thus, through the amendments adopted in 2023[5], foreign investors are prohibited from obtaining control over strategic entities or acquiring more than 25% of the ownership of a strategic entity. Foreign investors must also obtain the consent of the relevant authorities for the acquisition of smaller stakes in strategic entities or for the acquisition of blocking rights in respect of the activities carried out by such entities. In addition, the new legal framework limits the possibility of foreign companies to sell their assets on the Russian market (by imposing a temporary administration by the Russian authorities of the assets of these companies, taking place in fact a disguised nationalization).

Although some restrictions on FDI were in place before the outbreak of the war in Ukraine, the Russian economy was perceived quite attractive. Prior to the sanctions, some economic sectors – such as the automotive industry and mining – attracted a high level of FDI, especially from Western companies, e.g., Volkswagen Group, Toyota Motor Corp., Ford Motor Co., BMW AG, Hyundai Motor Co., and Renault SA etc., but also, BP, Shell, Exxon and TotalEnergies etc. Investment in automobile production has been favoured by the prohibitive car import tax and the accelerated growth in demand from Russian consumers, while in the case of resource-intensive industries, the FDI were driven by the imperative to develop production in regions with climatic challenges, e.g., the Far East, but also by the need for high technologies and know-how.

It should be noted that this tendency of the state to control foreign capital existed even before the current tense climate between the Russian Federation and the West, given that, as early as 2008, the Russian federal government adopted a law limiting the contribution of FDI in the economic sectors considered strategic. This legislative act[6] stipulated that the sectors of strategic importance for the national economy target aviation, the mining sector, nuclear development, outer space missions, weapons production, telecommunications, but also activities related to television and mass media. Consequently, the Russian authorities have managed to slow down, starting from 2023, the exodus of foreign capital by continuously changing bureaucratic procedures. A recent analysis (IMF, 2023) shows that the number of transactions involving sales of assets by foreign companies decreased in 2023 to 97 (from 109 in 2022), and the total value declined to 11.14 billion dollars (compared to 16.31 billion dollars in 2022).

Considering the great retreat of Western companies, the Russian Federation started to face major challenges related to the survival and the durability of its main industries dependent on the Western technologies, but also regarding the development of its regions with climatic challenges. Consequently, the Russian authorities turned their attention to more „friendly partners", e.g., to China.

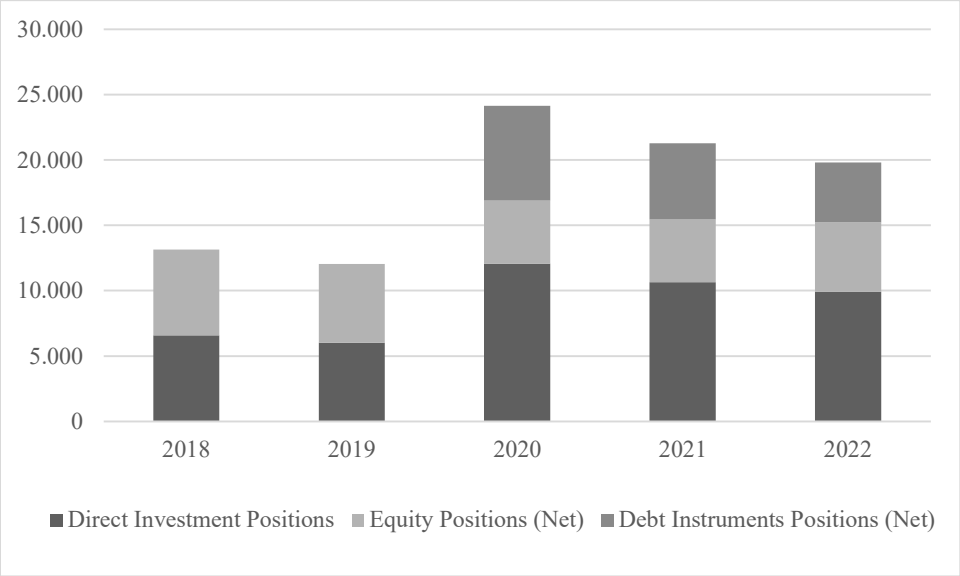
6 China strengthens investment links with the Far East of the Russian Federation

The investment cooperation between the Russian Federation and China continue to remain quite stable in comparison to the great retreat of the Western companies, with the outbreak of the Ukrainian war and the imposition of international sanctions. The inward Chinese FDI in the Russian Federation rose by 50.5% in 2022 compared to the 2018 level, direct investment positions mostly contributing to this increase (Figure 1).

[5] The Federal Law on Foreign Direct Investment, enacted in 1999 and recently amended in 2023. The law is available at: https://www.mid.ru/ru/foreign_policy/economic_diplomacy/1726314/

[6] The Federal Law on Foreign Investments in Companies in Strategically Important Sectors, adopted in 2008 and available at: https://www.consultant.ru/document/cons_doc_LAW_76660/

Figure 1: Inward Chinese FDI as reported by the Russian Federation, during 2018 - 2022 (in millions of dollars)



Source: Authors' representation based on IMF data (2023).

To benefit from the isolation of the Russian Federation, but also from the abundance of natural resources located on the common border, China aims to strengthen the transport links with the Far East of the Russian state at an accelerated pace. Through joint infrastructure investment projects, but also through investments in the mining industry, Beijing hopes to secure its access to natural resources and facilitate imports of oil, natural gas, and agricultural products.

According to Russian Deputy Prime Minister Yuri Trutnev, more than 90% of the FDI value attracted to the Far East to date has been financed by Chinese state-owned companies. Under these conditions, the Far East registered an annual increase of 150% in investments made by China, being the most attractive region of the Russian state for Chinese investments. In the period 2022-2023, the Chinese state has carried out a series of investment projects in this region in the transport and mining sectors, totalling a value of 2.2 billion dollars (Table 1).

Table 1: Investment projects with Chinese participation carried out in the Far East of the Russian Federation, during 2022 - 2023

Sector	Project	Investor Partner	Investment value (millions of dollars)	Year
Transport	Tongjiang - Nizhneleninskoye international railway bridge	China Railway Major Bridge Engineering Group, China Railway Harbin Group	315	2022
Transport	Heihe Blagoveshchensk cross-border road bridge	-	358	2022
Mining	Pizhemskoye titanium and quartz deposit (Komi Republic)	China Communications Construction Company	838	2022
Transport	Indiga Arctic Deep Port/ Sosnogorsk-Indiga Railway	China Communications Construction/ Company China Railway Construction Corporation	713	2023

Source: Authors' representation based on data published by the Government of the Russian Federation (2023).

One of the most recent projects is the construction of the first cross-border railway bridge, Tongjiang – Nizhneleninskoye (BRICS PORTAL, 2022) over the Amur River, worth 315 million dollars, which was completed in August 2022 (Table 1). The construction was financed in the amount of 25% by the Far East and

Baikal Region Development Fund and in the amount of 75% by the Russian-Chinese Fund. It is 2.2 km long, while the railway infrastructure is 19.9 km long. In addition to being one of the longest railway bridges, it is an important infrastructure element on the new Silk Road, as it connects the North-Eastern part of China with the Trans-Siberian Railway (Observer Research Foundation, 2023).

Another 358 million dollars transportation infrastructure project is the construction of the Heihe-Blagoveshchensk cross-border road bridge over the Amur River, which has separated modern China from the Russian Federation for decades. It was inaugurated in June 2022, with a daily transport capacity of 630 cargo trucks, 164 buses and 68 cars, further boosting trade between China and the Russian state.

Moreover, China's interests in the natural resources of the Russian Federation continue to materialize through important investment projects, such as the development of the largest titanium deposit in the Russian Federation (Komi Republic), initiated in 2022. Thus, Russian Titanium Resources and China Communications and Construction Company signed an agreement for the development of the Pizhemskoye mining field in the Komi Republic, worth 838 million dollars. This mining field holds the largest deposit of titanium and quartz in the world and more than 80% of the titanium ore reserves of the Russian Federation. The mining project was identified as a potential component of the official Strategy for the development of the Russian Federation's Arctic region and ensuring national security until 2035, approved by Russian President Vladimir Putin in October 2020. The involvement of the Chinese company in the project could give Beijing the opportunity to play an important role in developing Russian strategic assets. Also, this project is in Moscow's interests too. First, the Russian state aims to increase investments in the Arctic area and build a viable North Sea route and a functioning year-round passage through the Arctic, connecting Europe to Asia. Second, thanks to Chinese capital, Moscow hopes to gain long-term access to titanium reserves, which are particularly important for the aerospace, defence, marine, chemical processing, and automotive industries.

Another project aiming to contribute to the development of the Arctic region of the Russian Federation is the bilateral agreement signed in 2023 between the China Railway Construction company and the Russian authorities, worth 713 million dollars, which started the construction of the Indiga deep sea port and the Sosnogorsk-Indiga railway. These projects are expected to facilitate bilateral exports through the Ural region and Siberia, but also on the North Sea route.

7. Recent intergovernmental initiatives in the field of investment cooperation

In addition to mentioned above important bilateral projects, in November 2022, the Russian Federation and China signed a Memorandum on Strengthening Investment Cooperation and agreed to invest further 1.3 billion dollars in joint projects (TV BRICS, 2022). The role of Chinese investment for the Russian economy was confirmed in March 2023, when the Russian Prime Minister Mikhail Mishustin stated that the portfolio of Russian-Chinese investment projects concluded over time exceeded 165 billion of dollars (RSPP, 2022).

Bilateral investment relations were strengthened on November 20, 2023, during the 10th meeting of the Russian-Chinese Intergovernmental Commission for Investment Cooperation (RCBC, 2023), which resulted in the launch of new ambitious investment projects in priority sectors, such as the automotive, mining, natural gas, agriculture, logistics and IT. Particular attention was paid to the cooperation in the nuclear sector and in the field of renewable energy sources, the also being discussed the construction of fast neutron reactors and the use of the unique technologies of the Russian company ROSATOM. In addition, the countries addressed the implementation of joint projects in the field of aircraft construction and increasing cooperation in the car sector, but also strengthening cooperation in the field of artificial intelligence. At the meeting, the countries agreed to continue to expand the use of the rubble and yuan in bilateral trade and to support the establishment of the Russian and Chinese banks on their financial markets. Moreover, they stated the readiness to implement agreements on the coordinated development of the Greater Eurasian Partnership and the BRI[7].

[7] The President Vladimir Putin announced the Russian government's objective to develop a Greater Eurasian Partnership at the St. Petersburg Economic Forum in June 2016. In his opening speech, Putin proposed „to consider the prospects of a broader Eurasian partnership that would involves the Eurasian Economic Union", in which countries such as China, Pakistan, Iran and India would be included (Source: https://www.wilsoncenter.org/publication/kennan-cable-no-40-russias-search-for-greater-eurasia-origins-promises-and-prospects).

8. Conclusions

Our first finding is that although the invasion of Ukraine by the Russian Federation in 2022 led to an exodus of foreign capital from the Russian market in the first year after the outbreak of the conflict, however, because of the new legal barriers imposed by the Russian authorities the exodus slowed down in the second year of the war. As the West has sanctioned the Russian Federation, Moscow has turned to its closest partner in terms of political visions and strategic objectives, i.e., to China, to support its economy and pave the way for resource development and exploration energy with the help of Chinese capital. Consequently, the investment cooperation between the Russian Federation and China remained quite stable in comparison to the great retreat of the Western companies, helping to mitigate the adverse effects of the sanctions and providing the necessary financial support to support the Russian economy.

However, Moscow's dependence on China's investments has the potential to generate several challenges and risks for the Russian Federation. On the one hand, the long-term risks of growing dependence relate to Moscow's loss of sovereignty and control over key sectors of the economy. On the other hand, Chinese investments directed to the Far East support an economic model based on the extraction and export of natural resources, and the volume of Chinese capital is not large enough to cover the low level of public investment in the region.

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THE IMPACT OF THE RUSSIAN-UKRAINIAN CONFLICT AND OF THE GLOBAL AND REGIONAL SHOCKWAVE: SOCIO-ECONOMIC CONSEQUENCES

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Abstract: Against the complex backdrop of heightened global geo-economic tensions and risks following the outbreak of Russian-led military aggression in Ukraine, our article aims primarily to examine and retrospectively assess the profound disruptive effects caused by the Russian-Ukrainian war, while seeking to synthesise and capture simultaneously the destabilising impact of the ongoing conflict on the rules-based international order, on the global and regional economy, and on societies, governments, communities and institutions worldwide. With this last point in mind, in a separate section of our paper we will examine the consequences of the biggest humanitarian crisis in Europe since the Second World War and the concerted financial efforts made by the world's states to respond promptly and effectively to the exodus of Ukrainian citizens fleeing the war.

Keywords: Russian-Ukrainian conflict, consequences of the conflict in Ukraine, liberal world order, global economy, socio-economic impact

JEL Classification: F02, F50, F51, N40

1. Introduction

Although more than two years have passed since the Russian Federation's military invasion of Ukraine, the ongoing war continues to exert a disruptive impact on the global geopolitical and geo-economic landscape. Since its outbreak, the Russian-Ukrainian war has shaken the entire world, unleashing a global seismic wave through three engineered shocks (i.e. geopolitical, energetic and economic) that have simultaneously destabilised the international order as well as the global and regional economies.

Given that the recent academic literature is replete with studies and assessments regarding the "high price" that the world economy has paid and continues to pay as a result of the war in Ukraine – i.e. slowing growth, high inflation, disruption of global value chains, etc. – in our article, we have chosen to focus on how the conflict has affected the global geopolitical environment and on the socio-economic consequences it generated. As such, our analysis seeks to assess the wider socio-economic impact, highlighting how the war has affected not only the belligerent countries, but also individuals, communities, governments and public institutions worldwide.

This approach will allow us to understand, on the one hand, the scale of the political decisions taken by leaders of other nations to respond promptly and effectively to the massive humanitarian emergency caused by the Russian-Ukrainian war, and, on the other hand, the considerable collective financial effort made to resolve the refugee crisis.

2. Literature review and research methodology

2.1. Brief literature review

Over the past two years, since the outbreak of large-scale military aggression launched by the Russian Federation against Ukraine, a plethora of articles, analyses and reports have been published internationally to examine in depth the geopolitical, economic, and social consequences of the biggest conflict in Europe since the end of the Second World War. As it rapidly became clear that the effects of the conflict would quickly reverberate globally, sending shockwaves through energy and food supply channels, causing humanitarian, social and economic crises, and threatening to fundamentally alter the international order, researchers around the world

focused on each of these issues while trying to provide the best possible responses to mitigate the effects of the shock.

Recognising that the geopolitical consequences of the war extend far beyond the Russian-Ukrainian border, a large number of analysts have argued extensively in their works why the onset of the war represents a transformative moment that may mark a turning point for the liberal, rule-based international order [e.g. Rohner, Weder di Mauro, & Garciano (2022); Saxer (2022); Kupchan, 2023); Terlikowski (2023)].

At the same time, recognising in full consensus that the current armed conflict, like all previous ones, has had major economic repercussions felt around the world, most studies have attempted to quantify the additional pressure that the ongoing war has put on global value chains (GVCs), which were already vulnerable after the disruptive effects of the COVID-19 pandemic. Among the authors who have analysed the changes induced in the structure of GVCs and the consequent risk of disruption or even reversal of the globalisation process are Ruta (2022), Jenkins (2023) etc. Other scholars have focused their analysis on the far-reaching effects of the progressive waves of sanctions imposed on the Russian Federation by its Western partners in response to the unjustified aggression launched against Ukraine [e.g. Guénette, Kenworthy, & Wheeler (2022)], or on those resulting from the subsequent large-scale energy shock (e.g. Pantuliano, 2022), as well as on those resulting from increased geopolitical risks and widespread uncertainty (Caldara, Conlisk, Iacovello & Pen, 2022).

With regard to the socio-economic implications of the war and of the major humanitarian crisis it has generated, a series of reports published by the OECD (2022, 2023a) and the UN High Commissioner for Refugees (2023a, 2023b) have regularly assessed the fluctuations in Ukrainian refugee flows, on the one hand, and the financial impact – i.e. of receiving, sheltering and integrating migrants etc. – on host countries, on the other.

2.2. The research methodology in a nutshell

Given the complexity and the recent nature of the issue (due to the fact that the Russian-Ukrainian conflict is still ongoing), as well as the availability of statistical data, throughout our article we have interspersed several research methods, adapted to the specificity of each section. Thus, in the first section of our research, we have used methods based on qualitative analysis of the extensive relevant scientific literature that we have reviewed, on personal interpretations and opinions. Then, in the second part, we used quantitative analysis tools – i.e. statistical data published by the above-mentioned prestigious international bodies – on the basis of which we validated our results and drew the conclusions of our research.

3. General considerations on the nature, scope and consequences of the Russian-Ukrainian conflict

The Russian Federation's military invasion of Ukraine – begun on 24 February 2022 – and the subsequent escalation of the hostilities triggered the largest conflagration taking place in Europe after the end of World War II, and generated deep geopolitical and economic reverberations, rapidly propagated beyond the epicentre of the conflict and causing ample globally-felt negative consequences.

As proven by the centuries-old history of international politics, military confrontations represent transforming forces, and the Russian Federation's military aggression is no exception. As such, the ongoing conflict represents a point of inflexion for the new world order established in the period after the end of the Cold War, as it annihilates one of the fundamental assumptions underlying the very foundation of that world order: that the Russian Federation, unlike the Soviet Union, will no longer represent a threat for Western security, but a partner in addressing the possible challenges against common interests (Terlikowski, 2023). This is why, when it occupied the sovereign territory of Ukraine, the Russian Federation not only breached the last decades' consecrated doctrine of the inviolability of state borders, but also set a dangerous precedent, with potentially severe geopolitical consequences on the long term: the departure from the liberal, rule-based international order and the shift towards a world order in which the great powers create their own spheres of influence (Rohner, Weder di Mauro, & Garciano, 2022).

In the current particularly tense and divided global geopolitical context, in which both the Russian Federation, and China are openly challenging the Pax Americana and the unipolar world orchestrated by the U.S., increasingly promoting the model of a multipolar concert, based on areas of exclusive influence divided between the great powers, a legitimate question begins to be raised regarding the outlook of the new world order, namely which of these models will prevail. Although international political analysts are currently unable to put forward a pertinent view on this matter, reality itself reveals a few certainties: a) the world order is undergoing a full process of change and realignment; b) the democratic axis, promoter of the Westphalian model, enjoys wider

international support than the "autocratic axis" (which, in its turn, is tacitly supported by several countries belonging to the Global South); c) the U.S. has not abandoned its role as "guardian of the world", despite its increasing reluctance displayed in recent years (Saxer, 2022).

As it turns out, a *first direct consequence* of the Russian Federation's military aggression against the international system is that it divided this system into two (militarised) blocks, a state of fact reminiscent of the Cold War era: liberal democracies – interconnected based on the U.S.-led system of alliances – on one side, and the Russian Federation and China, whose "alliance" spans geographically from Eastern Europe to the West – on the other side. Nevertheless, unlike the Cold War period, when the rivalry between the great powers extended worldwide, at present, with the intensified tension between the two main blocks of forces, a large part of the world refuses to rally with either party. This is why some geopolitical experts (Kupchan, 2023) believe that effective non-alignment will most likely be the political option of many nations, and this will sway the balance towards multipolarity.

A second consequence caused by the Russian-Ukrainian war is the discontinuation of the globalisation process and the fragmentation of global economy[1], particularly after the transatlantic community broke its economic ties with the Russian Federation and the U.S. and its allies make considerable efforts to reduce economic interdependency with China, while also trying to slow down the latter's technological progress. Moreover, in the U.S., bi-partisan support for trade liberalisation considerably decreased in favour of protectionism and of the industrial policy, increasingly outlining a possible stagnation of policies that promote free trade and the deepening of global interdependence. All these circumstances will undoubtedly lead to an accelerated reconfiguration of global production and supply chains.

Given these circumstances, it must be noted that this conflict will especially reshape the global value chains built around companies that largely rely on imports from countries where the geopolitical risk increased, because this increased risk also entails the increase of the insurance premium paid by companies for coverage against a possible danger of discontinued production as a result of the sanctions imposed. However, as the combined action of several factors generates a state of inertia – e.g. the high costs caused by finding a new production location, the construction of a new infrastructure, relocation costs, etc. – the GVCs restructuring process will not cause a sudden deglobalisation (Ruta, 2022).

Triggered immediately after the deep crisis caused by the COVID-19 pandemic, the magnitude of which shook the entire world economy, the war in Ukraine with the particularly severe effects it generated internationally – i.e. the escalation of geopolitical tensions, the energy shock, the acceleration of inflation, etc. – determined not only a simple transition towards another global economic cycle, but the very beginning of a new phase that reshapes and restructures world economy. From this perspective, it could be ranking among in the series of historic events whose intensity had the capacity to unleash forces that caused true tectonic movements: a) the end of World War II (1945); b) the oil crisis (1973); and c) the collapse of the USSR (1991), each of these determining the reconfiguration of the global geopolitical and economic landscape and thus marking the start of another era (Bradley, Seong, Smit, & Woetzel, 2022) [Box 1].

Box 1: Stages in the evolution of world economy and the main determining events

1940	1950	1960	1970	1980	1990	2000	2010	2020	2030
	I.			II.		III.			IV.

I. Post-war boom stage (1945-1972)	II. Relaxation stage (1973-1990)	III. Market integration stage (1991-2019)	IV. New stage (2020/2022-….?)
PARTICULARITIES			
⇨ Creation of a new world order; ➔ the establishment of the UN and of the Bretton Woods	⇨ The oil shock (1973) affected industrialised economies ➔ the affirmation of the economic position of non-	⇨ Events such as: the fall of the Berlin Wall, the dissolution of the USSR and the signing of the Maastricht Treaty led to	**Possible scenario** ⇨ Beginning of **transition towards multilateralism**, which could involve the

[1] After the pandemic period highlighted the vulnerabilities of supply chains, the economic consequences caused by the Ukraine war revealed the additional risks posed by this kind of system. In the context of the new geopolitical climate, the companies' future investment plans will take into account deeper analyses of cost savings resulting from investments against the risks deriving from the activity carried out subsequently. At the same time, on the short term, the deglobalisation process will trigger new price increases, intensifying pre-existing inflationist pressures (Jenkins, 2023).

1940	1950	1960	1970	1980	1990	2000	2010	2020	2030
	I.			II.		III.			IV.
I. Post-war boom stage (1945-1972)		**II. Relaxation stage (1973-1990)**			**III. Market integration stage (1991-2019)**			**IV. New stage (2020/2022-….?)**	
PARTICULARITIES									
institutions (the IMF and the World Bank); ⇨ The U.S. dollar became a global reserve currency; ⇨ The U.S. takes on the role of global hegemon; ⇨ **Formation of the two competing and opposing blocks**, with antagonistic political doctrines but the shared objective of annihilating each other ➔ **beginning of the Cold War**;		Western countries on the global stage; ⇨ The inflationist recession of Western powers caused the swinging of the centre of interest towards the East; ⇨ **Attenuation of the Cold War tensions**; ⇨ Weakening of the U.S. power with the loss of the convertibility of the U.S. dollar into gold and the adoption of a floating exchange rate;			the acceleration of economic and political integration in Europe; ⇨ China adopted the path of economic openness and reforms; ⇨ Deepening of the globalisation process, extension of global production chains built based on the cost competitiveness of production factors and on the regulation of international economic cooperation (with the establishment of the WTO); ⇨ **Transition to a unipolar world** (after the dissolution of the USSR), centred on the U.S.;			grouping of countries into regionally- and ideologically-aligned blocks; ⇨ End of the moderation stage ➔ increase of the degree of political polarisation between blocks; ⇨ Possible transition from: **unipolar ➡ multipolar;** **global ➡ regional;** **moderate ➡ polarised system;**	

Source: Processing, synthesis and adaptation by the author based on Bradley, Seong, Smit, & Woetzel (2022).

Of the major consequences determined by the vectors referred to before as having the capacity to cause epochal changes, the global effects of the ongoing conflict in Ukraine appear to be similar to those caused by the oil shock in the early 1970s, namely: the onset of a major energy crisis, the accelerated and generalised increase of inflation, the outlining of a new monetary policy phase, a downturn in terms of demand, the affirmation of geopolitical multipolarity, an intensified competition for resources (in particular energy-related), as well as the slowdown of productivity in advanced Western economies. Like seismic movements, the aftershocks of the oil crisis occurred in successive waves, and the economic recovery of industrialised states required the adoption of exceptional intervention measures (e.g., in the case of the U.S.: the application of long-term restrictive monetary policies, including two-digit interest rates, etc.). Also, for non-OPEC countries to regain their energy independence[2], massive investments had to be made in the exploitation of internal crude reserves, to be able to substitute the supply from external, politically or geographically instable sources (Darmstadtler, 2014).

Despite the existing similarities between the effects of the two energy shocks, given evolution of the complexity of economic activity over time and the increase in the degree of global integration, there are several fundamental characteristics specific to the present that differentiate them: a) today's world is much more interconnected, globally, which makes the impact of commercial disputes considerable; b) the increasing correlation of financial markets increases the risk of contagion; c) the current environmental and carbon emission-related constraints limit possibilities for action. All these factors emphasize the persisting fears among governments and national/international decision-makers, fuelling the state of uncertainty worldwide.

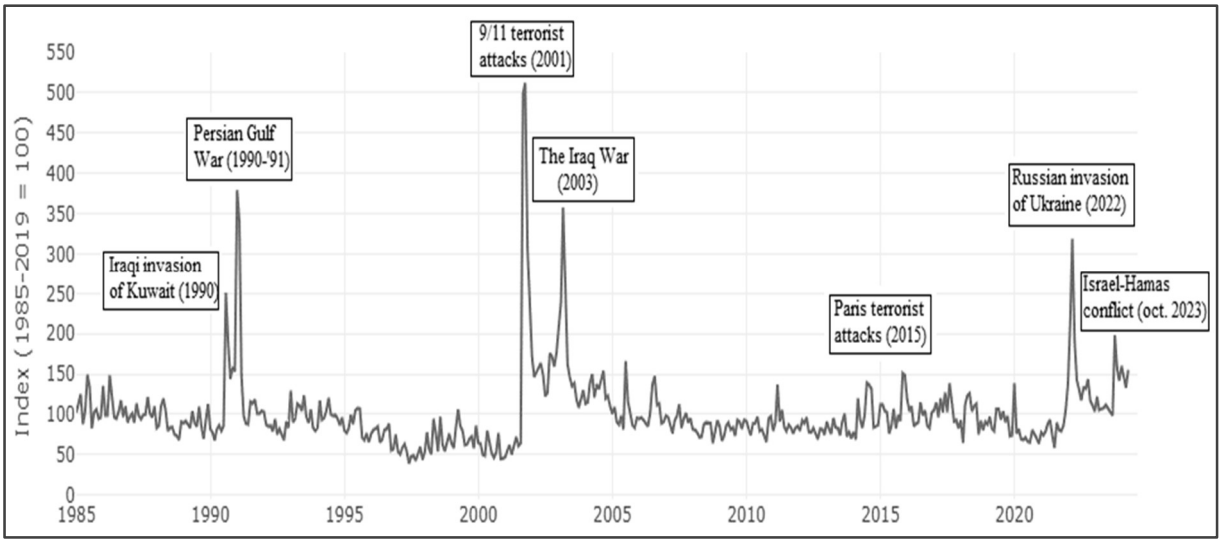
Moreover, this time, the nature of the shock is different, and the belligerent situation caused by the Russian Federation's invasion of Ukraine exacerbated the global geopolitical risk[3] (Figure 1), determining not

[2] Although large oil reserves were discovered in the 1980s across the globe, which weakened OPEC's power in establishing global prices, the process for the regaining of energy independence lasted around two decades (Grossman, 2023).

[3] Conflict periods have historically been associated with the highest geopolitical risks, generating negative effects for the world economic activity. This is because wars have destructive effects for the human and material capital, they transfer resources to less economically efficient activities, they deviate commercial and capital flows and, at the same time, they disturb global supply chains. Moreover, in an instable geopolitical climate, changes in how insecurity is perceived determine

only the increase of the prices of energy raw materials (just like in the case of the oil crisis), but also the deterioration of the sense of trust among investors and consumers.

Figure 1: Trends in the Geopolitical Risk (GPR) Index, 1985-2024*



Source: Graphic adaptation by the author based on Caldara & Iacoviello (2022) and the constructed index data,** published at: https://www.matteoiacoviello.com/gpr.htm;
Notes: * For 2024, the data shown are until April**; The geopolitical risk index constructed by the two economists of the US central bank cited enables the real-time measurement of this type of risk, as it is reflected by the perception of the public opinion, of the media, of global investors and of political decision-makers[4].

As can be seen from the data presented, after the Russian invasion of Ukraine, the global geopolitical risk index had one of its highest values in the last approximately three decades – the fourth position in descending order – reaching a "peak" comparable to the one noticed at the time the war in Iraq broke out.

The deterioration of the international geopolitical climate, amplified by the war in Ukraine, had a negative impact on the global economic activity throughout 2022 – resulting in its slowdown – and contributed to the acceleration of inflation, a circumstance that determined banks worldwide to toughen their monetary policies in order to dampen inflationist pressures.

In response to the aggression, many countries expressed their solidarity with Ukraine – by supplying military and humanitarian aid – and condemned the Russian Federation's illegal, unprovoked and unjustified act, by imposing ample and successive packages of economic sanctions[5]. However, the application of these penalties further disturbed the already malfunctioning international supply chains[6], particularly those in the energy sector. In the context thus created, the junction between the shock of supply and that of demand – stimulated by the expansionist fiscal and monetary policies adopted to stimulate consumption and support economic activity during the pandemic – created unprecedented inflationist pressures during the last decades (OECD, 2023b). That is why,

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the postponement of company investment plans and of employment increase projects, the erosion of consumer trust and the toughening of financial conditions (Caldara, Conlisk, Iacovello, & Pen, 2022).

[4] Given that the start date is the year 1900, *the global geopolitical risk index* is based on an analysis model developed by the authors as a result of automatic text searches in American and – during the recent years – European publications in the field. It comprises two other sub-indices: a) the geopolitical threat index, which captures the concerns related to the scope, duration and possible ramifications of geopolitical tensions and conflicts; and b) the geopolitical event index, which reflects the actual development of those events.

[5] It must be noted that when the conflict broke out, a series of sanctions imposed by the Western states in 2014, in response to the illegal annexation of Crimea, were still in force. These included: interdictions related to the export of military or dual use assets, restrictions on the financing of companies in sensible industries, sanctions on entities and persons considered to undermine the democracy or security of Ukraine, etc. (Guénette, Kenworthy, & Wheeler, 2022).

[6] Global supply chain dysfunctionalities occurred and amplified as the COVID-19 pandemic extended, entailed by the measures adopted worldwide and relying on the discontinuation of economic activity to counteract the health crisis. At the time the sanction packages against the Russian Federation were adopted, China was still applying the isolationist "zero-COVID" policy.

as we said before, in order to maintain price stability at a time when all national governments were applying expansionist fiscal measures,[7] central banks all over the world initiated cycles of exchange rate appreciation – designed to put downward pressure on borrowing costs – until the monetary policy became sufficiently restrictive to reduce inflation.

As such, the military confrontation initiated by the Russian Federation in Ukraine at the beginning of 2022 – at a time when the world economy was still facing the severe consequences generated by the pandemic crisis – caused a triad of successive shocks (economic, energetic and geopolitical), triggering severe negative effects that were propagated both regionally and globally, through a number of transmission channels, fuelled by: a) the increase of prices for raw materials (especially energy and agri-food products) and, subsequently, the beginning of a strong upward inflation trend; b) the disturbance of trade and of supply chains, as well as a historic increase of refugee flows (mainly in the European states); c) the reduction of investor trust, against the background marked by geopolitical tensions and risks, a factor that contributed to the discouragement of new investments and forced many transnational companies to limit their activities[8].

As shown by the above, the war waged by the Russian Federation in Ukraine – which is undoubtedly one of the most terrible events of our time – has had an ample negative impact (both directly, and indirectly) on world economy. Beyond its direct and profound socioeconomic consequences (i.e. loss of human lives and significant material damages), the Russian military attack caused shocks that generated systemic unbalances. Unlike the pandemic crisis, to counteract the effect of which countries resorted to a common set of economic policy instruments, the current crisis in Ukraine and its global reverberations affected the economies of the world in very different ways. This situation led to the emergence of tensions that were simultaneously felt both between the EU Member States, and within the bilateral relations between the alliance of western states and the Russian Federation and/or China, as well as within the relations between these power centres and the Global South (Pantuliano, 2022).

4. The socioeconomic impact of the war in Ukraine: the humanitarian crisis and the concerted response of the states of the world

From its onset, the Russian military offensive against Ukraine caused an extremely severe humanitarian crisis, with tens of thousands of civilian causalities – injuries and deaths (United Nations Human Rights Office of the High Commissioner, 2023) – and generated the largest European wave of refugees and forcefully displaced persons[9] in the post-Second World war era. Beyond the implicit consequences on the Ukrainian economy, this population exodus[10] generated a series of significant effects on the receiving states as well.

According to recent estimates drawn up and published by the Office of the United Nations High Commissioner for Refugees (United Nations High Commisioner for Refugees, 2023a), from the time of the launch of the Russian military offensive and until the end of 2023 (November), a number of around 10 million Ukrainian citizens were forced to leave their homes, and over 63% of them chose cross-border migration[11].

As regards the orientation of the migration flows, the largest part of the Ukrainian population affected by the war headed towards European states, in particular the EU Member States (Graph 1 and Table 1). Although in the first phase of the conflict, the majority of the citizens leaving Ukraine headed to Poland, by the end of 2023, Germany reported the highest number of refugees registered for temporary protection.

[7] These policies continued to be applied after the pandemic crisis was overcome, in the new unfavourable context generated by the energy shock, this time with the aim of mitigating the impact caused by high inflation on consumers and national companies.

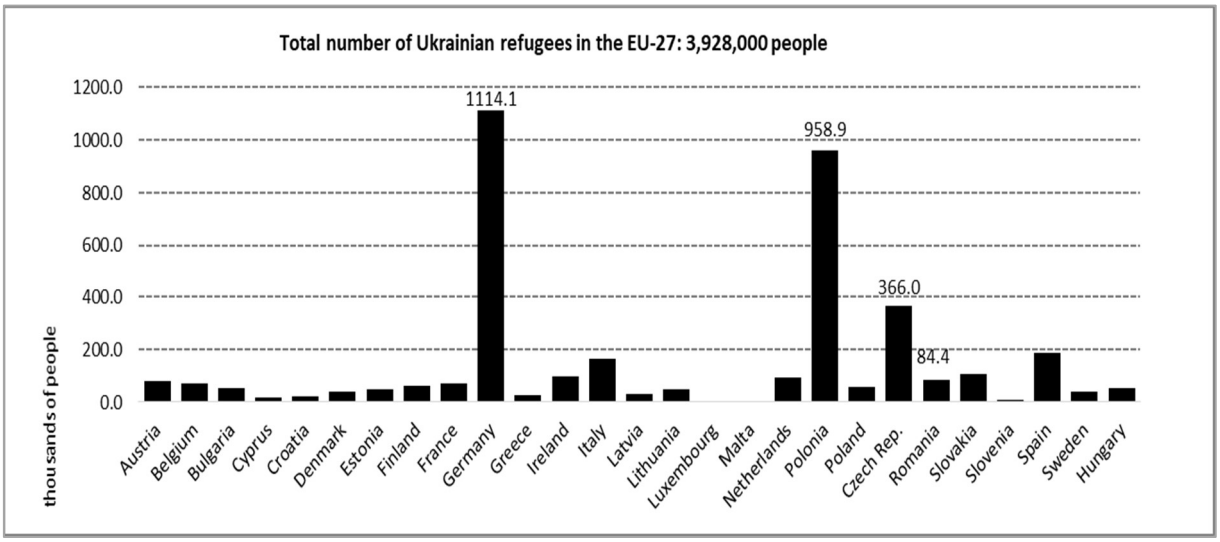
[8] This trend was also correlated with an ample divestment process, in the conditions in which, under the impact of the sanctions imposed to the Russian Federation by the Western states, many companies suspended their operations on this market.

[9] We refer here to the persons whose movement to find refuge and protection took place within the country's borders.

[10] In this context, it must be stated that, if in the early stage of the Russian military offensive, there was a mass exodus of historic proportions – e.g., in March 2022, around 200,000 persons were crossing the Ukrainian border on a daily basis – by the end of the year, these figures gradually decreased, with the net migration from Ukraine oscillating around zero (some months, this indicator even had negative values, because the number of returns to the country increased) (OECD, 2022).

[11] According to the estimate calculations of the UN Refugee Agency made public in the document cited, in November 2023, the number of persons displaced internally amounted to 3,674,000.

Graph 1: Number of Ukrainian refuges received by the EU Member States, 2022-2023*



Source: Graphic representation by the author based on the data published by United Nations High Commissioner for Refugees (2023b);
Note: *Because the estimate information published by the Office of the UN High Commissioner for Refugees are updated periodically, it should be noted that the data shown refer to the period between February 2022 and November 2023.

Table 1: Number of Ukrainian refugees received by the EU Member States and by other non-European countries, 2022-2023*

Non-EU European countries				Non-European countries	
Albania	3,800	Macedonia	18,345	Canada	184,100
Azerbaijan	4,690	Norway	56,970	Israel	9,060
Belarus	32,435	Moldova Rep.	111,835	US	200,000
Russian Federation	1,275,315	Serbia	4,175		
Georgia	27,400	Switzerland	66,065		
Island	3,250	Turkey	42,875		
Montenegro	63,205	United Kingdom	211,680		
1,921,040				393,160	
TOTAL: 2,314,200					

Sources: Compilations of the author based on data provided by the United Nations High Commission for Refugees (2023b);
Note: *Because the estimate information published by the Office of the UN High Commissioner for Refugees are updated weekly, the data shown were retrieved in November 2023; therefore, they refer to the period between February 2022 and November 2023.

As shown by the data regarding geographic distribution, after Germany, the main EU destinations receiving refugees are Poland and the Czech Republic, while Romania, Slovakia and Hungary, despite their proximity to Ukraine, rank 6th, 9th and 15th, respectively.

Outside Europe, many Ukrainian citizens headed to the United States – through a private sponsorship programme (*United for Ukraine*) – Canada[12] or Mexico (there are no statistical records related to Mexico).

Immediately after the beginning of the Russian Federation's military aggression, several OECD and EU member countries rapidly granted immigration concessions to the Ukrainian citizens entering their territory, such as: exemption from the obligation to present visas, extension of stays or the priority processing of immigration and/or asylum applications. Nevertheless, there are significant differences between the OECD countries within the EU and those outside the EU regarding the granting of the right of access on the territory and of residence permits and related rights.

[12] Based on a bilateral agreement between Canada and Ukraine, which provided for the granting of temporary visas and travel authorisations for emergency situations.

Also, in the OECD member countries, various types of support and assistance measures were granted to the Ukrainian refugees, but their scope varied between states in accordance with the type of entry/residence permit granted. In the EU, the *Temporary Protection Directive* (EU TPD, 2001)[13] provides for a set of harmonised rights for the beneficiaries, including the right to work (although restrictions may be applied in certain cases), to accommodation, healthcare and education for children below the age of 18. Because many of the persons arriving are minors, the European Commission guidelines (2022)[14] accompanying the Directive require that priority should be given to child welfare both during the initial reception phase, and afterwards.

The unprecedented scale of the crisis determined European countries to cooperate to put forward a joint response on how to manage the inflow of Ukrainian refugees. As a result, in March 2022, the European Commission (EC) set up a "solidarity platform" for the operational coordination between EU Member States: on the one hand, to collect the necessary information regarding the necessities and problems faced by host countries and, on the other hand, to coordinate operational activities.

Although all receiving countries adopted measures to mitigate the social and economic exclusion risks and to make sure the basic needs of Ukrainian refugees were met and, to this end, granted financial assistance, the levels and mechanisms of this financial assistance varied. As a result, although EU Member States, Norway, Switzerland and the United Kingdom offered subsidies that permitted Ukrainian refugees to cover their daily basic needs and to have access to decent housing, the amounts allocated for this were different: a) in Italy, the beneficiaries of temporary protection rights received the amount of EUR 300/person (plus EUR 150 for each child), for a period of three months; b) in the Netherlands, the financial allowance amounted to EUR 260/capita; c) in Spain, a maintenance allowance was granted in a first stage amounting to EUR170/month/person together with a rent allowance, followed afterwards by an allowance to cover basic needs (OECD, 2022).

Also, overall, receiving countries provided access to healthcare but, like with the financial support, the levels were different. In some countries, the support was limited to only emergency medical support, while other countries allowed a more extended access to social security systems[15]. Also, states such as Belgium, Portugal, Poland and the Czech Republic offered psychological counselling support either in the refugee reception centres or through specialised telephone hotlines.

As many refugees were accompanied by children, the provision of access to the public primary and secondary education system was a priority for all countries receiving Ukrainian refugees.[16] However, given the magnitude of immigration flows (in particular) in the first months of the crisis, the education systems of many countries were put under considerable pressure (in Poland, for example)[17].

Although given the unprecedented magnitude of such an exodus of displaced persons in Europe, it is very difficult at the moment to assess the economic consequences, a report drafted by the ă OECD (2022) estimates that only in the first 10 months from the onset of the conflict the costs related to the reception and support of Ukrainian refugees in the organisation's European member countries amounted to approximately EUR 27 billion (Table 2 and Box 1).

[13] The granting of protection is an exceptional, immediate and temporary measure in the context of a massive inflow of persons displaced from countries outside the EU who cannot return to their country of origin. Adopted as a result of the conflicts that took place in former Yugoslavia, the Directive was first activated since then by the European Council (at the request of the European Commission), in response to the Russian Federation's invasion of Ukraine (European Commission, 2023). The rights provided for by the Temporary Protection Directive (TPD 2001/55/EC) include the granting of access to: the labour market, housing, healthcare, education and social assistance for all those who are entitled to this protection, as well as the adequate approach of the needs of vulnerable groups (in particular, children, women, the elderly and disabled persons).

[14]European Commission (2022), Communication from the Commission on Operational guidelines for the implementation of Council implementing Decision 2022/382.

[15] For example, in Sweden, children were offered full medical services but for adults, this was limited to only medical and dental emergencies.

[16] Moreover, some countries – e.g., Finland, France, Hungary and Latvia – also offered opportunities for enrolment in the public pre-school system.

[17] Depending on the number of immigrants received, to facilitate the integration of children in the educational institutions and in the classroom activity, many countries resorted to Ukrainian-speaking teachers (e.g. Germany, Spain and the Czech Republic).

Table 2: Estimated expenses dedicated to the reception and integration of Ukrainian refugees in the OECD European member countries, 2022*

	Living costs	Primary education costs	Secondary education costs	Healthcare costs	Total costs	Total costs/capita
	- million Euro -					- Euro -
Austria	263	78	88	163	592	7,360
Belgium	400	51	47	91	589	12,626
Croatia	49	7	11	17	84	4,210
Denmark	86	66	23	82	257	8,288
Switzerland	394	71	73	177	715	13,452
Estonia	90	31	16	30	167	3,898
Finland	74	20	27	45	166	6,379
France	391	56	73	186	706	8,031
Germany	4,428	553	466	1,361	6,808	11,347
Greece	45	11	8	15	79	2,707
Ireland	176	29	23	69	297	10,064
Italy	418	98	80	141	737	5,710
Latvia	70	15	8	14	107	3,339
Lithuania	153	14	24	32	223	3,581
Luxembourg	24	13	10	16	63	12,487
Great Britain	96	16	31	63	206	6,073
Norway	106	43	13	73	235	12,491
Netherlands	241	62	53	132	488	8,549
Poland	6,207	1,133	356	664	8,360	5,225
Czech Rep.	1,265	144	208	341	1,958	5,028
Romania	499	149	148	207	1,003	3,012
Slovakia	411	68	68	94	641	4,217
Slovenia	41	4	3	5	53	8,978
Spain	981	115	81	181	1,358	8,009
Sweden	75	114	21	115	325	7,525
Hungary	104	84	96	87	371	1,730
TOTAL	**17,182**	**3,069**	**2,072**	**4,432**	**26,756**	
Average						**6,173**

Source: Author's compilations based on the data published by the OECD (2022);
Note: Estimate data calculated by the OECD cover the period February-December 2022.

As shown, the military hostilities conducted by the Russian Federation caused the mass displacement of the Ukrainian population from the conflict zone, generating a profound social and economic impact both for the Ukraine and for the numerous receiving countries. The refugees' long stay exercised and continues to exercise numerous challenges for the social security systems in host countries, given that these systems must accommodate a higher number of persons.

