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ARTICLES

The Evolution of European Economic Governance

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Abstract: This paper[1] *scrutinizes the transformation of the European economic governance. This is a framework conceived by European Union decision-makers to establish institutions and processes – coordination and harmonisation of economic policies – in order to achieve economic and social development for the European Union and its citizens. Prior to the global financial crisis, the European economic governance was incomplete, poorly coordinated and in certain macroeconomic areas insufficient. The international financial crisis and the "Euro crisis" compelled a much deeper and more comprehensive governance structure from the decision-makers of the European Union. Despite the rapid emergence of Community-level crisis management mechanisms, ad hoc responses and processes prevailed till the turning point of the "Euro crisis" in 2012. Since then, the transformation the European economic governance continued in a heavily institutionalized and coordinated form, providing a long-term vision for the European Union and the Eurozone. European economic governance has been substantially expanded, institutional arrangements cover fiscal policy, monetary policy, the supervision of the financial system, policies related to structural and competitiveness issues. Moreover, comprehensive and coordinated reform strategies were launched, based on the European Commission's priorities. In this paper, we carry out a simple analysis to detect whether the new European economic governance has corrected the pre-crisis country-specific risks and institutional flaws.*

Key-Words: European economic governance, European Union, Eurozone, Euro crisis, fiscal policy, monetary policy

JEL classification: E02, E42, E61, F55

1 Introduction

The European economic governance (or institutional framework of the European Union and Eurozone) has significantly changed since the international financial crisis. Even though the crisis originally erupted in the United States, due to the mismanagement of the subprime mortgage market, it rapidly developed into a full-blown international financial crisis and spilled over into European countries. Individual (country-specific) responses were unable to handle properly the crisis and generated several coordination problems among member states. The year of 2008 was characterised by economic slowdown and in 2009 the European Union plunged into an unprecedented and severe recession; the average GDP of the European Union fell by 4.4% and apart from Poland all member states suffered from grave economic deterioration. In 2010, European countries hoped to forget the negative impacts of the crisis and build up a solid recovery. This was the case in most member states, but Greece sank into an even deeper recession due to its unsustainable fiscal developments which led to rapid loss of credibility and confidence on regional and global financial markets. The Greek crisis generated a series of sovereign economic and debt crisis (namely the Eurozone debt crisis or the Euro crisis) in the Southern periphery

[1] This paper was presented at the 13th Hungarian-Romanian Round Table, *Romania and Hungary in the globalised World and partners in the European integration*, September 26, 2019.

of the Eurozone; Ireland, Portugal, Spain and Cyprus needed external financial assistance to revive their economies, moreover, Italy was also situated in the brink of another crisis. The global financial crisis and the Euro crisis have revealed the institutional weaknesses and structural problems of the Eurozone as well the European economic governance. Furthermore, the continuous crisis in the Southern periphery has defined the directions of community-level crisis management.

Responses to the Euro crisis can be split into **four macroeconomic areas**. *First*, the European Central Bank deployed extraordinary and unconventional toolbox of monetary policy: covered bond purchase program, securities markets program, long-term refinancing operations, outright monetary transactions and finally the initiation of the quantitative easing. *Second*, community-level or institutional responses concerned the framework – rules, regulations, supervision and monitoring – of fiscal policy (the creation of temporary and permanent crisis management facilities, *Six-Pack*, *Fiscal Compact, Two-Pack* and the *European Semester*). *Third*, the community-level financial supervisory and regulatory system was created, which first gave rise to the macroprudential supervision (*European Systemic Risk Board*) and was followed by the launch of the microprudential supervisory system, namely the *Banking Union*. And *fourth*, perhaps least pronounced, there were implemented the European Union-wide reforms promoting competitiveness and structural reforms (*Euro Plus Pact* and certain measures of the *Six Pack* referring to macroeconomic imbalances) among member states. It is worth emphasizing that the crisis management between 2010 and 2012 was basically a series of ad hoc steps aimed at managing the actual crisis situations in Greece, Ireland, and Portugal. Then, since the end of 2012 it has been transformed into a much more conscious series of measures to reconstruct the economic governance of the Eurozone and the European Union, which intends to contemplate or finalize the institutional conditions for an accurately functioning Economic and Monetary Union.