Although the refugee inflow is usually associated with an increase in public spending, as well as with an upturn in property prices and rents in the host countries, it must be said that an immigration wave of such magnitude may boost the development of national economies, thus offsetting the depopulation trend and the severe workforce deficit currently faced by many European countries (United Nations, 2023).

5. Conclusions

The launch of the Russian Federation's aggression in Ukraine opened a new vile chapter in the book of universal history, marking the renewal of armed conflicts in Europe and bringing along the major danger of the birth of a new era of confrontation between East and West, risking to endanger the international liberal order orchestrated under the leadership of the U.S. in the post-World War II era, and at the same time to put a stop to the globalisation process, determining the fragmentation of world economy. As such, the Russian-Ukrainian war unsettled the rule-based world order that had lasted for over seven decades, thus intensifying the global competition for power.

At the same time, beyond the danger of incommensurable proportions for world peace and, in particular, peace in Europe, the Russian-Ukrainian conflict sharpens a series of pre-existing negative global economic trends – e.g., accelerated inflation, extreme poverty, the increase of food insecurity, deglobalisation and the worsening of environmental degradation – and with the end of the era of peace dividends, which enabled the financing of higher social spending, the recalibration of tax priorities could become a difficult task even for advanced economies.

The changes caused by the conflict that has been continued during the last two years were truly unprecedented in the conditions in which countries with a long history of neutrality made efforts to join NATO while others, known for their non-involvement (e.g. Germany) announced foreign policy changes, delivered military equipment to the Ukraine and decided to increase national budget allocations for defence. In these conditions, the year 2022 will remain in history as a crucial moment that marked the end of one epoch and the beginning of a new historical phase.

As regards the Ukraine, the country in which the Russian military offensive caused direct devastating effects, both socially (numerous civilian victims and a true exodus of the population seeking shelter, etc.), and economically (both through the ample material destructions, and through the discontinuation of production and of the overall economic activity), some estimates show that, so far, the reconstruction costs could amount to a value twice higher than that of the national GDP in the year prior to the onset of the war[18]. As a result, beyond the devastating consequences and the long-term traumas caused to the numerous civil casualties, and the direct and indirect material losses caused to the Ukrainian economy, the Russian military aggression caused an ample humanitarian crisis, as millions of persons were displaced searching refuge and/or required urgent humanitarian assistance. This humanitarian crisis of unprecedented extent in the recent history required the rapid mobilisation of receiving states, of their institutions, of communities and of the national populations to grant political and public support to Ukrainian refugees.

To this end, to provide a community-wide harmonised political response, the EU Council activated the EC Temporary Protection Directive for the first time since its adoption (2001), and the (European or non-European states) members of the OECD drafted and implemented ample packages of measures seeking to facilitate the access and accommodation of Ukrainian citizens.

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HOW THE RUSSIAN-UKRAINIAN WAR HAS SHAPPED THE STATE AID POLICY IN EU[1]

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Abstract: The ongoing war from Ukraine (started by the Russian Federations' unprovoked military aggression on Ukraine in February 2022) has created a tense geopolitical situation with widespread economic repercussions, affecting not only the directly involved parties but also their economic partners. The European Union (EU) has been significantly impacted by this event, particularly through the sanctions imposed on the Russian Federation, which have disrupted the bilateral trade. Against this background, the European authorities have utilized the State aid policy to mitigate the adverse effects of the Russian-Ukrainian war on the economies of the Member States. Our research focuses on identifying the main instruments used in the field of State aid and on examining how the Member States, particularly Romania, have leveraged these tools to lessen the war's negative impact on their national economies. To achieve this, we will conduct a comparative analysis of the State aid provided since the start of the Russian-Ukrainian war, using the latest data published by the European Commission in the State Aid Scoreboard. Additionally, we will present a case study on how Romania has utilized the Temporary Crisis Framework (TCF) and the Temporary Crisis and Transition Framework (TCTF) to support its national economy amid the war's consequences. Our primary finding reveals that, similar to the pandemic crisis, the State aid policy has proved its effectiveness and adaptability in promptly supporting the economies of the Member States affected by the Ukrainian war. Furthermore, our second finding shows that Romania has successfully taken advantage of the new opportunities presented by TCF and TCTF.

Keywords: Russian-Ukrainian war, State aid, Temporary Crisis Framework, Temporary Crisis and Transition Framework, EU, Romania

JEL Classification: *F01, P43, P45, P49*

1. Introduction

The State aid policy is one of the most reformed in the EU, undergoing through several changes over the past years in order to become adapted to the new economic challenges brought first by the pandemic crisis (Ladi & Tsarouhas, 2020; Wolff & Ladi, 2020; Schmidt, 2020; Ferri, 2021; Dermine, 2020) and then by the Russian-Ukrainian war. According to the main regulations in the field[2] any Member State may grant State aid to support various economic sectors, but such aid must be proportionate to the difficulties faced, limited in duration, and must not disrupt the free competition within the internal market.

The EU's regulations allowed certain types of State aid, considered compatible with the internal market. Such aids may be granted to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment, to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State. Although strictly regulated the State aid policy has been always adapted to better cope with the economic difficulties brought by exceptional events such the former COVID-19 pandemic and the current Russian – Ukrainian war. Hence, special derogations have been promptly adopted to provide the adequate legal framework necessary to

[1] European Union.
[2] See the Article 107 of the **Treaty on the Functioning of the European Union which stipulates that** aid to make good the damage caused by exceptional occurrences may be granted but must always have a minimum impact on the free competition.

support the Member States confronted with economic difficulties. Such special derogation was the Temporary Crisis Framework (TCF) for State aid measures to support the economy following Russia's aggression against Ukraine (European Commission, a, 2022). TCF was adopted in the aftermath of the war in Ukraine (on 23 March 2022) to help the Member States to cope with the imbalances generated by the new economic environment.

TCF provided the guidelines necessary to allow the adoption of State aid to reduce the economic repercussions of the war and, notably of the sanctions against Russian Federation on the internal market. The adoption of exceptional regulations in the field of state aid was essential since studies by Prohorovs (2022) and Ahmed et al. (2023) indicate that many European businesses were affected in various ways, both directly and indirectly, by the consequences of the Russian-Ukrainian war. Mbah & Wasum (2022) have highlighted that the war created several types of imbalances, from shrinking demand to the interruption of existing contracts and projects. These events have led to a loss of turnover for many European companies and have caused disruptions in supply chains, particularly affecting the availability and affordability of raw materials, pre-products, and other inputs.

TCF allowed the adoption of targeted state aid for all the affected sectors from the energy field to the agriculture, since the Russian-Ukrainian war has resulted in a disruption of supply chains for EU imports from Ukraine for certain products, especially cereals and vegetable oils, as well as for EU exports to Ukraine. Moreover, while the energy market has been significantly affected by increases in electricity and gas prices in the EU, the impact of the war has also been felt on financial markets, in particular with concerns for liquidity and market volatility in commodity trade. Against all these economic difficulties, the TCF established a series of guiding principles to help the states to grant adequate aids without disrupting the free trade and competition across EU.

The first principle established that in order to cope with the new challenges resulting from the geopolitical situation, the Member States have to ensure liquidity and access to finance for undertakings, especially SMEs that face economic challenges under the current crisis. Since the measures benefiting non-commercial energy consumers do not constitute State aid, provided they do not indirectly benefit a specific sector or undertaking, the Member States were allowed to grant social payments to those most at risk which could help them afford their energy bills in the short term, or provide support for energy efficiency improvements, while ensuring effective market functioning.

According to the new legal provisions, the aid for commercial consumers were also not considered State aid if such measures were non-selective. Such non-selective measures were considered the general reductions in taxes or levies, a reduced rate to the supply of natural gas, electricity or district heating or reduced network costs.

The second principle of the new legal framework required that all aids must be granted in a non-discriminatory way, while setting requirements related to environmental protection or security of supply. It should be noted that on 9 March 2023**,** the European Commission amended the TCF to allow Member States to support the economy in the context of the Russian invasion of Ukraine (European Commission, 2023).

After the adoption of the new regulations, the Member States granted several types of aids to support their national economies, as shown by the latest data published in the State Aid Scoreboard (European Commission, 2024). In the following sections of our paper we aim to investigate how and through what instruments such crisis related aids were granted, while highlighting the Romania's situation. However, it worth mentioning that while the newly adopted rules were essential to mitigate crisis related difficulties, the TCF only complements the State aid toolbox with many other possibilities already available to Member States, such as measures providing compensation to businesses for damage directly suffered as a result of exceptional circumstances and the measures outlined in the REPowerEU Communication (European Commission, b, 2022).

2. An overview of the literature

The EU's State aid policy has been widely analysed in specialized literature, starting with the much-debated modernization reform (SAM Reform), which is considered by many studies (Papp, 2015; Pesaresi & Peduzzi, 2018; Drăgoi, 2020) to be a cornerstone of the current regulations in the field.

Many studies (Bauer & Becker, 2014; Barbier-Gauchard et al., 2021; Ladi & Tsarouhas, 2020; Haas et al., 2021; Żak & Garncarz, 2020; Kociubiński, 2024) report positive effects of State aid in mitigating exceptional crises in the EU's economy, starting with the international economic and financial crisis of 2008-2009, followed by the pandemic crisis, and continuing with the current crisis triggered by the war in Ukraine. In such troubled

economic environments, the State aid policy has repeatedly proven to be the right tool to not only correct market failures but also address the negative effects of external shocks on the entire internal market.

As shown by Andhov, Biondi & Rubini (2023) the COVID-19 pandemic and subsequently the war in Ukraine prompted a massive shift in the State aid policy from EU. Some studies (Rosanò, 2020; Drăgoi, 2020) are showing that the COVID-19 pandemic has shaped the State aid policy in order to fully meet the new economic challenges. Some articles are showing that as in the pandemic case, the war in Ukraine lead to the need of special regulations (Smulders, 2022) hence the newly adopted TCF allowed multiple derogation for the Member States, while basing its main approach on the article 107(3) (b) of the Treaty on the Functioning of the European Union given that in the new geopolitical outlook the entire EU economy was facing serious disturbances.

It should be noted that the TCF was amended twice after its adoption, first on 20 November 2023 and then on 2 May 2024, following the feedback received from Member States after public consultations. Recent studies (Makris, 2023) have pointed out that such revision and prolongation of exceptional State aid rules (until 31 December 2024) was necessary to better support all the European undertakings in all the sectors affected by the geopolitical crisis provoked by the Russian Federation's aggression against Ukraine. Makris (2023) is showing that since the economies of the 27 Member States are deeply interconnected and interdependent, the European authorities have the competence to examine State aid programmes and to decide whether fair competition across the single market is preserved or threatened. However, the mentioned study shows that in time of crisis these authorities proved to be a flexible and generous crisis regulator.

The main provisions of the TCF allow Member States to grant various types of aid, including direct grants of up to 400,000 euros per undertaking and other forms of liquidity support such as state guarantees and subsidized loans. This aid is available to any business in any economic sector affected by the war in Ukraine. Additionally, the new rules permit specific measures to compensate businesses facing high energy prices. These compensation measures can take any form, including direct grants, as long as the beneficiary does not exceed 30% of the eligible costs and the aid does not exceed a maximum cap of 2 million EUR at any time. There are recent studies (Grafström et al., 2023; Nicolaides & Bilal, 2023) showing that such generous and flexible provisions allowed Member States to not only provide compensation to undertakings for damages directly suffered due to the war in Ukraine, but to also better sustain the transition to clean energy.

Grafström (2023) points out that the newly adopted rules in the field of State aid enabled the Member States to rapidly and adequately support the green transition and the clean energy across EU.

3. Research methods

Our methodological approach encompasses a quantitative analysis of the crisis related State aids granted by the Member States in the aftermath of the Russian-Ukrainian war, while also performing a case study analysis to reveal the Romania's situation. The main objective of the research is to show which types of aids were selected by the Member States to support their economies in the analysed time frame, while highlighting the share of such crisis related aids (called Temporary Crisis Framework Crisis aids, TCF - related aid) in the total aids granted across EU. The analysis is also based on secondary data sources: studies, reports and working papers prepared by official EU and national institutions. To address the article objectives, the paper delves into Romania's national context, focusing on the State aids granted after the outbreak of the Russian – Ukrainian war as a reflection of how this international event has shaped the state aid policy in this country. This approach provides insights into the type of State aids used to cope with the economic difficulties generated by the Russian – Ukrainian war, highlighting what tools were preferred by the national authorities (grants, guarantees, loans or tax exemptions). The significance lies in Romania's success in using the provisions of the TCF and TCTF[3] for supporting the national economy through State aids.

The originality of our research is determined by the fact that although there are multiple analyses of the impact of the pandemic crisis on the state aid regime in the EU, there are few articles that study the effects of the war in Ukraine on the European state aid policy. Also, our perspective on the State aid situation in Romania, granted after the start of the Ukrainian war, has not been addressed in other recently published researches. The limits of

[3] Temporary Crisis and Transition Framework (TCTF) was adopted on 9 March 2023 by the European Commission to support the economy following the aggression against Ukraine by Russia. The TCTF was amended on 20 November 2023, to support measures in sectors which are key to accelerate the green transition and reduce fuel dependencies.

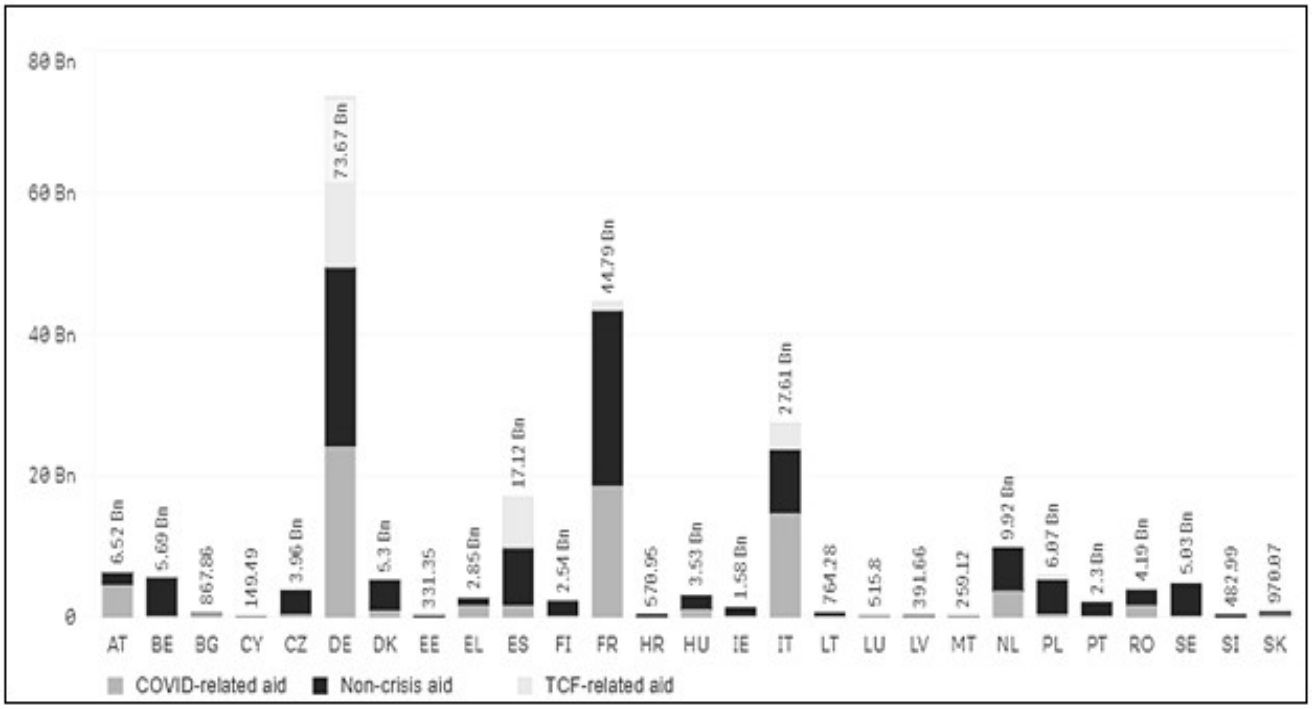
our research are linked to the lack of data for 2023, hence we intend to extend the current research as soon as new data will be available.

4. The State aids granted in EU under the TCF provisions

As with the earlier Temporary Framework adopted during the COVID-19 pandemic, the European Commission swiftly approved a variety of State aid measures under the TCF provisions, targeting nearly all economic sectors (Cseres & Reyna, 2021). However, it is important to note that any horizontal measures aimed at all undertakings, such as wage subsidies or direct financial support to consumers, fall outside the scope of Article 107 TFEU. Additionally, the TCF requires Member States to consider, in a non-discriminatory manner, implementing requirements related to environmental protection or security of supply (Piechucka et al., 2023). Such measures may include mandates for beneficiaries to ensure that a certain proportion of their energy consumption comes from renewable sources.

The latest EU statistics show that despite a significant reduction in state aid expenditure in 2022 compared to 2021, all Member States continued to support companies affected by the crises caused by the COVID-19 pandemic and by the Russia's war against Ukraine (Graph 1). In 2022, Member States reported state aid expenditures totalling 228 EUR billion for various objectives. This amount corresponds to 1.4% of the 2022 EU GDP and represents a 34.8% reduction compared to 2021, when expenditures reached 349.7 EUR billion. Of the reported state aids, 17% (39.33 EUR billion) were directed toward measures to counterbalance the negative effects of the Russian invasion of Ukraine (TCF - related aid).

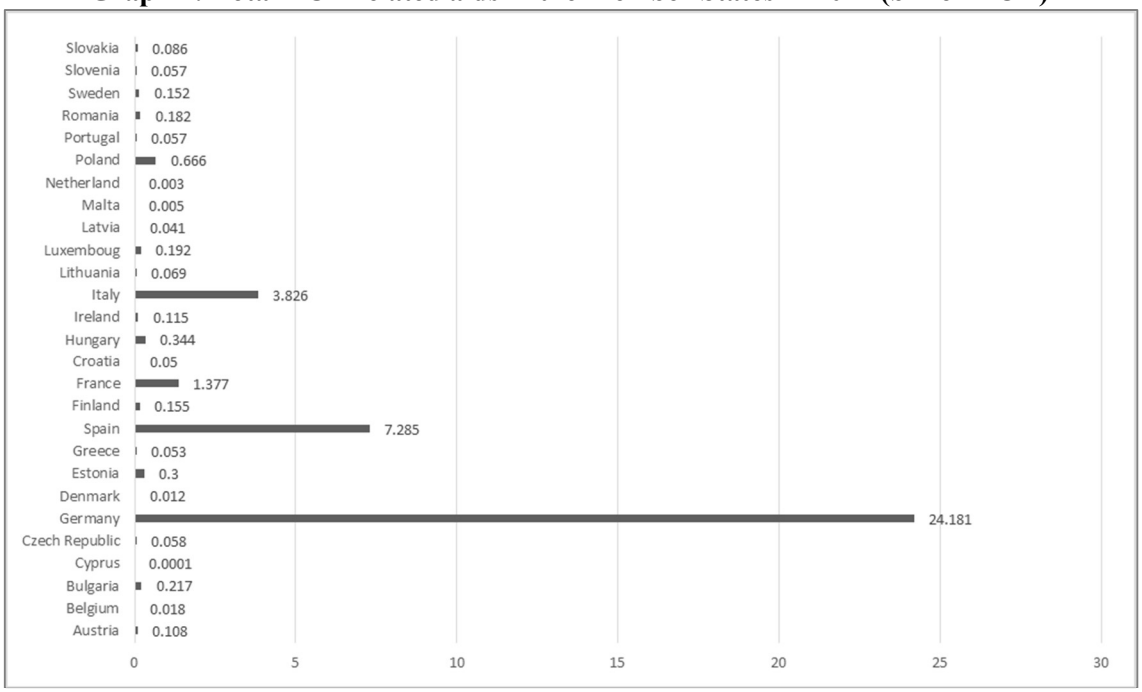
Graph 1: Total State aid expenditures in current prices in 2022 (billion EUR)



Source: Author based on State Aid Scoreboard (https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1890)

When comparing the aids granted for the COVID-19 crisis with TCF-related aid, one may see that in many Member States, the first type of aids are still dominant. One of states that choose to grant the highest number of TCF-related aid was Germany (24.1 EUR billion), followed by Spain (7.2 EUR billion) and Italy (3.8 EUR billion), while on that last place ranked Cyprus with (0.0001 EUR billion) (Graph 2).

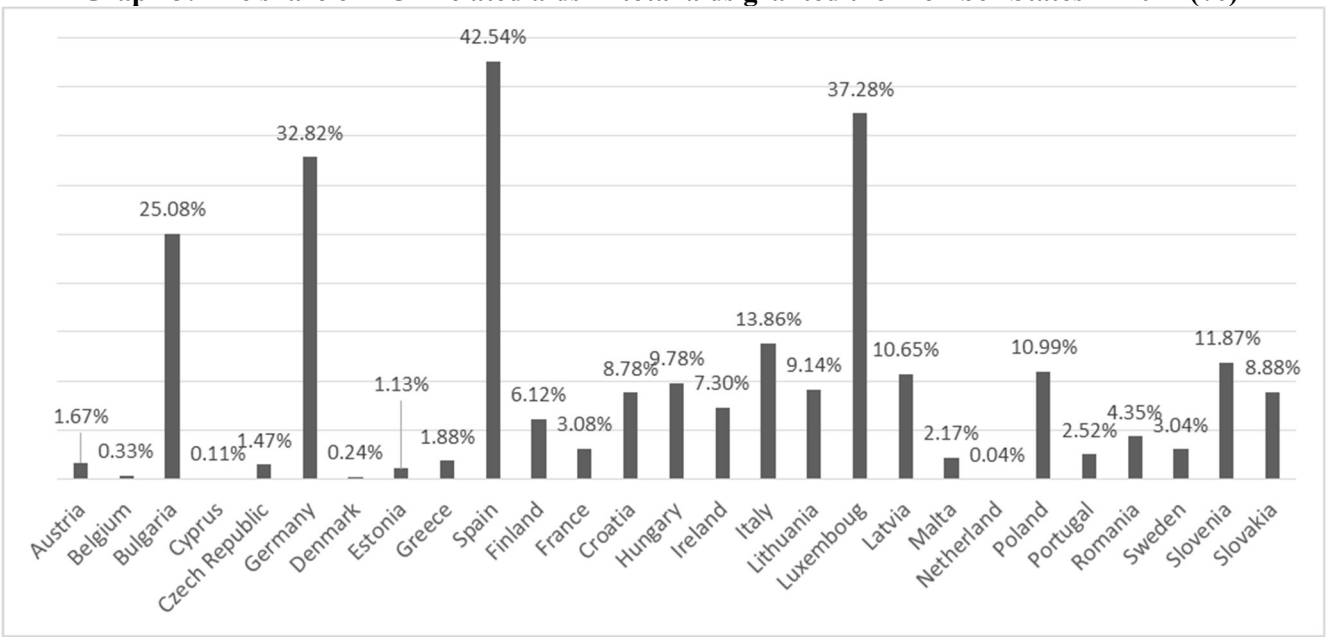
Graph 2: Total TCF-related aids in the Member States in 2022 (billion EUR)



Source: Author based on State Aid Scoreboard (https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1890)

In 2022, the highest share of TCF-related aid in total granted aids was granted by Spain, followed by Luxembourg, Germany and Bulgaria, while Romania approved only 4.35% TCF-related aid (Graph 3).

Graph 3: The share of TCF-related aids in total aids granted the Member States in 2022 (%)



Source: Author based on State Aid Scoreboard (https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1890)

It should be noted that under TCF legal provisions direct grants were offered to cover fixed costs of businesses, especially for SMEs that faced a slump in demand due to the economic difficulties generated by the war in Ukraine. These grants were a lifeline for businesses to survive through the crisis without having to permanently close down, but, in many cases, have also helped the Member States to boost the green transition, hence speeding up the process of reaching climate neutrality. Since the TCF enabled tailored State aid measures, some Member States, as was the case of Germany, used all the available tools to better address the needs and circumstances of their economies.

As mentioned before, all type of financial tools (from guarantees to loans and direct subsidies) were available for the TCF-related aids, but the preferred instruments were the direct grants, followed by guarantees and loans (Table 1).

Table 1: Main type of instruments used in the Member States for TCF - related aid in 2022

Member State	Instrument	Value of aid (billion EUR)
Austria	Direct grant	0.108
Belgium	Direct grant	0.0006
	Soft loan	0.018
Bulgaria	Direct grant	0.217
Cyprus	Direct grant	0.00015
Czech Republic	Direct grant	0.058
Germany	Direct grant	1.756
	Guarantee	0.001
	Other	19.838
	Soft loan	2.419
Denmark	Direct grant	0.006
	Soft loan	0.012
Estonia	Direct grant	0.0037
Greece	Direct grant	0.053
Spain	Direct grant	0.737
	Direct grant/ Interest rate subsidy	0.0007
	Guarantee	0.093
	Others	6.453
Finland	Direct grant	0.034
	Soft loan	0.029
	Tax allowance	0.011
France	Direct grant	0.265
	Guarantee	1.107
Croatia	Direct grant	0.0004
	Guarantee	0.044
	Soft loan	0.001
	Interest subsidy	0.003
Hungary	Direct grant	0.341
	Guarantee	0.003
Ireland	Direct grant	0.115
Italy	Direct grant	0.034
	Guarantee	0.811
	Reduction of social security contributions	1.618

Member State	Instrument	Value of aid (billion EUR)
	Tax advantage or tax exemption	0.458
	Tax allowance	0.903
Lithuania	Direct grant	0.030
	Guarantee	0.0001
	Soft loan	0.038
Luxembourg	Direct grant	0.007
	Guarantee	0.184
Latvia	Direct grant	0.35
	Soft loan	0.006
Malta	Direct grant	0.003
	Soft loan	0.002
Netherland	Direct grant	0.003
Poland	Direct grant	0.556
	Guarantee	0.109
	Soft loan	0.004
Portugal	Direct grant	0.057
Romania	Direct grant	0.042
	Guarantee	0.139
Sweden	Direct grant	0.152
Slovenia	Direct grant	0.057
Slovakia	Direct grant	0.086

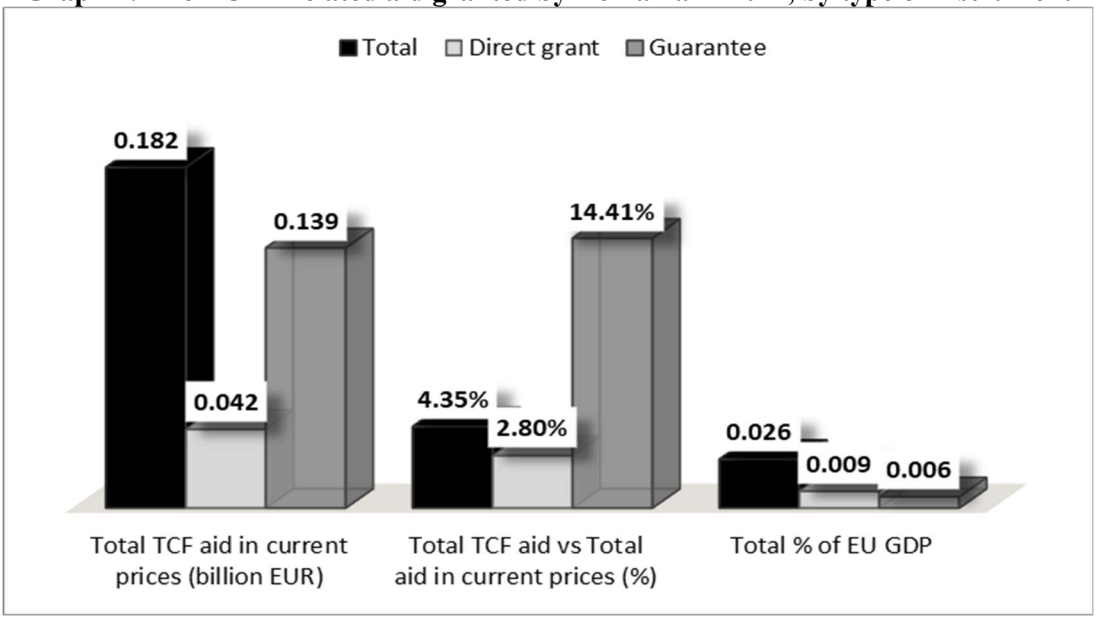
Source: Author based on State Aid Scoreboard (https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1890)

As shown in Table 1, the states that granted the highest share of TCF-related aid in 2002, Germany and Spain, used a broader mix of instruments. In contrast, Romania choose guarantees as its preferred tool for TCF - related aid. While there were differences in application, all State aid measures had to comply with TCF rules to avoid any distortion of competition within the single market. The TCF's guidance on these measures was to ensure they were necessary, appropriate, and proportionate to remedy a serious disturbance in the economy of the Member State, with certain strict requirements to be met.

5. The case of Romania: steps to deal with the crisis and facilitate the green transition

Romania's choose to fully use the opportunities brought by TCF to support its economy in the aftermath of the war in Ukraine. This event affected the Romanian companies through several channels such as disrupted trade flows, energy supply challenges, financial market volatility and investment declines. As previously stated in our analysis, the total TCF granted aid in Romania in 2022 accounted to 0.182 billion EUR, representing 4.35% from the total aids granted in 2022, while the highest share in total TCF-related aid was allocated through guarantees (Graph 4).

Graph 4: The TCF – related aid granted by Romania in 2022, by type of instrument



Source: Author based on State Aid Scoreboard (https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1890)

When we look at all the aids approved for Romania during 2022-2024[4] (Table 2) one may notice that many are addressing the immediate liquidity needs to ensure economic stabilization in the short term, while there are some related to the promotion of sustainable recovery (in such cases being required to the beneficiaries to develop and follow through with restructuring plans that address long-term viability).

Table 2: A chronological overview of the State aids granted by Romania to cushion the economic impact of the war in Ukraine on national economy

Date	Objective	Value (in current prices)
28 June 2022	The scheme aims to support companies active in road transport of goods and persons in the context of Russia's invasion of Ukraine. The scheme's goal is to provide liquidity support to companies affected by the fuel prices increase caused by the related sanctions. The scheme had two mandatory conditions: the aid to not exceed 400,000 EUR per company and to be granted no later than 31 December 2022.	**60.7 million EUR**
9 September 2022	Under this scheme, the aid was granted in the form of loan guarantees with a maximum budget of 3.6 billion EUR and of direct grants with a maximum budget of 390 million EUR to compensate parts of the costs due under the guaranteed loans. Under TCF provisions the scheme helped to ensure that sufficient liquidity remains available to the affected companies by enabling banks to continue lending to the real economy.	**4 billion EUR**

[4] See the approved list of decisions on: https://competition-policy.ec.europa.eu/document/download/1b687754-5eab-4447-bcbb-da0eb9ae61b9_en?filename=State_aid_TCTF_decisions.pdf

Date	Objective	Value (in current prices)
18 November 2022	The scheme aimed to support processors of agricultural products in the context of the Russia's war against Ukraine. The measure was open to the processing agricultural sector, in particular to operators of the milling industry, oils and fats, dairy products and animal feed preparations. The purpose of the scheme was to provide liquidity to the eligible beneficiaries, which are heavily affected by the increase of energy and other input costs. The scheme had two mandatory conditions: the aid will not exceed 2 EUR million per beneficiary and be granted no later than 31 December 2023.	**200 million EUR**
18 November 2022	Under the scheme, the aid has taken the form of guarantees on loans and subsidised loans. The measures was open to small and medium-sized enterprises (SMEs) with an annual turnover above 4 million EUR and to large companies across sectors with some exceptions.	**500 million EUR**
27 January 2023	The scheme aimed to support companies in the context of Russia's war against Ukraine through guarantees on new loans and direct grants**.** With respect to the direct grants, the aid was limited to 250,000 EUR per beneficiary active in the primary production of agricultural products, to 300,000 EUR per beneficiary active in the fishery and aquaculture sectors and 2 million EUR per beneficiary active in all other sectors.	**695 million EUR**
13 October 2023	The scheme aimed to boost investments in sea and inland ports in the context of Russia's war against Ukraine. Under the scheme, the aid consisted of limited amounts of aid in the form of direct grants**.** The measure will support private port operators in order to enhance the functioning of the "Ukraine-EU Solidarity Lanes".	**24 million EUR**
9 February 2024	Under the scheme the aid will be granted through direct grants **to** agricultural producers of some plant products, especially winter cereals and rapeseed producers that are at risk of losing financial liquidity due to the difficulties in the agricultural market provoked by the war in Ukraine. Under this scheme, the aid will not exceed 280,000 EUR per beneficiary; and will be granted no later than 30 June 2024.	**241 million EUR**

Date	Objective	Value (in current prices)
20 February 2024	The scheme[5] aims to support the tomatoes and garlics' producers through direct grants. The measure may be accessed by such producers if they are at risk of losing financial liquidity due to the difficulties in the agricultural market provoked by the war in Ukraine.	**37.6 million EUR**
6 March 2024	The scheme aims to support installations producing electricity from onshore wind and solar photovoltaic to foster the transition towards a net-zero economy, in line with the Green Deal Industrial Plan.	**3 billion EUR**
5 April 2024	The aid will take the form of **guarantees and direct grants**. The scheme aims at ensuring that sufficient liquidity remains available to companies affected by the economic disturbance provoked by Russia's war of aggression against Ukraine.	**2.5 billion EUR**

Source: Author based on List of measures approved for the Member States under TCF https://competition-policy.ec.europa.eu/document/download/1b687754-5eab-4447-bcbb-da0eb9ae61b9_en?filename=State_aid_TCTF_decisions.pdf

As shown by the list of approved aids, displayed in Table 2, the war in Ukraine shaped the State aids granted by Romania. On one hand the TCF and TCTF aids aimed to support certain economic sectors (like agriculture and transport), but on the other hand, there were aids targeting the development of renewable energies. Such "green" aids aimed to boost the green transition in Romania, while mitigating the risk of an energy shortage in the national economy.

The preponderance of guarantees as preferred instrument used by the Romanian authorities reduced the risk for banks when they issued loans to companies, particularly those perceived as high-risk. This measure encouraged banks to keep lending to the economy and ensured businesses had continued access to credit.

6. Conclusion

Our main finding is that the war in Ukraine lead to a massive shift in the State aid regime in EU. Through the adoption of TCF and TCFT, the European authorities have provided with the appropriate legal framework that allowed to the Member States to approve the necessary measures to sustain their national economies. The goal of such aids was to infuse the market with sufficient liquidity, while also encouraging companies to adopt measures for green objectives such were renewable energies and sustainable transportation. While some Member States (Germany and Italy) took the opportunity to use large amounts of aids and multiple instruments others, like Romania, favoured the guarantees as main tool. Both TCF and TCTF were fully used by the Member States allowing the appropriate support to balance the need for immediate economic relief with sustainable recovery.

Our second finding shows that in the case of Romania one may notice that while successfully using the new opportunities presented by TCF and TCTF, many aids have been granted even in 2024 to mitigate the effects of the war in Ukraine, but also to prepare the national economy for the green transition. Moreover, in Romania's case the negative consequences that spread after the start of the war in Ukraine showed that while state aid is crucial in times of crisis it is also important that such measures to be aligned with broader EU objectives, such as the green transition and digital transformation, further contributing to sustainable development.

We strongly believe that for Romania the war in Ukraine proved to be the needed reset for the State aid regime, allowing not only targeted support for sustainable recovery but also more focus on investment and reforms that will enhance the resilience and competitiveness of the national economy.

[5] The scheme was approved under the Temporary Crisis and Transition Framework (TCTF).

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ROMANIA'S JUST TRANSITION: COMPARATIVE INSIGHTS AND BEST PRACTICES FROM EU MEMBER STATES

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Abstract: This article analyses recent European Commission regulations, and working documents as well as a selective literature on just transition. Our research also presents examples of best practices from various Member States. This research focuses on the just and green transition impact on the labour market development in Romania. Withal, the outlook of the circular economy is analysed, as an essential component of the green economy, in the context of the just transition in Romania. In Romania, the just transition is accompanied by opportunities, but it should not neglect the challenges. The acceleration of the process of phasing out the consumption of fossil fuels and the development of zero-emission technologies generate significant pressures on the labour market and the regional and county economies. The main objectives of this article are to analysis the consequences of a just transition in the EU and to identify solutions and formulate recommendations for Romania. The main findings of our research show that the just transition process depends on restructuring and building new competitive advantages by diversifying the local economy and startup sector development. The public policies should stimulate good governance and partnerships between municipalities, universities, and private firms, as well as cooperation between trade unions and local authorities.

Keywords: just transition, best practices, circular economy, European Union, Romania

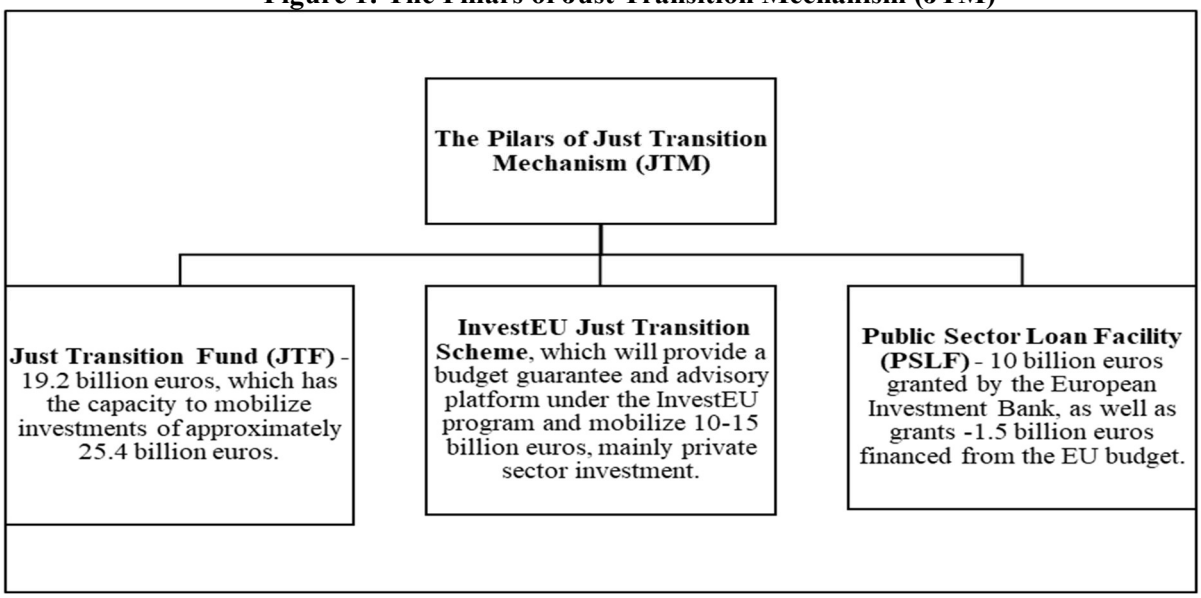
JEL Classification: *J2, J24, J48, Q2, Q52*

1. Introduction

The just transition is a component of the EU's cohesion policy, within the framework of the European Green Deal. In December 2019, the European Commission (2019) adopted a communication on the European Green Deal, which sets out a roadmap for a new EU growth policy. As part of the European Green Deal, the European Commission proposed the creation of a Just Transition Mechanism, which includes a Just Transition Fund. The Just Transition Mechanism has to focus on the regions and sectors most affected by the transition due to their dependence on fossil fuels, including coal, peat, and oil shale, and on industrial processes with very high greenhouse gas emissions (European Parliament, 2022).

According to the European Commission, the Just Transition Mechanism (JTM) is a key instrument for European decarbonization policy, aimed at mobilizing at least 55 billion euros between 2021 and 2027. It aims at a fair transition to a climate-neutral economy, equivalent to mitigating the socio-economic impact of this deep transformation and restructuring process (European Commission, 2021a). JTM provides targeted support based on three pillars (Figure 1).

Figure 1: The Pillars of Just Transition Mechanism (JTM)



Source: Author's representation based on European Commission (2021a).

The implementation process is complex and must include, in addition to the technological components and measures of education and professional training, measures of active employment on the labour market, as well as social and regional protection. These tools are essential for helping local economies innovate, overcome potential labour market imbalances, and manage job losses (redundancies, restructuring) and job creation. Labour market policies accompanying the just transition are also essential to help generate decent employees' jobs.

As shown by the European Commission (2021b), the impact of the just transition has four parts, summarized in Table 1.

Table 1: The impact of just transition

Parts	ELEMENTS
1. Social Impact	• From the energy restructuring in the EU, almost 237,000 people from coal-related activities will be affected, as almost 10,000 people from peat extraction activities and around 6,000 people employed in the oil shale industry. • In some cases, the social impact will not be associated with job losses, but with a significant need for professional retraining or upskilling of workers in industrial sectors, as well as with worker mobility to accompany the necessary technological transformations.
2. Economic Impact	• European Commission estimates show that by 2030, between half and two-thirds of coal-fired power generation capacity will be phased out. • This decline will have an economic impact on the development of the coal regions, most of which already have a regional GDP per capita lower than the national average. • The closure of mines and the decommissioning of fossil fuel power plants generate structural changes in related industries (e.g. mining equipment manufacturing, manufacturing or transport and logistics).
3. Demographic Impact	• Young people may be particularly affected, not only because they face above-average levels of unemployment, but also because they are more inclined to migrate out of the region.

4. Impact on the environment	• In particular, the cessation of extractive activities, the closure of mines, or the decommissioning of certain production facilities may be associated with land abandonment, soil and water contamination, geophysical instability, or other environmental hazards, including **health risks**.

Source: Author's representation based on European Commission documents

2. Literature review on just transition impact in the Member States

Krawchenko & Gordon (2021) point out that the term "just transition" was first promoted in the 1970s by the North American trade union movement for inclusion in environmental legislation and regulation. The just transition included measures necessary to respect social rights, ensure the basic means of living for employees, and reduce the social impact of industrial restructuring. Subsequently, the concept of a "just transition" became prominent globally in climate change negotiations through the support of international trade union organizations.

Abram et al. (2022) emphasize that the just transition offers an integrated perspective of the entire energy system (procedural, distributive, restructuring) while finding systemic solutions to address the social and economic environment. Job creation does not guarantee equitable outcomes because the concept of social justice goes beyond employment. However, some authors still support the maintenance of fossil fuels in the energy mix, such as García-García et al. (2020), who states that a review of just transitions must focus only on job creation and profit, without considering the social dimension.

The complexity of the just transition challenges prompts the promotion of new strategies and a rapid response, both from political decision-makers and economic actors. Against this background, a well-designed transition to a climate-neutral economy can make labour market more resilient to the potential negative effects generated by the amplification of the process of globalization, to the consequences produced by the adoption of new technologies, to the persistent deficits of labour force and, not least, to demographic changes (Czako, 2020)

The recent literature offers various examples of just transition. JTM is the target of concern for countries such as *Poland*, whose economy remains heavily dependent on fossil fuels. Śniegocki (2021) appreciates that the just transition process in the Silesian area is based on regional development and the restructuring of the mining sector (gradual closure of coal mines). In January 2021, the Polish government presented the draft Partnership Agreement, which specifies how it intends to spend the funds available under the EU's multiannual financial framework for 2021-2027. According to the project, the Silesia region will receive 2.8 billion euros to be spent through the Regional Operational Program financed by the European Regional Development Fund (ERDF) and the European Social Fund Plus (EFS+), as well as an additional 2 billion euros through the JTF. In the last two decades, in Poland, the economy of the Silesian region has become more diversified. There has been a permanent decrease in the volume of coal extracted and a decrease in the number of people employed in the mining sector, following which other sectors of the economy have developed such as IT, health, and innovative technologies such as artificial intelligence.

Heyen et al. (2021) highlight that to counter the risk of rising unemployment, measures were taken in *Germany* that were partly financed by the EU, and included early retirement packages, compensatory payments, wage subsidies, worker retraining, and economic development programs. Also, considering the new skills requirements and the future challenges, retraining strategies were developed and implemented with the help of centres and agencies such as the Ruhr Coal Vocational Training Society. These initiatives are not new but have been in force since the mid-1980s. For the economic restructuring, the local authorities have supported existing firms to diversify their activities and have promoted proactive industrial policies.

According to Galgóczi (2018), social dialogue, partnerships between municipalities, universities, and private firms, as well as cooperation between trade unions and regional governments have enabled the achievement of several goals in *Germany*. In 1993, a comprehensive agreement guaranteeing social responsibility during the restructuring process was signed by the relevant parties. In 2007, a social consensus agreement was launched between the federal and regional governments, and the German government together with the coal industry association and the mining union laid the groundwork for the coal mining subsidies elimination. Following the restructuring and streamlining of mining, in the first half of 2021 coal made the largest contribution to Germany's energy production, while wind power reached its lowest level since 2018 due to unfavourable weather conditions (Apostoiu, 2021).

In *Hungary*, more than 250 million euros from the JTF will support the regions most affected by the phase-out of coal and the closure of the lignite-fired Mátra power plant. Funding will be directed towards investments

in low-carbon technologies. In 2007, an industrial park was created in the Mátra area, which now hosts more than 20 enterprises. While lignite still dominates Hungary's energy mix, the Mátra region has laid the groundwork for its phase-out by 2029 while securing thousands of jobs through alternative economic activities (World Resources Institute, 2022). In *Hungary*, the Just Transition Fund will also help workers acquire new skills, support transitions to new jobs, and promote the creation of new firms (Rosch & Epifanio, 2022). Supplementary, approximately 5.3 billion euros from the European Social Fund Plus (ESF+) will support access to the labour market and a quality education system. Special attention will be paid to the skills development necessary for the green and digital transition in Hungary (European Commission, 2022a).

The *Czech Republic* allocated an amount of almost 1.5 billion euros from the Just Transition Fund. Three regions were identified as "the most affected": Moravia-Silesia Region (MSR); Ústecký (UR) and Karlovarský (KVR). The available funds have already been allocated between regions: 46% is allocated to MSR, 39% is allocated to UR and 15% is allocated to KVR (CEE Bankwatch Network, 2021, Rosch & Epifanio, 2022). According to the same sources, the biggest threat is that significant support is provided for big projects and big companies, and only limited support for projects of small companies. In addition, the lack of public commitment and low support for retraining programs for coal mine workers is also a vulnerability of the restructuring plan (CEE Bankwatch Network, 2021, Rosch & Epifanio, 2022). In 2015, the Czech government decided to implement the RE: START program, aimed at supporting the economic restructuring of three coal-bearing regions in the *Czech Republic*. The first action plan within the program was developed for the period 2017-2030. A regional strategy for the period 2019-2027, published in 2019, emphasized the need for a socio-economic transition, as well as the negative impact of the coal industry on the environment and climate change.

As of January 2023, *Bulgaria* was the only Member State that did not submit its Territorial Plans for Just Transition. These focus on the three coal regions in the country - Stara Zagora, Pernik, and Kyustendil and were sent to the European Commission for analysis in autumn 2022. Kojouharova (2023) pointed out that the PTTJs have not been approved, therefore Bulgaria has lost just transition funding for 2022, and that investment strategies and measures for alternative employment and retraining should be included in Bulgaria's Just Transition Plan.

With a budget of 1.5 million euros, the *Estonian* Ministry of Social Affairs has created a fund for laid-off workers in the shale oil industry. The fund comes in addition to regular unemployment benefits and is only available to workers employed in the shale oil industry for at least two years. The total amount eligible for each worker corresponds to 30% of the salary they received previously, with a ceiling of 1,000 euros/month. Payments are available for different time frames depending on the worker's time in the industry. Those who have worked for less than five years can receive payments for up to 6 months, those who have worked between 5 to10 years can receive payments for 9 months, and those who have worked for more than 10 years are eligible for up to one year (Just Transition, 2021). Ida-Virumaa is the only region in *Estonia* applying for funding under the Just Transition Mechanism. One of the measures proposed in the Ida-Virumaa PTTJ aims to combat job losses in the oil shale sector and ensure the security of laid-off workers as the economy becomes more diversified.

Voicu-Dorobanțu et al (2021) reveal that according to Eurostat data, in *Romania* the cumulative job losses in the coal sector, by 2030, will be between 3,000 and 6,000 in the Vest region and between 6,000 and 15,000 jobs in the Sud-Vest region. Their opinions are that “Romania is facing a decline in human capital and reduced flexibility to reconversion and transition by a narrow horizon of regional specialization, an exodus of workers, a lack of allocated resources to entrepreneurs and start-ups, a deterioration of primary education and VET (Vocational Education and Training), and an overall precarity of entrepreneurial culture.”

La Belle et al (2021) underline that in *Romania* the context of the Jiu Valley there are three main types of energy justice associated with the Green Deal and Just Transition, such as:

1. *Distributive justice*: in case of equally sharing of benefits distributed among social groups or workers, such as miners;
2. *Procedural justice:* that means medical care and re-employment or viable re-training schemes organized by state institutions for a long-term quality of life of the workers;
3. *Recognition of justice:* with the involvement and attention given by the political and financial system to social groups, such as miners experiencing hardship from the devaluation of jobs and shifts in economic activity.

Volintiru & Nicola (2024) conclude that in the just transition process in *Romania* there are weaknesses in institutional capacity linked with poor stakeholder consensus that impedes the strategic planning and implementation of new EU investment tools at the level of targeted beneficiaries. In the same sense, Nicola &

Schmitz (2022) stress shortcomings in implementing the just transition, including several issues of good governance, poor cooperation between local and national authorities, and lack of information and delays of the mine closures.

3. Methodology

The research methodology is multidisciplinary, which involves a systemic analysis of economic processes in the context of the Just Transition Mechanism as well as qualitative research of the official documents of the European Union's institutions and quantitative research of the Eurostat data. Selective specialized literature, studies, and articles in just transition published by established authors from abroad and Romania are presented comparatively, in consensual-inductive research.

Based on the methodology of systemic analysis, which is applied in the research of just transition's multidimensional impact (economic, social, demographic, and environmental), a SWOT matrix has been developed as an instrument of strategic objectives planning and risk management of just transition (Figure1, Figure 2 from subsection 4.5).

Figure 1: A SWOT matrix on the just transition impact in the European Union

STRENGTHS:	**WEAKNESSES:**
- *Financial resources:* the Just Transition Mechanism (JTM): Just Transition Fund, InvestEU "Just Transition" scheme, A new Public Sector Loan Facility; - *Human resources*: Just Transition Fund will also help workers acquire new skills, support transitions to new jobs, and promote the creation of new firms.	- *Job destruction* occurs when lost jobs are not replaced by other activities when some technologies are banned as polluting, companies are closed and their production is stopped; - *Undistributed justice* occurs when social groups such as young people or workers such as miners are most affected by unemployment in case of mines shut down.
OPPORTUNITIES:	***THREATS*:**
- Reducing the Member States and regions high dependence on fossil fuel and carbon-intensive industries; - Facilitating access to clean, affordable, and secure energy; -*Economic diversification* based on climate-resilient investments and *green jobs*; - Creating attractive conditions for public and private investors; - *Providing easier access to loans and financial support*; - *Investing in the creation of new firms, SMEs, and start-ups;* - Improving energy infrastructure, district heating, and transportation networks; - Investing in research and *innovation activities*.	- The closure of mines or the decommissioning of certain production facilities could cause *land abandonment, soil and water contamination, geophysical instability*, or other environmental hazards, including health risks; - The war in Ukraine, Member States may have to increase coal consumption before switching to renewable energy sources.

Source: Author's representation based on literature review and European Union legislation

4. Just Transition in Romania

4.1 The Just Transition Program priorities

According to the Ministry of European Investments and Projects (2023a), Romania's Recovery and Resilience Plan stipulates the need for the gradual elimination of coal-based electricity production from the energy mix by 2030. The Plan also enables the greening of mines by 2030 and supports the adoption of a legislative and regulatory framework for private investment in electricity production from renewable sources.

The Just Transition Program amounts to 114,118,160 euros, of which 85,588,621 euros represent the contribution from the Just Transition Fund and 28,529,539 euros national contribution (Ministry of Investments and European Projects, 2023b). The Just Transition Program is structured on 6 priorities dedicated to mitigating the socio-economic impact of the transition to climate neutrality in each of the six affected counties and a technical assistance priority, with a distinct financial allocation (Table 2).

Table 2: The Just Transition Program priorities

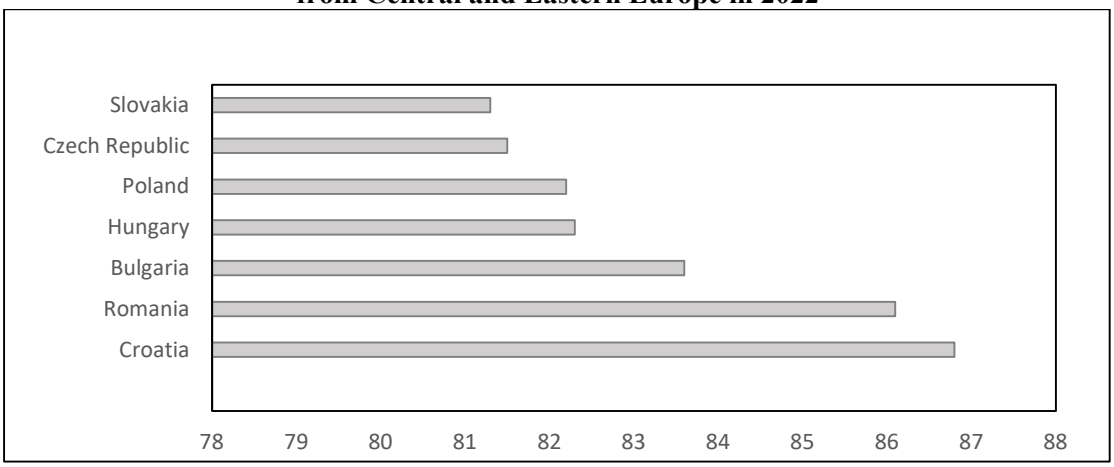
PRIORITY	COUNTY	TOTAL BUDGET Euros	JUST TRANSITION FUND Euros	NATIONAL CONTRIBUTION Euros
Priority 1	**Gorj**	537,205,843	456,624,966	80,580,877
Priority 2	**Hunedoara**	525,733,831	446,873,756	78,860,075
Priority 3	**Dolj**	412,029,766	350,225,301	61,804,465
Priority 4	**Galati**	387,585,139	329,447,368	58,137,771
Priority 5	**Prahova**	277,032,659	235,477,760	41,554,899
Priority 6	**Mureș**	277,032,659	235,477,760	41,554,899

Source: Author's representation based on Ministry of Investments and European Projects data

The coal-bearing regions in Romania have submitted Territorial Just Transition Plans to the Ministry of Investments and European Projects in Romania, plans that will allow them to access the Transition Fund. However, good governance includes the formulation of project proposals to mitigate the social impact of mine and plant closures and requires a clear agenda for the gradual replacement of coal (Dobre & Petcu, 2021).

European Commission (2022b, c) has evaluated Romania as a top performer, ranking 18th out of 158 countries in Just Transition Score[1] (score 86.2). By comparison between member states from Central and Eastern Europe, Croatia has a transition score of 86.8, Bulgaria's score is 83.6, Hungary's score is 82.3, Poland's score is 82.2, Czech Republic's score is 81.53 and Slovakia's score is 81.3 (Graph 1).

Graph 1: The Just Transition Score in Romania and other Member States from Central and Eastern Europe in 2022



Source: Author's representation based on European Commission data (2022b)

4.2 Case studies: The Just Transition impact in Gorj County and Hunedoara County

According to the audit of the European Court of Auditors (2022), in Valea Jiului, the number of employees in the coal sector decreased following its restructuring, from 70,000 in 1995 to 25,000 in 2019. In 2019, the region counted 100,000 people aged between 15 and 65. Of these, only 1,489 were considered unemployed, as they were actively looking for a job and were registered at the unemployment office.

The experts of the European Court of Auditors (2022) think that:

- The unemployment rate provides an incomplete picture of the difficult employment situation in Valea Jiului;

- The Valea Jiului has a largely undiversified economy, which is still largely dependent on mining activities;

[1] The Just Transition Score measures countries' ratio of carbon emissions per capita to the Social Progress Index, it tells us how carbon-efficient a country is at creating positive social outcomes. The ratio is scaled from 0 (worst performance) to 100 (best performance).

- The region's limited connectivity and damaged transport infrastructure, environmental degradation, and successive mine closures, plus the associated waves of layoffs, have led to a general population decline in the Valea Jiului area;

- Despite a certain degree of economic restructuring, the region presents a limited attractiveness for private investment.

A strategy for 2022-2030 regarding the socio-economic and environmental development of the Valea Jiului was in the process of approval at the time of the audit. Developed with EU funds, the strategy was based on analyses of challenges and opportunities in the micro-region and considered the views of relevant stakeholders. This strategy represented the third restructuring and development attempt for Valea Jiului. The European Court of Auditors points out that the Strategy for the period 2002-2010 did not have a significant impact on the socio-economic situation in the Valea Jiului.

The entire Hunedoara Energy Complex was insolvent and had debts of 6 billion lei (approximately 1.2 billion euros) in 2020. The Mintia thermal power plant exceeds the emission limits for sulphur dioxide and dust (substances that seriously affect human health), and cannot receive an Integrated Environmental Authorization. This is why Romania is in a four-year infringement procedure (Dobre & Petcu, 2021).

In Hunedoara County, the gradual elimination of coal will lead to the dismissal of 4,000 employees from thermal power plants and mining areas. To solve this situation, social protection measures such as compensatory wages and lowering the retirement age have been proposed. These are not viable solutions for younger staff who can more easily reintegrate into the labour market. An example of an initiative aimed at helping this endeavour belongs to the Romanian Wind Energy Association (RWEA), which started a professional retraining program for personnel from mining areas and other areas undergoing energy transition. RWEA and RESS (Renewable Schools of Skills) initiated this training project in 2019, in partnership with the Ministry of Energy and other stakeholders in the mining basins. The RESS centre in Constanța will be replicated in Valea Jiului and, starting in July 2021, it will train, according to international standards, more than 400 people a year.

The Energetica Oltenia Company is in a full restructuring process. At the Oltenia Energetica Complex, the restructuring plan calls for the expansion of production capacity from 660 MW currently to 1,650 MW in 2027. The company has not set a date for the complete phase-out of coal, although the potential for renewable energy in the region is significant (Dobre & Petcu, 2021).

Dobre & Petcu (2021) consider that in Gorj and Dolj counties the situation is the most difficult. Thus, it is not clear what will happen to a large part of the 12,000 employees, but also to those in related fields whose occupation supports the production of coal-based electricity. They believe that unless national decision-makers set a fixed date for the coal phase-out, the just transition in Gorj and Dolj (counties where Oltenia Energy operates) cannot be coherently planned.

The just transition process identifies other opportunities for economic development, such as solar energy (with a potential of up to 60 GW), tourism, industry, recycling, wood processing, and agriculture. Dobre & Petcu (2021) assume that Romania has a solid clean energy potential. They recommend the European Commission put pressure on the government for concrete measures, to set an ambitious date for the phase-out of all types of coal, and to plan the roadmap with local communities.

4.3 The impact of the just transition on labour market development in Romania

To achieve a fair green transition by the Council Recommendation[2], it is necessary to improve and retrain workers in the sectors affected by this transformation. The high share of jobs in energy-intensive sectors highlights the need for continued investment in skills to support the transition and implementation of REPowerEU[3]. As part of Romania's Recovery and Resilience Plan, the investments will support the development of energy certification schemes for specialists and qualifications for green construction workers. The European Social Fund Plus (ESF+) contributes to green skills and jobs through investments in education and continuous training (Ministry of European Investments and Projects, 2023).

[2] Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C 243/04) covers employment, skills, tax-benefit, and social protection systems, as well as essential services and housing.

[3]In response to the difficulties and disruptions in the global energy market caused by Russia's invasion of Ukraine, the European Commission is implementing the REPowerEU plan, launched in May 2022, REPowerEU helps the EU:

• to save energy;

• to produce clean energy;

• to diversify its energy sources.

The National Strategy for Green Jobs (2018-2025) sets out the policy analysis framework for the effects of the green transition on the labour market, including the demand for new skills. Thus, *it is estimated that more than 32,000 jobs are expected to be lost due to the impact of the green transition and just transformation in the six counties with the most carbon-intensive industries*. Workers in the affected regions will need active support to acquire new qualifications (Ministry of Labor and Social Protection, 2018).

The level of employment in the sectors most affected by the green transition remains stable and the green economy is expanding, but redundant workers need active support measures. In Romania, the greenhouse gas emissions intensity indicator of the labour force decreased between 2015 and 2021. Comparatively, in Romania, it was 11.5 tons per worker, below the EU average of 13.7 tons in 2021.

The employment in the field of large energy-consuming industries share in total employment was 4.3% (compared to the EU average of 3.0%), a downward trend registered in recent years. In Romania, the employment in mining and surface mining decreased by 20.7% compared to 2015. The share of jobs in the goods and services sector of the circular economy increased by 2.1% during 2015-2019 (compared to the EU's increase of 8.3%) while reaching 1.9% of total employment (a value close to the EU average). The construction vacancy rate, a key sector for the green transition, was relatively low 0.4% compared to 4.0% in the EU in 2022.

Upskilling and reskilling programs in green economy sectors have developed strongly. Skills are essential for smooth transitions in the labour market and maintaining jobs in sectors transforming. In energy-intensive industries, the level of participation of workers in education and training increased strongly from 2.3% in 2015 to 9.4% in 2022 but is still below the EU average (10.4%). In Romania, 47% of citizens believe that they do not have the necessary skills to contribute to the ecological transition, compared to the EU average of 38%. Romania's Recovery and Resilience Plan provides for the development of professional skills necessary for the renewable energy sectors and the energy efficiency of historic buildings and supports the training of civil servants as experts in sustainable development at both local and central levels.

The Just Transition Mechanism provides training systems for the retraining of workers from regions affected by the green transition, and in parallel the expansion of the offer of continuing education at the national level and flexibility in the training mechanisms within the company. In Romania, 117.5 million euros of ESF+ funding contributes to qualifications and jobs in the green economy through the "Education and Employment" Programme, providing training and career guidance opportunities to enhance the development of green skills and related jobs.

4.4 The outlook of the circular economy in the context of just transition in Romania

In the context of the green transition, the circular economy is also promoted as an essential component of the green economy, being considered as a production and consumption model, which involves sharing, renting, reusing, repairing, renovating, and recycling existing materials and products as long as possible. Thus, the aim is to extend the life cycle of products and minimize waste.

The transition to the circular economy meets environmental objectives and provides major socio-economic benefits, such as increasing jobs, stimulating innovation and competitiveness, and encouraging sustainability and resource security. Ensuring the transition to the circular economy, building energy-efficient buildings, and promoting organic agriculture can generate significant improvements, as these are among the most resource-intensive systems.

Romania's circular economy is insufficiently developed and requires an acceleration of the growth rate to meet the EU's circular economy objectives. The Action Plan for the Circular Economy 2020 (PAEC) aims to double the resource recycling rate between 2020 and 2030. The rate of circular use of materials in Romania decreased from 1.7% in 2016 to 1.4% in 2021, being very low compared to the EU average of 11.7%. PAEC also aims to significantly reduce the material footprint of the EU (Government of Romania, 2022). In the year 2020, Romania's material footprint[4] (29.6 tons per inhabitant) was well above the EU-27 average of 2020 (13.7 tons per inhabitant) and confirms the growth trend from 2017. Currently, the benefits of the circular transition on the labour market remain limited, seeing an increase in direct circular jobs from 2019. According to the European Commission (2022c), Romania is among the middle-bottom performers in The Ecological Footprint", position 113 out of 180 countries (score 100.29).

Romania has adopted new policies to address the challenges of the circular economy. In October 2023, a National Strategy on the Circular Economy, and a National Action Plan for the Circular Economy (PAEC) were

[4] The material footprint of the European Union (EU) refers to the amount of material extracted from nature, both inside and outside the EU, to manufacture or supply goods and services consumed by EU citizens. In 2020, the material footprint of the EU was estimated at 13.7 tonnes per capita.

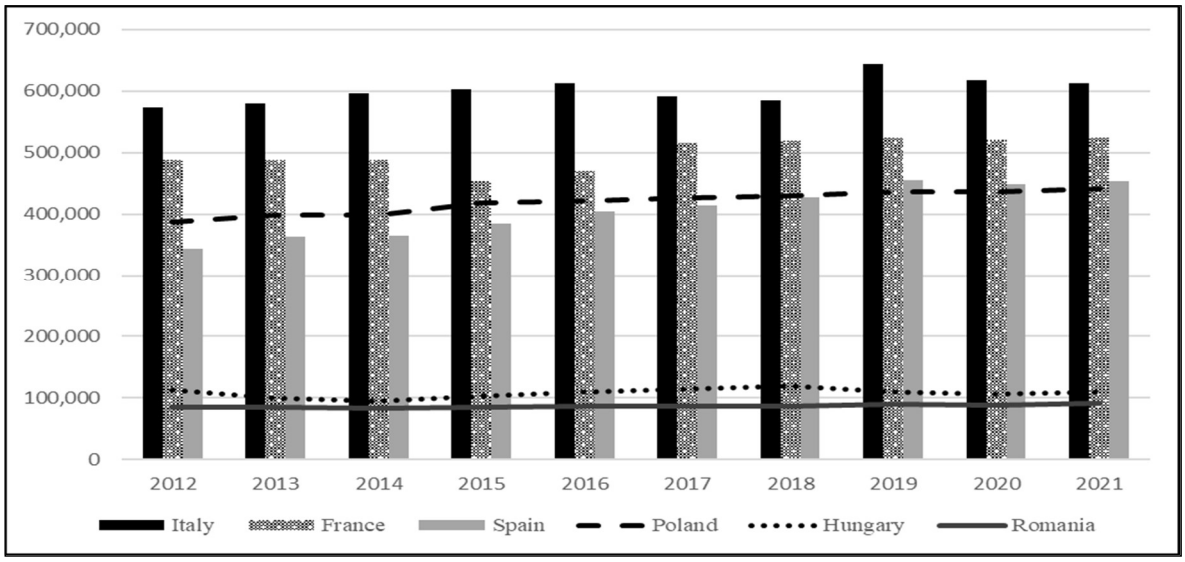
adopted. PAEC also presents actions specific to the nine economic sectors that have been identified through SNEC as the areas with the greatest potential for circularity in the Romanian economy. The sectors were selected based on their economic importance, environmental and health impacts, and circular economy opportunities. Thus, the selected sectors are agriculture and forestry; auto; constructions; food and drinks; packaging (glass, paper, plastic materials, wood, and metal materials); textiles; electrical and electronic equipment, including batteries; as well as two sectors relevant to the entire economy and society, namely: waste and wastewater. The PAEC presents and describes a total of 52 priority actions in the ten areas, of which 11% are focused on education and training.

According to PAEC, the adoption of circular economy practices is expected to have a net positive effect on job creation, but only to the extent that workers acquire the skills and competencies necessary to transition to the circular economy. Employment levels in sectors related to the circular economy, such as the recycling, repair, and reuse sectors in Romania are still relatively low at 1.55% of total employment compared to 1.76% on average EU or over 2% in other Central and Eastern European countries such as Poland, Croatia, and the Baltic States.

Vocational education and training could play a crucial role in stimulating the adoption of circular economy strategies and practices as part of a large-scale lifelong upskilling and reskilling strategy. Recent studies show the importance of developing both transversal skills, such as ecological and digital literacy or analytical problem-solving skills, as well as more specialized skills needed for innovation in the design and manufacturing phase of products, to enable their repair and reuse, as well as the adoption of circular solutions in the supply of raw materials and waste management.

Currently, in Romania the benefits of the circular transition on the labour market remain limited, registering a gradual increase in direct circular jobs, but reaching only 91,467 people employed in the fields of the circular economy in 2021. In the European Union, the first place at employment in the circular economy is Germany, with 785,297 people employed in this sector. Comparatively, among the Member States with the highest number of workers in circular economy sectors are Italy (613,339 people), France (523,904 people), Spain (454,085 people), Poland (441,671 people) (Graph 2).

Graph 2: Persons employed full-time in the circular economy in Romania compared to other Member States



Source Author based on Eurostat (2022)

4.5 A SWOT on the just transition's impact in Romania

The following SWOT analysis expounds the research results on the just transition process in Romania (Figure 2).

Figure 2: A SWOT matrix on the just transition's impact in Romania

STRENGTHS:	WEAKNESSES:
- *Financial resources:* - *Just Transition Program* amounts to 114,118,160 euros, of which 85,588,621 euros represent the contribution from	- *Job destruction:* in *Romania,* the cumulative job losses in the coal sector, by 2030, will be between 3,000 and 6,000 in the Vest region and between 6,000 and 15,000 jobs in the Sud-Vest region.

the Just Transition Fund and 28,529,539 euros is the national contribution. - *Human resources:* - *Romania's Recovery and Resilience Plan* provides for the development of professional skills necessary for a just green transition as renewable energy sectors and the energy efficiency of buildings; - The *National Strategy on Circular Economy* could play a crucial role in stimulating the adoption of circular economy strategies and practices as part of a large-scale lifelong upskilling and reskilling strategy.	-The Valea Jiului has a largely *undiversified economy*, which is still largely dependent on mining activities; -The most affected regions have *limited connectivity and damaged transport infrastructure;* - The previous layoffs have led to a *demographic decline* in Gorj County and Hunedoara County.
OPPORTUNITIES: - Through the *National Strategy for Green Jobs* (2018-2025), workers in the affected regions (Gorj, Hunedoara, Dolj, Galati, Prahova, and Mureș) will receive active support to acquire *new qualifications for green jobs*; - According to *the National Action Plan for the Circular Economy* the adoption of circular economy practices is expected to have a *net positive effect on job creation*, but only to the extent that workers acquire the skills and competencies necessary to transition to the circular economy; - The just transition process identifies other opportunities for economic development, such as solar energy (with a potential of up to 60 GW), tourism, wood processing, and *agriculture;* - *The creation of new firms, SMEs, and start-ups through economic activity diversifications* will have a positive just transition impact.	***THREATS*:** - There are *high environmental and health risks* related to the decontamination and reduction of pollution in the areas where the mines were closed or where the thermal powers are as Termocentrala Mintia. - There are some *financial risks* regarding the *attraction of allocated EU funds*, which are linked with the inadequate administrative capacity and the ineffective management of the *National Recovery and Resilience Plan or Just Transition Fund.*

Source: Author's representation based on literature review and European Union legislation.

The *net positive effects* of the circular economy on job creation, particularly, in Romania are related to job diversification, innovation, and entrepreneurship. While job diversification provides opportunities by expanding roles in areas such as repair, remanufacturing, reverse logistics, and sustainable design, innovation, and entrepreneurship are stimulated by the encouragement of start-ups focused on sustainable solutions (products, and services that minimize waste and maximize resource use). An example of best practice in the circular economy is *Recycllux, a* company dedicated to facilitating the collection and retrieval of plastic waste from marine ecosystems for recycling purposes. This process enables the reintegration of plastic materials back into the economy. The company's journey began in 2020 when it joined the Parsec Accelerator, a startup incubator supported by the Horizon 2020 program. This accelerator focuses on nurturing innovative concepts that leverage satellite data to address global challenges.

Access to financial support remains *a significant challenge* for entrepreneurship and new green company-making in Romania. According to the Romanian Green Startups Overview Report 3rd edition (2023), the Romanian green technology startup sector is no exception to major difficulties, encountering a unique set of obstacles in this rapidly evolving landscape. Green technology startups often require substantial capital to develop. The limited access is linked with two other major challenges, which are the complex regulatory landscape and the bureaucracy. Understanding green regulations, obtaining permits, and ensuring compliance can be time-consuming and costly. An example of best practice for incubation, acceleration, and design thinking programs *is Impact Hub Bucharest*, which has supported over 1.000 entrepreneurs and startups in different stages of development, in the growth process, provided *access to direct financing* of over 5.1 million euros, and laid the foundations of the largest online platform for *entrepreneurial education*. Impact Hub Bucharest is part of the global *Impact Hub network* and has over 100 locations on five continents and a community of over 16,000 members, connected through a dedicated online platform[5].

[5] See more on the official site: https://www.impacthub.ro/cine-suntem/

In this evolving context, *an immense window of opportunity* opens when support for entrepreneurs and startups provides *partnerships* with local authorities, central authorities, big corporations, European Union institutions. In just transition-affected regions, green best practice examples can be extended through *startup sector development and economic activities diversifications.* As a good practice example of green entrepreneurship diversification initiative*,* Impact Hub Bucharest represents *EIT Food as an EIT Food Hub*. This is a great opportunity to connect the national/local network of agri-food entrepreneurs and innovators with European opportunities[6].

5. Conclusion

Against the geopolitical outlook generated by the war in Ukraine, the European Commission also recognized that, in the short term, Member States may have to increase coal consumption before switching to renewable energy sources to avoid dependence on gas natural, but that the climate and energy objectives set for 2030 must be further respected.

There are various best practices regarding the just transition and the shift to circular economy in the Member States. The Silesian Voivodeship in Poland exemplifies a successful model of a just transition from a mining region to a modern industrial area since through the development of sectors such as IT, healthcare, and innovative technologies like artificial intelligence, achieving a reduction in coal extraction and mining employment. Other states like Hungary have used the European Social Fund Plus (ESF+) to support access to the labour market and quality education with a special focus on developing skills necessary for the green and digital transition. While the Czech Republic has successfully supported the economic restructuring of coal-bearing regions, in Germany's Ruhr Region, innovations in environmental technologies such as renewable energy and waste management have driven economic diversification creating a key hub for environmental technology and research, employing approximately 100,000 people in these sectors since the late 2000s. By incorporating these lessons into its renewable energy strategy, Romania can foster sustainable development, reduce greenhouse gas emissions, and enhance energy independence while achieving the just transition to a low-carbon economy.

Therefore, in Romania, the just transition mechanism can have a positive social, economic, demographic, and environmental impact, which will allow the inhabitants of the 6 regions most affected by this complex process, respectively: Gorj, Hunedoara, Dolj, Galati, Prahova, and Mureș to find new jobs more easily and can transform these regions into an industrial area developed on the basis new green technologies.

As a result of our research, the *recommendations for Romania are:*

- At the regional level (NUTS2), in Romania a specific institutional framework should be developed for the efficient management of funds and, finally, the development of active employment and social protection measures is necessary. In this sense, in Romania, local community representatives and civil society can have a key role alongside the government and companies in ensuring the good governance of the just transition;
- Decision-makers and public authorities must ensure much easier access to public funds, which involves de-bureaucratization to support a fair and inclusive just transition while ensuring competitiveness;
- Boosting the process of diversifying economic activities, while promoting proactive industrial policies, as well as increasing the involvement of the private sector in this just transition process;
- Romanian policymakers should ensure that labour markets and education and training systems are adequately equipped to accompany the just transition in a way that supports inclusive employment and sustainable development, good working conditions, and competitiveness;
- Attracting funds through the Just Transit Mechanism has the main role of ensuring quality, permanent, and, better-paid jobs, as well as retraining programs at the company's level;
- The implementation of strategic measures in Romania includes, the responsible restructuring of the core traditional local economy while building new competitive advantages through public policies which creates an advantageous business environment for investment, employment, and development of the most affected regions: Gorj and Hunedoara Counties.

[6] See more on the official site: https://www.eitfood.eu/eit-food-hubs

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RECENT DEVELOPMENTS IN TRADE IN SERVICES - A COMPARATIVE ANALYSIS OF ROMANIA AND BULGARIA

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Abstract: Considering the recent global trends in trade in services, influenced by the pandemic crisis and post-pandemic challenges, as well as by the increasing of digitalization opportunities, this paper examines the main characteristics of trade in services of Romania and Bulgaria. We choose these two Eastern European Union countries placed in the same category at European level due to their comparable characteristics and developments. The research highlights the major role of services in both economies, revealed by their high percentage in GDP and job market, as well as in the trade balance. Our research aims to underline the local and conjunctural factors that have supported the development of their trade in services. Our analysis also includes some evidence related to the recent evolutions of the trade in digitally delivered services of Romania and Bulgaria, both countries making progress in aligning themselves with current trends of intensive implementation of the new technologies in service industries. The concluding remarks in the last part of this paper underline the key elements on which the upcoming trends in trade in service of Romania and Bulgaria are going to be shaped, considering the digital evolution prospects of both countries and the global business environment movements.

Keywords: trade in services, trade in digitally delivered services, Romania, Bulgaria, economic development, Pandemic crisis.

JEL Classification: F13, F43, L8, O11, O24.

1. Introduction

Over the last three decades, the international reports and studies have highlighted the major contribution of the service sector to the economic growth at the global level (Hoekman & Willem te Velde, 2017), furthermore emphasizing the change in the development model from production to services, for all the countries regardless of their level of development (Gaurav et al., 2021). Nowadays, the significant extent of the service sector and, consequently, its contribution to economic growth is already noticeable, worldwide service industries generating 63.97% of GDP, in 2021 (Statista, 2024a) and 49.74% of jobs, in 2022 (WBD, 2024a). The actual expansion of the service sector is likely to be higher, given that some services are already significantly integrated into the activities of other sectors, where statistics hardly capture the real dimensions of some services.

Remarkable evolutions in international trade in services have been also noticed, namely the service exports increased seven times and the service imports six times in 2022 compared to 1990 (WBD, 2024). These developments are the result of the influence of the major changes in national and international regulations, marketing challenges and emerging technologies, all supporting outsourcing, automation and digital based business models (Lazzari, 2019). Therefore, globalization, technological development and digitalization enhancements have generated significant volumes of export-import flows of services, as well as improvements in the efficiency of transaction costs and the modes of supply of services, facilitating greater access to external services and participation in global value chains (Hollweg & Saez, 2019).

The COVID-19 pandemic had a disruptive impact of on the trade in services, affecting all services segments, but not at the same extent. Thus, most of the services were negatively influenced, especially those requiring personal interaction (in the case of traditional services, such as international transport and tourism), because of the distancing measures and restrictive regulations. However, there were services for which pandemic has had a favourable impact, the restraining measures speeding up the digitalization process. As a consequence of the pandemic the digitally delivered services have accelerated their growth trend (this is the case of services contracted, delivered and consumed via internet, such as information and communication technology, or business

professional services), due to their capacity to be provided remotely via internet connection. Moreover, the restrictions imposed during pandemic also did not have a total negative effect on traditional services, the increased innovation and implementation of digital technologies generating important benefits for them as well as for other economic sectors (this is the case of increasing the trading capacity of some goods by e-commerce platforms).

Against this background, the two south-east European Union (EU) economies analysed in this paper, Romania and Bulgaria, follow the global trends in the development of their service sector. During the last decades, the two countries shared, to some extent, similar pathways of their economic development, starting from the period of transition to the market economy after the fall of the totalitarian regime and continuing with the accession to the EU and participation to other European projects. Although the economies of the two countries are often categorized similarly within EU rankings, they differ in certain economic policies (Hunya & Dobrinsky, 2002). These differences are evident in the business environment, the development of the service sector, and trade in services in each country. Throughout these processes, over the last three decades, multinational companies have played an important role as they have developed important foreign direct investment projects with a significant impact on foreign trade in services in both countries (UNCTAD, 2024).

2. Methodology of research

This paper addresses the following analysis sections: (i) the role of service sector in the Romanian and Bulgarian economies, emphasised by relevant indicators, such as: the percentage of services in GDP and employment, as well as trade in services, covering pre- and post-pandemic years, namely between 2018 and 2023; (ii) some detailed structural analyses of the recent evolution of trade in services over the period 2018-2022, in terms of the categories of services intensively traded, modes of supply and international partners; (iii) the recent developments of the trade in digitally delivered services and their role in sustaining the service sector of Romanian and Bulgarian economies; (iv) concluding remarks regarding the synthesized picture of the latest trends in trade in services of Romania and Bulgaria, leading to trade policies proposals in order to ensure the upcoming developments of services businesses.

Our paper is focused on a quantitative analysis based on data related to service sector and trade in services in Romania and Bulgaria, covering the period 2018-2023 (or 2018-2022 where data for 2023 are unavailable at the time of our investigation). The data examined in the paper are provided by the statistical divisions of international organizations, such as European Commission (Eurostat), World Bank (World Bank Data) and World Trade Organization (Global Services Trade Data Hub), as well as national institutions, such as Romanian National Bank and Bulgarian National Bank (Balance of Payments).

In this context, our main findings based on the recent developments in both countries attempt to also provide some qualitative conclusive perspectives regarding the trade in services trends and characteristics of Romania and Bulgaria during the recovery process after pandemic crisis.

However, our paper has some limitations concerning an in-depth analysis of the Romanian and Bulgarian services trade competitiveness in the EU after the pandemic crisis, regarding the specialized indicators such as revealed comparative advantages, comparative export performance, trade overlap or export similarity, considering the previous valuable work of authors such as Bobircă & Miclăuș (2007) and Ghibuțiu & Moagăr-Poladian (2009). Besides, the trade in services between Romania and Bulgaria is slightly analysed, both countries developing intensive flows with the developed European countries. In addition, our work does not address the evolution of the regulatory framework in the field of trade in services of the two countries, especially those related to the modes of transaction (such as cross-border, commercial presence or presence of natural persons), in the context of the restrictive measures adopted during the pandemic.

3. Literature review

During the last decades, the international literature has dedicated a great importance to the increasing role of service sector in all economies, emphasising their growing development potential and high capacity to be internationally traded (OECD, 2017; Hoekman, 2018; Nayyar et al., 2021). Extensive works have also been focused on trade in services considering its role in fostering sustainable growth and economic diversification (Saez et al., 2015; WB & WTO, 2023). The potential of service-led development in the coming years will be strengthened by the revolution of smart technologies capable to provide new development models and growth opportunities in services, generating high level of productivity (Nayyar et al., 2021; WB & WTO, 2023).

The COVID-19 pandemic has generated unprecedented circumstances, determined by the national authorities' measures in order to limit the spread of the virus, by restricting the movement of people and goods and temporarily suspending businesses related to physical human interaction. Many reports and works have analysed the way in which trade in services reacted to this disrupting factor (WTO, 2020; OECD, 2022a; Ando & Hayakawa, 2022). The pandemic had a significant impact on service industries and trade in services, after three years, most of the negative effects have been completely overcome (such as those in travel and tourism services). To the same extent, the pandemic also generated some favourable effects, by speeding up the implementation of digital technologies and the development of trade in digitally provided services (Nayyar & Davies, 2023; WB & WTO, 2023).

After more than three decades, Eastern European economies have continued to be the subject of extensive analyses (Radu, 2024), some of them focused on Romania and Bulgaria, considering their significant economic experiences (Gorzelak & Jałowiecki, 2010) and some common characteristics. Among them, important research studies have been dedicated to the role of services in their development processes and trade competitiveness (Bobircă et al, 2008), underling the contribution of outsourcing and offshoring strategies in service industries in their economic development and also their services trade flows (Ghibuțiu & Moagăr-Poladian, 2009).

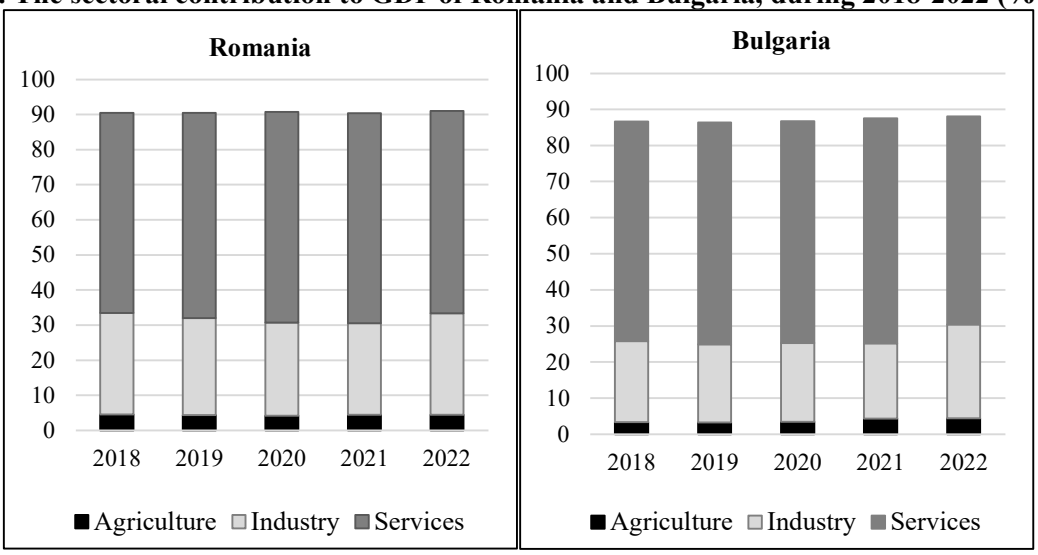
The trade in services of Romania and Bulgaria have been detailed in research papers analysing the behaviour of the major groups of services traded during pandemic, in order to identify changes in their evolutions (Milea, 2020; Paraschiv et al, 2021). They found that the impact on services was uneven, with travel and tourism the most affected, due to the mobility restrictions adopted to limit the spread of the virus. However, telecommunications, computing and information services had a better evolution due to the implementation of remote work models and online commerce. Our analysis continues these works, providing evidence of the evolution of trade in services of the two countries after the end of the pandemic, trying to understand the future challenges they might face.

4. The service contribution to the macroeconomic indicators of Romania and Bulgaria

For over three decades, Romania and Bulgaria have undergone significant transformations through a series of reforms during their transition from planned economies to open, market-based, upper-middle-income economies. These reforms have focused on achieving macroeconomic stabilization, modernization, and development. Along the pathways, the accession process to European Union (EU) acted as an external major support for their reforms. Through this process, Romania and Bulgaria have engaged in many restructuring processes including privatisation of state-owned enterprises, liberalisation of trade and implementation of a favourable foreign investment regime (OECD, 2022b).

Nowadays, after intensive structural economic reforms, the service sector is by far the most important sector in Romanian and Bulgarian economies, the distribution of gross domestic product (GDP) across economic sectors presented in Figure 1 revealing the significant contribution of tertiary sector to GDP for both countries. According to Statista (2024b), in 2022, the service sector achieved almost the same share in GDP in both economies, 57.61% in Romania and 57.66% in Bulgaria, however far from its average reached at EU level, of 64.75% of GDP (where manufacturing industry recorded 23.8% of GDP and agriculture only 1.5% of GDP).

Figure 1: The sectoral contribution to GDP of Romania and Bulgaria, during 2018-2022 (% in GDP)



Source: Author's representation based on Statista (2024b).

The landscape of the importance of service sector into the Romanian and Bulgarian economies is improved by the data presented in Table 1, which highlight the evolution of the main indicators related to services between 2018 and 2023. Comparing the data regarding the contribution of service sector to the value added in GDP and to employment, as well as the trade in services in GDP, of both countries, we can observe that the service sector is better represented within Bulgarian economy than in Romanian one. Nevertheless, in terms of foreign trade, the shares of services in total exports and imports of Romania were higher than the values recorded by Bulgaria.

Table 1: The contribution of services to the macroeconomic indicators of Romania and Bulgaria, during 2018-2022 (%)

Indicators/ countries	2018	2019	2020	2021	2022
Services, value added (% of GDP)					
Romania	57.0	58.5	60.0	59.8	57.6
Bulgaria	60.8	61.4	61.4	62.3	59.6
Employment in services (% of total employment)					
Romania	47.67	48.69	49.77	48.59	49.16
Bulgaria	63.31	63.36	63.09	62.88	63.53
Trade in services (% of GDP)*					
Romania	19.01	20.27	17.32	19.14	21.23
Bulgaria	25.29	25.33	18.70	20.07	21.38
Service exports (% of total goods and services exports)					
Romania	27.75	30.01	29.20	28.41	30.31
Bulgaria	24.82	26.00	21.19	21.05	20.47
Service imports (% of total goods and services imports)					
Romania	16.64	18.52	15.80	16.49	16.73
Bulgaria	14.29	14.34	12.51	12.03	11.42

Source: Author based on WBD (2024) and *Trading economics (2024).

The main factors with an important role in sustaining the trade in services in Romanian and Bulgarian economies can be synthetized as follows: (i) accession to the EU, with positive effects on the process of overcoming the deficiencies of the two economies in the service industries, but especially in the diversification of trade flows of services and the service competitiveness of Romania and Bulgaria, considering that EU countries are the main partners of both countries (Bobircă & Miclăuș, 2007); (ii) trade liberalization in service policies of both countries, as a result of EU integration, and policy reforms imposed by the transformation processes of the two economies; (iii) the national market characteristics, mainly in terms of competitive labour costs, especially in the ITC sector, both countries being very attractive to foreign partners for outsourced services and low-cost manufacturing hubs using goods-related services. Given this synthetic list of factors, for both countries, policy reforms are required to be enhanced and complemented by institutional arrangements to strengthen governance

and investment in infrastructure and skills specific to service field to fully take advantage of their potential in the current global economic environment (Hollweg & Saez, 2019).