The transformation of the global financial crisis into a Euro crisis and the crisis management raise a number of questions, some of which are easier, while others are more difficult to answer. These questions are as follows in a logical order: *What were the institutional and structural failures of the Economic and Monetary Union and the European economic governance before the two crises? What caused the prolonged crisis in the Southern periphery of the Eurozone? What macroeconomic processes and structural problems took place and emerged invisibly before the crisis; what kind of macroeconomic impacts materialized during the Euro crisis and what were the macroeconomic consequences of the crisis? Why was the European integration unable to provide fast and efficient responses to the Euro crisis? What responses did the EU decision-makers give during the crisis management? What institutions were created under the crisis management process and how these new institutions were constituted? And finally, probably the most important question, whether these new institutions and regulations can really correct the failures of the Eurozone's institutional set-up and mechanisms, or further actions are still necessary for this?*

The paper proceeds as follows. Section 2 provides a short literature review of economic governance in general and the European economic governance. Then we turn to the empirical part of the paper, which has three main elements, firstly we analyse the pre-crisis governance framework of the European Union, secondly we show the transformation of the European economic governance as a result of the global financial crisis and the Euro crisis, and thirdly we identify remaining risks that will have to be tackled in the future. And in the final section we provide some conclusions.

2 Economic Governance in the European Union – a short literature review

Economic governance is a widespread terminology in economics, political science and in EU studies as well. In theory, economic governance ensures the proper functioning of markets, economic actions among actors and in general all transactions that take place in the economy. In this manner Dixit (2003, p. 449) defines the necessity of economic governance: "Almost all economic transactions need governance". Scholars of institutional economics can provide an easy and quick answer to the question of what satisfies this need, official legal systems perfectly and costlessly provide this service. Based on Dixit's (2009) approach, economic governance is the structure and functioning of the legal and social institutions that support and determine economic activities and transactions by protecting property rights, enforcing contracts and overcoming collective action dilemmas to administer physical and organizational infrastructure. Williamson (2005) brings into play a slight supplement to Dixit's approach and defines economic governance (or more precisely economics of governance) as follows: "study of good order and workable arrangements" (Williamson, 2005, p. 1.). The addition is obviously the

ordering, i.e. participants of economic actions and transactions are actively involved in the arrangement of good order. The rules related to ordering are always secured (and varies) by the state.

The next step to our core research topic, the analysis of European economic governance, is to embed governance approaches in European Union studies. European Union member states have historically pooled important areas of policy authority to community level. The creation of these new supranational institutions at European Union level has significantly changed the nature of European politics and economics. Theoretically, institutions – supranational institutions, rules and regulations – are tools to decrease the complexity of our life, in terms of European Union level institutions can be understood as an apparatus to govern the processes, outcomes, preferences and behaviour through the maximization of relevant actors' benefits. According to Peter and Pierre (2009, p. 91), the European context is slightly different because the European Union is a large territory with different and complex economic, social and political structures thus governance needs capacity: "governance implies the capacity of a society to develop some means of making and implementing collective choices". The mechanism of this process starts with the identification of a common problem (common problems need common solutions). However, reaching common solutions is not easy and not definite, since, on the one hand, member states must agree and decide upon common goals and on the other hand, member states insist on representing their own goals and preferences. When common goals are reached, the following step is to design and implement the means (institutions) to achieve those purposes. And finally, an examination is also necessary to evaluate whether the desired goals via the means (institutions) have been achieved or not.