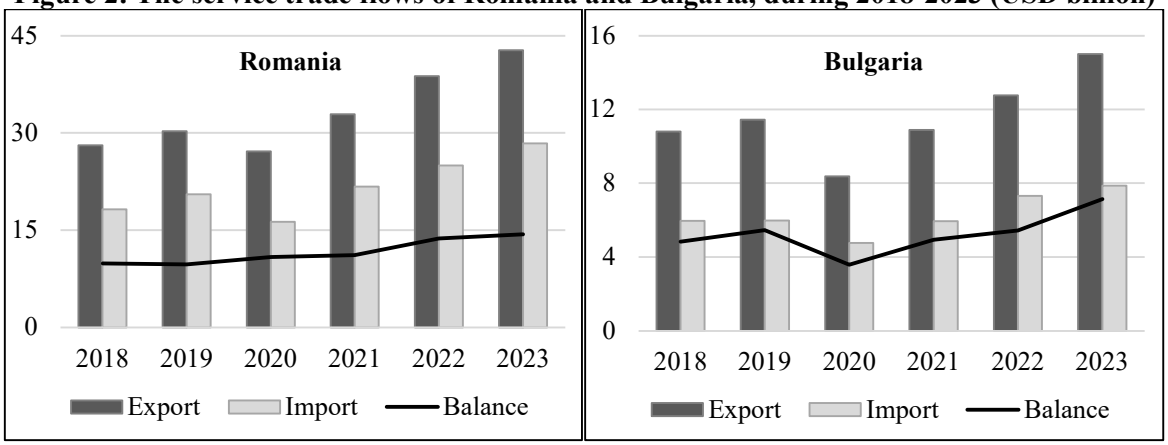
Romanian economy promotes an open trade and investment environment, its strategic location, membership in the EU, relatively well-educated workforce, competitive wages, and abundant natural resources offering significant opportunities in service industries, including the information technology, telecommunications, finance and many others to its foreign trade partners (ITA, 2024). Bulgaria is also seen by many foreign partners as an attractive low-cost investment destination, with government incentives for new investments, offering some of the least expensive labour in the EU and low and flat corporate and income taxes, all of them supporting the development of its trade in services (ITA, 2022).

5. The recent trends in trade in services of Romania and Bulgaria

Romania and Bulgaria's foreign trade in services has seen upward trends since the 2000s. Our analysis covers the years of pre and post pandemic crisis, respectively the period between 2018 and 2023. The data presented in Figure 2 reveal that at the end of 2023, service exports and imports hit new records for both countries: for Romania, the service exports were USD 42.7 billion and the service imports amounted at USD 28.4 billion; in the case of Bulgaria, the value of services exports was USD 15 billion and the imports reached USD 7.8 billion. As represented in Figure 2, the good evolutions of exports and imports of services emphasise that both countries managed to maintain the services trade surplus (continuing the trend of the previous years uncovered in our analysis). Although the total value of the trade surplus in services is not really modest, this is difficult to cover the very large deficit recorded for goods trade balance of both countries.

According to data published by the WTO (2024), the trends of trade in services of Romania and Bulgaria have an increasing evolution during the last decades, interrupted by the pandemic, but continued after its end. After the fall registered in 2020, Romania managed to recover in one year (in 2021, its exports and imports of services recorded values above the level in 2019), and Bulgaria in two years (its recovery to the pre-pandemic level took one year more). The evolution of the indicators presented in Figure 2 underlines the impact of the restrictive measures applied during the pandemic on trade in services, in the case of both analysed countries. A deeper observation of data reveals that, for Romania, the service imports had a larger drop than service exports (in 2020, the import of services drop by 20% compared to the previous year, while the exports only by 10%). In case of Bulgaria the service exports saw a larger drop than service imports (in 2020, the export of services drop by 26% compared to the previous year, while the imports by 20%).

Figure 2: The service trade flows of Romania and Bulgaria, during 2018-2023 (USD billion)



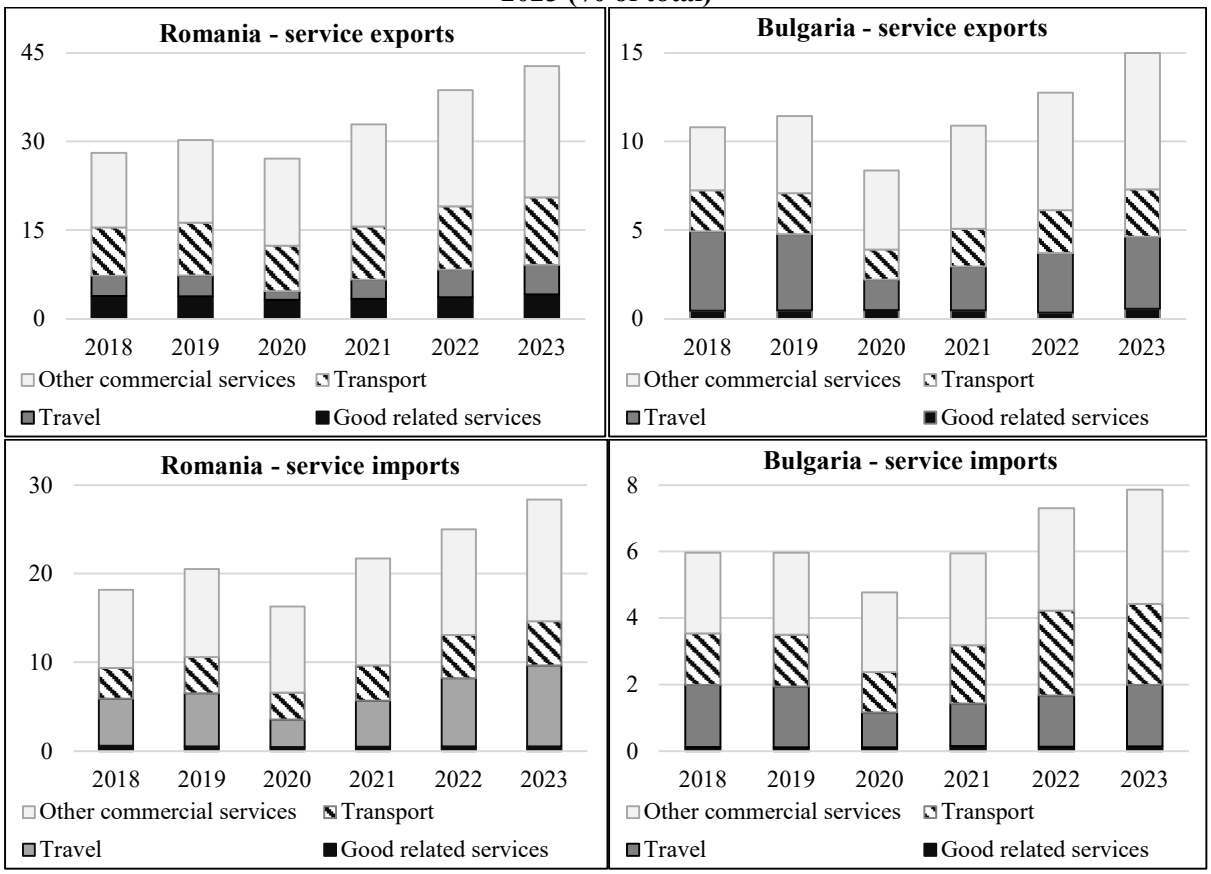
Source: Author's representation based on WTO data (2024).

A detailed analysis of the evolution of the main categories of services traded offers a good understanding of their developments during the last years covering the pandemic. The pandemic negatively affected services traded through physical mobility and personal interaction (mainly, traditional services, such as transport and hospitality). The pandemic boosted the development of those services delivered remotely via internet (such as information and communication technology, as well as business professional services). As illustrated in Figure 3, the main vulnerability of Bulgaria during pandemic was the export of tourism followed by transport services, the recovery of Bulgarian tourism being more difficult due to the mobility restrictions caused by new waves of

COVID-19 in 2021. For Romania, the service exports affected by the pandemic restrictions were travel, good related services and transport, whose recovery was gradual until 2022.

However, for both countries, the extent of the reduction of trade in services during pandemic remained high even if travel and tourism were excluded, considering the strong interconnectivity between services, such as tourism and air transport or other cultural and recreational activities (Milea, 2020). Nevertheless, total trade in services of both countries during the pandemic was influenced by all other important service segments, the impact of this factor being uneven (Paraschiv et al., 2021). The data presented in Figure 3 highlight the fact that the "other commercial services" segment continued its growth, despite the restrictions imposed during the pandemic, but its growth not being able to compensate the decline of the others.

Figure 3: The service exports and imports by main categories, in Romania and Bulgaria, during 2018-2023 (% of total)



Source: Author's representation based on WTO data (2024).

After two years of severe restrictions related to passenger transport limitation, the closure of the borders and severely limited openness of the food service and hotel industries, in 2022, the strongest decline of tourism and travel services during pandemic were on the recovery path (Figure 3). The other commercial services had a positive evolution during pandemic, due to the telecommunications, computer and information services which had a better development, as a result of the implementation of remote work model and online trade platforms (Milea, 2020). The evolution of the foreign trade in this last segment of services was strongly influenced by the mobility restriction measures that involved therefore a higher use of telecommunications systems, while the free movement was limited. The export of "manufacturing services on physical inputs owned by others", transport and other business services returned to full capacity, the upward trend showing even improvements for both countries, Romania and Bulgaria.

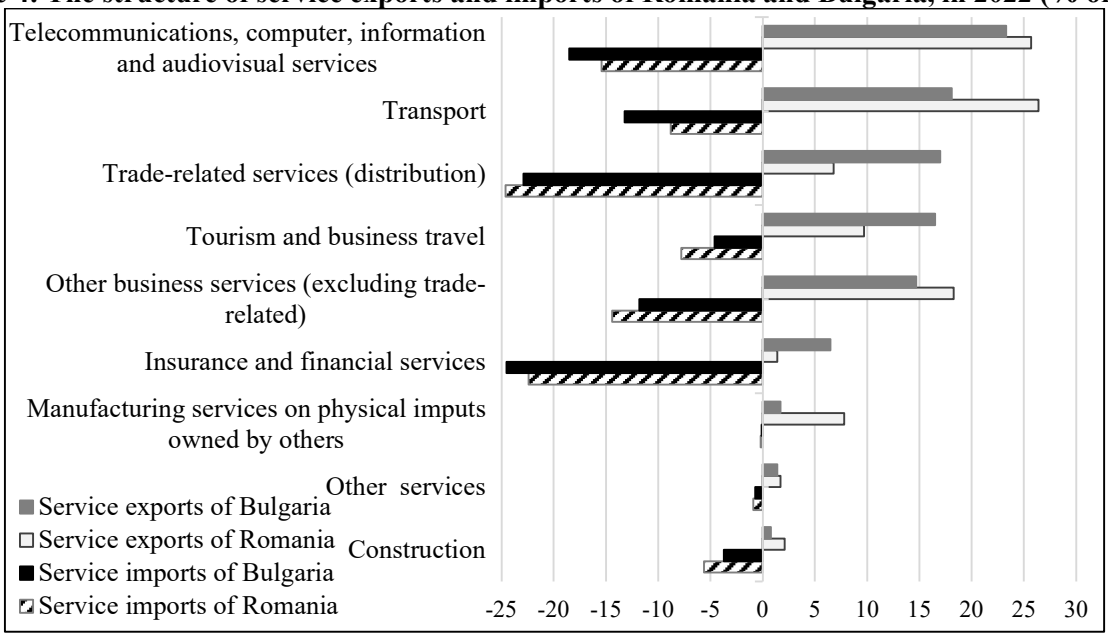
The data presented in Figure 4 illustrate the structure of exports and imports of services according to the balance of payments classification, in 2022. From this perspective, the main similarities and differences between Romania and Bulgaria are as follows:

- For Romania, the service exports are dominated by transport (24.6% of total), telecommunications, computer, information and audiovisual (25.7%) and other business services (18.3%) and the first

positions of the service imports are occupied by distribution (24.6%), insurance and financial services (22.4%) and telecommunications, computer, information and audiovisual (15.4%);

- For Bulgaria, the major shares of service exports are obtained by telecommunications, computer, information and audiovisual (23.3% of total), transport (18.1%) and distribution (17%) and the service imports are dominated by insurance and financial services (24.5%), distribution (22.9%) and telecommunications, computer, information and audiovisual (18.5%).

Figure 4: The structure of service exports and imports of Romania and Bulgaria, in 2022 (% of total)

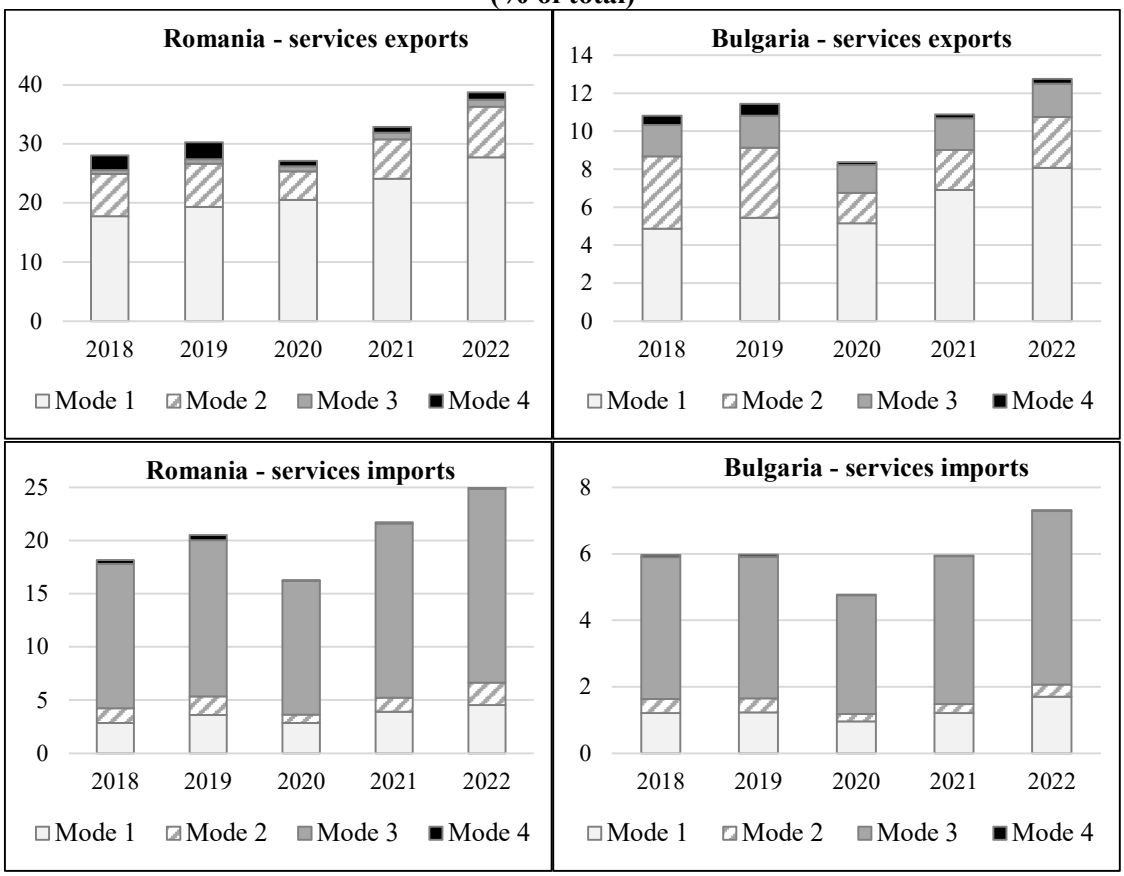


Source: Author's representation based on WTO data (2024).

The investigation of trade in services according to the four modes of supply (classified by the WTO's General Agreement on Trade in Services - GATS) provides valuable insights into how services supply has evolved over the recent years, reflecting also the impact of recent factors on trade in services, such as digitalization on mode 1 and the COVID-19 pandemic on mode 2 (WTO, 2024b). The WTO data for Romania and Bulgaria during the period of 2018-2022, illustrated in Figure 5, make known some similarities and differences, as follows:

- Mode 1 (cross-border trade: services provided from one country to another) is the main service export route of Romania and Bulgaria, with an increase during and after the pandemic, as a result of the intensification of the use of digital technologies; for Romania, exports through mode 1 increased from 63.3% in 2018 to 71.8% in 2022, and for Bulgaria, from 45% in 2018 to 63.2% in 2022;
- Mode 2 (consumption abroad: services consumed by a foreign consumer), specific to travel and tourism services, is the main way of service exports of Bulgaria due to its higher specialization in hospitality compared to Romania; as revealed in Figure 5, in 2022, the service exports of Bulgaria were not totally recovered after pandemic fall (from 32.2% in 2019 to 21.1% in 2022);
- Mode 3 (commercial presence: services provided through a foreign company's establishment in another country) dominates the imports of services in both countries; this mode is specific for trade in high-complexity and technology-intensive services, which require high capital investments, which cannot be ensured by national companies; telecommunications, IT, banking and insurance services are included here;
- Mode 4 (presence of natural persons: services provided by individuals from one country working in another country) is considerably more evident in the service exports of both countries, which can also be associated with the exodus of skilled labour abroad from these countries.

Figure 5: The trade in services by modes of supply, in Romania and Bulgaria, during 2018-2022 (% of total)

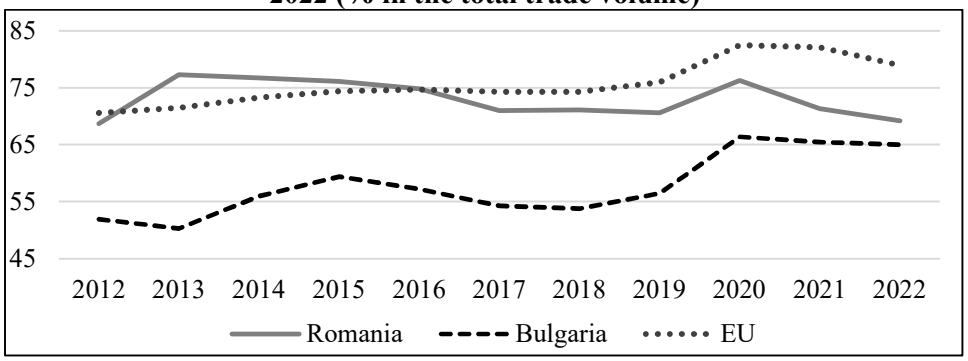


Source: Author's representation based on WTO data (2024).

Within the economic development processes over the last decades, foreign direct investments (FDI) have played a major role in supporting the trade in services of Romania and Bulgaria, as reflected in the Figure 5 with the highest level of mode 3 in the services imports of both countries. The service sector has been an important sectoral destination of FDI in both countries. According to the National Bank of Romania data (NBR, 2023), during the last years in Romania, the most attractive service industries for FDI have continued to be trade, construction and real estate transactions, financial intermediation and insurance and professional, scientific, technical and administrative activities and support services. As stated by Bulgarian National Bank (BNB, 2024), in 2023, the most active services industries for FDI in Bulgaria were financial and insurance activities (with 42% of total FDI) followed by information and communication as well as real estate activities.

Considering the ongoing potential development in service sectors, Romanian and Bulgarian economies are very well integrated within the global value chains of goods, but also of services. Therefore, both countries have recorded good evolution in trade of intermediate services with a high contribution at global value chains, as they serve as valuable inputs to other economic activities. The EU data base estimates the trade of intermediate services as a share of the total trade in services (sum of exports plus imports). According to EU data, in case of Romania the percentage of the intermediate services in the total trade in 2022 was 69.2%, with a slight fluctuation over the last years. On the other hand, Bulgaria has followed an upward evolution of its trade of intermediate services from 50.3% in 2013 to 65% in 2022 (Eurostat, 2024a).

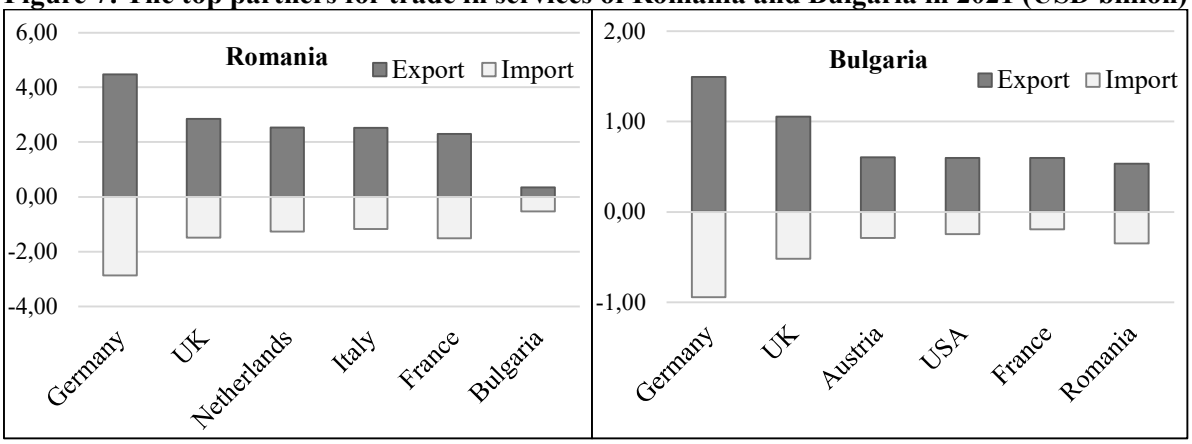
Figure 6: The trade in intermediate services of Romania and Bulgaria, compared to EU, between 2012-2022 (% in the total trade volume)



Source: Author's representation based on Eurostat data (2024a).

The main partners of trade in services of Romania and Bulgaria are European countries (EU, United Kingdom and Switzerland) and USA (Figure 7). The bilateral trade in services between Romania and Bulgaria is also well placed in the ranking of the main commercial partners with services. In 2021, Bulgaria held the 20th place in export and the 13th place in import of Romania. In the case of Bulgarian service partners, Romania ranks 7th in the list of exporters and 5th in the list of importers of services. Both countries have an important collaboration in the field of trade in services, Romania playing a more significant role in Bulgaria's trade in services. According to OEC (2024), the main categories of services exported by Romania to Bulgaria are transportation (48.7% of total service exports to Bulgaria), other business services (20.1%), and communications services (7.9%) being the largest in terms of value. Bulgaria exports to Romania services, mainly from the categories of travel (42% of total service exports to Romania), transportation (37.8%), and other business services (9.3%) (OEC, 2024).

Figure 7: The top partners for trade in services of Romania and Bulgaria in 2021 (USD billion)



Source: Author's representation based on WTO data (2024).

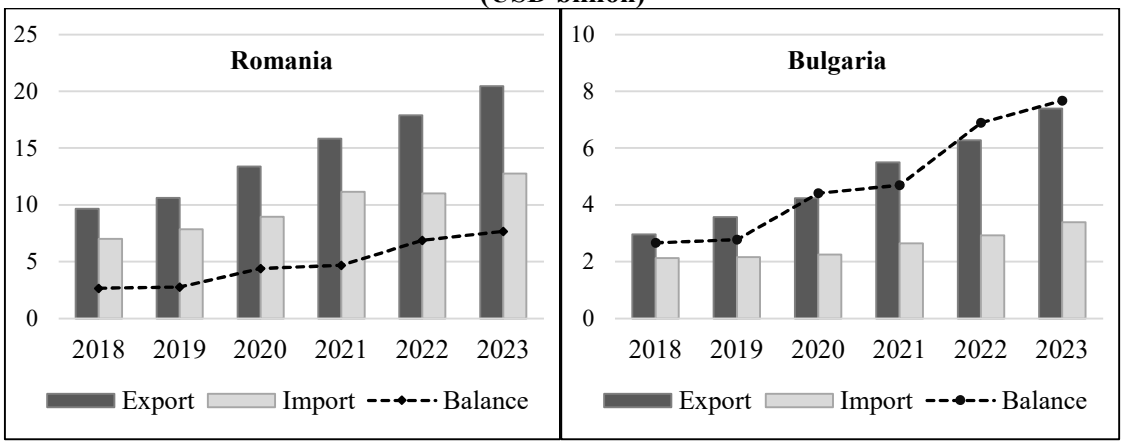
6. Trade in digitally delivered services of Romania and Bulgaria

The COVID-19 pandemic has generated substantial transformations in terms of service-based growth prospects. New business models based on digitization, with a predilection in the service sector, have been obvious for several years in Romanian and Bulgarian economies as in many other economies. As the pandemic ended, the need to adopt economic recovery models was imposed. Evaluating future opportunities related to the intensification of digitization processes was also necessary. Digital technologies offer valuable solutions even where physical interaction is a critical condition (e.g. e-commerce platforms or ICT in manufacturing businesses). Therefore, the intensification of digitalization supports new growth prospects in the service sector in the Romanian and Bulgarian economies. To achieve this the proper actions are expected to intensify this process, at all levels of the business environment.

Foreign trade in digitally delivered services of Romania and Bulgaria saw an increasing trend, similar to the trade in services. The data represented in Figure 8 emphasise that in 2023, both countries hit new records in exports and imports of digitally delivered services: in Romania, the service exports were USD 20.44 billion and the service imports amounted at USD 12.76 billion; in Bulgaria, the service exports were USD 7.39 billion and

the service imports reached USD 3.39 billion. As represented in Figure 8, both countries registered a growth trend in the trade surplus in digitally delivered services, especially after the peak of pandemic crisis (WTO, 2024). For both countries, the data show that the increase in exports of digitally provided services was higher than in imports, and in the case of Bulgaria we can observe a faster growth rate of exports compared to Romania. In 2023, the exports of digitally provided services of Bulgaria increased by 17.83% compared to previous year, and for Romania by 14.2%%, these rates being the highest annual growth over the period covered in our analysis.

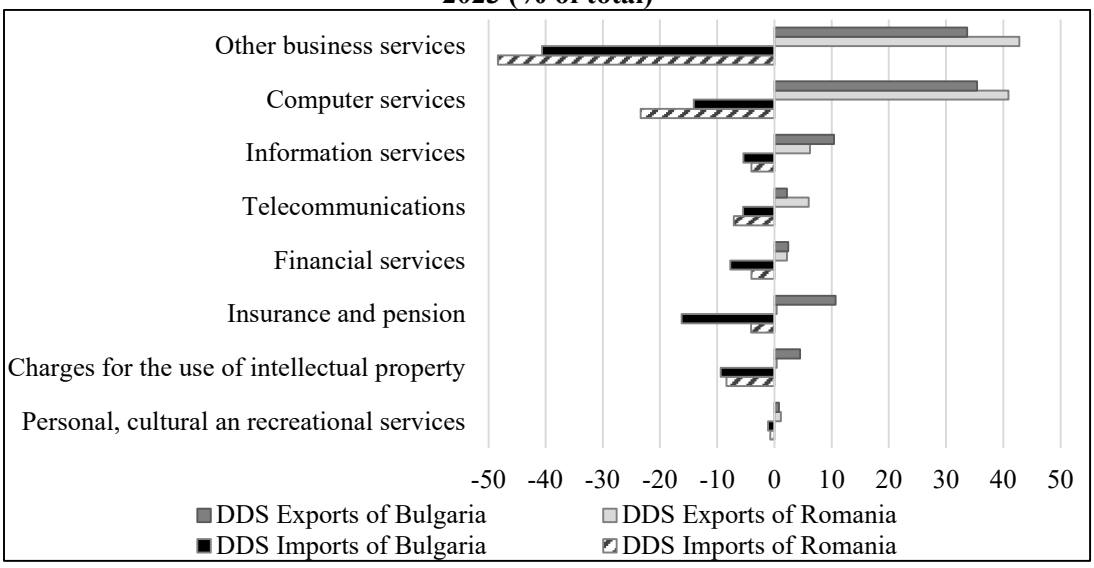
Figure 8: The trade in digitally delivered services of Romania and Bulgaria, during 2018-2023 (USD billion)



Source: Author's representation based on WTO data (2024).

Considering the main categories of services traded by digital means, Figure 9 reveals that both countries have a good representativeness of the "other business services" (in 2023, Romanian exports of other business services were 42.8% of total exports of digitally delivered services and imports of other business services reached 48.3% of total imports of digitally delivered services; for Bulgarian, the shares were 33.7% for exports and 40.6% for imports) and computer services (in Romania, exports of computer services were 40.9% of total trade in digitally delivered services and imports of computer services reached 23.4% of total imports of digitally delivered services; for Bulgaria, the shares were 35.4% for exports and 14.1% for imports). In the case of Romania, the next export positions were followed by the information services (6.2%), telecommunication services (6%) and financial services (2.2%). The top five categories of service exports in Bulgaria continued with insurance and pension services (10.7%), information services (10.4%) and charges for the use of intellectual properties (4.5%).

Figure 9: The structure of digitally delivered services exports and imports of Romania and Bulgaria, in 2023 (% of total)



Note: DDS – Digitally delivered services.
Source: Author's representation based on WTO data (2024).

Despite these favourable statistical developments, according to the Country Report on 2023 published by European Commission (EC, 2023a; EC, 2023b), Romania and Bulgaria are far behind considering the Digital Economy and Society Index (DESI index, the EU's monitoring tool for digital transformation). However, both countries perform rather well on fixed connectivity, whose scores are well above the EU average, but below the EU average as regards 5G coverage which is essential for enabling advanced applications requiring large spectrum bandwidth: (i) Romania scores "very high capacity network" at 96%, compared to 73% EU average, and "fibre to the premises coverage" at 96% compared to 56%, but 5G coverage is well below the EU average (the overall 5G coverage is 27% compared to the 81% EU average and the large spectrum bandwidth is 26% compared to the 41% EU average) (EC, 2023a); (ii) Bulgaria is well above the EU average in its coverage by fixed networks (its coverage for "fibre to the premises" is 86%) but is below the EU average on mobile broadband coverage and the assignment of 5G spectrum, with 63% versus 68% EU average (EC, 2023b).

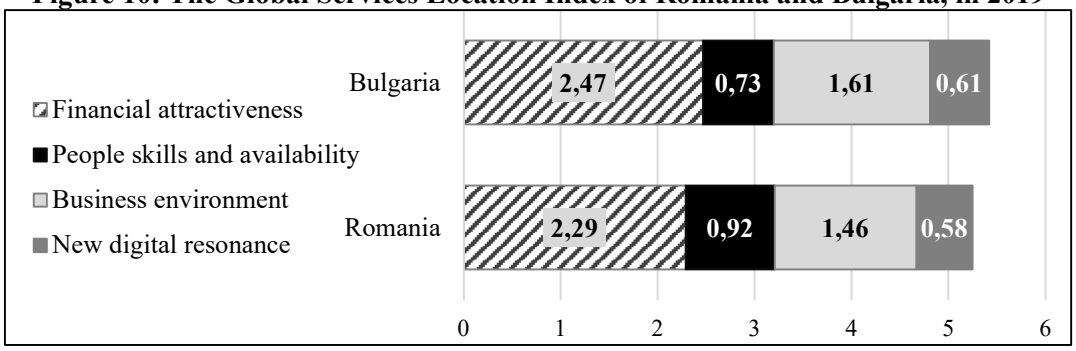
Digital transformation is crucial to ensuring resilient and competitive economies. In the perspective of the European digital transformation by 2030 with an important impact on its trade in digitally delivered services, Romania has to find solutions for the shortages identified in the EU country report such as: the lack of basic digital skills (only 28% of people aged between 16 and 74 have at least basic digital skills, compared to EU average of 54%) and ICT specialists (the proportion of ICT specialists as part of the workforce is 2.6%, with an ascending trend during the last years, but still much lower than the 4.5% EU average). However, Romania scores second highest in the EU regarding the proportion of ICT graduates (6.7% among all higher education graduates), the discrepancy to ICT specialists is explained to a large extent by the brain drain (EC, 2023a). Bulgaria also scores low in relation to digital skills (where only about one third of its population has basic digital skills and ICT specialists). In this respect, Bulgarian authorities have already implemented measures to improve the country's connectivity, such as a reform to reduce the spectrum fees (EC, 2023b).

Romania and Bulgaria score also poorly in terms of the digitalisation of businesses. The share of small and medium sized enterprises (SMEs) with at least a basic level of digital intensity as well as the take-up of advanced technologies like cloud computing services, artificial intelligence and big data remain considerably below the EU average. According to Eurostat, in 2023, the proportion of SMEs with a basic level of digital intensity was 26.8% in Romania and 27.4% in Bulgaria, these values being at a significant distance from the EU average of 57.7% (Eurostat, 2024b). One key challenge for both countries is to intensify the adoption of digital technology in all enterprises, mostly SMEs, their percentage being the lowest in the EU. The implementation of advanced technologies, such as big data, cloud computing services and artificial intelligence, is also very low (EC, 2023b).

A better perspective is highlighted by Kearney's study (2019), where Romania and Bulgaria are included in the top 50 countries with the best Global Services Location Index (GSLI) values. In 2019, Bulgaria ranked 17th (with 5.42 points) and Romania ranked 28th (with 5.25 points) among the most attractive[1] countries for service offshoring, evaluated by financial attractiveness, people skills and availability, business environment and the new digital resonance (including metrics of digital skills, legal adaptability, corporate activity and outputs). The Figure 10 offers a comparative perspective of both countries as their capacity to deliver business process and information technology outsourcing in service industries (Kearney, 2019), both being very supportive when it comes to their trade flows in services.

[1] For comparison, the best performances of this indicator are achieved by India (7.06 points) followed by China (6.49 points) (Kearney, 2019).

Figure 10: The Global Services Location Index of Romania and Bulgaria, in 2019



Note: The score is measured in assigned points, where higher values mean a better situation of the indicator.
Source: Author's representation based on Kearney data (2019).

7. Concluding remarks

Over the last decades, the service sector has had a central role in the economic development of both Romania and Bulgaria in line with the European tendencies, the service industries becoming an important support for their economies with important contributions to their foreign trade. The tertiary sector is perceived as a driving force for the all EU economies, with a heterogeneous structure and dynamic market, a wide range of players and influences, as well as a leading presence in national regulations.

Based on data of EU and WTO, over the period between 2018 and 2023 (or 2022, depending on their availability), the first finding of our analysis shows that the recent evolutions of service sector and trade in services of Romania and Bulgaria illustrate an important representativeness of services in both economies and their foreign trade, emphasising the outcomes of the reform processes implemented over the three decades that have brought improvements in economic competitiveness of the two countries. Nowadays we can state that through the recent developments in the services field, in terms of their services trade flows and foreign investments projects in service industries, Romania and Bulgaria are well connected to the European and international trends (highlighted especially by the trade in intermediate services and the significant weight of the commercial presence as a mode of supply of services).

Our second finding highlights the similarities and differences between Romania's and Bulgaria's trade in services, and how the pandemic crisis generated effects on their flows, especially in terms of decreasing of traditional services and increasing of tradability of services by digital means. Both economies were affected by the pandemic, their trade in services going through a downward evolution at the peak of the crisis, after which they managed to re-enter the pre-pandemic positive trend, with differences in pace between the main service segments. In case of Romania, the service exports affected by the pandemic restrictions were travel, good related services and transport, whose full recovery was gradual until 2022. As for Bulgaria, during the pandemic, tourism exports were severely affected, followed by transport services, the recovery of Bulgarian tourism being more difficult due to the persistence of mobility restrictions in 2021. In 2023, both countries set new records of their trade in services flows, the damages during pandemic being totally recovered.

Analysing the evolutions of the main segments of trade in services, we highlighted that the pandemic had an uneven impact on services trade flows for both countries. The restrictions imposed during pandemic had a favourable effect on those services remotely delivered via internet (such as information and communication technology, as well as business professional services), both countries recording positive evolutions of the digitally delivered services. Therefore, telecommunications, computer and information services continued their pre-pandemic upward trend, more supported by the implementation of remote work model and the good internet connectivity of both countries. Currently, many service industries have continued to practice hybrid work model, in those fields where the Internet is the main mode of transaction, given the good quality of connectivity of both countries, supporting their future development of services trade flows.

The last finding of our study illustrates that the upcoming trends in trade in services of Romania and Bulgaria will be connected to the international trends, as well as to their national policies that have to be focused on the competitiveness of service exports, especially those intensive in new technologies and human capital. The new generation of reforms has to be related not only to the liberalization of the trade in services flows but also to improvements in the quality of regulations, investment in infrastructure and high-skilled education, all of them supporting the service sector innovation and digital technologies diffusion among business players in Romania

and Bulgaria. By improving the competitive advantages in the field of services, the exploitation of the potential of the service sector will be ensured to generate a positive impact on the economic growth of both countries.

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CONTRIBUTION OF RENEWABLE ENERGY TO CLIMATE CHANGE MITIGATION IN EU: THE CASE OF ROMANIA

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Abstract: For the European Union, the advancement of renewable energy is a priority primarily due to climate change mitigation measures, but also because it can be easily identified and exploited while assuring the sustainable development across EU. Under the Green Deal ambitions UE aims to gradually reduce greenhouse gas emissions, especially carbon dioxide, to limit climate change and to achieve climate neutrality by 2050. Renewable energy plays a key role in this regard. In 2022, Romania had a significant share of energy from renewable sources. Also, forecasts indicate that Romania has onshore wind capacity that could generate twice as much electricity as current consumption. The following paper aims to carry out an analysis of Romania's progress in the field of renewables. The research is based on the challenges and opportunities for the development of renewable energy while also highlighting, the particularities of Romania in terms of the adoption of renewable energy practices and emphasizing the strengths and weaknesses that Romania has in this domain. Our main finding shows that while in Romania has been significant progress in terms of renewable energy, there is still untapped capacity in the field requiring for more actions from the Romanian authorities and business environment.

Keywords: EU, Romania, renewable energy, climate change mitigation, public policies, greenhouse gas emissions

JEL Classification: Q42, Q48, Q49

1. Introduction

Within the framework of climate change mitigation, it is necessary to consider reducing greenhouse gas (GHG) emissions. The energy sector is the main source of greenhouse gas (GHG) emissions (Khan et al., 2014), and one of the mitigation strategies is to increase the production of renewable energy. The EU has identified the promotion of renewable energy as a priority, mainly due to the need to protect the environment. In addition, renewable energy can be easily identified and exploited while assuring the sustainable development across EU. As technology advances, renewable energy will become more affordable in terms of the cost of energy produced.

Despite ongoing discussions about the high costs associated with renewable energy (Carley et al., 2020), it remains an important element of the EU's energy policy. This is because it has the potential to address many of the challenges associated with meeting the EU's energy needs. Moreover, it can contribute to maintaining the EU's leadership in terms of innovation, high technologies and job creation. The large energy potential and availability make renewables an important factor for Member States to consider when shaping their energy mix (Fatima et al., 2021). The use of renewable energy sources offers the potential to develop a sustainable energy system, thereby addressing the EU's dependence on fossil fuels (Wolniak et al., 2022).

EU leaders have committed to gradually reduce greenhouse gas emissions, particularly carbon dioxide, in order to minimize climate change. Under the current economic and environmental challenges, the EU aims to achieve climate neutrality by 2050 (Perissi et al., 2022). The main source of greenhouse gas emissions, particularly carbon dioxide, is the production of electricity and heat, which contributes to global warming. Over the past century, the burning of fossil fuels has generated unprecedented levels of carbon dioxide emissions.

If no immediate action is taken, atmospheric carbon dioxide levels are expected to double over the next 50 years (Kabir et al., 2023), with immediate consequences such as melting glaciers and rising sea and ocean

levels. Accelerated global warming will lead to a range of extreme events, such as floods, droughts and other harmful consequences, such as increased mortality due to heat waves or loss of plant and animal species.

Renewable energies represent a strategic investment opportunity, as they offer a less harmful alternative to burning fossil fuels (Androniceanu et al., 2022). The latter has been linked to respiratory illnesses and fatal diseases such as cancer, as well as to numerous environmental issues, including greenhouse gas emissions, pollution and soil contamination. Renewable energy technologies, which are still under development, have the potential to reduce or even eliminate the release of carbon dioxide into the atmosphere (Mostafaeipour et al., 2022). Different types of renewable energy are being used to meet the needs of citizens, such as electricity, heating, cooling and transportation. The use of hydropower, wind power, and biomass to produce electricity is expected to increase significantly in the near future (Rahman et al., 2022).

In recent years, the transportation sector has become a major contributor to increasing greenhouse gas emissions (Kazancoglu et al., 2021). One effective strategy to reduce these emissions is to replace gasoline and diesel with biofuels, such as biogas, bioethanol and biodiesel. These biofuels emit about a third less carbon dioxide than fossil fuels. Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources recognizes the development of renewable energies as a key element of its energy policy. In order to achieve their renewable energy targets, Member States must adopt national plans, develop support schemes and conclude agreements with third countries. Other issues relate to the exchange of renewable energy and cooperation in renewable electricity projects.

2. Literature review

The Renewable Energy Directive is the EU's binding framework for the development of clean technologies, facilitating cooperation between Member States in achieving this goal. As can be seen from the recent literature (Nagaj et al., 2024; Muscio et al., 2023), the EU is at the forefront of renewable energy in the development and deployment of cutting-edge technologies.

As part of the Green Deal, renewable energy sources represent a critical element of the energy transition, as it can contribute to reducing the Union's dependence on other energy suppliers. In light of this, the share of renewables in the energy mix is under constant review. The Renewable Energy Directive was revised at the end of 2023. It sets a target of at least 42.5% by 2030, with a goal of reaching 45%. In July 2021, the Commission proposed a revision of the Directive with the aim of reaching 40% (instead of 32%) as part of the "Fit for 55" package. Less than a year later, at the start of the Russian invasion of Ukraine, the Commission proposed raising the target to 45% in 2030. An interim target of 42.5% was agreed on March 30, 2023.

The revised directive builds on previous directives and introduces new measures to ensure that all renewable energy development options are utilized. This is key to reaching the 2050 climate neutrality target. The literature (Kettner et al., 2020; Teixeira et al., 2022; Mhatre et al., 2021) shows that in addition to increasing the share of renewable energy targets, a strong policy framework will facilitate the electrification of various sectors. New targets will be set for renewables in heating and cooling, transportation, industry and other sectors.

Although all Member States can produce renewable energy, certain geographic regions have the potential to produce a greater amount (Hoicka et al., 2021). For example, some countries have rivers that can produce a much larger amount of hydropower, while sunny countries can produce more solar energy. The EU is trying to promote renewable energy projects by removing administrative barriers in the licensing processes, i.e. the authorization procedures for renewable energy projects. In some EU countries, licensing processes are an obstacle for these projects (Inês et al., 2020). Considering this, in May 2022, the European Commission issued recommendations on speeding up authorization procedures for renewable energy projects and facilitating power purchase agreements Also, the Renewable Energy Directive includes provisions that facilitate the licensing process, taking into account citizens' concerns and respecting environmental standards.

In order to facilitate the development of renewable energy projects, the European Commission has set up a financing mechanism. According to experts (Taghizadeh-Hesary et al., 2020), the main objective of this mechanism is to encourage member states to collaborate in the promotion and development of renewable energies. With the support of this mechanism, countries will be able to achieve their individual and collective objectives more easily. These national support schemes can help EU countries develop renewable energies and implement various policies, while providing investors with greater certainty. In light of the ambitious targets set out in the Green Deal and REPowerEU, it is clear that national support systems remain a critical component in

facilitating increased investment. As the literature (Boscán et al., 2020; González et al., 2022) demonstrates, these actions must be executed with caution to avoid disrupting the energy market and resulting in higher prices for households and businesses.

The literature (Leiren et al., 2020; Ortega-Izquierdo et al., 2020) also shows that wind energy has played a key role in the European Union's efforts to reach the 2050 climate neutrality targets. Wind energy production, along with other industries, serves as a critical foundation for the transition towards climate neutrality. At the same time, it contributes to economic growth and job creation in the EU.

The Commission has adopted two wind energy initiatives that form a package to promote the development and deployment of wind energy in the EU. The Wind Energy Action Plan is based on 15 actions to be implemented by public and private actors.

Numerous studies (Hassan et al., 2024; Liu et al., 2024; Spiru, 2023) have indicated that solar energy plays an important role in both the clean energy transition and the REPowerEU plan. Solar technologies convert sunlight into energy, either electricity or solar power. Solar energy is the fastest growing energy source in the EU because it is affordable, clean and flexible. The cost of solar energy fell by 82% between 2010 and 2020, making it the most competitive in the EU. The European Commission has adopted the EU Solar Strategy, which is part of the EU REPowerEU Plan. This strategy identifies the barriers and challenges currently facing the solar sector and outlines measures to overcome them.

Hydropower is the most established and reliable form of renewable energy (Opperman et al., 2023; Siri et al., 2020) and has been around for more than a century. It currently accounts for the second largest share of electricity generated globally (Jadoon et al., 2020). Moreover, hydropower can bring additional benefits to EU energy systems, such as flexibility and storage (Nautiyal et al., 2020). These services are essential for maintaining stability in the energy sector.

Heating and cooling accounts for about half of the EU's energy consumption (Bertelsen et al., 2020). The EU Strategy on Heating and Cooling, published in 2016, was a great first step in understanding the amount of energy used for heating and cooling in buildings and industry. It also identified tools that the heating and cooling sector can use to contribute to the EU's 2050 climate neutrality target.

3. Methodology

The research methodology has a mixed design based on both a comprehensive literature review and a quantitative analysis of renewable energy indicators in Romania (using the latest Eurostat data). This mix of research is the best way to identify the main challenges of Romania in the development of renewable energy. In addition, we will also analyze the particularities of Romania in terms of the adoption of renewable energy practices, emphasizing the strengths and weaknesses that Romania has in this domain.

In light of these considerations, the following sections of the paper will present an overview of renewable energy issues in the literature, an analysis of Romania's indicators in this sector and an analysis of the strong and weak points of Romania in relation to the development of energy from renewable sources in the country.

Therefore, the aim of the research is to outline the trends at Romanian level of the particularities of the renewable energy sector that policy makers should consider when pursuing the implementation of new development directions in the field.

The main limitation of the research is the absence at the time of elaboration of this paper of data for the year 2023. Having this in mind, it can be considered a possible extension of the research when these data will be available.

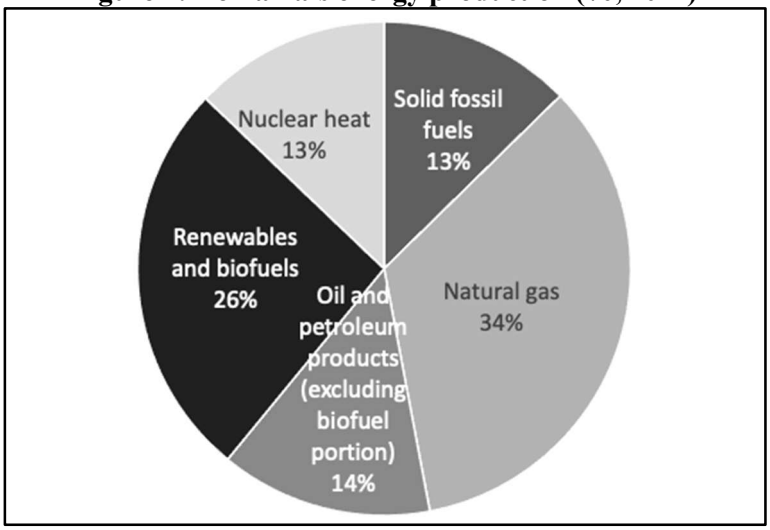
4. Statistical analysis of the main renewable energy indicators of Romania

4.1. EU energy production

The EU has a wide range of energy sources, including solid fuels, natural gas, oil, nuclear energy and renewable energy sources such as hydro, wind and solar.

Renewable energy played a significant role in EU energy production in 2022, the last year for which we have available data (43 % of total EU energy production). Nuclear energy had a significant share (28 %), followed by solid fuels (19 %), natural gas (6 %) and crude oil (3 %).

Figure 1: Romania's energy production (%, 2022)



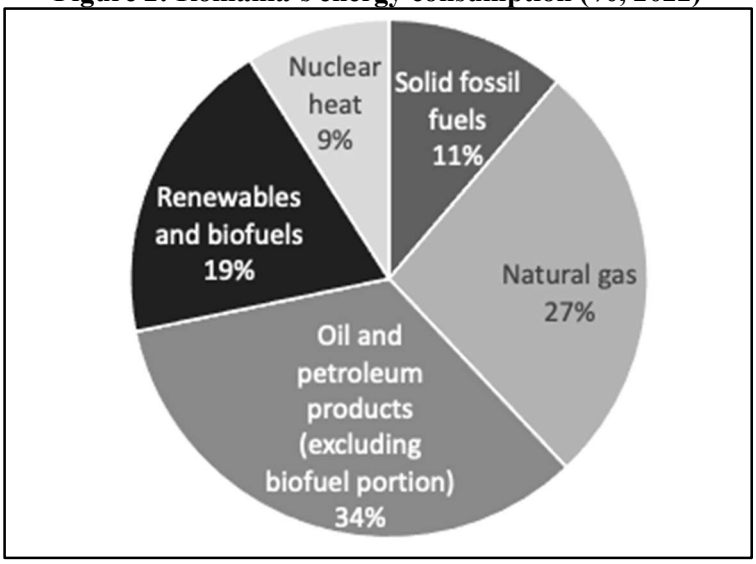
Source: Author according to Eurostat, 2024.

With regard to Romania, we can see in Figure 1 that in 2022 (the last year in which we have available data) the energy produced using renewable sources has the second largest share (26%), being surpassed only by that produced by power plants using natural gas. We also mention that 13% of the total energy was produced using oil and petroleum products, 13% using nuclear fuel and 13% using solid fossil fuels.

4.2. Energy consumption

It is estimated that in 2022, 67% of the total available energy in the EU will be consumed by end users (final energy consumption) such as EU citizens, industry and transport. The 33% remained is mainly lost in the generation and distribution of electricity used to support energy production processes or consumed for non-energy purposes.

Figure 2: Romania's energy consumption (%, 2022)



Source: Author according to Eurostat, 2024.

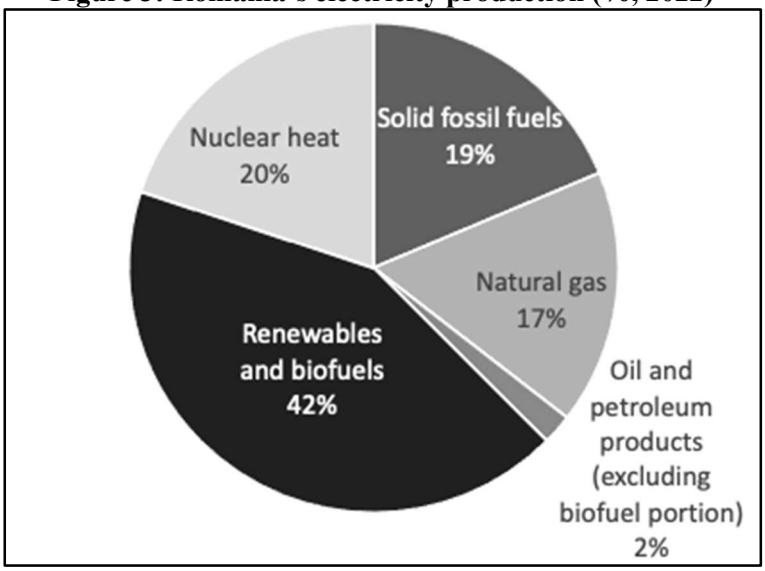
Figure 2 shows that 19% of the total consumption in Romania was produced by renewable sources, this consumption being exceeded by the consumption of natural gas (27%) and of oil and petroleum products. Below the share of renewable consumption were nuclear heat (9%) and solid fossil fuels (11%). A number of potential explanations can be advanced for the relatively low consumption of renewable energy. These include a lack of predictability, adverse weather conditions, lower efficiency, higher capital costs and geographical limitations.

4.3. Electricity production

In 2022, electricity accounted for 23 % of the final energy consumed in the EU, from a variety of sources. Renewable energy and fossil fuels were the main sources of electricity generation (both 39 %), with nuclear power plants accounting for 22 %.

Among renewable energy sources, wind turbines accounted for the largest share of electricity generation, with 15 %. Hydroelectric, solar and biofuel plants also contributed significantly with shares of 10, 8 and 5 % respectively.

Figure 3: Romania's electricity production (%, 2022)



Source: Author according to Eurostat, 2024.

In Romania, most of the electricity produced was from renewable sources (42%), followed by nuclear fuel (20%), solid fuel (19%) and natural gas (17%). At the other end of the spectrum are coal and petroleum products (Figure 3).

5. Romania's strengths and weaknesses in terms of renewable energy

5.1. Strong points

Five counties with a potential of 98.9 GW

When evaluating wind energy, two key technical considerations are wind power generation potential and the Full Load Hours (FLH) indicator, which represents the total number of hours of operation or energy production per year. For onshore wind turbines, a value of more than 2,000 FLH is generally considered a positive indicator. Accordingly, the typical operating life of an onshore wind turbine is estimated to be between 2,000 and 2,300 FLH, while offshore turbines are expected to operate for approximately 3,000 FLH. However, it should be noted that offshore turbines tend to be more expensive to maintain and operate.

The following five counties have been identified as having high potential for the development of wind energy projects: Braila, Constanta, Galati, Tulcea, and Ilomita. The total gross technical potential for wind energy in these five provinces is of 98.9 GW, equivalent to 249.2 TWh. If additional land use restrictions are applied and a rather conservative area allocation assumption is made, the technical potential is reduced by half, 48.1 GW or 122.6 TWh, respectively.

The conclusion is that even the lowest figure in terms of production potential is twice the electricity consumption of the whole of Romania today. This shows that it is possible to exploit onshore wind potential in a way that takes into account all important aspects (bird migration routes, protected natural areas, agricultural regeneration) and yet allows for a significant increase in generation.

Photovoltaics, an additional 2,000 MW in 2024

In 2023, more than 1,000 MW of solar panels were installed and investments were estimated at around 1 billion euros. The development of PV capacity is expected to gain momentum in 2024, with Romania's installed capacity expected to reach 4 GW.

As a result, by 2024, Romania could have an installed capacity of 2,000 new megawatts from PV panels alone, equivalent to the output of three nuclear reactors in Cernavodă. The pace of development and investment in this area is accelerating, despite Romania's relative inexperience in the field.

For comparison, Romania's installed PV capacity is expected to reach 4 GW by 2024, while Germany has already reached nearly 70 GW. This is a relatively modest figure, but it illustrates the significant development potential of this sector in Romania. Large energy companies, investment funds, and PV park developers are expected to be the main investors in Romania's solar industry. The sector is expected to experience significant growth because of the EU's sustainability policy and climate commitments.

Offshore Wind Energy Law

In April 2024, the Chamber of Deputies approved the offshore wind energy law (Law no. 121 / April 30th 2024). Romania has an offshore wind potential of 76 GW of installed capacity, providing an attractive opportunity for the development of this type of renewable energy. The Ministry of Energy will initiate a study to prepare procedures for granting concessions, exploration, construction and operation of offshore wind farms.

The study will also identify the offshore oceans to be leased by the Ministry of Energy, taking into account wind potential, the evacuation potential of offshore wind power and restrictions imposed by the Marine Spatial Plan, including those related to biodiversity and environmental protection. The results of the study will be submitted to the government by June 30, 2025, at which time the offshore wind limits and subsequent implementing laws will be approved. The Ministry of Energy will then initiate a competitive process for awarding concession contracts.

European funds

Romania's Modernization Fund and Recovery and Resilience Plan have facilitated support schemes for renewable energy investors and calls for new power generation in line with Romania's decarbonization plan. Romania has made 2 billion euros available for the renewable energy sector, 2 billion euros for investment in power transmission and distribution, and 400 million euros for new high-efficiency cogeneration units. In addition, funds worth 590 million euros have been made available for the reconstruction of thermal networks. With the planned investments, Romania will add 10,000 MW of green energy by 2030.

National Integrated Energy and Climate Change Plan

The National Integrated Energy and Climate Change Plan 2021-2030 describes Romania's commitment to reach a total of 30.7% of energy from renewable energy sources in the overall final energy consumption mix by 2030. This is in line with Romania's decarbonization target as an EU member state. To achieve this, the plan identifies the need to increase the installed capacity of wind and photovoltaic power plants and increase the number of consumers. To achieve this, Romania should have an installed capacity of 5.1 GW in solar technology and 5.3 GW in wind technology by 2030. In addition, the country aims to install an additional 6.9 GW of renewable energy between 2021 and 2030.

4.2. Weak points

Frequent changes in legislation

Frequent and significant amendments to energy legislation are a major obstacle to advancing renewable energy projects. Enacting comprehensive, transparent and permanent legislation can be a compelling argument to attract investments (international, national or even local) in this field. Considering the great potential and the ability to take into account relevant regional constraints and influence electricity prices in the medium to long term, wind energy development in Romania seems to be a logical and relatively risk-free course of action.

However, in order to be able to see this development, it would be useful to have a framework that organizes and defines, both at the level of strategic objectives and concrete actions, how to develop the wind energy sector in Romania.

Lack of a related legislative framework

It may be useful to consider legislative means to avoid the development of potentially speculative investments, and a related legislative framework to avoid long grid connection times. According to an analysis by the National Energy Regulatory Agency and the Competition Council, there are still financial challenges in securing financing for grid reinforcement works to take over the electricity that will be produced by the new units. In addition, there appears to be some uncertainty among electricity distribution network operators regarding the interpretation and application of the provisions of the current regulatory framework.

Finally, the lengthy approval process, lack of cadastral plans, delays in issuing government decisions and ministerial orders, and long construction period are some of the challenges identified by the National Energy Regulatory Agency (NERA) and the Competition Council that may hinder the connection of new production capacities to the National Energy System (NES).

Long approval deadlines

The European Union has taken the initiative to establish a framework to accelerate the deployment of renewable electricity through Regulation (EU) 2022/2577 of December 22, 2022. It introduces a series of

measures aimed at significantly reducing the EU's dependence on fossil fuels and combating the climate crisis by accelerating the transition to renewable energy sources.

To achieve this goal, the Regulation obliges Member States to ensure that the permitting process for renewable electricity projects is completed within specific deadlines. These deadlines include three months for the permitting process for the installation of co-located wind, solar and energy storage assets and six months for the permitting process for refurbishment projects, including all relevant environmental assessments. In addition, if the refurbishment involves an increase of up to 15% of the plant's capacity, the connection to the grid will be authorized within three months. However, these deadlines are not respected in Romania for various reasons.

The wide variation in the time required to process delivery requests can be attributed to the time required for users to complete the documentation accompanying the delivery request, which can range from a few days to six months. In addition, the long time required to draft, finalize, and correct processing studies, as well as the time it takes for users to choose one of the delivery solutions approved by the operators, contribute to the observed differences.

The time required to process applications is also heavily influenced by the level of training and engagement of the consultants selected by the applicants. For the period 2019-2022, the average time to process connection requests submitted to the national operator was about nine months, ranging from 5 months to 13 months. The high volume of connection requests has led to the need for grid upgrades to ensure the technical conditions for power production at power plants. These upgrades require long lead times and can affect the operating time of power generation capacities, depending on the region where the power plant is located.

To eliminate or limit the potentially speculative nature of obtaining Technical Connection Approvals (TCA) for new generation facilities, producer associations have proposed the introduction of an obligation to pay a deposit of 10% of the connection fee, which must be deposited within a maximum of three months of the issuance of the TCA, under penalty of expiration. In this regard, producer associations have suggested that when a connection contract is concluded, the deposit can be deposited as an advance payment for the work to be carried out. If the work is not completed, the deposit is returned to the beneficiary at the end of the delivery contract. The proposals made by the producer associations apply to capacities with an installed capacity of more than 10 MW.

Slow digitization

One of the main issues identified was the lack of a centralized IT system for renewable energy project developers. While some online platforms have been created in recent years to facilitate the submission of applications and supporting documents at various stages of licensing, there has been limited digitization of interactions with authorities such as the National Energy Regulatory Agency or the Environment Fund Administration. In addition, the lack of transparency and communication also affects the possibility for renewable electricity generation project developers to submit complaints and inquiries regarding the administrative procedures for issuing various types of permits and certificates.

This is also an important factor contributing to the authorities' lack of adherence to the legal deadlines for processing complaints. Moreover, due to the lack of transparency, in practice only those who are directly involved in the capacity project plan and are aware of the relevant details can make valid complaints.

Failing to harness renewable potential

The technical potential of wind energy sources in Romania has been estimated at 10.23 terawatt-hours (TWh) per year. Currently, only 60% of this potential is being exploited due to the limited capacity of the national power grid to absorb unpredictable and discontinuous sources of production. Thus, any expansion of wind power must be implemented in parallel with other developments to ensure the provision of system balancing services.

Regarding the distribution of solar electricity generation across the country, there is a relatively even distribution of values ranging from 1,100 to 1,450 kWh/m2/year. Utilizing the potential of solar energy to generate electricity via photovoltaic panels allows for the installation of a total capacity of 4,000 MWh, with an annual output of 4.8 terawatt-hours of energy.

Bureaucracy

In Romania, several institutions are involved in the licensing process for renewable energy projects, leading to a duplication of licensing procedures that unnecessarily prolongs the whole process and discourages potential investors. In addition, the lack of experience of grid operator staff regarding renewable energy projects is a major obstacle to obtaining renewable energy licenses. In addition, there is an urgent need to measure, monitor and optimize various performance indicators.

One way to measure this is to look at how long it takes for the relevant authorities to authorize the project. This can vary greatly from project to project due to the lack of a standardized process. Other performance

indicators that could be improved are the rate of project approvals, the rate of approvals/permits being challenged in court and the rate of court cases filed.

6. Conclusion

The European Union prioritizes the promotion of renewable energy to mitigate climate change, leveraging the large energy potential and availability of these sources. Renewable energy helps reduce the EU's dependence on fossil fuels, aiding in the transition to a sustainable energy system and supporting the EU's goal of achieving climate neutrality by 2050. This commitment is part of the broader Green Deal ambitions, which aim to limit climate change and promote sustainable economic development.

In Romania, the exploitation of onshore wind energy is highlighted as a key opportunity. In Romania the wind and photovoltaic energy can be harnessed without compromising important environmental aspects such as bird migration routes, protected natural areas, and agricultural regeneration. This approach facilitates a significant increase in renewable energy generation, contributing to Romania's substantial progress in this sector

Regarding the opportunities associated with the European funds in the field of renewable energy, it is important to note that support schemes for new investors has been developed and calls for new energy production capacities have been launched in line with the decarbonization plan undertaken by Romania.

When discussing Romania's weaknesses in the field of renewable energy, it can be observed that major and frequent changes in energy legislation present a significant barrier to the development of renewable projects. However, establishing detailed, transparent, and long-lasting legislation can be a favorable argument for attracting investment, as it provides a stable and predictable framework necessary to develop renewable energy projects.

In Romania, however, the approval deadlines are not respected, and there are numerous reasons for this non-compliance. The transmission system operator (TSO) asserts that the significant discrepancies in the time required to process connection applications are attributable to the time taken by users to complete the documentation attached to the connection application and the time taken by users to select one of the connection solutions approved by operators. Moreover, the absence of a centralized information system for renewable energy project developers represents a significant obstacle. While online platforms have been established in recent years for the submission of applications and supporting documents required at the various permitting stages, the digitization of interactions with the relevant authorities has not yet been achieved.

The technical potential of Romania in terms of wind power sources has been estimated at approximately 10.23 terawatt-hours (TWh) per year. However, only 60% of this potential is currently being exploited, due to the limitations of the National Energy Strategy (NES) in accommodating unpredictable discontinuous production sources. In Romania, numerous institutions are involved in the authorization process for renewable energy projects, which results in repetitive licensing procedures that unnecessarily prolong the entire process and discourage potential investors.

In conclusion, our main finding is that there has been significant progress in terms of renewable energy in Romania, which performs well on the analyzed indicators. Moreover, estimates indicate that Romania has a renewable energy capacity that could allow to generate a much larger amount of renewable energy than we do now. However, this can only be achieved with a better understanding of long-term objectives and a proactive involvement of all decision-makers.

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HOW MANY PLUS ONE AND FOR HOW LONG? A BRIEF CRITICAL ASSESSMENT OF CHINA-CEE COOPERATION

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Abstract: This paper looks at the meteoric rise and downfall of the 16+1 platform, created by China in 2012 for its "win-win" cooperation with sixteen Central and Eastern European (CEE) countries. The format has never managed to become as globally well known as China's Belt and Road Initiative (BRI), which it was meant to serve as an implementation tool in Europe from 2013 on. The 16+1 platform's decade-long under-performance in terms of investments and trade has created deep disappointment among its European participants, leading to their growing criticism and disengagement. The paper analyzes these developments, the modest accomplishments of the format as perceived from the CEE standpoint, exemplified with relevant case studies of some of its most notorious projects, trying to discern winners from losers and spot the potentially hidden interests that China might actually have had when initiating the platform.

Keywords: 16+1; 14+1; China-CEE relations; China-CEE trade; Chinese investments; Chinese loans

JEL classification: F550, F21, F020

1. Introduction. The 16+1 debut: the actors, the stage, the "screenplay"

The 16+1 platform, founded in 2012 by China and 16 Central and Eastern European countries (CEE16), members (11) and non-members (5) of the EU, was launched as a *win-win* initiative for the development of trade and cooperation between China and these countries, as well as –most importantly for the CEE16, at the time – for Chinese investments in the region, primarily (i) infrastructure investments (in transport, energy, telecommunications networks) and (ii) greenfield investments in modern manufacturing facilities. According to the Chinese thinking, the format was going to implement in the region China's OBOR/BRI grand and highly ambitious foreign policy strategy, which was to be launched a year later (2013) with the declared purpose of increasing connectivity between Asia, Europe and Africa, mainly by investing in infrastructure. Promoted as win-win endeavours that would have forged their international trade, bring in huge Chinese investments and give a significant boost to the region's development in its efforts to catch up with the West, these two Chinese initiatives were enthusiastically embraced by the sixteen European participant countries.

2. Literature review

China-CEE relations were not a subject of large interest for analysts and researchers before the 16+1 platform was established, and even afterwards, this topic was primarily and prevailingly tackled by authors from the countries directly involved or impacted by its existence, either European or Chinese. Researchers were initially interested in depicting the purpose, objectives and functioning of the 16+1 mechanism, trying to understand why this sudden development in China-CEE relations happened and what opportunities, benefits and challenges it created. They also analyzed the format in comparison with similar Chinese-built mechanisms in other continents [Jakobowski, (2018)]. While the Chinese researchers were more focused on the methods and measures needed to enhance China's effectiveness in the region, the CEE authors were more focused on China's motivations and goals in their countries, with some viewing and presenting them in a positive, even enthusiastic note, while others, on the contrary, seeing Chinese presence and influence in the region as perilous [see

Pavlicevic, (2018) etc.]. Over time, the topic that increasingly has come more to the fore was that of the economic consequences of China-CEE16 cooperation, with most of the authors finding minor economic gains for the CEE16 from their cooperation with China [e.g. Matura (2018), McCaleb & Szunomar (2017) etc.]. Some researchers [e.g. Matura (2021)] signaled that the reported Chinese invested amounts in the region were not trustworthy, as both China's and sometimes the CEE16 leaders' reports were inflated by including in the totals investments that had only been announced but had not materialized, as well as Chinese loans for infrastructure works, or even Chinese acquisitions of assets in these countries. As some EU officials [e.g. the EU Commissioner for Enlargement, Johannes Hanh] launched the concept of CEE as a Trojan horse used by China to divide the EU, there have appeared, again, both analysts and researchers who adopted this presumption and even considered it a serious threat to the transatlantic cooperation [e.g. Vienne (2021) etc.], and others who didn't see any such perils, arguing that neither China nor the CEE had any interest in undermining the EU [e.g. Turcsaniy (2023) etc.]. Moreover, when looking at the 16+1 platform in conjunction with the BRI and identifying not only the similarity of goals but also their reporting on the same projects, many researchers concluded that the 16+1 was either an extension of the BRI, a strategic gateway, or a bridge to the Western European markets [e.g. Musabelliu (2017), Kowalski (2017), Matura (2018), Garlick (2019) etc.]. The most recent articles and studies focused on the decline of 16+1, the shrinking number of its participants and its diminishing prospects [Chen & Yang, (2021); Berzina-Cerenkova, (2022); Kaczynski, (2022); Ciurtin (2022); Jirous, (2022); Brînză, (2023); Trivglavcanin (2023) etc.].

3. Twelve years after, the performance is increasingly farther from the initial "screenplay"

The excitement of the CEE16 countries for the new chance of accelerating their development was indeed prodigious, but here it is, twelve years later, that the 16+1 platform still didn't manage to fulfil the CEE16 countries' expectations, which were indeed outsized, but obviously nurtured and repeatedly reinforced by the generous promises made by China's high-ranking politicians whenever they had a chance to do that. Therefore, let's briefly look at some of the platform's main goals and accomplishments.

3.1. The infrastructure development goal

Most of the 16+1 infrastructure projects have remained only at the stage of ideas, or have been lost in unfruitful, years-long negotiations. Others, although started, were

(i) ***either taking much longer than it was planned, to get finalized***, as in the case of the Belgrade-Budapest speed train connection, which is no longer a high-speed one and is not yet ready after over 10 years since its inception; or, more recently, as in the case of the 5.5 km section of a ring road circling the city of Zalău, the first infrastructure contract won by a Chinese company in Romania, which should have been ready but it's not, because the Chinese side has simply lost its interest in this market[1].

(ii) ***or they were stopped half-way for different reasons***, as for instance in the case of the $2.7 billion Bar - Boljare highway in Montenegro, 40% completed in 2022, but useless, as it was suddenly stopped from being built in the middle of a forest, on the grounds that Montenegro couldn't pay a loan instalment to the Chinese lender bank. Also, as it happened in the case of a huge residential district in the Romanian city of Craiova, abandoned after a few months of extended excavations and only a few walls erected, because the Chinese state bank (Eximbank[2]) simply stopped financing the Chinese building company (Shandong Ningjian Construction Co. Ltd.), without any clear explanations to the local community.

Summing up, only a few infrastructure projects were completed, predominantly in the Balkan countries – among them, the Pupin Bridge in Belgrade, the example always remembered as a great success in the 16+1 forums and everywhere else (Heyes, 2023; Despa, 2023; Pencea, 2022; Brînză, 2020; Miller, 2018).

[1] In 2020, Sinohydro Corporation Ltd. fought for this EU-financed contract, not for profit – as the company has a very low margin and the project is considered small and quite difficult –, but hoping to simply penetrate the Romanian market and get access to much bigger and more rewarding contracts afterwards. However, in the meantime, the EU issued a Memorandum, signed by Romania and many other Member States, which practically excluded Chinese companies from bidding for large infrastructure projects in the EU. Therefore, Sinohydro's strategy was invalidated and, as such, the company no longer strives to make a good impression with its Zalău project, letting it stall (Despa, 2023; Valică, 2021).

[2] Eximbank is one of the main state banks that operate the Chinese loans under the BRI projects.

It is worth underlining that almost all of these projects were financed by Chinese loans, which, contrary to the common belief that they are always cheap, were actually quite costly as they came with all sorts of strings attached (Marrano, 2021; Chauhan, 2021; Surk, 2017; Makocki, 2017). For instance:

- The projects had to be carried out by Chinese companies under ***directly entrusted contracts***, not following competing in biddings;
- ***Strong collaterals*** for loans were usually demanded by the Chinese lending banks - a quite dangerous claim from the beneficiary country's standpoint, as the case of Montenegro demonstrated in 2021: along with other assets, this Balkan country used its seashore as a collateral and it nearly lost it to China when it could not pay the first instalment that was due for the USD 1 billion loan it had taken from Eximbank (China), to have the Bar-Boljare highway built by a Chinese company (China Road and Bridge Corporation / CRBC);
- ***Tax exemptions*** for the Chinese building companies were also usually requested, which not only disrupted markets through unfair competition and crowded out other potential suppliers, but also resulted in significant revenue losses for the host countries' national budgets;
- ***Bypassing or simply not meeting the local rules and regulations***, whenever it would have seemed possible and useful, was also often the norm. Additionally, more often than not, the local corruption was encouraged and capitalized on by the Chinese partner companies (see, for instance, the corruption scandal in Montenegro, regarding the collusion of local politicians with the Chinese state-owned companies involved in inflating the costs of the Bar-Boljiare highway);
- Moreover, very often these ***projects did not generate any positive horizontal effects in the host economy,*** as most of the necessary materials, equipment and workforce came from China, also tax-free.

To bluntly sum up, in these arrangements, the amounts lent by the Chinese banks to the CEE countries in order to finance projects carried out by Chinese companies almost never leave China. They almost never help put in motion the wheels of the borrower countries' economies, because nearly every infrastructure construction input comes from China. As such, the loans taken under such terms support in fact the various Chinese companies involved in CEE projects, as well as China's own economy, by providing both vital export markets for the Chinese goods and services, and opportunities to make more money and to create useful dependencies by lending money. How much the borrower country really benefits from such arrangements doesn't seem that important from a Chinese perspective. It also doesn't matter if the projects are really necessary, useful to, or economically rational for the borrower country, once they are useful to China and paid for by its partner countries.

Let's just think again, for instance, of the initial, hugely expensive **high-speed rail project between Belgrade and Budapest**: the high-speed trains were not meant to stop in any of the Hungarian cities to service the communities they were going to pass by, although those communities were expected to contribute to the loan reimbursement. The high-speed connection was intended primarily for cargo, more exactly to help to swiftly carry enormous quantities of Chinese goods from the port of Piraeus in Greece, to the rich markets of Western Europe. Moreover, even after the initially ambitious high-speed rail project was severely adjusted and reduced to only an upgrade of an already existing link, its efficiency remained questionable because, as one Hungarian politician has put it, without effective rail connections from Serbia to Greece, „ ... *this railway will go from nowhere to nowhere*" (Kester, 2020).

In addition to all the above, for the Chinese side it doesn't seem to matter ***if projects are cost effective or not***, as long as China has made sure that the loans it has granted are reimbursed with a profit. Again, let's remember the Belgrade-Budapest high-speed train project, considered unnecessary and inefficient by many Hungarian and foreign experts. Some of them calculated at some point that the high-speed project might have turned profitable after 2,500 operational years, provided that it did not require maintenance costs in the meantime (Heyes, 2023; Brînză, 2020; Miller, 2018).

It's been over a decade since its initiation in 2013, and the Belgrade-Budapest rail project is not yet completed. In the meantime, it has been adjusted, much simplified and, while its Serbian section has made some progress, the Hungarian one has hit more road-blocks and suffered numerous interruptions and delays on various grounds. The most recent one of these took place in September 2023, when all the building activity in the Hungarian section was stopped, on the one hand because of money shortage and surging costs (by at least 35-40%), and on the other hand because of a lack of technological expertise on the Chinese constructor's side as regards the safety systems required by the European standards (CET, 2023; Kusnierik, 2023).

Notably, after securing a Chinese loan for this project at the beginning of 2024, the Hungarian government declared all the documents linked to the financing scheme as state secrets for ten years (ERAI, 2024). Also, it is quite astonishing that, in spite of the long-delayed project completion, the mass media in both countries have recently and proudly announced that the project would be ready and opened to the traffic in 2025, ahead of the deadline (!) (Brader, 2024).

As to the financing schemes, unlike the World Bank or other international financial lenders, the Chinese state banks are probably the only entities in the world that are willing to fund projects that have been assessed as questionable in terms of their economic returns and viability. When this happens, the main purpose of the lender country cannot be one of an economic nature, but most possibly one linked to some political, geostrategic goals, such as, for instance, those of extending Chinese influence and/or establishing Chinese footholds in regions of long-term behalf (Karnitschnig, 2017).

Two other important remarks are imperative here:

- The first one is that ***Chinese loans are not Chinese investments***, as it is often mistakenly, but largely believed as a result of misinformation. They are national investments using money borrowed from China, which will be paid back with an interest from the borrower countries' national budgets (i.e. from the taxpayer's money);
- The second important remark refers to the ***foreign loans' high potential of putting an economy at risk, of creating dependencies and debt traps when they come to account for too much of its GDP*** (Stanicek & Tarpova, 2022). The Balkan countries, which are the main beneficiaries of Chinese loans among the CEE16 group, display quite high levels of China loans' weight into their GDP, with the worst case in Europe registered by Montenegro (Matura, 2021; Marrano, 2021).

Montenegro's debt increased abruptly because of **the Bar-Boljare motorway project**, surging from 63% of its GDP in 2012, to 80% in 2019 and to 105% in 2020 (Stanicek & Tarpova, 2022). Such a high debt burden produced a reimbursement crisis in 2021, when the Balkan country couldn't pay back a loan instalment for the first section of the Bar-Boljare highway, risking both a serious financial destabilization and the losing of valuable collaterals, including territorial ones (an important part of the country's seashore), to the Chinese creditors.

The Bar-Boljare project in Montenegro presents the case of one of the most expensive highways in the world and provides a tough lesson about reckless contracting and high-level corruption. At the same time, it is „ *... a cautionary tale for countries seeking an easy way to reach developmental goals and illustrates the potential negative consequences of relying on Chinese loans"* (Brînză et al., 2024). For just a section of about 42 km of this highway (that led to nowhere!), which was built by a Chinese constructor with money from a badly negotiated Chinese loan (about EUR 950 million), Montenegro has almost lost its seashore, which it had used as a collateral. The country's seashore was saved through a deal with Western banks, from which Montenegro decided to exit in 2023, "*…in a show of confidence in its finances...*" (Scepanovic, 2023), returning to further cooperation contracts with China. Notably, besides that huge territorial risk now avoided, many other complaints piled up in time regarding this project, in terms of the quality of its execution, the working conditions for the employed and the enormous, irreversible environmental destruction it has produced. Indeed, "*Montenegro stands out as an intriguing case, due to its persistent willingness to broaden cooperation with China, despite a history of somewhat turbulent collaboration over the past decade"* (Brînză et al., 2024).

3.2. The greenfield investments development goal

Another important goal for the CEE participant countries to the 16+1 format was that of greenfield investments**.** By the 2020s, the greenfield investments have been quasi-absent in most of the 16 states' cooperation with China, having been replaced, on the one hand, by **(i)** ***takeovers and brownfield investments in mature industries*** such as, for instance, the takeover of the *Borsod Chem* factory, in Hungary, of the only Serbian steel plant in Smederevo, or of the only Albanese airport in Tirana. On the other hand, greenfield investments were replaced by **(ii)** ***the acquisition of stakes in already existing assets of interest to China***, such as ***in energy networks*** (as it was the case of the Greek power grid, in the social capital of which China State Grid purchased a 24% stake), or in important ***mining operations***, (such as in the case of the *Bor Copper Mining and Smelting Complex*, in Serbia, where China's *Zijin Mining Group*, has acquired a control stock of 63%) (Ristivjevic & Lazar, 2023; Tonchev, 2022; Stanicek & Tarpova 2022; BIRN, 2018; Surk, 2017).

The privatization of the **Bor Copper Mining and Smelting Complex** is worth detailing, as it is a very relevant example of how Chinese mining investments in foreign countries often develop (Box 1).

Additionally, it is important to highlight that Chinese companies may own and operate various assets in the CEE16 countries without having directly invested there, as it is the case of the „indirect ownership" of industrial, portual or farm units in Romania that were bought by Chinese companies from other previous foreign owners (Table 1).

Box 1: The Serbian Bor Mining and Smelting Complex under China's Zijin Mining Group control

In 2018 Serbia's largest mining operation, the giant RTB Bor (*Mining and Smelting Complex Bor*), which was mining and processing copper and gold, had 63% of its social capital sold by the Serbian government to *Zijin Mining Group* from Hong Kong, China. The Serbian government remained a minority shareholder (37%) and retained preemption rights to buy the gold bars resulted from the mining activities. The new joint venture, *Serbia Zijin Copper DOO Bor*, became the owner of *RTB Bor* by putting forth a USD 1.26 billion business plan that included a binding capital increase of USD 350 million and a pledge to pay the *RTB Bor*'s outstanding debts amounting to USD 200 million. The arrangement was accepted after further unsuccessful attempts by the Serbian government to restructure and privatise the mining complex, and it was presented as a great accomplishment, while the Chinese multinational company was hailed as a saviour.

But was Zijin Mining Group a real saviour? Why should it? And what happened afterwards?

By February 2022, *Zijin Copper* had invested about USD 1 billion in its mining projects in Serbia, always praised by both the local politicians and the central government. However, its activities were highly controversial in terms of compliance with the Serbian legal framework, regarding the environmental, social and health impact on the local communities, labour terms, general lack of transparency, as well as acts of aggression against the local activists who alleged that some of the mining operations were illegal.

According to the available data, the copper production levels more than doubled in 2022 vs. 2019, and the gold production increased by 65% in 2022 vs. 2020, while the company's reported income increased year by year, getting doubled between 2019and 2022.

However, the company was not transparent about the concentration levels of the unprocessed ore, which is exported to China in huge daily quantities through the ports of Split (Croatia) and Bar (Montenegro).

According to the deal between Zijin and the Port of Split, which was valid until the end of 2022, 15 waggons or 5,000 tonnes of ore were transported daily to the port with a view to exporting them to China. While there are no statistical records of the quantities also exported through the port of Bar, there is public information about an agreement signed with this port for the 2021-2024 time-frame, for about 2 million tonnes of copper concentrate coming by rail from *Zijin* to the port of Bar, in order to be shipped to some unspecified destinations. Also, it is known that in May 2023, a delegation of *Zijin Global* visited Bar and announced that they would significantly increase operations in this port, offering to the local administration investments to „*...improve [its] efficiency and speed of logistics and transportation".*

Since 2018, the *National Bank of Serbia* (NBS) has bought 6.02 tonnes of gold bars from *Zijin*, but contractually there is no Serbian state control on the unprocessed ore that *Zijin* extracts and is freely exporting without declaring its content. As such, by exporting the unprocessed ore, the Chinese company avoids its obligation to primarily offer to the NBS the gold bars that would have resulted from processing the extracted ore locally.

On the other hand, the capacities of the mining operations have been increased so much, and mining is so intensive, that the air pollution with arsenic, sulphur dioxide and other poisonous elements exceeds by many times the maximum admitted limits, for much longer periods than legally accepted. Also the soil is degraded, the waters have become improper for use and the cases of cancers have tripled in the region.

In June 2022, *Zijin* began blasting Starica Mountain, pretending they „ameliorate" the mountain, but they had no approval for that action and, moreover, it was legally proved that they didn't even own that parcel of land. The area is state property and it makes a natural barrier that protects the town of Maijdanpek from the pollution of an open-pit mining site that is on the other side of the crest. Against all protests, the natural barrier is already partially destroyed, while the Serbian state is not intervening to either protect its population, or its property.

There have also been many conflicts between miners and the *Zijin* leaders, who have repeatedly tried to substantially lower the miners' wages, to drastically cut compensations for nightshifts, overtime, holiday and weekend work, and to eliminate other rights. Older miners continue to be discriminated, being paid less, and foreign workers, presumably Chinese (probably about 5,300 persons), are also paid less and offered dire working and living conditions.

Although the company has repeatedly breached many times the Serbian laws, especially the environmental ones but also many others too, both the local communities' leaders and the Serbian government maintain their supportive and laudatory attitude towards the Chinese investor, which in only a few years of intense activity has gained more than it has invested by a very large margin and, as such, it wants to continue expanding its operations in the area, relocating villages and continuing to pollute without fear of restrictions or fines.

According to the Report this Box is based on, „ *The lenience may be linked to a controversial section of the Strategic Partnership Agreement signed between the Republic of Serbia, the former RTB Bor and Zijin Mining. Section 7.5 of the Agreement, under the title of* ***Obligations of the Republic of Serbia****, states that the Serbian state will assist*

the company to prepare an Ecological Action Plan (which still does not exist) *and will* ***invest all efforts to ensure that the company will not be sanctioned or fined for noncompliance with environmental protection standards during the transition period."*** Doesn't this sound as if all the misfortunes that happened for the region and for the country, which are still going on without being exposed and punished, have been somehow premeditated by the Chinese side, with the Serbian governmental blessing?

At the end of this brief case study, we should mention that the region in question is historically inhabited by an indigenous Vlach/Romanian minority, plus some migrants from the former Yugoslavia who came here in the 1970s and 1980s. The Vlach/Romanian minority has no representation in the central government or in the parliament and therefore they have no voice or power to protect their lands, health and lives. This kind of status offers to the Chinese company a perfect field for acting as it wishes, without worrying. Why should it care for this minority population and for the local natural environment, when the country's leaders are visibly collusive and totally indifferent?

Source: Summarized by the author after Ristivjevic & Lazar (2023).

Table 1: Indirect Chinese ownership in Romania

THE CHINESE INVESTOR COMPANY	THE ACQUIRED FOREIGN COMPANY	FIELD OF ACTIVITY	OUTCOMES FOR ROMANIA
WH Group	Smithfield Food (US)	Animal husbandry, meat processing	50 swine farms, 2 fodder factories, 1 slaughter house, 1 distribution firm in RO now belong to the WH Group, CN
COFCO	NIDERA (NL)	Agribusiness	The largest cereal terminal in the port of Constanta belongs now to COFCO, CN
ChemChina	PIRELLI (IT)	Automotive components, tyres	2 factories in RO (tyres and electric engines) now belong to ChemChina
Ningbo Joyson Electronic Corp.	Quinn (DE) Preh (DE) Takata (JP) Key Safety Systems KSS/(US)	Automotive components	1 factory from each of the DE companies and 3 factories from each of the JP and US companies (8 in total) are now Chinese companies

Note: RO, CN, NL, IT, DE, JP are acronyms for Romania, China, Netherlands, Italy, Germany and Japan, respectively.
Source: The Author's compilations and syntheses based on the cited bibliography.

Returning to the general issue of Chinese investments in the CEE16 countries, we note that, excluding the Chinese loans and the M&A deals, the total Chinese investment stocks in all the 16 countries over the entire decade accounted for only about 2% of all the Chinese investments in the Europe (Chauhan, 2021). But even this percentage is not that trustworthy, as the governments of the CEE and China itself have been inclined to inflate the value of the total Chinese FDI in these economies, by including the values of old investment plans that have never materialized, of infrastructure projects financed with Chinese loans, as well as the results of some international M&As, while the real Chinese FDI positions in the CEE countries are generally very modest, with probably only a few exceptions, among which Hungary ranks first (Matura et al., 2021).

More recently, against the backdrop of the EU's decarbonisation and green development efforts and as a part of the global competition in the new markets of electric vehicles (EVs), lithium-ion (Li-ion) batteries and photovoltaic panels (PVs), some important Chinese private companies have chosen Hungary for significant greenfield investments in EVs and Li-ion batteries manufacturing, worth an estimated EUR 20 billion (about USD 22 billion) according to their announcements (Gergely & Lew, 2022). This total estimate includes the announcement by CATL, the largest Li-ion battery manufacturer in the world, about a EUR 7.3 billion investment in a plant in Hungary. Not accidentally, this announcement was made in August 2022, just one day after Estonia and Latvia left the 16+1 format, following the example set by Lithuania a year before. It was an obvious demonstrative act of rewarding Hungary for being politically close to China, which indirectly suggested that other countries aiming at Chinese investments should behave similarly.

3.3. The commercial exchanges development goal

Coming to trade, China-CEE16 commercial exchanges were not much better after the 16+1 platform's creation. They did increase in total value, but that was mostly due to the boom of Chinese exports to the CEE16

countries, while the access to the Chinese market has remained very difficult for these countries and therefore their exports to China continue to be very weak, leading to chronic and rising trade deficits on their side (Table 2).

Getting increasingly disappointed by the unfulfilled projects, the CEE16 have gradually turned to an inertial participation in the annual 16+1 fora, with a growing number of them reducing the level of their representation and leaning visibly towards disengagement. The spearhead of this trend was represented by countries such as the Czech Republic, the Baltic States, Poland and Romania, while Hungary and Serbia continued to believe in the benefits of the platform and to further develop their relationship with China.

Table 2: EU Member States participating in 17+1*: trade deficits with China, 2022

COUNTRY	EUR, million
1. Poland	-34,639
2. Czech Republic	-27,466
3. Hungary	-10,754
4. Greece*	-7,500
5. Slovenia	-7,438
6. Romania	-6,297
7. Bulgaria	-2,409
8. Slovakia	-1,965
9. Croatia	-1,305
10. Lithuania	-1,895
11. Estonia	-979
12. Latvia	-765

*Note: In 2019 Greece was included in 16+1 and the platform was renamed 17+1 until 2021, when Lithuania exited; in 2022, Estonia and Latvia also left the format, turning it into 14+1.
Source: Eurostat (2023).

Analysing in retrospect, with such a modest economic cooperation record for an entire decade, many started to question the real purpose of China in the region. While some of the causes of the presumed failures came to surface (a faulty understanding of these countries by China, the oversized expectations of the CEE16, the better financing terms offered to the CEE countries by the EU, China's disregard for the local needs and for the economic feasibility of the projects, the cultural differences etc.), researchers, analysts and even a part of the European ordinary citizens became doubtful about China truly having intended a win-win relationship with the CEE16. Many analysts wondered if the platform wasn't, rather, an instrument of investing in Eastern European politicians with a communist background, motivating them to advocate Chinese interests in Europe, a soft power tool used for extending China's influence and for advancing its interests in an important economic and geographical area where it was historically never present.

In addition to records about politicians from the CEE17 countries having stopped different attempts of noticing/criticizing China in different international bodies (EU, UN) by using their veto rights (i.e. Hungary, Grece), recent studies confirm that these questions were totally legitimate.