In summary, institutions are the tools to reach common goals at European Union level and the whole set of institutions is the governance in the European Union. Through this governance, decision-makers of the European Union are able to influence processes, outcomes, preferences and behaviour and to guide the complex structure of the EU. The European Parliament's think tank definition to economic governance is the following: "Economic governance refers to the system of institutions and procedures established to achieve Union objectives in the economic field, namely the coordination of economic policies to promote economic and social progress for the EU and its citizens" (EP, 2019, p. 1). In this case, the general governance starts narrowing to economic governance as the above-mentioned definition concentrates on the economic field and the coordination of economic policies. For our research purpose, this interpretation is still wide, therefore we select four macroeconomic areas: monetary policy, fiscal policy, financial supervision and regulation and structural cooperation. So, basically, we deal with a very narrow phenomenon of economic governance, namely the "macroeconomic governance".

3 Methodology and empirical research

In the empirical part of our paper, we analyse the transformation of the institutional structure (macroeconomic governance) of the Economic and Monetary Union and the European Union. The global financial crisis almost splits the last 20 years of the Eurozone; thus, we can investigate separately the pre-crisis institutional structure and the post-crisis one, moreover the separable periods can also be evaluated in a comparative manner. Nevertheless, neither the institutional structure of the pre-crisis period nor the institutional structure of the post-crisis period can be considered as static.

The steps of the analysis are the followings: *first*, we show the European Union's institutional framework of the pre-crisis period, what were the objectives and the related economic governance tools between 1999 and the global financial crisis; *second*, we exhibit the transformation of the European economic governance as a result of the global financial crisis and the Euro crisis; and *third*, we compare the pre-crisis and post-crisis risks to evaluate capabilities of the European economic governance to prevent and manage future crises.

3.1 European economic governance before the global financial crisis

During the pre-crisis period, the tools of the European economic governance were limited. The pre-crisis institutional set-up was built-up on two major pillars and on some "soft" coordination mechanism. In this regard, Table 1 depicts the pre-crisis economic governance of the European Union. National monetary policies were delegated to supranational level to the European Central Bank and the European System of Central Banks, and fiscal policy remained decentralized but coordinated by the *Stability and Growth Pact*.

The primary objective of the European Central Bank was and is to achieve price stability, the inflation rate of 2% or below. As a secondary objective, without compromising price stability, the Eurosystem supports general

economic policies in the European Union (more accurately in the Eurozone) such as economic growth, competitiveness, employment, social development and the protection of environment.

The second pillar was the creation of rule-based fiscal policy in the European Union. On the one hand, the Maastricht Treaty limits government deficits to 3% of GDP and public debt levels to 60% of GDP in order to enable countries to introduce the single currency. The fiscal provisions of the Maastricht Treaty, following German interest, were institutionalized under the *Stability and Growth Pact* to strengthen monitoring and coordination of national fiscal and economic policies to enforce the deficit and debt limits instituted by the Maastricht Treaty. The *Stability and Growth Pact*'s preventive arm ensures sound budgetary policies over the medium term. And the corrective arm (namely the *Excessive Deficit Procedure*) deals with non-compliance of sound public finances. Under the *Excessive Deficit Procedure,* if a member state breaches the 3% budget deficit ceiling the Council will issue recommendations to address this problem (suggestions to reach the 3% threshold) and finally may lead to sanctions. In 2005, the *Stability and Growth Pact* was reformed by European Union decision-makers. Germany and France, as a consequence of large-scale structural reforms, were unable to satisfy the fiscal provisions and were allowed to run excessive in multiple years without any sanctions. The *new Stability and Growth Pact* better considers country-specific circumstances and strengthens surveillance and coordination of national fiscal policies. Moreover, the *Excessive Deficit Procedure* was also amended to easier and faster respond to non-compliance.

The *Single European Act* – the principle of four freedoms – ensures also the free movement of capital among member states of the European Union, which contributed to the deepening of financial integration. Nevertheless, in the area of financial supervision, regulation and monitoring there was no appropriate institution or rule to reach financial stability. European Union decision-makers missed to govern this area; however, a few institutional elements were added to the pre-crisis economic governance structure to promote the sound functioning of European financial markets. The *Financial Services Action Plan* harmonized financial services – extended the scope of the *Single European Act* – and created a single market for financial services. Furthermore, the regulatory structure of the single market for financial services was initiated by the *Lamfalussy Process*, the approach first controlled the securities market and then banking, insurance, pension and asset management markets. And finally, the European Union took over both the Basel I and Basel II regulations to govern banking sectors.