A recent wide-ranging study by the *Centre for Democracy Studies* in Bulgaria (Standish, 2021) on the expanding Chinese presence in the CEE found out that:

- the higher the contribution of Chinese investments in a CEE country, *"the higher the likelihood"* that China has exploited pre-existing problems with the rule of law in that country aiming to expand "*its economic and political influence". "It's a vicious cycle where authoritarian countries like China take advantage of legal loopholes and corrupt practices to expand their influence on the ground."*
- Also, the study identified a direct correlation between the presence, volume and influence of Chinese money in a certain economy and
  - a continuous decline in its standards of governance and of the rule of law functioning (most visible in Bosnia-Herzegovina, Montenegro and Serbia);
  - grown indebtedness;
  - higher pollution and increased damage to the natural environment;

- the expansion of an economic environment where Chinese companies enjoyed all sorts of exemptions, relieves, or generous state subventions and they colluded with the local firms and with the public administration, generating a juncture in which the governmental institutions no longer regulate Chinese companies to serve the public interest, but they become helpers of various conglomerates and local oligarchs.

Another recently released study by a research network that gathered researchers from eight Southern and Eastern European countries[3] which looked at their own economies, concluded that even if there were no remarkable Chinese investments in these countries, even if there were no visible benefits of China's presence, the trade balances with China were negative and some of these countries were heavily indebted to the Chinese state banks, the public perception about China was in general positive and, most often than not, Chinese influence was on the rise (Leonte, 2023).

4. The changing backdrop hastens casting alterations: one new actor coming in, three actors leaving for good

Since 2019, for some of the CEE16 empty words have become too much to take and they started to openly express their discontent regarding the lack of significant Chinese investments in their economies (e.g. the Czech Republic). Further on, the disappointment among the CEE group was exacerbated by other successive developments: the Chinese attitude when the Covid-19 pandemic outbreak, first concealing and then distorting information; China's adoption of the *wolf diplomacy* in its international relations*;* China's increasingly hostile relationship with the EU and the US, the main providers of development funding and security for the CEE countries; China's extremely aggressive attitude to Lithuania its exiting the 16+1 platform and on its establishing a diplomatic relationship with Taiwan; China's resort to the military harassment and intimidation of Taiwan and, most of all, China's positioning regarding Russia's aggression in Ukraine and the "*partnership without limits"* declared to an aggressor state that violated sovereignty in Eastern Europe.

Among other complex, far-reaching consequences globally, these developments and especially China's position on Russian war in Ukraine had a significant impact on the China-CEE and China-EU relations, as well as on the way China was seen across Europe. According to Kaczynski (2022), "…*except for Budapest, in all other Central European capitals the principle approach towards China today is limited trust, or even anger. The turnaround moment was the 2021 spat between Vilnius and Beijing over the opening of a new Taiwan trade office in the Lithuanian capital. The open attack on a small EU state, as well as on the EU's single market, led to an increased suspiciousness across the Old Continent."* Afterwards, and mainly once that China's support for Russia became undeniable and their cooperation kept expanding and diversifying, the relations between most of the CEE countries and China have deteriorated rapidly.

Fully aware of the worsening of its relations with the CEE countries, Chinese diplomacy tried to mend ties by sending a special envoy in eight of these countries, without spectacular results, except an outright refusal to meet, by the Polish foreign minister. According to Kaczynski (2022), citing Polish experts, Poland is disappointed with the Chinese approach on Russia and „*Warsaw now perceives its ties to China through the lens of the Moskow-Beijing axis".*

Since 2020, Romania has cancelled the contract with *China General Nuclear Power Corporation* regarding the addition of 2 new nuclear reactors to the Cernavodă nuclear plant. It has also put off the upgrading of the Rovinari power station on coal, that had been negotiated for years with another Chinese firm and it was the first country to sign engagements with the US to restrict the access of Huawei 5G technology (followed by Poland and Estonia, while the Lithuanian Parliament has banned the use of telecommunication equipment coming from unsafe manufacturers).

Besides banning Huawei from the 5G network, the Romanian government has forced telecom companies to replace the Chinese equipment from their networks and has also enforced a tough mechanism of screening all the non-EU investments. In a different area, a bill providing for the closing of the four Confucius Institutes in Romania was proposed at parliamentary level (Brînză, 2023). At present, with the exception of two small on-going infrastructure contracts (a 8.6 km section of the Bucharest ring-road, and a 5.5 km one circling the town of

[3] Albania, Bosnia and Herzegovina, Bulgaria, Greece, North Macedonia, Romania, Serbia and Slovenia.

Zalău), all the remaining Chinese projects were cancelled and it has become impossible for Chinese companies to compete in any Romanian public tenders.

Despite all these facts, Romania and China managed to successfully avoid a diplomatic conflict similar to that experienced by the Czech Republic, or by Lithuania, as Bucharest has never directly criticized China for its behaviour and, accordingly, Beijing has never resorted to its wolf diplomacy toolbox in relation with Romania. Aware of the platform's fading importance in the CEE region, in 2019 Beijing attempted a resuscitation of the 16+1. For a short time, the format seemed to be revived by China's strategic move of including Greece, an old EU and NATO member, with the clear purpose of freshening up its image and of showing to the world that the 16+1 was well, functioning and attracting new and significant members. However, only two years later, in 2021, the recently created 17+1 turned back into 16+1 after the Lithuanian withdrawal, and a year later, in 2022, it became 14+1, when the other two Baltic States, Estonia and Latvia, also left the platform.

Furthermore, in 2022 the Czech Parliament recommended to the Czech government, and specifically to the Ministry of Foreign Affairs, to leave 16+1, because *„the main initiatives of the format economic diplomacy, the promise of large investments and mutually beneficial trade – did not materialize even after a decade."* Therefore, these *„unaccomplished expectations"* claimed a reconsideration of the Czech participation to the platform. So far, neither the Czech Republic nor Slovakia (which was also pondering about an exit), nor Poland or others left the platform, but for sure more participants thought of leaving and did analyse such a move. Although not interested in it, Romania will most probably not leave the platform in the short run, but it will continue to downgrade its representation and to limit its activities, while the bilateral relations with China will remain cold, despite both countries' diplomatic rhetoric.

5. Before the curtain falls: was it a fiasco, or a success?

Irrespective of the number of member exits, China is not expected to give up on the 16+1 format, but on the contrary, to support it no matter what, for as long as it brings benefits. The platform has already helped China substantially:

- To build a remarkable presence and patches of influence of various intensity all over Europe, a continent where China has never been historically present;
- To open new markets and to rapidly grow the old ones;
- To get access to new information, contacts, knowledge, technology, know-how and even to new deposits of natural resources for its home industry;
- To create useful dependencies;
- To better penetrate worlds of great interest in Europe – that of the politicians, of the central and local administrators, of the academic life etc. – and to capitalize on them.

All in all, the 16+1 platform helped China make more money and establish a highly-beneficial foothold in Europe. And that is for good, it will not subside. No less importantly, the format became a *„…'low-cost learning instrument' both for China and for the participant countries, allowing all the entities involved to understand how future cooperation outside the boundaries of the EU-led initiatives might be shaped and how it could evolve into the much-advertised 'win-win' pattern."* (Ciurtin, 2022).

In the CEE16 region, as almost everywhere else, China did turn the „*win-win"* ideal into a „*win twice"* principle for its own benefit. With the help of the 16+1 *'low-cost learning instrument'* it surely learned more about the Central and Eastern European countries, the Balkans, the Baltics, the EU or Europe in general, but the same did its CEE partner countries, which also learned a lot about trusting bombastic promises and having unrealistic expectations, about the risks of recklessly dealing with China under its own terms and about the need of security and self-protection in an increasingly risky global environment. Therefore, the majority of these countries are now much more critical, sceptical and prudent, choosing to keep a distance in their relationship with China. This is a trend that might prove positive for strengthening the EU unity, and beneficial for its one EU policy on China. Given all the benefits it has brought to China, the 16+1 platform will not be left to disintegrate. And not only because China might lose some of the gains, but because in an autocracy the party and its leaders, the country

itself, cannot be or do wrong, they cannot fail, cannot lose the image of perpetual winners. Moreover, although it is now somehow dormant and it no longer appears to make economic or political sense, the format might still become instrumental to China sometime in the future. As Justyna Szczudlik, a Polish expert, has put it, „... *one never knows when this mechanism, today inactive, might be useful again."* (Kaczynski, 2022).

Trying to stop the decline of trust and more exits, China resorted to a policy of carrots and sticks: on the one hand, criticizing and bullying the first participant that left the format, Lithuania, and, on the other hand, rewarding unsparingly the most politically devoted one, Hungary. Just one day after the last two Baltic countries declared that they were leaving the 16+1 format, China announced that CATL, the largest manufacturer in the world of Li-ion batteries for EVs, will invest over USD 7.3 billion into a factory in Hungary, creating many jobs in a high-tech field that is expected to grow vigorously for many years. This will be the largest Chinese investment ever made in Hungary, and in fact in all the ex-CEE17 area.

Some might say that we've all heard many times before such impressive announcements which have never materialized, but, in the given context, this one will probably go through, firstly because it must have a demonstration effect among the CEE and for the entire Europe, for that matter, and secondly, because the Chinese company itself needs to make sure that it will continue to sell its goods in Europe as an European manufacturer, in case the EU would resort to tough forms of protection against Chinese exports.

Of course, this was the kind of greenfield investment that all the 16 countries in the format have hoped for since 2012, but here it is that it is happening after no less than twelve years of empty promises, in only one country of the entire group and in the form of a reward for political loyalty, with an obvious demonstrative purpose! For most of the CEE countries that is not at all enough, it comes too late and it is too politically-driven to revive trust! Therefore it is not at all convincing, just eye-opening.

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A NEW INTERNATIONAL ECONOMIC ORDER – 50 YEARS LATER (1974-2024)

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Abstract: As 2024 marks 50 years of discussions and manifestations related to a New International Economic Order, and also 34 years since President George H.W. Bush presented his vision of a New World Order, this paper attempts to identify the main stages that characterized this important part of international relations. From an International Economic Order defined mainly by the Anglo-Saxon vision after the Second World War, new principles were proposed in 1974 as result of the demise of the colonial system and other changes in the world balance of power. For several decades these principles had little success, but currently the raise of new centers of power and the manifestation of a so-called Global South may determine a more substantial discussion about a New International Economic Order. The conclusions of this analysis aim to clarify the past and attempt to explore the future in order to provide a more efficient participation to international economic relations.

Key words: world order, international economic order, new international economic order, Global South

JEL classification: F02, F55, F60

1. Conceptual clarifications regarding world/international order and international economic order

As a general definition, world/international order refers to the relations between actors/participants at the international level, relations which in turn are based on rules and institutions as well as customs and norms. A key element for the functioning of an international order is represented by the legitimacy or general acceptance of the rules and institutions by all or at least most of the actors/participants.

This acceptance is usually based on the perception that the rules and institutions represent an acceptable compromise that guarantees stability, reasonable profitability, and representation of interests for all participants. A perfect world order would mean that the interests of all participants in the world economy are satisfied to an equal or very similar degree, but such a lofty desiderate is more related to legal principles than to reality.

At the same time, even if the concept of world order would imply global coverage, it may sometimes refer to a substantial part of the globe, but not all of it. In this respect, as Henry Kissinger remarked, "No truly world order ever existed" (Kissinger, 2014a). In fact, not only does the world order usually refer to less than the whole world, but also the vision and content of a world order represent the position of one or a few significant actors who control most of the balance of power at a given time, and therefore even if a certain world order exists and it is applied, its design is not the result of a global consultation. In the words of Henry Kissinger: "World order describes the concept held by a region or civilization about the nature of just arrangements and the distribution of power thought to be applicable to the entire world. An international order is the practical application of these concepts to a substantial part of the globe -large enough to affect the global balance of power" (Kissinger, 2014b).

The international order, as well as international relations, have a historical nature because the participants and their interactions are intrinsically dynamic, changing over long periods of time due to a variety of factors such as economic development, technological progress, demographics, political decisions, climate change etc. The idea of change of a given international order is therefore objective, and the only variables are related to the timeframe between two changes and the specific causes and manifestations of change.

The change of a very large and complex framework such as the international order always represents a combination of active and reactive positions on the part of international actors. An active position involves a blueprint, a vision and a set of principles designed by international actors with significant power and later presented in a convincing manner to the rest of the international actors. A reactive position is characterized by a

series of adaptations to the existing international order as a result of long term and substantial changes in the international balance of power, the emergence of disruptive technologies, demographic changes, climate changes etc.

Perhaps it is necessary to clarify the two concepts of international order and world order. In our view, they both refer to relations among participants at the international level, based on certain rules and institutions, and can therefore be considered to a certain extent as synonyms. Anyway, a distinction can be made, in the sense that international relations underlie the idea of relations among nations (i.e. independent states), hence the use of the term "inter-national", while world order shifts the focus to the idea of a globalized world economy and the manifestation of multilateral institutions and regulations related more or less to what was called "global governance" (Yew., 2024).

The international economic order represents a subsystem of the international economic order which focuses on the set of rules, norms, procedures, and institutions dealing with exchanges of goods, services, capital, labor and knowledge among actors originating in different states. Therefore, it is not possible to analyze the international economic order as such, without relating it to the broader framework of the international order.

2. Overview and context of the post-World War 2 international economic order

During the second half of the 20th century, the implications of the two World Wars (and particularly of the second one), as well as the demise of the colonial system have contributed to a large extent to the design and implementation of an international order that was mainly characterized by:

✓ The bipolarity of the Western and Eastern blocs (with the US and the Soviet Union as centers of power, ideology and influence). It is to be noted that while some countries were clearly included in one of the two blocs, a large number of other countries represented more or less affiliates or supporters of one of the two centers of power (Nadkarni, 2020);

✓ The Cold War (between 1947and 1991), which manifested itself above all in the creation and various manifestations of the two opposing military alliances (NATO established in 1949, and the Warsaw Pact, established in 1955). A by-product of the Cold War was the nuclear deterrence, which led to new approaches regarding international conflicts, allowing for the existence of limited scale conflicts, but attempting to avoid the so-called "mutual assured destruction" (MAD) which signified the total annihilation of human existence as a result of a nuclear war (Sokolski, 2004).

✓ The establishment of specific international institutions with a focus on securing peaceful solutions to conflicts, supporting development and accommodating the increase in the number of independent states as a result of the demise of the colonial system. In this context, the most important international institutions were the United Nations Organization established in 1945, the International Monetary Fund and the World Bank (both designed at the Bretton Woods Conference in 1944) and the General Agreement on Trade and Tariffs (established in 1947 and operational since January 1st, 1948) as a negotiated solution after the failure to establish an International Trade Organization (Bowen, Lovell, and Young, 2024);

✓ The increased attention paid to human rights and international law in order to prevent dramatic infringements and violations as manifested during the Second World War. Key moments in this regard were the adoption of the Universal Declaration of Human Rights in 1948 and the Geneva Conventions in 1949 (Flowers, 1998).

The key ideas that defined the post-World II international (economic) order had been drafted during a secret meeting between Franklin D. Roosevelt, the US President, and Winston Churchill, the Prime Minister of Great Britain, meeting that took place off the coast of Newfoundland, Canada, between 9 and 12 August, 1941 (Britannica, 2024). The key ideas discussed during this secret meeting, codenamed Riviera (Dunton, 2022), were used for the definition of the Atlantic Charter (made public on August 14, 1941), as well as for for the Declaration of the United Nations (issued on January 1st, 1942) and for the establishment of the United Nations Organization (October 24, 1945).

In the following section we analyze the relation between the changes in the characteristics of the international context after World War 2 and the debates and manifestations of a New International Economic Order. The official starting point of the post-World War 2 world order can be traced back to the establishment of the principles of the Atlantic Charter in 1941. The order that emerged was largely, if not entirely, an order designed

by the leaders of the Anglo-Saxon world, representing in good faith their vision from the perspective of the developed countries and winners of the Second World War.

We emphasize the idea of good faith because the leaders of the Anglo-Saxon world at the time attempted to design a better world order, an order that would promote development and avoid economic crises, a world based on the democratic ideas specific to the Western civilization.

In our view, we can summarize that perspective under the title: *Learning from the past, designing a better future, and establishing a more globalized world***.** Learning from the past implied a reference to the two World Wars that damaged human civilization on an unprecedented scale, to the Great Depression, and to the risks associated with authoritarian regimes. Designing a better future was about improving the sharing of prosperity, and establishing a more globalized world meant creating a world economy characterized by greater interactions and interdependencies, as well as relying more on multilateralism rather than bilateralism.

29 years later after the end of the World War 2, the official starting point of the international process of adopting and implementing a New International Economic Order has was the adoption by the General Assembly of the United Nations Organization of a Declaration for the Establishment of a New International Economic Order on May 1, 1974 (United Nations, 1974).

The most obvious change that took place in the international arena between 1945 (representing the end of the World War 2) and 1974 is the fact that the demise of the colonial system led to the establishment of a large number of new independent states. As a result, the number of members of the United Nations Organization grew from 51 member countries in 1945 to 144 in 1975. This 2.82 times increase in the number of independent states proved that the international framework had dramatically changed, even if most of the new independent states lacked real economic, political and military power. Despite these limitations, they were anyway subjects of international law and had to be taken into account in the design of rules and regulations for interaction.

The priority given to economic relations at that time was motivated by the immediate importance for the developing states of achieving and sustaining economic development, as a key factor in supporting real political independence. Therefore, the New International Economic Order focused on better terms of trade (summarized in the concept of "trade not aid"), reducing inequalities and development gaps as well as dependencies on developed states. With reference to the post-World War 2 historical period, we can name this approach as New International Economic Order - Version 1 (V1).

The period between May 1st, 1974 and 1989-1991 can be regarded as a period of explorations and attempts in implementing the New International Economic Order, as well as a period of quantitative accumulations as regards the development of the new independent states resulting from the demise of the colonial system.

From a historical perspective the period 1989-1990 has represented a milestone separating two rather distinct eras. As in the case of most historical periodization, the dates that divide different eras are not precise: they refer to periods rather than to exact dates.

The new historical era started on November 9, 1989 with the fall of the Berlin Wall, which for decades had been the symbol of a divided Europe. 1989 was also the year of the end of communism in many Central and Eastern European countries such as Poland, Czechoslovakia, Hungary, Romania. While many important events took place in 1990, perhaps the most significant was the reunification of Germany on October 3, 1990. Also, 1990 was the year when the centrally planned economic systems in Central and Eastern Europe were replaced by the transition to a market economy.

A historical moment due to its global implications took place in 1991, when the Soviet Union ceased to exist on 26 December. At that moment, consequently, the Cold War as well as the bipolar world system ended. The next year, 1992, was the year when the world order started to be characterized by a unipolar world order, defined by the existence of a single super-power, the United States of America. A significant aspect is that new configuration of the balance of power emerged at a moment when the world economy was much more globalized or integrated that in 1974.

From the perspective of our analysis of the New International Economic Order, 1990 was representative as it was the year in which the then President of the United States, George H.W. Bush, outlined the principles of a New World Order in front of a joint session of Congress on September 11. In his worlds, this new world order had to be: "a new era-freer from the threat of terror, stronger in the pursuit of justice, and more secure in the quest for peace. An era in which the nations of the world, East and West, North and South, can prosper and live in harmony. A hundred generations have searched for this elusive path to peace, while a thousand wars raged across the span of human endeavor. Today that new world is struggling to be born, a world quite different from the one we've known. A world where the rule of law supplants the rule of the jungle. A world in which nations recognize

the shared responsibility for freedom and justice. A world where the strong respect the rights of the weak." (Bush, 1990).

34 years later (taking into account the period September 1990-2024), the generous ideas presented by George H.W. Bush have materialized to a little extent. A multi-polar, multi-civilization, variable geometry world economy characterized by fragmentation or vertical distribution is far away from Francis Fukuyama's book "The End of History and the Last of Man" (Fukuyama, 1992). A New International Economic Order seems to be manifesting itself in incipient and tentative ways, and this historical process is accompanied by more and more discussions about a New World Order. . This incipient New World Order and its economic companion, still in the making, seems to be bipolar again, this time having as participants the West and the Rest, or the Western countries and the so-called Global South.

3. The main stages of discussions and manifestations of a New International Economic Order between 1974-2024

As the year 2024 marks 50 years of discussions and manifestations related to a New International Economic Order, and also 34 years since the presentation of President George H.W. Bush's vision of the New World Order, it is possible to identify the main stages that characterized this important part of international relations. Some dates can be precisely identified, such as the date of the United Nations Organization of a Declaration for the Establishment of a New International Economic Order. Other dates are periods of time rather than precise dates. But the proposed analysis may be useful in clarifying the past and attempting to explore the future.

A. The first period can be approximately placed between 1974 and the mid-1980s. We may call it a period of advocacy and crystallization of concept, of experiences and explorations. During this period, the United Nations Organization adopted the Declaration for the Establishment of a New International Economic Order which included a program of action. Several months later, in December 1974, the General Assembly of the United Nations adopted the Charter of Economic Rights and Duties of States (United Nations, 1974). It is to be noted that the Charter of Economic Rights and Duties of States contained three chapters dedicated to Fundamentals of international economic relations, Economic rights and duties of states and Common responsibilities towards the international community.

Throughout the post-1974 period, a central forum of discussions on the New International Economic Order had been the United Nations Conference on Trade and Development (UNCTAD). Other significant forums of debate have been the Group of 77 (G77), established in 1964 and initially bringing together 77 developing countries (nowadays the number of members is 134) and the Non-Aligned Movement, established in 1961 to represent the interests of developing countries, which currently has 120 members.

B. A second period, which can be traced from the mid-1980s to the early 1990s, was characterized by a relative decline in the intensity of participation to debates and by the implementation of a New International Economic Order. During this period, many developing countries were confronted with an external debts crisis that limited their capacity to implement reforms related to the New International Economic Order. At the same time, geopolitical crises and sometimes diverging interests affected the cohesion of the developing countries. It was a period when the full speed of globalization allowed many developing countries to witness both quantitative and qualitative development, including the increase in the level of education as well as the increase in the share of urban population. These developments represented building blocks for later discussions on and manifestations of a New International Economic Order.

C. A third period, which can be placed between the early 1990s to the early 2000s, can be labeled as the golden age of globalization and the manifestation of neoliberalism. This period witnessed a fast increase of foreign direct investment, deregulation, liberalization, and predominance of market economy principles. During this period, the demise of the bipolar order and the transition to a market economy in Central and Eastern Europe took place. Under these circumstances the discussions and implementation of a New International Economic Order in the sense of an order supporting developing countries apparently lost its appeal. It was during this period, in September 1990 that US President George H.W. Bush outlined a New World Order characterized by unipolarity and the position of the United States of America as the single super-power.

What actually happened was that during this period many developing countries used the favorable circumstances and made significant improvements in their economic power. This new status will allow them to pursue the idea of a New International Economic Order during the next period from a better position.

D. A fourth period lasted from the early 2000s to the late 2010s and was characterized by an increasing South-South cooperation and a better position of many developing countries in pursuing better terms of trade, national control over natural resources, technology transfer etc. With reference to this period, we can note that in 2018, the General Assembly of United Nations adopted a resolution entitled "Towards a New International Economic Order", which stressed once again the importance of observing the principles of cooperation, solidarity, sovereignty and equity in the economic relations among states (United Nations, 2018).

E. A fifth period brings the historical process to present and refers to the current decade, starting in 2020. This period started in 2020 in an unusual way, with a pandemic crisis, but its main characteristics have been given by the coming into maturity of previous trends. This period may be defined in several ways as: the rise of the Global South, the coming of age of the New International Economic Order, the emergence of alternative, conflicting and/or competing International Economic Orders.

Due to the fragmentation of globalization as a result of increasing geopolitical tensions, war situations (such as the Ukraine war or the war situation in Gaza) and the increasing manifestation of protectionism, embargoes and trade blocks, the current situation is somehow different from the previous ones in that it is no longer about the gradual replacement of one economic order by another, but rather about the possibility of the coexistence of two different world economic orders that divide the global economy into two unequal parts: one part containing most of the world's population (approximately 85%) – the so-called Global South, which include non-Western countries – and which generate less than 50% of the nominal global Gross Domestic Product, and another part containing a minority of world's population (approximately 15%) but currently contributing with about 60% of the nominal global Gross Domestic Product (The Economist, 2024).

It is to be noted that if we use the purchasing power parity for comparing the contribution to global Gross Domestic Product of developed countries (using the G7 Group as proxy) and developing countries (using the BRICS+ as proxy), the result is rather different: the BRICS countries overpassed G7 from 2020 (with 31.02% compared to 30.94%), in 2023 the difference being 32.14% for BRICS versus 29.92% for G7 (Statista Research Department, 2024).

4. The New International Economic Order – 50 years later

The following section aims to compare the key aspects that characterized the New International Economic Order (NIEO) approach at the time of the official launch of the concept in 1974 and in mid-May 2024. The results of this comparison are synthesized in Table 1.

Table 1: Characteristics of NIEO in 1974 and 2024

Indicator	NIEO 1974	NIEO 2024
Objective reason for the proposal of the concept and the attempt of its implementation	Emergence of a large number of new independent states	Emergence of new substantial economic powers (China, India, South Africa, Brazil etc.). Higher levels of development in many non-Western countries.
Type of reaction from developing countries	Pro-active, mostly based on positions in international organizations	Mostly re-active, aiming at reducing risks in international trade as a result of Western sanctions and relying more on own possibilities.
Participants	New independent states, non-Western	Non-Western states
International forums of debate for supporters of NIEO	UNCTAD, Group 77, Non-Aligned Movement	BRICS+, OPEC+, Shanghai Cooperation Organization (SCO).
Economic power represented by contribution to global Gross Domestic Product	OECD countries represented 78.58% of global Gross Domestic Product.	BRICS countries overpassed G7 Group as contribution to global GDP expressed at PPP since 2020.

Position of supporters of NIEO vis-à-vis developed countries	Weak position	Strong and increasing position based on current level of development, natural resources, demographics etc.
Influence of technology	Advantage for Western countries	Non-Western countries have significant alternatives for many key areas such as banking and financing, transport and communication, global supply chains etc.
Main interest of developing states	Promoting national interest from a political and economic perspective vis-à-vis all countries	Idem, plus reducing risks generated by dependence on Western institutions, finances, technologies etc.

Source: Table compiled by the author on the basis of the cited bibliography.

5. Conclusions

50 years since the first official international attempt to build a New International Economic Order, the concept is emerging again in a vastly changed world, but with a remarkable persistence of the principles enlisted in the Declaration of the United Nations Organizations of May 1, 1974, among which there were: sovereign equality of all states, sovereignty over one's own natural resources, non-interference in internal affairs, equitable terms in international trade between low value added and high value added goods, the right of states to adopt economic and social systems, support for development and transfer of technology to developing states (United Nations, 1974).

Based on our research, we have identified two periods of time during this 50year period:

✓ A first period of 16 years (1974-1990) between the official statement of the Declaration on the Establishment of a New International Economic Order and the concept of the New World Order presented by the US President George H.W. Bush in 1990.

✓ A second period of 34 years (1990-2024) between the presentation of the New World Order concept of the US President George H.W. Bush and the current date. We mention that while for the first 16-year period the beginning and end dates are well determined by official documents, in the case of the second period only the beginning date is linked to an official statement, while the end is just the time of editing this research. We can even speculate that, given the current trends related to the Global South, BRICS+'s second enlargement in 2024 and other geopolitical developments, it is possible that until 2026 (that would make an equal period of 26 years since 1990) a new international economic order may manifest itself clearer than as of mid-2024.

During the period 1945-1974, that is between the beginning of activity of the United Nations Organization in 1945,which included the principles of the Atlantic Charter, and the official statement of the Declaration on the Establishment of a New International Economic Order in 1974, the main characteristics and international institutions had been inspired by the Anglo-Saxon vision of the world economy and implemented in a world characterized by the existence of developed and developing countries.

16 years later, in 1990, the concept of a new world order presented by the US President George H.W. Bush took greater account of the developing countries, but it was still a vision of the Anglo-Saxon world and, even more, it was a vision formulated at a moment when the bipolar world was no longer a reality and the United States were recognized as the only super-power. Even if few people realized at that time, the end of the Cold War had some winners (the Western countries and, primarily, the United States) and some losers (the countries of Central and Eastern Europe and, primarily, the Soviet Union).

At the same time, the whole period between 1974 and 2024 witnessed a constant but unequal quantitative and qualitative development of the developing countries. In particular the period after 1990 witnessed the emergence of a multi-polar world economy, with China as a real competitor for the United States and other countries from the Global South coming from behind (India, Brazil, and South Africa etc.).

Given the fact that the Global South is more of a diffuse space including non-Western countries, its manifestations are more reactive than pro-active, meaning that many countries very diverse from all points of view (size, number of populations, resources, level of development, geographical position etc.) react in response to decisions of developed countries as well as in response to global issues (such as climate change).

Due to this high diversity of the countries included generically in the Global South concept, the interests and reactions of these countries are not homogenous: they vary depending on the topic and on specific circumstances, such as international prices for food and energy, or political and military interests. The more these countries perceive a common interest or a common threat, the more they will react in a similar way. At least for the moment their cohesion is depending on their perception of a common threat and/or a common interest.

An important observation made by Abishur Prakash in his book "The World is Vertical" is that many of the countries included today in the Global South concept were interested for a long time, even since 1974, once with the United Nations Declaration on the Establishment of a New International Economic Order, to participate under better terms to international economic relations. They just did not have the means and alternatives to implement their interests (Prakash, 2021). For many decades, these countries lacked educated human resources, access to technologies, access to capital, and access to other centers of economic power towards which they could gravitate.

After a number of historical developments, such as: the 2008/2009 crisis, the emergence of China as a new pole of economic power, the renewed importance of a number of mineral resources (such as rare earths), the beginning of the Trump administration's mandate in 2017, which led to tensions in international trade with significant trade players (China, but also the European Union), the countries of the Global South have started to have alternatives.

These alternatives have included new organizations (such as BRICS and BRICS+), new sources of financing (such as the New Development Bank and the Asian Infrastructure Investment Bank), new approaches to development and cooperation among developing countries (such as the China's Belt and Road Initiative, which includes agreements with more than 150 countries and 30 international organizations), access to technologies in communication, GPS, energy and artificial intelligence from non-Western countries, access to international payment platforms other that SWIFT, etc.

All these developments are bringing the world economy closer to a crossroad:

✓ One way leads to a return to cooperation and economic interactions among all participants, with a better reflection of the interests of all stakeholders;

✓ Another way goes to a more and more divided world economy, most probably with two components, the West and the Rest, and with a variable geometry based on topics of interest.

At the moment, it is obvious that the second option is not very efficient and represents a departure from globalization as we knew it during the 1990s to 2000s. At the same time, there is a high probability that the second option will manifest itself, at least for a while.

Based on these circumstances, our understanding is that the careful monitoring of developments related to the international economic order, as well as the open-minded design of foreign economic policies are useful for all countries, in order to secure an effective participation to international economic relations.

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CIRCULAR AND GREEN ECONOMY – A COMPARATIVE ANALYSIS OF THE CURRENT STATE IN ROMANIA AND IN THE EU

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Abstract: *The green and circular economy is associated with the sustainable development concept and is an integrated part of the development strategies of all EU Member States. In line with the Union's objective of achieving climate neutrality by 2050 under the Green Deal, the European Commission proposed in March 2020 the first package of measures for the transition to a circular economy, included in the Circular Economy Action Plan. The Plan includes measures for encouraging the production of sustainable products, informing consumers about the green transition, reviewing building materials regulations, and a strategy for sustainable textiles. Against this background, this paper aims to present a comparative analysis of the green and circular economy principles implementation in Romania and the European Union. One of the conclusions of the paper is that even if some progress has been made in the last decade, the implementation of green and circular economy principles in Romania is still at the beginning of the road.*

Keywords: European Union, Romania, Green economy, Circular economy.

JEL Classification : O13, Q00, Q01, Q32

1. Introduction

The European Union has been at the forefront of the global efforts to transition towards a more sustainable economic model, with the circular and green economy playing a central role in this pursuit.

The circular economy is a fundamental component of the EU's strategy to address the environmental challenges it faces, including resource depletion, waste generation, and climate change. This economic model is based on the principles of reducing, reusing, and recycling resources, with the goal of minimizing waste and maximizing the value of products and materials throughout their entire lifecycle. The EU has implemented a range of policies and initiatives to promote the circular economy, including the EU Circular Economy Action Plan, which outlines a comprehensive set of measures aimed at transforming the way products are designed, produced, and consumed (European Commission, 2020).

The green economy, on the other hand, is a broader concept that encompasses the transition to a more environmentally sustainable and socially inclusive economic model. This transition involves the development of green technologies, the promotion of renewable energy sources, the implementation of sustainable agriculture and forestry practices, and the creation of green industries.

The circular and green economy are closely intertwined, as the principles of the circular economy – reducing, reusing, and recycling – are essential for the successful transition to a green economy. The EU has recognized the importance of this interconnection and has sought to integrate the two concepts into a comprehensive strategy for sustainable economic growth.

2. Methodology

The present paper aims to provide a comparative analysis of the current state of the green and circular economy in Romania and the European Union. This analysis will be conducted starting from the action areas outlined in the European Green Deal:

1. Biodiversity - measures aimed at protecting the fragile ecosystem.
2. From farm to fork - ways to ensure a more sustainable food chain (European Commission, 2020).
3. Clean energy - the use of renewable sources for energy production.
4. Sustainable industry - ways to ensure more sustainable production cycles that better respect the environment.
5. Building and renovating - the need for the construction sector to become cleaner.
6. Sustainable mobility - promoting more sustainable means of transportation.
7. Eliminating pollution - measures aimed at rapidly and efficiently reducing pollution.
8. Climate action - programs and actions through which the European Union aims to become pollution-neutral by 2050 (Agrointeligenta, 2020).

The research methodology includes a comparative analysis of the circular and green economy in Romania and European Union. Through this approach, the paper will highlight the differences and similarities between green and circular economy in Romania and European Union (EU). Based on the results of the analysis, the paper will draw some conclusions on the current status of green and circular economy in Romania and the EU, highlighting both positive and negative aspects. One limitation of the paper is related to data availability, since in the European database (Eurosat) the latest data are at the level of the years 2020-2022.

The importance of the work derives from the fact that green and circular economy has become a major area of interest both nationally and at the European level, as the world face significant challenges related to climate change, environmental degradation, and limited resources.

3. Literature review

There is a wealth of specialized literature which presents the circular economy definition, conceptual background and basic principles (Kristensen et al., 2020; Ioannis, Konstantinos, 2021; Kirchherr et al., 2017; Heshmati, 2015). For example, Morseletto (2020) defines circular economy as "an economic model aimed at the efficient use of resources through waste minimization, long-term value retention, reduction of primary resources, and closed loops of products, product parts, and materials within the boundaries of environmental protection and socioeconomic benefits. A CE has the potential to lead to sustainable development, while decoupling economic growth from the negative consequences of resource depletion and environmental degradation", Geissdoerfer et al., (2017) considers circular economy as "a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling" and EU considers that the circular economy is the economy "where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimized" (European Commission, 2015).

As a consequence of the large number of the circular economy definitions, analyzing the specialized literature, we can observe that there is no unanimously accepted circular economy model. For example, the EU utilize the 4R "Reduce-Reuse-Recycle-Redesign" model (European Parliament, 2008), other authors utilize the 6R "Reduce-Reuse-Recycle-Reproduce-Redesign-Recover" model (Jawahir, Bradley, 2016) and others 9R "Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle" model (Potting, Hanemaaijer, 2018).

The Romanian specialized literature regarding the circular economy contains a series of studies which present: Romania's perspectives on the transition to the circular economy in an EU Context (Dobre-Baron et al. 2022) and the perspectives of circular economy in Romanian space (Vermeșan et al., 2020), the implementation degree of circular economy in Romania (Topliceanu et al, 2023**),** the challenges of the Green Economy in Romania (Mihai et al., 2021), packaging waste recycling in Romania (Jora et at, 2020), assessment of the circular economy's impact in the EU economic growth (Vuță et al., 2018).

In the context of the economies transition to the circular economy model, the monitoring of the process implementation became essential. The circular economy implementation and its indicators is found in a series of studies drawn up by international organizations like European union (European Commission, 2018), OECD (OECD, 2014), World Bank (World Bank, 2017) and researchers (Topliceanu et al, 2023; Marino, Pariso, 2020; Mazur-Wierzbicka, 2021; Păcurariu et al., 2021**).**

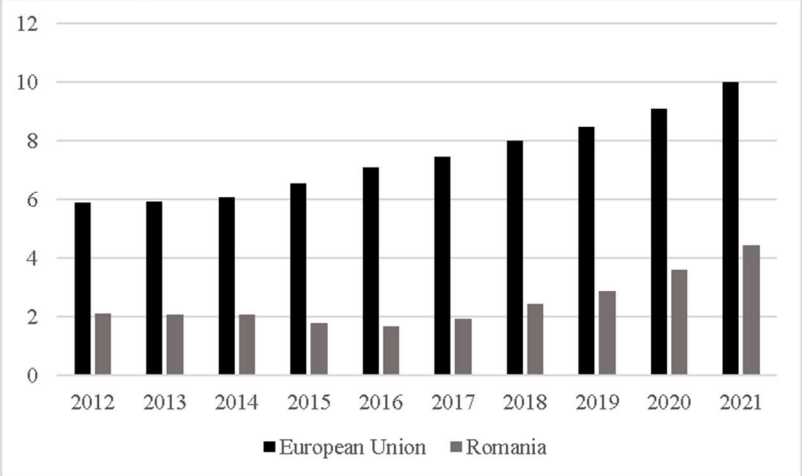
4. Circular and green economy in Romania and European Union

The EU Member States are determined to achieve climate neutrality by 2050, fulfilling their commitments under the Paris Agreement. The European Green Deal is the EU's strategy aimed at achieving of the 2050 objective (European Council, 2019). Starting from the action areas outlined in the European Green Deal, in the following, it will be accomplished a comparative analysis of the current state of the green and circular economy in Romania and the European Union.

Biodiversity. Currently, 23.4% of Romania's terrestrial area is designated as protected areas, which is below the EU average of 26.4% (Biodiversity, 2024). As a Member State of the EU, Romania should align with the European Union's objective of protecting 30% of EU land and sea by 2030 (European Commission, 2022). Achieving this target is unlikely, considering that Romania currently faces the highest number of infringement procedures within the EU for the destruction of protected areas, illegal deforestation, and environmental pollution (Florescu, 2022). Over the past decades the objectives of national socio-economic development strategies and the means used to implement them have been the main anthropogenic factors that have induced the modification of the structure and productive and supportive capacity of biodiversity in Romania. This capacity is threatened by the overexploitation of natural resources, inadequate exploitation of non-renewable resources, climate change, and pollution.

From farm to fork. Romania performs poorly in terms of organic agriculture, the latest Eurostat data showing that the organic crop area in Romania (as a percentage of the total) is among the lowest in Europe, nearly two and a half times smaller than the European Union average. However, as shown in Graph 1, compared to 2012, the organic crop area has doubled both in Romania and in the European Union, increasing in Romania from 2.10% to 4.42% and from 5.88% to 10% in the European Union.

Graph 1: Organic crop area in Romania and European Union, 2012-2021 (%)



Source: Authors based on data published by the Eurostat (2024).
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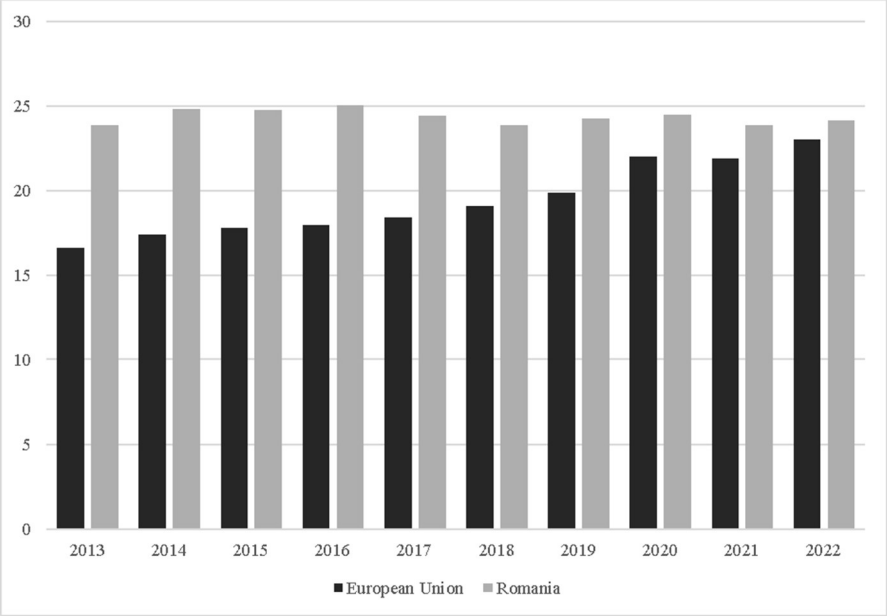
In 2021, Romania had only 578,718 hectares cultivated using organic methods. In order to align with the European Union's objective of stimulating organic production to reach 25% of the EU's agricultural land by 2030 (European Commission, 2020), the Ministry of Agriculture and Rural Development considers that the area used in organic agriculture in 2030 could reach a minimum of 800,000 hectares.

According to data published by the European Statistical Office, the organic crop area in the European Union is continuously increasing, from 14.7 million hectares in 2020 to 15.9 million hectares in 2021, equivalent to 9.9% of the total utilized agricultural area.

Clean energy. Achieving climate neutrality by 2050 is one of the objectives of the European Green Deal and using energy from renewable sources can contribute to the achieving of this goal.

In 2022, renewable energy represented 23% of energy consumed in the EU, up from 21.9% in 2021 and 38.35% higher than in 2013 (Eurostat, 2023). In comparison, in the same year, Romania exceeded the EU average share of renewable energy, reaching a value of 24.14% (representing an increase of only 1.06% compared to 2013).

Graph 2: Share of renewable energy used in consumption in Romania and European Union, 2013-2022 (%)



Source: Authors based on data published by the Eurostat (2024).
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Building and renovation. While at the European level, the building and services segment represents 40% of the total energy consumption, in Romania, the percentage rises to 45% in both household and tertiary sectors (offices, commercial spaces, and other non-residential buildings) (Matache, 2021).

In Romania, in order to meet the energy efficiency objectives, set at the European and national levels, a considerable portion of the existing building stock nationally will need renovation. A significant aspect in implementing energy renovation policies is that, following widespread privatization after the fall of the communist regime, the vast majority of the population in Romania lives in privately owned homes (94.7%), which is one of the highest rates in Europe. However, some of these homes fall well below EU standards regarding minimum conditions for providing public utility services (The Government of Romania, 2020).

Sustainable mobility. Regarding the transport sector, Romania falls below the European average in all aspects related to infrastructure and investments. The road network is the least developed in the EU, while also having the lowest road safety standards. Additionally, Romania's transport system increasingly relies on private cars and trucks, while rail transport usage has consistently declined, despite the targets set in the EU Sustainable and Smart Mobility Strategy. The result of the EU Sustainable and Smart Mobility Strategy will be a 90% cut in transport sector's emissions by 2050, delivered by a smart, competitive, safe, accessible and affordable transport system (European Commission, 2020). For the achieving of the sustainable, smart and resilient mobility objectives are set a various milestone, such as: at least 30 million zero-emission vehicles will be in operation on European roads and high-speed rail traffic will double by 2030 and by 2050 nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission, rail freight traffic will double and high-speed rail traffic will triple (European Commission, 2020).

Emissions from transport account for one quarter of the EU's greenhouse gas emissions. To achieve climate neutrality, the European Green Deal calls for a 90% reduction in greenhouse gas emissions from transport by 2050 (EEA, 2024). Following six years of steady growth in greenhouse gas emissions from the EU's transport sector, transport emissions dropped substantially in 2020 because of reduced activity during the COVID-19 pandemic. Preliminary estimates of emissions in 2021 indicate a rebound of 8.6% in transport, followed by further growth of 2.7% in 2022 (EEA, 2023).

In Romania, due to the increase in road transportation, emissions from transport have risen. According to Eurostat, in 2020, transport emissions were 50% higher than in 2005 and accounted for 17% of Romania's total greenhouse gas emissions. The transport sector is one of the most challenging sectors to decarbonize because, in the absence of firm policies and measures, emission levels will continue to rise. Urban transportation is a major source of emissions because individual car trips constitute a significant portion of overall transportation modes in Romanian cities, with over 76% of the country's population residing in urban areas. Another important factor contributing to the rapid increase in greenhouse gas emissions in urban transportation in recent decades is related to the sustained growth in the number of registered cars. Moreover, vehicles operating in cities are old and inefficient in terms of fuel consumption.

Eliminating pollution. According to the most recent Eurostat data, in 2021 compared to 2010, the level of fine particulate matter $PM_{2.5}$ emissions decreased by 25.35% in the European Union and by 9.71% in Romania. Although a reduction in $PM_{2.5}$ emissions has been recorded, Romania must continue its efforts to fulfill the commitments provided by the Directive on National Emission Ceilings for the period 2020-2030. Air pollution is a serious problem in Romania, with three-quarters of the population continuously being exposed to harmful levels of air pollution, and resources for monitoring air quality are quasi-nonexistent. For this reason, Romania has come to be cited as a negative example by many European and international organizations (Florescu, 2022).

Climate actions. According to the latest available data from Eurostat, greenhouse gas emissions decreased comparing with 2008, both in the European Union and in Romania. In 2021, greenhouse gas emissions from EU economic activities stood at 3.6 billion tonnes of CO_2 equivalent, 22% lower than in 2008 (European Parliament, 2023). Romania has nearly achieved its target for reducing greenhouse gas emissions in the industrial sector, where they have decreased by 71%, but in other sectors, such as transportation or residential, we rather have a negative progress. The transport sector's emissions have been on a persistent upward trend over the last two decades and according to the European Environmental Agency (EAA), this trend is projected further upward, with emissions in the sector transport expected to surge by 84 percent by 2030 relative to the level in 1990 (Panton, 2023). The reduction of the greenhouse gas emissions in the industrial sector can be attributed to a combination of economic and legislative factors related to the implementation of climate change policies and measures at the EU level. Also, this decrease is due to the disaggregation of the Romanian industry, especially the energy-intensive one, structural changes in the economy during the pre-accession and post-accession period to the European Union, the national economic crisis during the 2008-2010 period, increased production of energy from renewable sources, and natural gas.

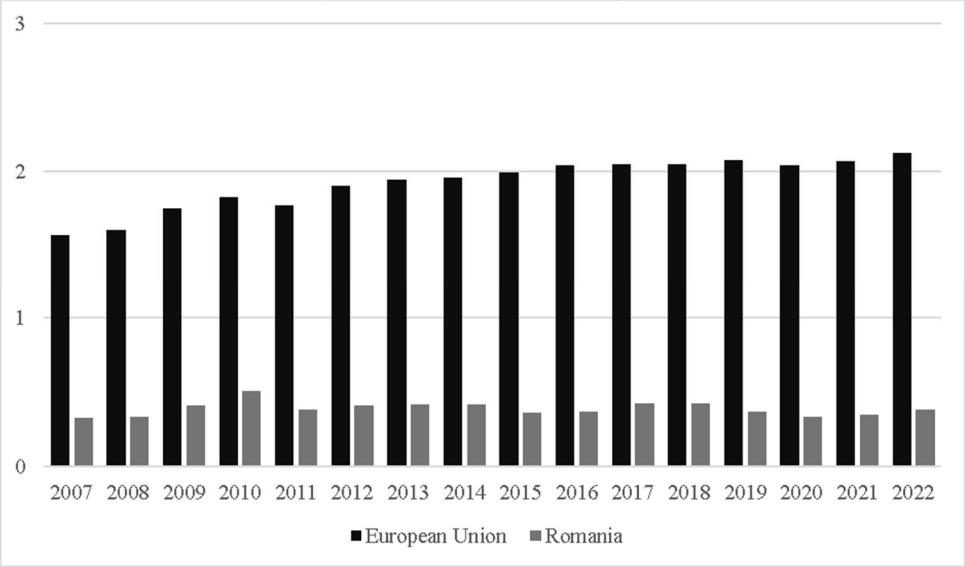
Despite these positive trends, fossil fuels are still the largest source of energy and emissions. Decarbonizing the economy will require further reductions in greenhouse gas emissions over the next 30 years, as the EU aims to become a climate-neutral economy by 2050.

Sustainable industry. Concerning resource efficiency, measured through resource productivity, Romania is one of the least performing economies in the European Union. Thus in 2022, for every kilogram of primary resources extracted from the natural environment and used in the economy, it was generated an economic value of 0.382 EUR/kg, well below the EU average of 2.126 EUR/kg (as observed in Graph 3).

Improving resource productivity in the European Union is the result of concerns related to enhancing resource efficiency and reducing environmental impact. These concerns have been reflected in EU strategies and policies, such as the Europe 2020 Strategy and, more recently, the European Green Deal. These initiatives aim to encourage sustainable economic growth, decoupled from excessive resource consumption and negative environmental impact.

Romania is rich in natural resources, and sustainable management of these resources is essential to ensure long-term benefits and avoid their depletion. However, the analysis of Eurostat data shows a negative trend for Romania, namely that in 2022 compared to 2010, resource productivity decreased by approximately 25%. Starting in 2021, there is an observed increase in resource productivity, with an 8.5% increase in 2022 compared to 2021.

Graph 3: Resource productivity in Romania and European Union, 2007-2022 (euro/kg)



Source: Authors based on data published by the Eurostat (2024).
(https://ec.europa.eu/eurostat/databrowser/view/cei_pc030/default/table).

When it comes to Romania and the European Union, there are significant differences regarding domestic material consumption and resource use patterns. In terms of domestic material consumption (tons per capita), Romania recorded a growth of over 60% in the period 2012-2022, while the EU average slightly increased from 14.045 tons per capita to 14.445 tons per capita (Table 1).

Table 1: The evolution of domestic material consumption in UE and Romania, 2012-2022 (tons/ capita)

Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
European Union	14.045	13.676	13.778	13.793	13.721	14.056	14.314	14.373	13.763	14.391	14.445
Romania	17.910	17.903	18.685	22.407	22.811	21.215	22.993	27.525	29.034	29.734	28.811

Source: Authors' computations based on (Eurostat, 2024).
(https://ec.europa.eu/eurostat/databrowser/view/ten00137/default/table?lang=en).

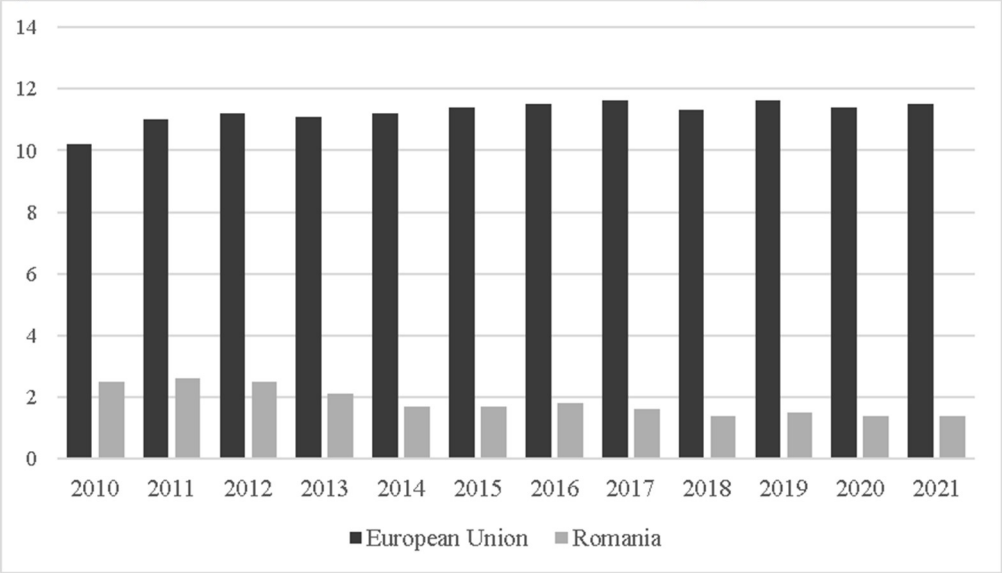
Certainly, this growth is not necessarily a negative signal, because during the same period Romania experienced an increase in GDP and implicitly in the economy.

The circular material use rate (the proportion of recycled and reintroduced materials into the economy) is a good indicator of the circularity of an economy. As observed in Graph 4, the circular material use rate increased in the European Union by 12.74% from 2010 to 2021. Therefore, it can be concluded that the EU's objective of increasing the circular material use rate and reducing dependence on finite resources, as well as diminishing the impact on the environment, is on the right track.

In Romania, the circular material use rate was only 1.4% in 2022, well below the EU average of 11,4% and decreased by 0.1 percentage points compared to 2021, which positions us at the bottom among EU Member States in this regard.

Under these circumstances, in order to achieve the EU objective of doubling the circular material use rate by 2030, as outlined in the EU Circular Economy Action Plan, Romania must undertake ambitious measures, targeting the entire product lifecycle. Increasing this rate—either by increasing the quantity of recycled waste or by decreasing the quantity of materials used—would reduce the amount of raw materials extracted for production and the associated negative impact on the environment and climate.

Graph 4: Circular material use rate in Romania and European Union, 2010-2021 (%)



Source: Authors based on data published by Eurostat (2024).
(https://ec.europa.eu/eurostat/databrowser/view/ENV_AC_CUR/default/table?lang=en).

As it can be observed in Table 2, which centralizes the value of indicators used in EU the circular economy monitoring framework, Romania's performance regarding the circular economy is below the EU average.

Table 2: The indicators of the European circular economy monitoring framework the, Romania-EU

Indicator	Unit of measure	Romania	EU
Material consumption			
Material footprint	tonnes per capita	29.991 (2022)	14.896 (2022)
Resource productivity	Euro/ Kg	0.382 (2022)	2.1261 (2022)
Waste generation			
Total waste generation per capita	kg per capita	7338 (2020)	4815(2020)
Generation of waste excluding major mineral wastes per GDP unit	kg per thousand-euro, chain linked volumes (2010)	107(2020)	65(2020)
Generation of municipal waste per capita	kg per capita	301(2022)	513(2022)
Generation of packaging waste per capita	kg per capita	127.21(2021)	189.75(2021)
Generation of plastic packaging waste per capita	kg per capita	26.41(2021)	36.11(2021)
Waste Management			
Recycling rate of municipal waste	%	12.1(2022)	48.6(2022)
Recycling rate of all waste excluding major mineral waste percentage	%	38.3(2021)	58(2020)
Recycling rate of overall packaging percentage	%	39(2020)	64(2020)
Recycling rate of WEEE separately collected	%	76(2021)	81.1(2021)
Secondary raw materials			

Circular material use rate	%	1.4(2022)	11.5(2022)
Trade in recyclable raw materials			
Imports from non-EU countries		272565(2023)	39835.343(2023)
Exports to non-EU countries		1883.254(2023)	39267.596(2023)
Competitiveness and innovation			
Private Investments	% GDP at current prices	0.5(2021)	0.8(2021)
Persons employed	% of total employment	1.2 (2021)	2.1(2021)
Gross value added	% GDP at current prices	1.0 (2021)	2.1(2021)
Patents related to waste management and recycling	number	5.0	206.55
Global sustainability and resilience			
Consumption footprint	Index: 2010=100	114(2022)	109(2022)
GHG emissions from production activities	kg per capita	4775.5(2022)	6481.2(2022)
Material import dependency	%	10.6(2022)	22.4(2022)
EU self-sufficiency for raw materials, aluminum	%	N/A	11(2022)

Source: Authors' computations based on Eurostat (2024).(https://ec.europa.eu/eurostat/web/circular-economy/monitoring-framework)

In terms of sustainable production and consumption, Romania falls far below the EU average, demonstrating once again that Romania is still at the beginning of transitioning from a linear economic model to a circular one.

The situation regarding waste management is also unfavorable, only the indicator (Recycling rate of WEEE separately collected) being close to the European Union average, while the rest of the rates are much lower than the EU average.

Romania ranks last in the EU hierarchy regarding the circular use rate of materials, with a circular material use rate value of the only 1.4%, compared to almost 12% in the EU, meaning that only a small portion of recycled materials are reintroduced into the economy.

5. Conclusion

The implementation of circular economy principles in Romania is still in its early stages and is not yet fully understood at all levels by stakeholders. Although some progress has been made over the past decade, Romania is still at the beginning of the transition to a circular economic model. Romania's economic growth is not yet decoupled from waste generation, and waste management is not efficient, given that the dominant form of waste management is still landfilling (which often remains illegal).

Furthermore, Romania's situation regarding sustainable production and consumption is far from favorable, falling well below the EU average, indicating that Romania is still at the beginning of transitioning from a linear economic model to a circular one. According to Eurostat data, Romania is among the EU Member States with poor performance in terms of resource productivity, waste generation, waste treatment, and the use of recycled materials in the economy. Additionally, according to the European Commission, Romania risks not meeting the objectives for preparing for reuse and recycling of municipal waste and recycling of packaging waste by 2025. Insufficient progress in meeting the objective of landfilling municipal waste by 2035 also raises concerns.

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STUDY ON THE IMPACT OF CREDIT RISK ON THE QUALITY OF THE LOAN PORTFOLIO IN THE ROMANIAN BANKING SECTOR

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Abstract: This study aims to explore and evaluate the composition and performance of the loan portfolio of commercial banks in Romania, identifying the main risk factors and development trends. Starting from a historical analysis and reaching the assessment of the impact of some macroeconomic and regulatory factors, the study aims to provide a comprehensive picture of the state of lending in the Romanian context. In this analysis, we will adopt a multidisciplinary methodology, combining statistical analysis, evaluation based on econometric models and qualitative data interpretation, with the aim of providing a comprehensive and detailed perspective. The work will also try to shed light on how lending policies and banking sector regulations have evolved over time and how they influence financial performance and credit risk.

Keywords: credit risk, banking system, the interest rate, *loan, efficiency, macroeconomic determinants*

JEL Classification: E51; E52; E60; G21; G32.

1. Introduction

In the financial sector, risk is an essential component of banking activity, and the way it is managed has a significant impact on the quality of loans granted. In a globalized economy and a constantly changing financial world, banking institutions face various challenges and risks that can affect their stability and sustainability.

According to specialized studies, banks represent the pillars of financing the national economy, channelling savings to productive investments and thus contributing to economic growth and social development. In this context, the banks' loan portfolio becomes a key indicator, reflecting not only the financial health of the banking sector, but also general economic trends. Recent financial crises have demonstrated the vulnerability of banking systems to external shocks and economic fluctuations, emphasizing the importance of rigorous analysis of loan portfolios. Thus, understanding the dynamics and structure of these portfolios, as well as identifying associated risk factors, become essential for anticipating potential problems and implementing effective risk mitigation strategies.

Banking regulations, at national and European level, are in a continuous evolution, with the main purpose of protecting deposits, ensuring financial stability and promoting responsible lending practices. Analysing the loan portfolio in light of these regulations provides valuable insight into the degree of compliance of banks and the impact of these regulations on lending behaviour.

2. Bank management approach to risk management

Risk is a phenomenon that appears throughout the course of the bank's operations and activities and that can cause negative effects that affect the entire activity, by deteriorating the quality of business, decreasing profit or even recording losses and affecting the bank's functionality and image.

The regulatory authorities requires banks to hold adequate capital for the many and various risks that arise in their activity: liquidity risk, interest rate risk, market risk, credit risk, off-balance sheet risk, technological and operational risk, currency risk, country or sovereign risk, insolvency risk, etc. Effective management of these risks is critical to banks' performance. The most important risk that banks are exposed to is credit risk, which involves loans that are not returned and comes from the lack of performance of a borrower, and its management has a major influence on the bank's performance. [16, 4]

The credit risk management process is a complex one and begins with the identification of existing and potential risks, inherent in the lending activity, the analysis and assessment of risks, their monitoring and control in order to maintain them within the accepted limits. [7, 1]

Despite its complexity, effective management of credit risk is a prerequisite for the success of a bank and the banking system in general.

The main objective of the credit risk quantification analysis is to know the evolution of the client from the past periods and to forecast his future performances, in order to forecast his viability. [13]. This risk increases as the size of the loan increases. Its restriction leads to a decrease in the cases of insolvency of the bank's debtors, because the increase in their obligations increases, as a rule, the obligations of the beneficiaries of loans, and the customers who are assessed as risky will have a lending regime with higher interest rates. Thus, an increased risk of insolvency determines a lower credit offer.

By manifesting the credit risk, the lending bank records a loss of income from the loan granted, and therefore a decrease in its profit, and the loan granted turns into a non-performing loan [16, 7, 5, 10]. Increasing bad loans in a bank can lead to bankruptcy and a loss of efficiency in the banking sector. It is also one of the symptoms of a banking crisis.

The management of bad loans is a problem of the banking sector, and managing these loans in a less than adequate manner is dangerous to the survival of banks and threatens to endanger the overall stability of a financial system.

In general, research conducted in the field of credit quality analysis has shown that non-performing loans can hinder economic growth and reduce economic efficiency.

Shocks to the financial system can arise from bank-specific factors or macroeconomic conditions. In general, research from developed economies has confirmed that macroeconomic conditions affect credit risk. [18,3,6,11,15]

Macroeconomic variables such as GDP growth rates, inflation rate, unemployment rate, exchange rate of exchange rates, public and private spending rates, and savings and money sizes are the major factors that could explain systematic credit risk. On the external level, the risk is generated by currency volatility, while on the internal level, competition or political-economic instability are causes of its appearance. Credit risks can be generated by individual economic phenomena or by a certain economic situation. [10, 9]

In the conditions of the permanent manifestation of the risk, under the influence of the determining factors, both at the financial, monetary, and banking level, its management is vital. In this way, the unwanted effects can be removed, and the presence of risk can become a prosperous business opportunity. An effective management of banking risks will also leave its mark on the public image of the bank.[5]

2.1. Fundamental principles in credit risk management

Risk management includes the identification, evaluation, measurement, monitoring and control of all risks inherent in banking activity.

Credit institutions should have a mechanism to identify stress situations early and plan to deal with such unusual situations in a timely and effective manner. Contingency planning activities include disaster recovery planning, public relations damage control, litigation strategy, response to regulatory criticism, etc. Contingency plans should be reviewed periodically to ensure that they cover reasonably likely events that could impact the bank.

Banks do not have a separate risk management department. The main responsibility for risk management rests with the credit administration department, which takes into account credit risk in particular. In credit risk management the main focus is the management of non-payment by the customer, the credit process having as its common objective the prevention, identification and resolution of potential customer problems. To minimize the

negative impact of major borrower problems, it is essential to maintain a balance between risk and effective credit recovery.

If a bank's lending rules are excessively rigid, this can limit the number of loans it makes, thereby reducing its customer base, service opportunities, and interest and fee income. On the other hand, if the standards are too permissive, the increase in the volume of loans and the expansion of the customer base may be counterbalanced by the increase in bad loan losses.

Failure to meet contractual obligations by customers can lead to various risks for the bank, including credit risk, borrower insolvency and deterioration in the quality of bank assets. This risk increases with the growth of the loan portfolio. By limiting this risk, the cases of debtor insolvencies can be reduced, as the increase in customer obligations is balanced by the increase in financing costs, which leads to a reduction in the supply of credit due to the increased risk of insolvency.

At the macroeconomic level, to prevent and mitigate insolvency, various banking regulations and methodological standards are implemented, which protect depositors - the banks' main sources of funding. These standards are intended to balance customer relationships, minimizing the impact of insolvency. [16,17,18]

Specific regulations include:

• Minimum bank capital requirement, regulation that ensures banks hold an adequate level of capital to absorb potential losses.

• Risk coverage ratio, this standard, also known as Norma Cooke, establishes that banks must have a capital of at least 8% of total risk-weighted assets.

• Risk concentration limit, this rule limits the maximum amount a bank can lend to a single borrower, relative to the bank's equity, to prevent the bankruptcy of a large borrower from destabilizing the bank's financial situation.

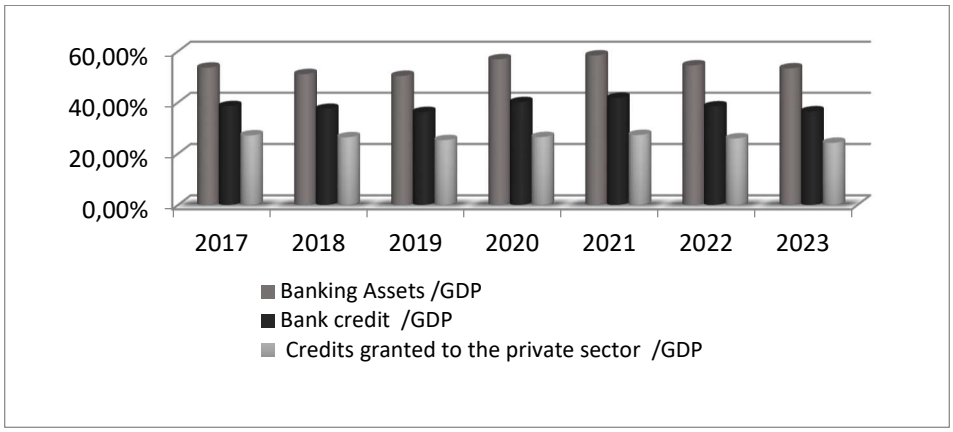
The division of risks and their limitation are fundamental principles in credit risk management. The problems associated with the concentration of the loan portfolio, where the bank's assets are disproportionately oriented towards a group of borrowers' resources, are mitigated by the diversification of loans, which include different geographic criteria, maturities, forms of ownership of borrowers and sectors of activity. This diversification is crucial to minimizing risk exposure and ensuring adequate profitability, and is an essential part of any bank's lending strategy.

2.2. Analysis of the credit portfolio of the banking sector in Romania

The Romanian banking system has a key role for the optimal functioning of economic and financial mechanisms. Also, the Romanian banking industry has an impact on the macroeconomic developments of the dynamics of the business environment and for improving the degree of Romanian economic prosperity.

The banking system in Romania, during the pandemic, recorded a downward evolution in terms of financial intermediation, the ratio of non-governmental credit to GDP, reaching below 25% at the end of 2023 (graph 1).

Graph 1: Indicators of Financial Intermediation



Source: NBR's anual report *[19, 20,21]*

The share of bank assets in GDP, the ratio of bank credit to GDP and that of non-governmental credit to GDP are decreasing compared to the values recorded in previous years, for all these indicators Romania is below the EU average, but also below the countries with emerging economies.

The evolution of these indicators shows that the indebtedness of the real sector continued to advance at a rate lower than economic growth, the dynamics of the demand for bank loans being more pronounced in the case of the population sector compared to that of non-financial companies, due to the increase in demand for mortgage and consumer loans. [16,] (RSF, 2023, page 28.)

The decrease in financial intermediation calculated as the ratio between private sector credit and GDP was generated by a number of factors, the most important being the volatility of the legislative framework and the precarious economic situation of SMEs (negative capital, declining profitability and liquidations). The process of cleaning up the balance sheets of non-performing loans started by banking institutions in the period immediately following the financial crisis of 2008 also contributed to the decrease of financial intermediation.

Currently, 32 banks operate within the Banking System in Romania, of which 8 are branches of foreign banks, 2 banks with majority state capital, 22 banks with majority private capital, 2 banks with full or majority state capital and 18 banks with majority foreign capital (table 1).

Table 1: Structural indicators of the banking system in Romania

Indicators	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Financial institutions	40	36	37	35	34	34	34	34	32	32
Financial institutions with majority privat capital	29	27	27	26	25	25	23	23	22	-
Financial institutions with majority foreign capital	25	23	24	22	21	21	20	19	18	-
- branches of foreign banks	9	7	8	7	7	7	8	8	8	8

Source: NBR's anual report *[21]*

As regards the assets held by foreign-owned banks, including branches belonging to foreign credit institutions, it can be argued that there is a slight decrease attributed to changes in the shareholding structure (table 2).

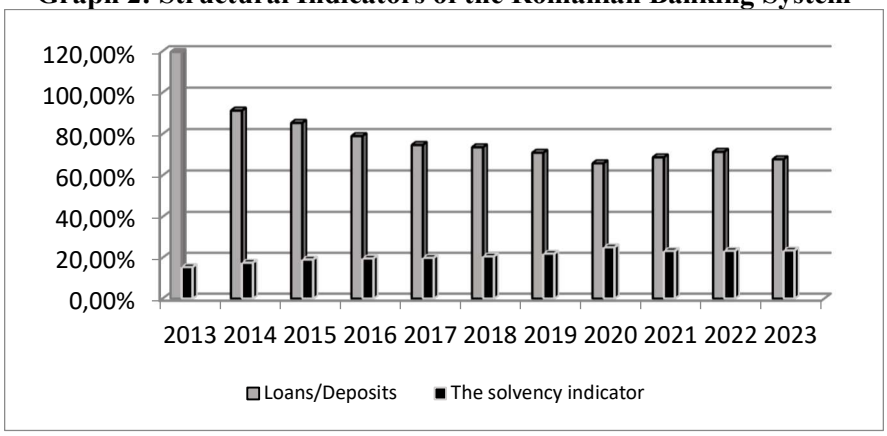
Table 2: Proportion of assets in the Romanian banking system

Indicators	2014	2015	2016	2017	2018	2019	2020	2021	2022
Share in total assets of banks with majority private capital (%)	91,3	91,7	91,8	91,3	91,9	91,8	89,4	88,6	87,9
Share in total assets of banks with foreign capital (%)	89,9	90,4	91,3	77	75	73,7	70,5	68,2	68,1

Source: NBR's anual report *[21]*

From 2019, the share of credit institutions with majority private and foreign capital in the total assets of banks has decreased, the territorial network of credit institutions following the same downward trend, on account of the adverse influences exercised in the economic activity by the Covid 19 pandemic. The progress of the Romanian banking sector, despite the health crisis, was worth noting, in the last period, through the structural indicators of the banking system regarding liquidity and solvency. Romanian banks have the necessary resources for lending, the loans/deposits indicator being placed at 67.82% at the end of December 2023, while the solvency indicator is almost three times above the minimum allowed [18,19].

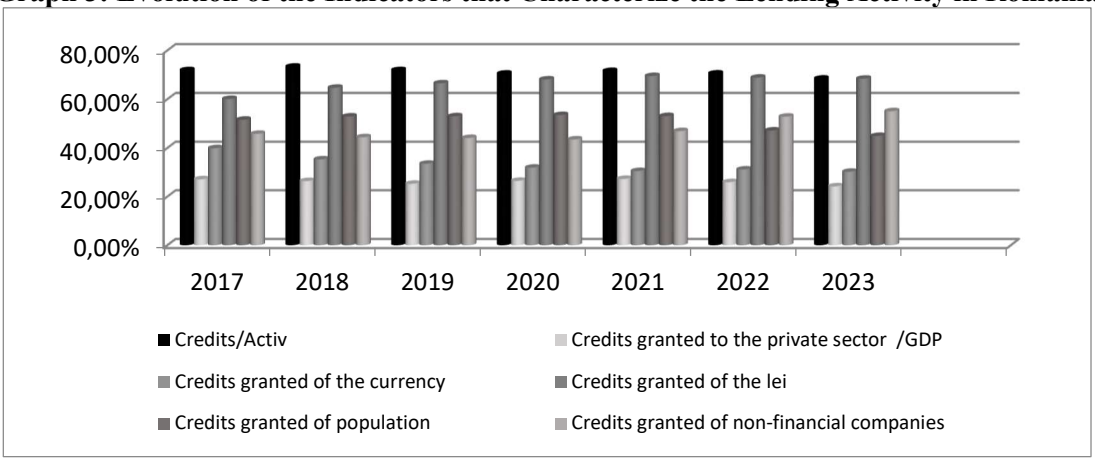
Graph 2: Structural Indicators of the Romanian Banking System



Source:BNR*[19, 20,21]*

According to the data from the aggregate monetary balance of credit institutions, the year 2023 was characterized by the upward attenuation of the rate of growth of non-governmental credit compared to the previous year, a rapid growth of non-financial companies higher than the rate of population growth, as well as by further modification of the lei/currency structure in favor of the lei component, (its share in the total volume of non-governmental credit increased to 68,41% in 2023).

Graph 3: Evolution of the Indicators that Characterize the Lending Activity in Romania



Source: NBR*[19, 20,21]*

The indicator regarding loans granted to customers in total assets was on a downward trend from 73.35 % în 2017, compared to 68.46% at the end of 2023. According to the data from the aggregate monetary balance of credit institutions, the year 2023 was characterized by the drastic reduction in the growth rate of non-governmental credit compared to the previous year (+6.4% in nominal terms and -0.2% in real terms in 2023), as well as by the further modification of the lei/currency structure in favour of the lei component (its share in the total volume of non-governmental credit increased to 68.41% in 2023).

The average growth rate of loans granted to the private sector increased to 6.4 percent in 2023 (compared to 12.1 percent in 2022), the acceleration of the rate being determined by the substantial increase in lending activity in lei (-0.8 percent in real terms) and by 7.9 percent of the foreign currency component expressed in lei (7.3 percent in the case of expressing the indicator in euros), both on the population segment and on that of non-financial companies, in the context of tempering the pace of credit outsourcing operations carried out by credit institutions.

For 2023, lending data showed non-government credit growing by 5.5% to €58 billion. Thus, in 2021, paradoxically, we witnessed an increase in financial intermediation to 26.8% - from 25.3% in 2019. The new credit granted to corporations and the population was 84 billion lei in 2021 and had a weight of almost one third of the balance of non-governmental loans.

The structural analysis of loans granted by credit institutions provides an important perspective on how they direct their lending activity to various segments of the economy, as well as depending on the currency in which these loans are granted.

In 2021, consumer loans denominated in lei represented 8.8% of the total, while loans denominated in euros and other currencies registered significant decreases (-14.1% and -16.7%) - table 3.

Table 3: Credits granted to population by destination and currency

Period	Consumer loans (%)			Home loans (%)			Loans for other purposes (%)		
	Lei	Euro	Other currencies	Lei	Euro	Other currencies	Lei	Euro	Other currencies
2021	8,8	-14,1	-16,6	20,4	-10,9	-10,1	3,4	-2,1	-
2022	4,1	-15,1	-13,8	8,9	-9,2	-10,3	32,9	40,1	-
2023	6,7	-15,9	-10,3	2,0	-12,9	-7,4	7,5	-10,9	-
2024 T1	10,6	-16,7	-14,1	3,5	-15,2	-11,8	7,9	-13,6	-

Source: https://www.bnr.ro/Credite-acordate-gospodariilor-populatiei-5771.aspx#peloc

Home loans denominated in lei represented 20.4% of the total, while those denominated in euros and other currencies registered moderate decreases (-10.9% and -10.1%). Loans for other purposes were predominantly expressed in euros and other currencies, representing 3.4% of the total for lei and -2.1% for euros.

In 2022, we observe a reduction in the percentage of consumer loans denominated in all currencies, but a significant increase in the percentage of home loans denominated in lei (8.9%). Loans for other purposes expressed in euros registered a significant increase, representing 40.1% of the total. In 2023, the percentage of consumer loans expressed in lei increased to 6.7%, while those expressed in euros and other currencies continued to decrease. Home loans denominated in lei decreased to 2.0%, while those denominated in other currencies registered a significant decrease (-12.9%). The percentage of loans for other purposes fell in all currencies.

The percentage of home loans denominated in all currencies fell significantly. In conclusion, the analysis of loans granted to the population shows that, in general, credit institutions have adapted their lending policy according to market requirements and economic and financial evolution. They concentrated their lending more in lei and decreased the granting of loans denominated in other currencies. We are also seeing significant changes in the structure of loans for various purposes, such as an increase in loans for housing and a decrease in loans for other purposes, especially those denominated in other currencies.

The analysis of loans granted to non-financial institutions, public administration and non-residents shows that credit institutions adjusted their lending policy according to the needs and requirements of the market in each analysed period (table 4).

In 2021, the percentage of loans granted to non-monetary financial institutions was 33.2%, while those granted to public administration were extremely high, representing 116.0% of the total.

Table 4: Credits granted to the public administration, non-financial companies and non-residents

Perioada	Loans granted to non-financial companies (%)	Loans granted to the public administration (%)	Loans granted to non-residents(%)
2021	33,2	116,0	19,4
2022	38,0	27,8	-5,9
2023	17,8	21,4	27,8
2024 T1	15,4	65,4	33,5

Source: https://www.bnr.ro/Credite-acordate-institutiilor-financiare-nemonetare,-administratiei-publice-si-nerezidentilor-5793.aspx#peloc

The percentage of loans granted to non-residents was 19.4%. In 2022, we see a significant increase in the percentage of loans granted to non-monetary financial institutions (38.0%), while the percentage of loans granted to the public administration decreased to 27.8%. The percentage of loans granted to non-residents was negative, indicating a possible reduction in lending to this segment. In 2023, the percentage of loans granted to non-monetary financial institutions decreased to 17.8%, and the percentage of loans granted to public administration increased slightly to 21.4%. The percentage of loans granted to non-residents increased significantly, reaching 27.8%. The percentage of credits granted to the public administration increased significantly, reaching 65.4%. The percentage of loans granted to non-residents continued to increase, reaching 33.5%.

The total of loans granted to non-financial companies registered a significant increase during the analysed period, from 148,528.1 million lei in 2021 to 191,170.6 million lei in February 2024. This increase indicates an increase in lending activity in the corporate sector.

Overall, the analysis of loans to non-financial corporations indicates an increase in lending activity in the corporate sector, which may be a sign of economic growth or increased interest in investment and corporate expansion. This can be influenced by various factors such as general economic conditions, the level of interest rates and the level of confidence of the corporate sector in the economy.

Loans in lei dominate the total of loans, but there is also a significant proportion of loans in euros and other currencies (table 5).

The fluctuations of loans granted to non-financial companies in the analysed period reflect changes in credit demand, economic conditions and other factors.

Table 5: Loans granted to non-financial companies

Period	Loans in RON (%)	Loans in euro (%)	Loans in other currencies (%)
2021	26,0	10,4	13,8
2022	4,3	46,4	-12,5
2023	8,8	11,8	25,7

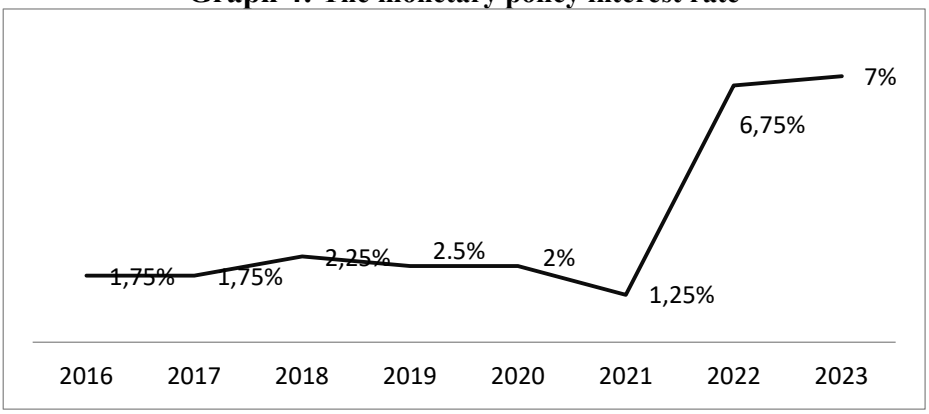
2024 T1	6,9	3,8	-14,1

Source: https://www.bnr.ro/Credite-acordate-societatilor-nefinanciare-5792.aspx#peloc

In conclusion, the analysis of loans granted to non-financial institutions, public administration and non-residents shows that credit institutions have adjusted their lending policy according to the needs and requirements of the market in each analysed period. Although the percentage of loans granted to non-monetary financial institutions generally decreased, the percentage of loans granted to public administration and non-residents experienced significant fluctuations during this period. These adjustments were influenced by economic factors, regulations and market demands, as well as the strategy of each lending institution. The interest rate on loans is influenced both by endogenous factors (the cost of financing, the cost of credit risk related to the loans granted and operational costs), and by exogenous factors, such as fiscal instability and the higher volatility of the economic cycle.

The monetary policy acted consistently in the sense of mitigating the amplitude of the economic cycle. From the previous table it can be seen that the reference interest rate fluctuates from year to year. Thus, from 2015 to 2017 it decreased from 2% to 1.75%, and then reached 2.25% in 2018 (Graph 4). This increase implies an encouragement of saving, being influenced by all users who have loans with variable interest (increase in loan rates in lei).

Graph 4: The monetary policy interest rate



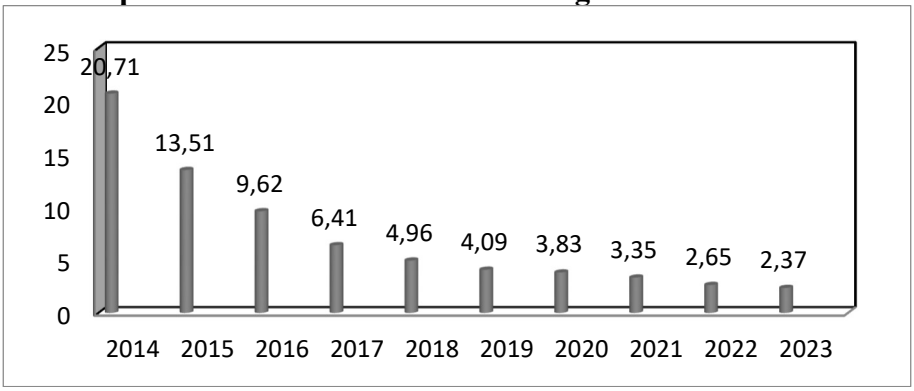
Source: www.NBR.ro - Statistics

Subsequently, a decrease of one percentage point is visible from February 2018 to October 2021, thus encouraging consumption and investment. Inflation is also accentuated, and emphasis is placed on facilitating access to credits.

Since 2022, the monetary policy interest rate has been rising as a result of persistent inflation,

Regard of assets quality non-performing loans rate (according to EBA classification) improved at 3.3% in March 2022, compared to 3.83% at the end of 2020, but remains in the medium risk zone, with an EU average of 2% (Graph 5).

Graph 5: The Rate of Non-Performing Loans in Romania



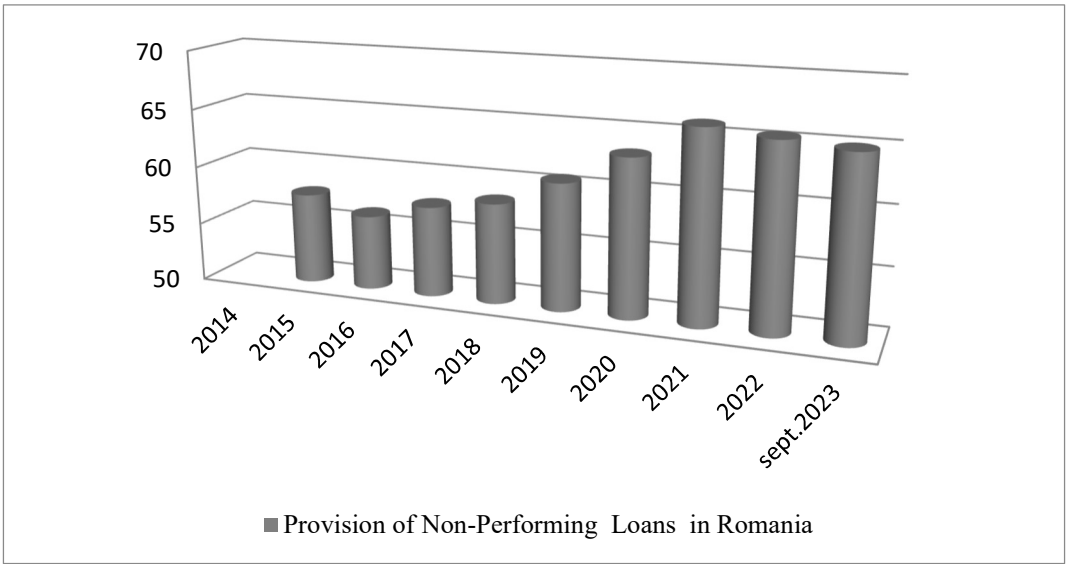
Source: NBR*[19, 20,21]*

The dynamics of the rate of non-performing loans show an improvement in the quality of the portfolio of loans granted both to the population and to corporations, but the credit risk remains important for the Romanian

banking sector, at the high level of uncertainty that characterizes current economic developments and the increase in interest rates.

The degree of provision coverage of non-performing loans continued to increase, evolving up to 65.08% in september 2022, its dynamics placing Romania at the top of the European ranking (Graph 6).

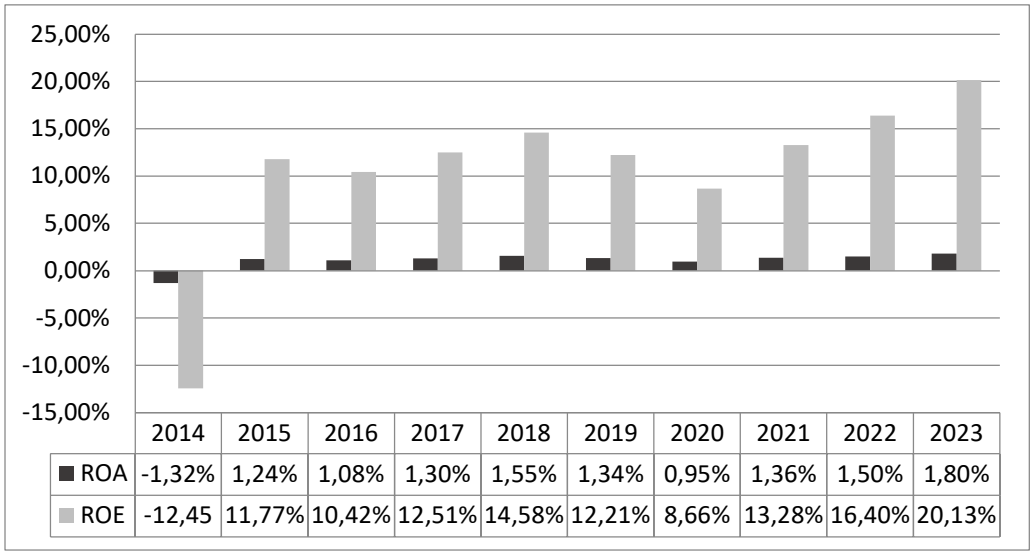
Graph 6: The Degree of Cooperation with the Provision of Non-Performing Loans in Romania



Source: NBR*[19, 20,21]*

Regarding the performances recorded by the Romanian banking system, starting from 2018, the ROA and ROE indicators began to decline, which stood at 1.55% and 14.58%, respectively, until 2020, decreasing by 0.6 p.p. and respectively by 5.92 p.p. compared to 2018. From 2021, the positive trend resumes in the level of ROA and ROE indicators that had positive values higher than 2020 from 0.95% to 1.36% and respectively 8.66% to 13.28% (Graph 7).

Graph 7: The Evolution of Performance Indicators in Romania



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ROA	-1,32%	1,24%	1,08%	1,30%	1,55%	1,34%	0,95%	1,36%	1,50%	1,80%
ROE	-12,45	11,77%	10,42%	12,51%	14,58%	12,21%	8,66%	13,28%	16,40%	20,13%

Source: NBR*[19, 20,21]*

The profitability of the banking sector continued to increase due to the increase in net interest income through the increase in interest rates and the efficiency of operational expenses (including through digitalization).

3. Estimating the development of the rate on non-performing loans with the help of an economic model

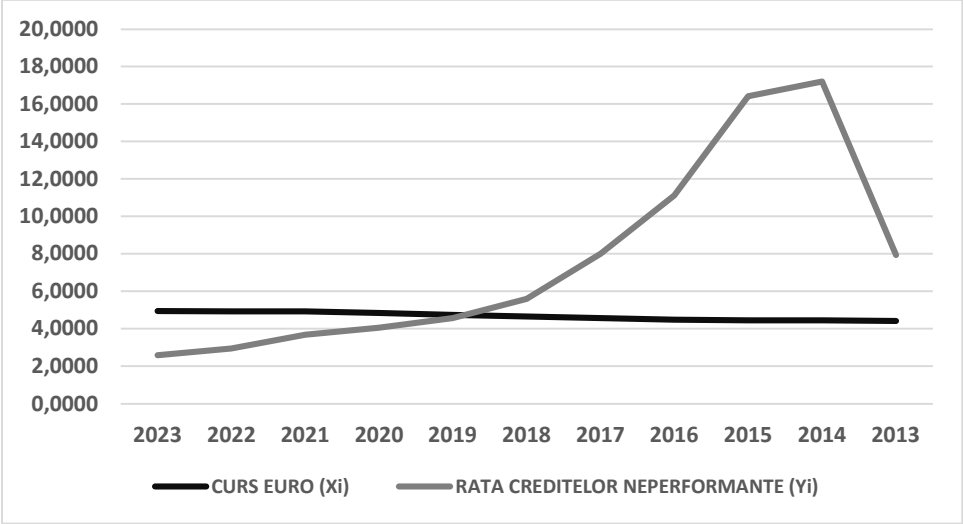
Through the following econometric study, we aim to determine the extent to which the rate of non-performing loans is influenced by the evolution of the Euro/leu exchange rate. For this purpose, we used the data provided by the BNR on the level of the exchange rate and the rate of non-performing loans, between september 2013 and september 2024, and we built a unifactorial econometric model of the form: y= ax+b+u

Where: u represents the residual variable and ax + b represents the first-degree function associated with the unifactorial model.