In addition to the above-mentioned macroeconomic components of economic governance, several non-effective and non-binding institutions and tools were added to the pre-crisis economic governance framework of the European Union: Broad Economic Policy Guidelines and guidelines for employment policies; Cardiff Process; Open Method of Coordination (social policy); European Macroeconomic Dialogue, and European Social Dialogue (Heise, 2012). Since these institutions and initiatives were non-binding for the member states, they served only for information exchange and loose connection of sectoral national policies, particularly in the fields of structural, social and employment policies. It is worth noting that the above-mentioned enumeration of **soft governance tools** was supplemented with a horizontal long-term project of the European Union, the Lisbon Strategy that aimed to transform the community into the most competitive region in the world.

Table 1: Pre-crisis economic governance in the European Union

Fields	Fiscal policy	Monetary policy	Financial regulation	Soft economic governance
Objectives	Sustainable and stable public finances	Price stability	Financial stability	Harmonisation and exchange of information
Institutions	• Stability and Growth Pact • Reformed Stability and Growth Pact	• Conventional instruments of the European Central Bank	• Missing institutions and regulations; • "Soft" financial instruments: Financial Services Action Plan and the Lamfalussy Process • External tools: Basel I and Basel II regulations.	• Lisbon Strategy: Broad Economic Policy Guidelines and guidelines for employment policies • Cardiff Process • Open Method of Coordination (social policy) • European Macroeconomic Dialogue

Fields	Fiscal policy	Monetary policy	Financial regulation	Soft economic governance
				• European Social Dialogue

Source: Own compilation.

3.2 European economic governance during the post-crisis period

In the late 2000s, the Economic and Monetary Union (and the European Union) faced the most severe challenge of its existence so far; the global financial crisis and the subsequent Euro crisis have revealed a significant number of problems: the asymmetrical institutional structure of the monetary union (namely the delegation of the monetary policy to Community level and rule-based but discretionary fiscal policy), poor or inadequate economic governance and powerless regulatory systems (weak enforcement of the *Stability and Growth Pact*, the adverse rules of the common monetary policy and the missing regulation of the financial and banking system), strong core-periphery dichotomy in terms of market economy, welfare and social structures, large and probably unmanageable heterogeneity among member states and many other problems.

In general, the European economic governance is made up of **four closely interrelated building blocks**: monitoring of national economic policies, prevention, correction and enforcement. The European Commission regularly monitors macroeconomic developments of member states as well as global economic trends. The significance of this process is to detect macroeconomic problems, unsustainable macroeconomic trends and changes in member states' competitiveness. The economic governance framework has been organized into annual cycles under the European Semester. European institutions and bodies, and national governments must carry out tasks related to macroeconomic and budgetary areas in specific times and in specific order. The essence of the European Semester is to coordinate national economic policies: sound public finances, avoiding substantial macroeconomic imbalances, implementing structural reforms and facilitating economic growth and employment.

The role of the European Central Bank has significantly been strengthened after the global financial crisis and during the Euro crisis; the two crises forced the European Central Bank to act much more actively in the real economy. This activity no longer aimed at achieving a stable inflationary environment, but rather the functioning and the stability of the whole Eurozone economy. The European Central Bank has increasingly focused on the use of non-conventional instruments in an environment where depressed inflation and historically low interest rates were perceived as an external condition. Thus, the application of non-conventional monetary measures is understandable to cope effectively with tasks such as cleaning-up the transmission mechanism channels, boosting economic recovery in crisis-ridden member states and supporting financial stability through large-scale refinancing programs to commercial banks. Among several measures that were adopted by the European Central Bank, it is worth highlighting the role of Outright Monetary Transactions: under this measure the European Central Bank officially announced that it would buy government-issued bonds in secondary sovereign bond markets to safeguard an appropriate monetary policy transmission and to preserve the Eurozone. By this measure, the European Central Bank has de facto fulfilled the lender of last resort function vis-á-vis the member states of the Eurozone.