Therefore, y represents the real values of the dependent variable (the rate of non-performing loans) x represents the real values of the independent variable (the Leu/Euro exchange rate) u is the residual variable, with insignificant influences on the y variable.

In the case of a unifactorial model, the most frequently used procedure is the use of the "Method of the smallest squares". To apply this method, the data set is represented graphically, and the representation of these values must indicate an ascending line.

Graph 8: Development of the rate on non-performing loans



Source: www.NBR.ro – Statistics

From the graph it can be seen that the distribution of empirical points (Y) can be approximated by a straight line.

As such, the econometric model that describes the link between the two variables is transformed into a unifactorial linear model Y=a+bx+u, a and b representing the parameters of the model.

Application of M.C.M.P to estimate parameters a and b.

$$\sum [y_i - (a+bx)]^2 = \min$$

From this condition, differentiating with respect to a and b, the following system of equations results:

$$\begin{cases} na + b\sum x_i == \sum y_i \\ a\sum x_i + b\sum x_i{}^2 = \sum x_i y_i \end{cases}$$

$$a = \frac{\begin{vmatrix} \sum y_i & \sum x_i \\ \sum x_i y_i & \sum x_i^2 \end{vmatrix}}{\begin{vmatrix} n & \sum x_i \\ \sum x_i & \sum x^2{}_i \end{vmatrix}} = \frac{\sum y_i \sum x_i^2 - \sum x_i \sum x_i y_i}{n\sum x_i^2 - (\sum x_i)^2} =$$

$$= \frac{84.09 * 240.64 - 51.4017 * 383.666}{11 * 240.6423 - (51.4017)^2} = 104.215$$

$$b = \frac{\begin{vmatrix} n & \sum y_i \\ \sum x_i & \sum x_i y_i \end{vmatrix}}{\begin{vmatrix} n & \sum x_i \\ \sum x_i & \sum x_i^2 \end{vmatrix}} = \frac{n\sum x_i y_i - \sum x_i \sum y_i}{n\sum x_i^2 - \sum x_i \sum x_i} =$$

$$\frac{11 * 383.666 - 51.4017 * 84{,}09}{11 * 240.6423 - 51.4017 * 51.4017} = \text{-}20.87$$

The econometric model is:

$$y(x_i) = 104.215 - 20.876x_i$$

The two parameters of the function are interpreted as follows:

a = 104,215 represents the rate of non-performing loans when the exchange rate is zero (theoretical case)

b =-20.876 represents the slope of the right and indicates that, when the exchange rate increases by one unit, the rate of non-performing loans decreases by 20 units.

In order to establish the proportion in which the amount of non-performing loans is determined by the value of the euro/leu exchange rate, the correlation coefficient and the correlation ratio must be calculated:

The linear correlation coefficient

$$r_{y/x} = \frac{n\sum x_i y_i - \sum x_i \sum y_i}{\sqrt{(n\sum x_i^2 - (\sum x_i)^2}\sqrt{(n\sum y_i^2 - (\sum y_i)^2}} =$$

$$\frac{11 * 383.666\text{-}51.4017*84.09}{\sqrt{(11*240.6423\text{-}51.4017^2)} * \sqrt{(11 * 913.3789 - 84.04^2}} = \text{-}0.8301$$

Conclusion: the correlation is strongly negative between variables r = -0.8301

The econometric model suggests that exchange rate variation has a negative impact on non-performing loans.

4. Conclusions

During 2023, the banking sector continued to perform adequately from a financial and macroprudential perspective, despite the challenges associated with the health crisis and the geopolitical situation in the region.

The ratio of bad loans and the ratio of restructured loans show that the banking sector in Romania is in the low risk category, while the adequate amount of non-performing loans covered by provisions had a counterbalancing influence.

The results of the study reveal that the level of non-performing loans consistently causes a lower profitability of the banking sector, as the spread of banks shrinks due to lower loan recovery and low loan yield.

Adequate credit risk management and the application of appropriate credit standards are essential to reduce the risk of non-performing loans and to ensure that banks" profitability is not affected.

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THE EFFECTS OF THE ADOPTION OF IFRS 15 - REVENUE FROM CONTRACTS WITH CUSTOMERS ON THE COMPANY'S PERFORMANCE

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Abstract: The Standard IFRS 15 - Revenues from Contracts with Customers was developed by the IASB in order to replace some of the IAS and US GAAP standards still in force, as well as to introduce significant changes to the accounting of revenues. For most companies, the implementation of this standard will result in significant effects on accounting and reporting techniques, on the business processes and the IT systems, as it practically changes the reasoning used for revenue recognition. This paper is focused on the future implementation of the IFRS 15 and on its impact on the company's performance.

Keywords: revenue, recognition, measurement, construction contracts

1. Introduction

The IFRS 15 - Revenues from Contracts with Customers accounting standard was published, on May 28, 2014, under the IFRS-USGAAP convergence process initiated by the IASB (International Accounting Standard Board) and the FASB (Financial Accounting Standard Board); on the same date, the FASB published a document entitled: Accounting Standards Update 2014-09- Revenues from Contracts with Customers (FASB, topic 606, 2014).

The objectives of this standard, which are themselves convergent, are geared towards creating a complete reference framework in terms of revenue reporting, being applied to all commercial contracts, excluding leasing, insurance contracts, and financial instruments. IFRS 15 practically replaces IAS 18 – Revenues, IAS 11 - Construction Contracts, IFRIC 13- Customer Loyalty Programs, IFRIC 15- Agreements on construction of real estate properties, IFRIC 18- Transfer of assets from customers, SIC 31- Revenues – Barter transactions involving advertising services.[1]

The applicable accounting standards for revenue recognition, such as IAS 18 - Revenues and IAS 11 - Construction Contracts, were issued more than 20 years ago, and most professionals consider them to be incomplete and outdated; these two accounting standards were supplemented, over the years, by many interpretations.

For example, IAS 11 defines a construction contract as a contract specifically negotiated for the construction of an asset or a combination of assets that are closely interrelated or interdependent in terms of their design, technology, function or their ultimate purpose or use." The objective of this standard is to prescribe the accounting treatment of construction contracts. The primary issue in accounting for construction contracts is the "allocation of contract revenue and contract costs to the accounting periods in which construction work is performed." This standard establishes, inter alia, the recognition criteria used to determine when contract revenue and contract costs should be recognised in the profit and loss account.

It is known that the adoption of IAS/IFRS leads to changes in the financial reporting system of reporting entities and, obviously, to a review of the criteria for recognition, measurement, and presentation of property items in the financial statements (Grosu, 2010).

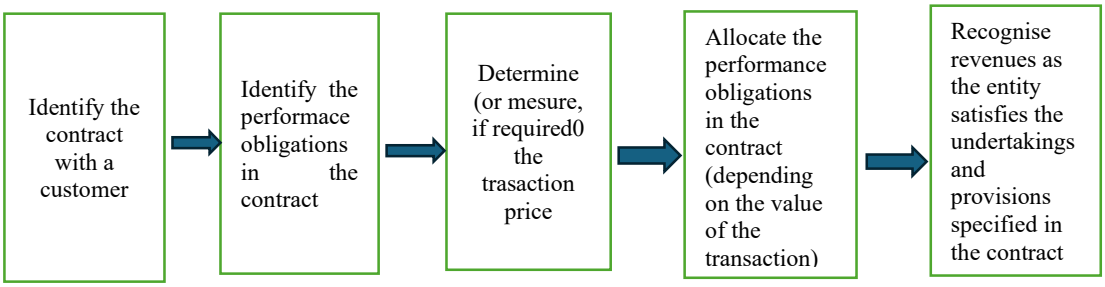
[1] IFRS 15 applies to the financial years beginning after January 1st, 2017, http://www.infolegal.ro/standardul-ifrs-15-se-aplica-exercitiilor-financiare-care-incep-dupa-1-ianuarie-2017/2014/07/24

In our country, according to OMPF 881/2012, starting with the 2012 financial year, listed companies are required to adopt IFRS for individual annual financial statements.[2]

Since the objective of financial statements is to present information on the company's performance, financial position, and evolution, aimed at a large number of users, in order to substantiate economic decisions, this information must be useful to determine both the capacity of the enterprise to generate future cash flows, as well as the amount, period, and safety of their generation (Tabără et al, 2009).

Returning to the new IFRS 15 standard, its role is to promote two types of approaches to revenue recognition, namely: the first approach is the recognition at a point in time and the second is gradual recognition, over time. At the same time, IFRS 15 distinguishes itself by the application of a five-step model, used to analyse transactions and to determine how the revenues are to be recognised, related both to the period of time when they were derived, and to their value.

Figure 1. The five-step model used for revenue recognition, under IFRS 15



Source: IFRS IN PRACTICE 2018 - IFRS 15, Revenue from Contracts with Customers

The basic principle of the IFRS 15 standard is that entities that adopt IAS/IFRS in the preparation of financial statements must recognise revenues when the transfer of goods or the provision of services occurs, and they must be expressed by an amount corresponding to the consideration or payment that the entity expects to receive.

IFRS 15 will therefore improve the accounting reporting of revenues and the overall increase in comparability of the information included in the financial statements. In this way, the new accounting standard will enable the optimisation of information related to revenues, will provide a series of guidelines for subsequent operations, which were not included expressly (such as revenues from services, revenues from additional services or from some contractual changes), and will also contribute to improving information on multiple-element arrangements.

The approval process of IFRS 15 is ongoing, and EFRAG concluded, in relation to its approval, that this accounting standard meets all relevant criteria, including those relating to the European public interest. EFRAG also considers that the advantages of applying IFRS 15 should exceed the related costs. In order to complete the approval process of IFRS 15, the EFRAG Council took into account all the remarks received from members and considered that this standard may have positive effects on the cost of capital, and was unable to identify any possible adverse effects on the European Commission. The final opinion on the approval, drawn up in March 2015, contains this observation (Relazione Della Commissione Al Parlamento Europeo E Al Consiglio sulle attività della Fondazione IFRS, dell'EFRAG e del PIOB, 2014).

In 2014, EFRAG participated in the consultation process of the IASB and published a series of

letters containing remarks, after the public consultation in relation to all IASB decisions, including the Conceptual Framework (EFRAG, Annual Review, 2014). EFRAG has also continued discussions on the draft regarding leasing operations and on the draft of IFRS 4 - *Insurance Contracts.*

2. The effects of the adoption of IFRS 15 – revenue form contracts with customers

Under IFRS 15, obligations (undertakings) and contractual provisions may be considered fulfilled at a given time (e.g. following the delivery of a good), or during a certain period of time (e.g. the provisions of a service).

[2] OMPF 881/2012 on the application of the International Financial Reporting Standards by companies whose securities are admitted for trading on a regulated market, Art. 1

IFRS 15 defines income as "increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities, which result in an increase in equity, other than those relating to contributions from equity participants" (IFRS 15- Revenue from contracts with Customers).

IAS 18 - Revenue, still in force until the implementation of IFRS 15, specifies that revenue (IAS 18 – Revenues, 2013) should be recognised when it is probable that the entity will obtain future economic benefits associated with the increase in value of an asset or with the decrease of a liability, and their measurement can be done reliably and with sufficient certainty. In practical terms, however, as required by IAS 18, the revenue recognition criteria are usually applied separately to each transaction in order to reflect economic reality.

For example, when the selling price of a product includes an identifiable amount for successive services, this amount is recorded in advance and recognised as revenue over the period in which the service was performed.

We should also take into account the fact that legislative differences in different countries may cause the revenue recognition criteria to be fulfilled at different times (IAS 18, 2013).

The International Accounting Standard 18 "Revenues" aims to determine the accounting treatment of revenue arising from certain types of transactions and events.

Revenues are defined in the General Accounting Framework for the Preparation and Presentation of Financial Statements as "increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities, which result in an increase in equity, other than those relating to contributions from equity participants."

This standard identifies the circumstances in which revenue recognition criteria are met and revenues recognised.

Under IAS 18, the conditions that must be met for revenue to be recognised are:

a) it is probable that certain economic benefits will flow to the entity in the future;

b) the economic benefits can be measured reliably.

The main new elements that can be identified in IFRS 15 (IFRS – IN PRACTICE, 2018), at first reading, are:

• Concentrating (treating all accounting aspects) all types of revenue into a single standard;

• Introducing a model based on the concept of transfer of control; in fact, IFRS 15 indicates revenue recognition and transferability of control over goods and services to customers, while the basic criterion for revenue recognition is based, in the current standard, on the concept of transfer of risks and rewards;

• The measurement of revenues based on the consideration that the entity considers it is entitled to receive (or collect) under the contract, while IAS 18 requires revenues to be measured based on the fair value related to the received or expected consideration. Therefore, there is a shift from a neutral or subjective criterion, such as fair value, to a perspective that simplifies the subjectivity of measurement;

• The introduction of new and specific criteria to allocate the consideration for goods or services rendered under the same contract (unbundling);

• The introduction of a specific regulation to account for variable or potential consideration.

Also of note, the fact that IFRS 15 substitutes IAS 11 - Construction Contracts containing recognition criteria not only for revenues, but also for expenditure related to works in progress.

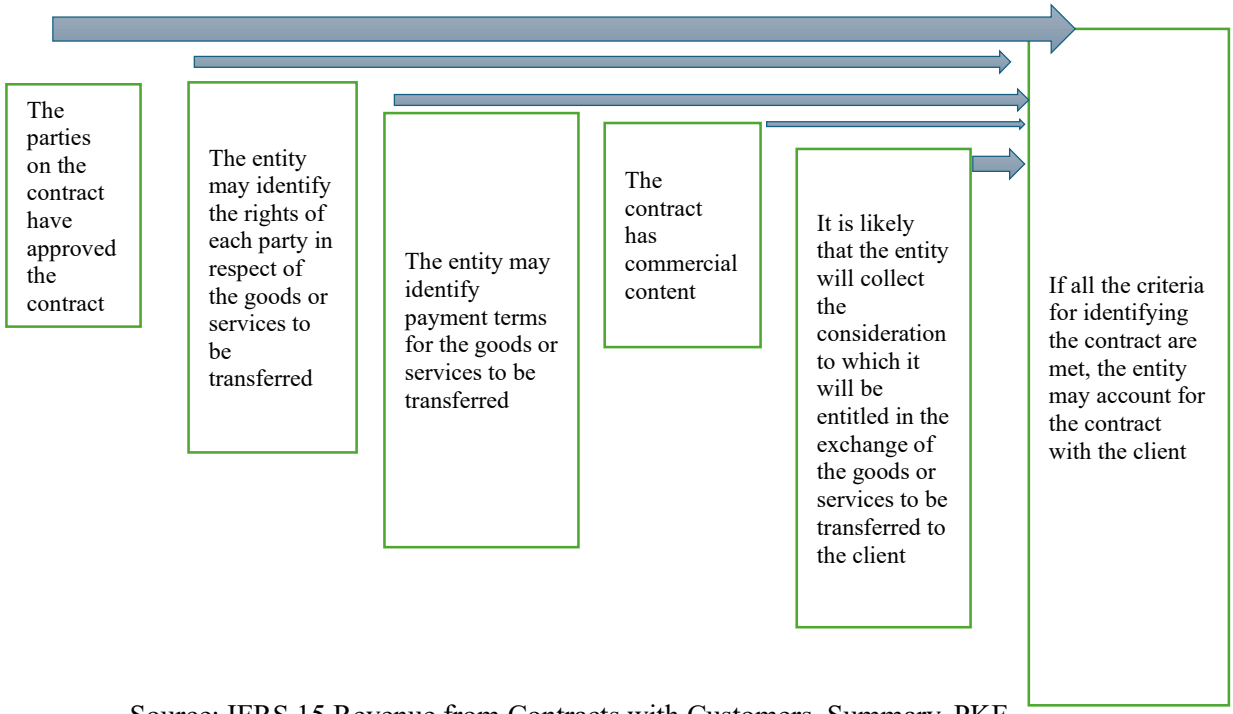
These issues are partly reflected in IFRS 15. At the same time, IFRS 15 extends the mandatory information disclosed in the notes, in terms of quantity and quality, in order to enable users of financial statements to better understand the nature, value, appropriateness and potential uncertainties related to obtaining revenue and the related cash flow, derived from customer contracts. It is therefore necessary to pay more attention to the development of the Explanatory Notes, given that this information could include data on conducting business and prospects for investors, which in the past were not provided.

Among the expected effects resulting from the implementation of IFRS 15, we would like to mention the perfect timing (early or delayed, depending on the current standards in force) for revenue recognition, as well as the application of different methods (e.g. revenue recognition over time, rather than recognition upon obtaining or vice versa).

However, the above topics will condition, directly or indirectly, the contract type or the business practices, especially when using clauses which specify the amount of the margin, but which can result, after the introduction of the new IFRS 15, in significant effects on the revenue recognition criteria.

In order for IFRS 15 to apply, the customer contracts must meet certain conditions, as shown in the Figure 2 below.

Figure 2. Conditions set out in IFRS 15 for customer contract recognition



Source: IFRS 15 Revenue from Contracts with Customers, Summary, PKF

In conclusion, IFRS 15 could indirectly have relevant effects on tax procedures, on tax planning strategies, and on certain taxation obligations (constraints) (financial covenants), etc.

The implementation of IFRS 15 will occur in the financial year 2017 (or afterwards), early implementation being permitted only if the IASB document is already approved by the EU.

For the purposes of the first implementation, IFRS 15 will be implemented retroactively, and certain simplification techniques (practical expediens) are also allowed, as well as an alternative approach (cumulative effect approach) which will avoid the re-exposure of the years presented in the comparative information; in the latter case, the effects deriving from the application of the new standard will be presented in its equity structure, for the financial year in which the IFRS 15 is first applied. It should also be noted that, for the purposes of the implementation of the IFRS 15 accounting standard, the IASB and the FASB have created the Joint Transition Resource Group for Revenue Recognition, in order toidentify and discuss possible issues regarding its implementation.

Example 1: *The company Enea delivers to the company Universia goods worth RON 10,000. After a short time, Universia's ability to pay is proven to have impaired significantly. In this situation, under IFRS 15, Enea analyses whether it can receive the consideration in exchange for the goods to be transferred to the customer.*

If an amendment to a contract generates additional obligations, then such amendment constitutes a separate contract, and if it does not generate additional obligations, the amendment is considered an adjustment to the initial contract.

Example 2: *A contract for the interior remodelling of a hostel has an estimated price of RON 50,000, the total costs incurred by the company which remodels the hostel being of RON 35,000.*

Near the end of the contract, the customer requests changes that result in a change in total costs amounting to RON 1,000 and in a change in price amounting to RON 2,000.

In this case, the change is treated like an adjustment to the initial contract, since it does not generate additional obligations.

Identifying the performance obligations in the contract

Any contract includes certain obligations to transfer goods or services to a customer.

In this regard, an obligation to transfer a good or to render a service to a customer is deemed severable if the following conditions are met cumulatively:

• The customer can benefit from the goods or services transferred separately or together with other available resources;

• The promise of the entity to transfer the goods or services to the customer is identified separately from other promises under the contract.

Example 3: *A construction company enters into a contract with a customer to build a warehouse, as well as interior fittings, connection to utility networks and other specific works.*

Based on this information, the construction company identifies the following obligations arising from the contract:

• building the warehouse;

• completing interior fittings

• connection to utility networks

• other specific works

Remark: There are various companies that provide guarantees to customers for goods delivered or services rendered. If the customer receives the guarantee in question, this constitutes a separate obligation, because it provides the customer with an additional service.

If the guarantee means that the delivered good meets certain specified conditions, then it does not constitute a separate obligation. Basically, the exact determination of the performance obligations requires the separate registration of all items.

Determining the transaction price

The entity must determine the amount of the consideration that it must receive in exchange for goods and services promised in the contract, in order to recognise revenue. The transaction price may be a fixed amount, and may vary as a result of discounts or bonuses granted.

Example 4: *A company enters into a contract with a customer for the construction of a parking lot in an urban area with access to a national road, for the price de RON 75.50 million. The company must pay penalties if the deadlines for the completion of works are not observed.*

The example shown includes a fixed component, the transaction price, i.e. the price of RON 75.50 million, and a variable component, i.e. the penalty.

Example 5: *A company sells computing equipment to a customer in exchange for a price of RON 10,000. The cost of production of the equipment amounts to RON 8,000. The customer may return the products within a maximum of four months.*

As evidenced by this example, the consideration obtained in exchange for the transfer of the equipment is variable, as it is influenced by the number of devices that are estimated not to be returned.

Let's assume that 90% of the equipment will not be returned.

The supplier believes that no significant cancellation of the accrued revenues will occur when the uncertainty associated with the variable consideration is removed (i.e. upon expiry of the 4-month period).

*Therefore, the revenues recognised by the entity is of RON 10,000 * 90% = RON 900.*

If the consideration received by the supplier from the customer is non-monetary in nature, it shall be measured at fair value (Gîrbină, 2014).

IFRS 13 - Fair value measurement defines fair value as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date." Also, fair value measurement takes into account the characteristics of the asset or liability, such as asset location and restrictions on the sale or use thereof (IFRS, Part B, 2013).

If fair value cannot be determined, it is estimated indirectly, considering the selling price of the goods and services transferred to the customers.

If a customer makes available to the company goods and services to facilitate the performance of a contract by the company, the latter will establish whether it acquires control over such goods and services. Therefore, goods and services received are considered non-monetary consideration from the customer (Gîrbină, 2014).

Allocating the transaction price among the performance obligations generated by the contract

When a contract includes several separate obligations, the company allocates the transaction price to each obligation, depending on its individual price. The price of each obligation is determined considering the price in exchange for which the good or service is sold separately by the entity. If this price is not observable, the entity must estimate it.

Example 6: *A supplier enters into a contract with a customer that provides for the sale of three categories of products: detergents, beauty products and cleaning products, at the price of RON 7,000.*

The company usually only sells detergents and beauty products, therefore the price of these products is directly observable. For the cleaning products, the prices may not be observable, as usually the entity does not sell these products separately.

Under IFRS 15, the prices for the final product should be estimated.

The prices for the 3 products are:

• detergents: RON 4,000

• beauty products: RON 2,000

• cleaning products: RON 2,000

TOTAL= RON 8,000

The supplier gives the client a discount of RON 1,000, which is distributed between the 3 products proportionately to their selling price.

The selling price of RON 7,000 (RON 8,000 minus discount of RON 1,000) is allocated between the 3 products as follows:

*• detergents - RON 4,000/RON 8,000lei*RON 7,000 = RON 3,500*

*• beauty products - RON 2,000/RON 8,000 lei*RON 7,000 lei=RON 1,750*

*• cleaning products - RON 2,000/RON 8,000*RON 7,000 = RON 1,750*

As seen at this stage, the selling price specified in the contract is the price of all the goods or services sold to a customer. If the price is not specified for each item, it can be estimated.

Recognising revenue as the entity satisfies the performance obligation

According to the new rules, revenue is only recognised when a performance obligation is satisfied. In other words, the performance obligation is satisfied when control over the goods and services is transferred to the customer. This type of control implies the ability of the entity to decide on the use and to obtain benefits in relation to the transferred goods or services.

This obligation generated by the contract may be satisfied at a point in time (this usually happens in the case of a transfer of goods, or it can be completed over time) for promises to transfer goods or services at a certain point in time (Gîrbină, 2014).

The changes occurring under the new standard require the detailed identification of items of goods and services, of their price, as well as of the manner in which the performance obligations are recorded and satisfied. The changes can be made both by the termination of the original contract and drafting a new contract, and by means of an addendum to the original contract, if the nature of the goods or services is not different.

The change of the elements of the contract will have an impact on allocation and revenue recognition, compared to current date records. This revenue treatment, prescribed by IFRS 15, differs from the one accepted by IAS 18- Revenue. Under IAS 18, revenue is recognised when most risks and rewards of ownership of the goods are transferred to the customer.

To determine whether the asset has an alternative use, the seller will have to consider, at the beginning of the contract, if it can use the asset for a purpose other than that specified in the contract entered into with the customer. Regarding the costs incurred by the entity to obtain contracts, they must be recorded as expenses, except those that would have been incurred if the contract had not been obtained. The changes provided in IFRS 15 will have a major impact in terms accounting for long-term contracts.

Example 7: *A supplier sells a machine to a customer and undertakes to pay its upkeep for a period of 4 years.*

Under IFRS 15, this clause creates an obligation that will contribute to an increase in performance (by the revenue generated by providing maintenance services) to be accounted for separately from the revenue resulting from the sale of the machine. These latest revenues will be estimated before being reported, since they can vary depending on factors that are still unknown, such as machine maintenance costs.

If the supplier anticipates providing maintenance services, the related revenues can be recognised and recorded as deferred income.

Under IAS 18, this revenue can only be recognised at the time the services themselves are performed.

Source*:* adapted from Gîrbină M., Noi prevederi internaţionale privind recunaşterea veniturilor II.

As noticed from the examples mentioned, revenue is recognised as deferred income, as a result of the clause, stipulated in the contract, which specifies the rendering of services at a later date, that that have no connection with the object of the contract, i.e. the sale.

The performance obligation is a promise to transfer a good or service, or a distinct group of goods or services.

The transfer of control determines the recording of revenue in the accounting records when the goods or services are transferred to the customer (IFRS 15, 2014).

As seen from the above example, the application of IFRS 15 will have a different effect on the amount of revenue recorded and, therefore, on the performance of the company.

However, the most important element introduced by the new rules relates to how the contracts are drawn up. Contracts should contain new elements that can properly record all revenue items, depending on their nature and the date on which they can be recognised.

If the company applies IAS 18, it will not record any revenue at the beginning of the contract, and afterwards they will be at a constant level, because it will recognise revenue as invoices are issued to customers. Under IFRS 15, the final amount of the revenue is the same, but their recording is different, in terms of moments in time (IFRS 15 vs. IAS 18).

3. Conclusions

In 2014, the IASB completed and prepared two important accounting standards, which have an important contribution to the information of users of financial statements, namely IFRS 9 - Financial Instruments and IFRS 15 - Revenue from contracts with customers, also achieving considerable progress in other major projects. IFRS 15 is intended to provide economic entities with complete and updated information, for the purposes of revenue recognition.

After a positive assessment by EFRAG, this standard is currently under approval; the final opinion of EFRAG on the approval of IFRS 15, compared to the other IFRS standards, considers that it is an accounting norm that is flexible enough to cover the different types of business (however, attention should be paid to the conceptual accounting framework, which attaches great importance to types of business).

In conclusion, we can say that IFRS 15 is much more complex than the standards it replaces, and its preparation is justified, as old rules were unable to reflect the complexity of modern business operations. At the same time, due to the fact that IFRS 15 replaces older accounting standards and their related interpretations, the new provisions are contained in a single document.

IFRS 15 is also an effective tool in avoiding financial volatility, given that it contains specific provisions that apply to situations of uncertainty in relation to the recognition of future revenues.

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OUTCOME OF PREVIOUS RESEARCH REGARDING NORMATIVE AND POSITIVE ACCOUNTING THEORIES: FINDINGS AND IMPLICATIONS

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Abstract: This paper contains a brief vision over the way of exposure and integration of the accounting theory as a whole within a continuous evolutionary environment. Since the issuance of the fundamental forming framework of accounting theories, the organizational environment has continuously focused on shaping these theories to ensure the optimal undergoing of activities. This aspect has a pronounced interest in present days and generates an important process in the development of the organizational framework both conceptually, theoretically, and practically, through targeted measures. Accounting theory consists of logical reasoning that aids in the evaluation, improvement and implementation of financial procedures and practices in companies, aiming to achieve optimal alignment within the economic-financial business environment. The purpose of this article is to compactly summarize the comprehensive critiques and analyses of different perspectives of accounting theory provided by important papers and studies, which represent valuable resources for researchers in the field and beyond.

Keywords: accounting theories, development, conceptual framework, companies, artificial intelligence, normative theories, positive theories

1. Introduction

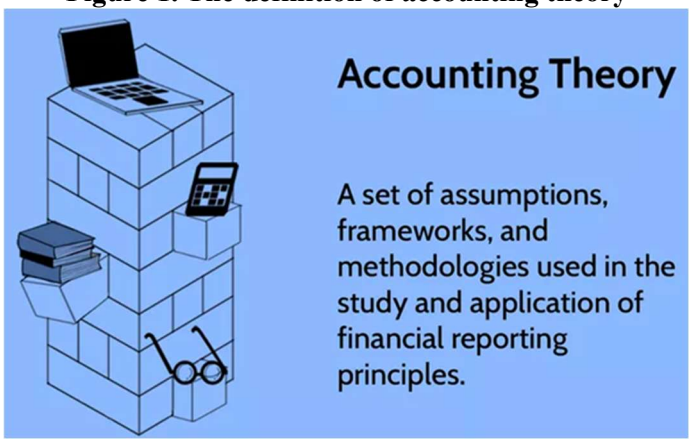
The accounting theory analyzed as a whole, represents a set of assumptions, frameworks and methodologies focused on the application and analysis of the regulation and accounting reporting principles. The accounting domain is under constant change therefore a review is needed to consider both the fundamentals of accounting practices, the current organizational and global environments.

The accounting theory is characterized by the guidance that it provides for the optimal execution of the financial process, having an important role in ensuring accuracy and consistency of data and also in enhancing its quality and comparability. The business environment brings new challenges in the market, making accounting theory a continuously evolving process that must adapt to existing financial mechanisms found in the reporting process. The conceptual framework of accounting represents a strong bond provided by an independent entity named the Financial Accounting Standards Board (FASB), who establishes the practices and objectives in financial reporting for both the private and public sectors.

An important characteristic of the accounting theory is the proper usage of document data that will lead to informed business decisions for those reviewing the financial statements, therefore in the corporate finance world it highlights the flexibility of accounting notions just to prove its efficiency when the environment changes.

The accounting theory is characterized by usefulness and also by the relevance of the information, comparability, reliability and consistency in the process of preparing the financial statements in companies.

Figure 1. The definition of accounting theory

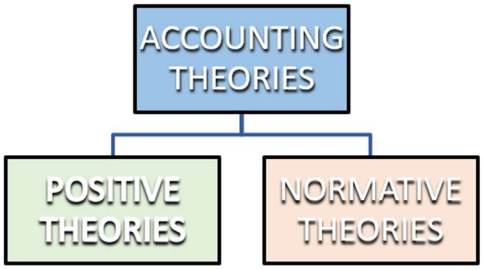


Source: Investopedia (Xiaojie Liu)

2. Initial definitions of accounting theories

Historically, accounting theories have been often described based on the normative or positive criterion of including and treating the information. These were oriented at establishing the rules and principles of accounting that the practicians need to apply in their activities and ensured basic characteristics such as data consistency, reliability and comparability. The main purpose of these theories is to provide a framework for accountants and other interested parties or other accounting information users in order to prepare and issue the financial statements that will accurately provide the financial position of the company along with its measurable performance indicators.

Figure 2. General representation of accounting theories



Source: created by the authors

2.1 Normative accounting theory

Normative accounting theory refers to a prescriptive character and proposes the manner in which accounting processes should be carried out through establishing the regulations and standards that the practitioners should follow.

”The normative theories have as starting point certain standards and principles that delimitate, in context, the development of a guide that comprises the accounting practices and procedures. In these theories the deductive judgment is used, having as purpose obtaining some improvement of the environment described” (Stefan-Duicu & Stefan-Duicu, 2014).

Table 1: Highlights regarding the normative accounting theory

THEORIES	DEFINITION	KEY STUDIES	FINDINGS
Historical Cost Accounting	This theory presents the utilization of historical costs as a fundamental element for financial reporting.	Paton, W. A., & Littleton, A. C. (1940). "An Introduction to Corporate Accounting Standards"	Historical cost accounting provides a stable and objective measurement of asset values, although it presents a limited relevance.

Decision-Usefulness Theory	This theory suggests that accounting information should be created to be useful for decision-making of investors and other users of accounting information.	Staubus, G. J. (1961). "A Theory of Accounting to Investors"	Accounting standards should prioritize the needs of investors. This aspect can be solved through providing relevant information for decision-making in the financial reports.
Conceptual Frameworks	These frameworks comprise of principles and objectives of financial reporting aiming the development of accounting standards.	FASB (1978). "Statement of Financial Accounting Concepts No. 1: Objectives of Financial Reporting by Business Enterprises"	The conceptual framework represents the foundation for standard-setting based on the qualitative characteristics of useful financial information (relevance, reliability, comparability, and consistency).
Fair Value Accounting	This theory recommends the measurement of assets and liabilities at their current market values.	Barth, M. E. (1994). "Fair Value Accounting: Evidence from Investment Securities and the Market Valuation of Banks"	Fair value accounting brings a higher relevance of financial statements by taking into consideration the current economic conditions, despite a possible volatility.

Source: Authors' computations based on academic library research

Table 2: Other normative accounting theory highlights

	KEY STUDIES	FINDINGS	IMPLICATIONS
NORMATIVE ACCOUNTING THEORY	Gray, R., Dey, C., Owen, D., Evans, R., & Zadek, S. (1997). "Struggling with the Praxis of Social Accounting: Stakeholders, Accountability, Audits and Procedures"	Analyze the challenges in accounting practices from the perspective of introducing a social accounting and auditing aspect.	Consider the need for more strong regulations that effectively comprise stakeholder's interests into accounting practices.
	Power, M. (1997). "The Audit Society: Rituals of Verification"	Auditing practices develop an image of legitimacy and safety.	Explains the importance of the audit processes and the importance of the transparency methods in auditing.
	Sikka, P., & Willmott, H. (1997). "The Power of 'Independence': Defending and Extending the Jurisdiction of Accounting in the United Kingdom"	Describes the concept of 'independence' in accounting.	Brings up front the need of transparency of the accounting information to ensure the independence of the public interest.
	Gray, R., Kouhy, R., & Lavers, S. (2001). "Corporate Social and Environmental Reporting: A Review of the Literature and a Longitudinal Study of UK Disclosure"	Examines trend in social and environmental disclosures.	Explains the need for standardized and rigorous reporting practices that combines both organization's social and environmental impact.

	Spence, C., & Carter, C. (2011). "Accounting for the General Intellect: Immaterial Labor and the Social Factory"	Presents the concept of immaterial labor and how this notion is important in accounting.	Highlights the need of a new vision for accounting frameworks to a better understanding for the value and the importance of the immaterial labor.
	Bebbington, J., Unerman, J., & O'Dwyer, B. (2014). "Sustainability Accounting and Accountability"	Sustainability accounting has a fundamental role in enhancing the transparency of the accounting theory.	Calls for the need of robust sustainability accounting frameworks to improve the practice.
	Adams, C. A. (2015). "The International Integrated Reporting Council: A Call to Action"	Describes the importance of the International Integrated Reporting Council (IIRC) in explaining the integrated reporting practices.	Pledge for a generally adoption of integrated reporting to ensure a great transparency and to provide an important view of performance.
	Rinaldi, L., Unerman, J., & De Villiers, C. (2020). "Evaluating the Integrated Reporting Journey: Insights, Gaps, and Agendas for Future Research"	Integrated reporting has the potential to provide a good image of organizational performance, but it encloses implementation challenges.	Exposes the need for clarity in guidelines and frameworks within the process of integrated standardization reporting practices.

Source: Authors' computations based on academic library research

2.2 Positive accounting theory

Positive accounting theory is a descriptive theory with a foundation based on observation, description and explanation of accounting practices in contrast with the normative theory that prescribes specific practice methods. The positive theory of accounting focuses on understanding the information described and on the inclusion of working processes of accountants within the general organizational environment.

„The positive theory of accounting is the theory that has as main purpose the explanation of the accounting corpus as a science and as practice in order to evidence the meaning that all operations have, starting from each integrated element of the economic and social dimension including even the human resources that monitor and act accordingly to the guiding principles (Stefan-Duicu & Stefan-Duicu, 2013).

3. Summary of the outcome of previous research regarding normative and positive accounting theories: findings and implications

These examples show the difference between positive accounting theories, which have the purpose to explain and predict actual accounting practices based on observed behavior, and normative accounting theories, which prescribe the manner regarding how accounting should be conducted to achieve certain results, such as decision-usefulness or fair representation.

Table 3: Positive accounting theory highlights

THEORIES	DEFINITION	KEY STUDIES	FINDINGS
Capital Market-Based Accounting Research	This research explores how accounting information influence the capital markets and the	Ball, R., & Brown, P. (1968). "An Empirical Evaluation of	The information about earnings generates stock price movements and has

	decision making for investors.	Accounting Income Numbers"	an important value in capital markets.
Agency Theory	This theory investigates the relationship between principals (shareholders) and agents (managers), highlighting on the debates created by the conflicts of interest and the solution to solve them.	Jensen, M. C., & Meckling, W. H. (1976). "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure"	Agency costs appear as a consequence of conflicts between shareholders and managers. Verifying and offering guidance as a secure mechanism, such as performance-based compensation, can help align interests.
Contracting Theory	This theory describes how accounting numbers are used in contracts.	Watts, R. L., & Zimmerman, J. L. (1986). "Positive Accounting Theory"	The choices of accounting practitioners are influenced by their impact on contractual agreements. Companies can choose the accounting methods in order to diminish the likelihood of breaching regulations.
Earnings Management Theory	This theory focuses on how managers use and manipulate the financial reports to influence specific financial results.	Healy, P. M., & Wahlen, J. M. (1999). "A Review of the Earnings Management Literature and Its Implications for Standard Setting"	Managing personnel uses discretion in accounting to manage earnings from a variety of reasons, including achieving targets, meeting analyst's expectations or to influence the stock prices.

Source: Authors' computations based on academic library research

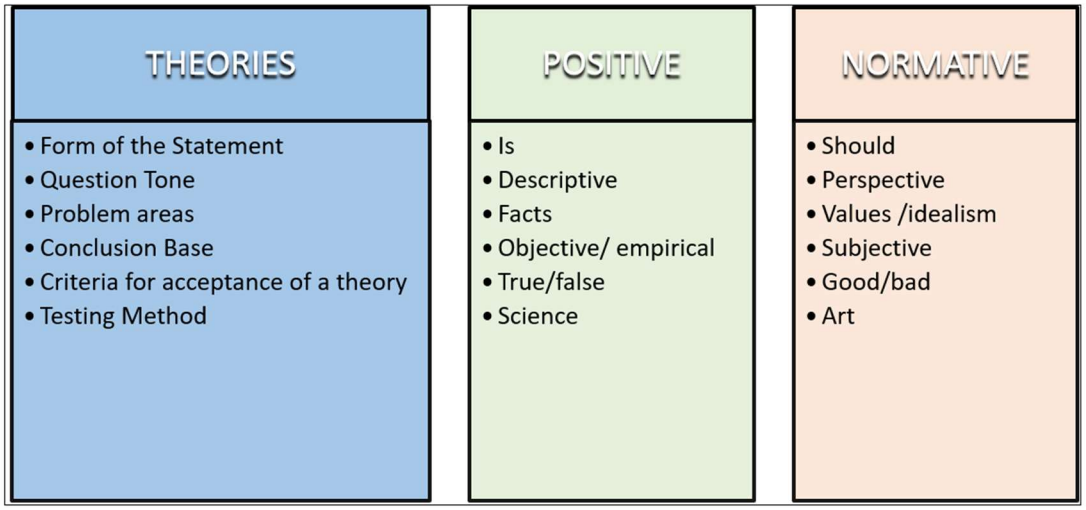
Table 4: Other highlights of positive accounting theory

	Key Studies	Findings	Implications
POSITIVE ACCOUNTING THEORY	Watts, R. L., & Zimmerman, J. L. (1990). "Positive Accounting Theory: A Ten-Year Perspective"	Reviews the development and posture of the Positive Accounting Theory (PAT) over a decade, explaining its predictive power and empirical support in research.	Explains the importance and the relevance of PAT in understanding accounting choices and behaviors conducted by economic purposes.
	Holthausen, R. W., & Watts, R. L. (2001). "The Relevance of the Value-Relevance Literature for Financial Accounting Standard Setting"	Investigates critically the value - relevance in literature and the effects for the financial accounting standard-setting.	Highlights that value-relevance research provides useful views and suggests to be completed with other studies to complete standard-setting.
	Ball, R., & Shivakumar, L. (2005). "Earnings Quality in UK Private Firms: Comparative Loss Recognition Timeliness"	Discuss the quality of earnings in UK private sector regarding the loss recognition compared to public firms.	Describes the importance of regulatory environment and organizational structure

			in managing earnings quality.
	Bushman, R. M., & Piotroski, J. D. (2006). "Financial Reporting Incentives for Conservative Accounting: The Influence of Legal and Political Institutions"	Analyzes how different institutions modifies financial reporting incentives for conservative accounting practices.	Explains that institutional factors have a significant role in determining the conservatism of financial reporting.
	Beyer, A., Cohen, D. A., Lys, T. Z., & Walther, B. R. (2010). "The Financial Reporting Environment: Review of the Recent Literature"	Investigate the contemporaneous literature on the financial reporting environment, outlining the role of standards and regulations.	Brings a big picture of factors influencing financial reporting for the incoming research.
	Chen, Q., & Schipper, K. (2016). "Comments and observations regarding the relation between theory and empirical research in contemporary accounting research".	Examines the connection between theory as study and the empirical research.	Launches the idea that the process of collaboration between regulators and practitioners is very important in obtaining great results.
	Christensen, H. B., Hail, L., & Leuz, C. (2018). "Economic Analysis of Widespread Adoption of CSR and Sustainability Reporting Standards"	Describes the economic aspects of applying corporate social responsibility (CSR) and sustainability reporting standards.	Explains the importance of regulations in this field, with both the benefits and challenges of widespread adoption.

Source: Authors' computations based on academic library research

Figure 3. Difference between positive and normative accounting theories



Source: Authors' computations based on Theresia H. B. (2017)

Table 5: Recent results from accounting theories research

	KEY STUDIES	FINDINGS	IMPLICATIONS
ACCOUNTING THEORIES	Juusola, K., & Srouji, R. (2023). "Challenges associated with sustainability accounting and reporting practices: a legitimacy perspective"	This study highlights the negative parts in sustainability reporting, explaining that the current frameworks do not adequately reflects the real results of sustainability appliance.	The study identifies the need for the development of more rigorous and standardized sustainability reporting frameworks.
	Dillard, Jesse & Shivji, Alysha & Bianchi, Lara. (2023). "Rights-based, worker-driven accountability in the	The paper reflects the field research in critical accounting.	This paper proposes extended research on environment measures.

	fields: Contesting the uncontested contestable"		
	Saji, T. G. (2022). "Asymmetric financial reporting quality and firm size: conditional evidence from an emerging market"	The paper describes an improved transparency in managing the international accounting standards and calls for a better regulations support in implementation process.	The main idea reflects the need for an enhanced support to ensure effective implementation of international standards.
	Albuquerque, F., & Dos Santos, P. G. (2023). "Recent Trends in Accounting and Information System Research: A Literature Review Using Textual Analysis Tools"	This paper examines the impact of textual analysis tools in accounting.	The main purpose of the paper is to show the importance of treating the information with close attention in order to be prepared for the future crises.
	Fomina, O., Zadniprovsky, O., Korol, S., & Romashko, O. (2022). "Professional judgement in accounting: contents and conditions of application"	In this paper is presented the professional judgment as a fundamental base despite the subjective views and the inconsistencies of the information in the financial reports.	The authors describe a mechanism of guidance in decision-making in order to reduce the professional judgment issues.
	Caraiman, A. C., & Mates, D. (2020). "Risk management in corporate governance"	Discuss the connection between corporate governance implications and the practices of risk management.	Offers a view in which strong governance frameworks can increase the resilience in companies and the risk management.
	Moser, D. V., & Martin, P. R. (2020). "A Broader Perspective on Corporate Social Responsibility Research in Accounting"	Offers details about the state of CSR research in accounting.	Recommends more interdisciplinary research to understand the changes of CSR in accounting.
	Higson, A., (2020). "A Critique of the Conceptual Framework for Financial Reporting"	The aim of the paper concerns the current Conceptual Framework for the issues about relevance and other quality characteristics.	The study comes with the suggestion for the Conceptual Framework to be revised.

Source: Authors' computations based on academic library research

These references discuss important information on both normative and positive theories in accounting, outlining their findings and implications for the field in order to provide valuable insights for practice and for the academic structures into past and current challenges, offering a set of recommendations and establishing some directions for future.

4. Conclusion

Over time, accounting theories have known an extended approach that incorporates broader perspectives in a multidisciplinary frame: economical, social, geopolitical and financial field. The high rate of changes has determined an evolution of the information reflected in the dynamic of business environments and called for the need of a more tailored and comprehensive theoretical frameworks.

Nowadays, accounting theories represent a multidisciplinary process that aims to not only examine and predict accounting practices but also to bring a great awareness on different impacting notions such as sustainability, artificial intelligence development, ethical behavior, post pandemic adaptation etc.

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