Since the eruption of the Eurozone crisis, European decision-makers have significantly strengthened the **fiscal framework** of the European Union and the Eurozone. The engineering of new fiscal governance has taken place at two interconnected levels, the first, rule-based continuously strengthening fiscal regulations and the second, the creation of a permanent firewall to assist Eurozone sovereigns. The Six-Pack was introduced in 2011 and aimed to develop and strengthen the *Stability and Growth Pact* by ensuring the viability of national public finances through either preventive and corrective actions and to reduce macroeconomic imbalances of member states. They apply to all EU member states, but some rules apply only to the Eurozone countries. An intergovernmental agreement, the *Treaty on Stability, Coordination and Governance* aka *Fiscal Compact*, was added to the fiscal governance framework in 2012 (and entered into force from January 2013)[2]. The *Fiscal Compact* is a clear step towards a "fiscal stability union" by further strengthening fiscal rules of the European Union and the Eurozone. Moreover, the *Treaty on Stability, Coordination and Governance* contains a second and a third pillar above the Fiscal Compact. The second pillar bolsters economic governance and convergence among Eurozone member states, while the third pillar covers the governance of the Eurozone with the formulation of the Euro Summit. And finally, the "Two-Pack" also enhances the Six-Pack reforms by improving budgetary coordination via the introduction of a common budgetary timeline and a system of enhanced surveillance.

[2] The Czech Republic and the United Kingdom decided to not participate in the agreement.

Prior to the early 2010s, when several Eurozone member states suffered from economic meltdown or default, the economic governance framework of the European Union or the Eurozone lacked a permanent firewall or a rescue mechanism for sovereigns because of the strict "no bail-out clause". When Greece officially requested financial assistance from the European Union, and as the Euro crisis spread over and escalated among periphery Eurozone member states, decision makers of the European Union had no other choice than to establish temporarily and then permanently a firewall to provide financial assistance to crisis-ridden member states and to prevent the disintegration of the Eurozone. First, two temporary financing programmes were introduced: the European Financial Stability Mechanism and the European Financial Stability Facility. These temporary measures were unable to stop contagion in the Eurozone periphery so a further and permanent firewall, namely the European Stability Mechanism (ESM) was created by melting the temporary mechanisms into one. The European Stability Mechanism is an intergovernmental organization, which operates under the ESM treaty, ratified by all Eurozone member states.

European crisis management between 2010 and 2012 heavily concentrated on **monetary and fiscal policies**. Then, responding the global financial crisis, decision makers of the European Union created a macroprudential supervisory body, the *European Systemic Risk Board*, to regularly monitor systemic risks of regional financial markets. Concepts for the Banking Union were launched at the end of 2012 and negotiations started in 2013 to introduce a microprudential supervisory body. The Banking Union is based on three pillars (Single Supervisory Mechanism, Single Resolution Mechanism and the European Deposit Insurance Scheme) and the Single Rulebook covering the stipulations for financial actors.

Reforms aiming at boosting **competitiveness and structural reforms** were neglected in the pre-crisis period. The institutional engineering during crisis management has produced two different instruments to deal with the obstacles of competitiveness and structural reforms: *Euro Plus Pact* and *provisions regarding macroeconomic imbalance under the Six-Pack*. In 2010, 24 member states adopted an intergovernmental agreement (Euro Plus Pact or Competitiveness Pact) to enhance structural reforms (improve competitiveness, employment, financial stability and fiscal stance of participating countries). In parallel, the Six-Pack introduced the Macroeconomic Imbalance Procedure in order to identify, prevent and address the emergence of adverse macroeconomic imbalances that could negatively affect economic stability in a member state, or the European Union as a whole. The following table summarises the changes in the economic governance framework of the European Union.

Table 2: Post-crisis European economic governance framework

Fields	Fiscal policy	Monetary policy	Financial supervision and regulation	Other Areas (structural policies and competitiveness)
Objectives	Sustainable and stable public finances; Permanent firewall and assistance mechanism for member states	Price stability; Supporting national economic policies; The effectiveness of monetary transmission mechanism; „preserve or save the euro"	Financial stability; Macroprudential and microprudential supervisory system; Institutionalized and predictable bank consolidation	Monitoring of macroeconomic imbalances; Fostering competitiveness; Enforcing the implementation of structural reforms
Institutions	• European Semester; • Six-Pack (fiscal provisions); • Fiscal Compact – TSCG); • Two-Pack; • European Stability Mechanism	• Non-conventional measures of the ECB; • Accommodative monetary policy; • „whatever it takes"; • De facto lender of last resort	• European Systemic Risk Board; • Banking Union o Single Supervisory Mechanism, o Single Resolution Mechanism, o European Deposit Insurance Scheme; • "Soft" financial instruments • External tool: Basel III regulations	• Six-Pack (macroeconomic imbalances); • Euro Plus Pact; • Europe 2020 Strategy

Source: Own compilation.

3.3 Analysis of pre-crisis and post-crisis risks and solutions

On the one hand, deficiencies and flaws can be identified in the entire institutional structure of the euro area, and on the other hand, some areas have intentionally been uncoordinated at Community level in the pre-crisis period. In the case of monetary policy, it is worth pointing out that the European Central Bank's mandate has been limited, providing price stability has been primordial, while the promotion of member states' general economic policies has only appeared as a secondary and a non-exercised objective. Because of the prohibition of monetary financing, the European Central Bank cannot fulfil the role of lender of last resort *de jure*, so it cannot provide active insurance against crises for member states. In addition, another problem is that EU decision-makers did not create an **exit strategy** for member states to leave the fixed exchange rate regime (this became a crucial issue during the Greek crisis). During the pre-crisis period, the credibility of Eurozone membership, measured by financial actors and credit rating agencies, led to excessive lending in the Eurozone periphery and generated deeper economic downturn as a result of the global financial crisis. **The post-crisis period can be characterized with the revival of monetary policy**, particularly the application of non-conventional monetary policy measures. Thus, the European Central Bank has become a *de facto lender of last resort*, however, it is not allowed to *de jure* undertake this role due to Treaty regulations. Finally, the transmission channel of monetary policy is still unclear, so the European Central Bank is likely to maintain zero-bound interest rates and apply non-conventional measures in the future.

The regulatory framework regarding fiscal policy has also suffered from several mistakes. Member states – with more or less success – focused on to satisfy the Maastricht criteria deficit target, instead of following the underlying objective of the Pact to reach close-to-balance budgetary position or even budgetary surplus. Moreover, the Pact was not induced strong (or at least weak) convergence among member states' fiscal policies. Even if member countries satisfied the obligatory deficit target, they had different fiscal stances, national characteristics of the fiscal policies were maintained such as: different structure of the expenditure and revenue side, social and welfare systems, tax systems, efficient taxation, etc. And thirdly, the *Stability and Growth Pact* did not stipulate strict rules on the reduction of government debt levels. The **new European economic governance framework** has initiated several alterations: firewall for sovereigns, strengthened fiscal governance (monitoring, prevention, corrections and enforcement) and excessive deficit procedure on the basis of public debt. But on the other hand, there is no fiscal union (mutualisation of public debt and deeper fiscal redistribution among member states of the Eurozone) and austerity measures have had grave negative impacts on welfare in crisis-ridden member states.

There are two further aspects of member states' public finances where flaws can be identified: the public finances and structural reforms nexus and the poisonous relationship between sovereign member states and the financial system (namely the vicious circle). In the former case, the revised version of the *Stability and Growth Pact* took into consideration the situations of structural reforms. At the same time, decision-makers of the European Union missed to initiate bold measures or efficient institutions for the promotion of structural reforms among member states, and 'soft' governance initiatives have failed to accomplish this task. Regarding the latter, in the vicious circle, the separation of sovereign debt crises and banking crises has not been institutionalized and moreover, there was no legal base (no bailout clause) for providing financial assistance to Eurozone member states and parallelly, there were no institutional elements for rescuing banks. The launch of the Economic and Monetary Union created a monetary pillar and a half-built economic pillar based on the single market for the Eurozone but the fiscal pillar (fiscal union) and/or financial pillar (financial or banking union) have not been established. The *Euro Plus Pact* and non-fiscal provisions of the Six-Pack are attempts to foster structural reforms and competitiveness of member states but these attempts are powerless to generate large-scale structural reforms and decrease the heterogeneity of the European Union as well the Eurozone. The existing elements of the Banking Union tackle the question of monitoring, supervision and regulation; however, the European Resolution Fund is not ready to deal with multiple banking crises.

Table 3: Incompleteness of European economic governance

Fields	Fiscal Policy	Monetary Policy	Financial supervision and regulation	Other fields
Pre-crisis institutional structure	• Stability and Growth Pact; • Reformed Stability and Growth Pact	• conventional policies of the European Central Bank	• There is no effective tool	• Lisbon Strategy; • „Soft" governance

			• "Soft" institutions such as Lamfalussy Process; • External tools: Basel I and Basel II	
Pre-crisis risks	• Fiscal imbalances; • Problems with public debt levels • No firewall for sovereigns	• Wrong growth models (real-estate bubble) • Inflation persistence	• Financial strains; • Vicious circle; • No firewall for banks	• Structural imbalances; • Lack of structural reforms • Competitiveness problems
New institutional structure	• European Semester; • Stability and Growth Pact's reform • Six-Pack (fiscal parts); • Fiscal Compact (Treaty on Stability, Coordination and Governance); • Two-Pack; • **European Stability Mechanism**	• non-conventional policies; • Accommodative monetary policy; • „whatever it takes"; • **De facto lender of last resort for sovereigns**	• European Systemic Risk Board; • Banking Union o Single Supervisory Mechanism o **Single Resolution Mechanism** o European Deposit Insurance Scheme*; • External tool: Basel III.	• Six Pack (supervision of macroeconomic imbalances): Macroeconomic Imbalance Procedure Excessive Imbalance Procedure • Euro Plus Pact • Europe 2020 Strategy
Remaining risks	• Fiscal imbalances • Austerity, depressed growth forecasts • Lack of fiscal redistribution mechanism • Negative welfare and distributional impacts of austerity	• The European Central Bank is not a de jure lender of last resort. • Weak monetary transmission	• Capitalization of the Single Resolution Fund is still in progress; • No European Deposit Insurance Scheme • Weak lending activity	• "Coordinated" structural imbalances; • Lack of deep structural reforms; • Heterogeneity; • Competitiveness problems

Source: Own compilation base on the financial and economic assistance programmes of the European Commission (European Commission, 2010; 2011a; 2011b; 2012a; 2012b; 2013; 2017a).

The identified risks 'enforce' two types of activity from the decision-makers of the European Union. The first one is the creation of firewall tools (risk-sharing institutions and instruments), the second one is the steps that ensure fiscal rigor and coordination and harmonization of macroeconomic policies at Community level (risk reduction rules and regulations). These activities went hand in hand in the time of crisis management.

4 Conclusion

In this paper, we have thoroughly analysed the evolution of the instruments of the European economic governance in four macroeconomic areas, monetary policy, fiscal policy, financial supervision and regulation and structural policies. The institutional framework or macroeconomic governance of the Eurozone is still evolving and becoming increasingly complex. Community level responses to the global financial crisis and the Euro crisis have eventuated in introducing a significant number of new institutional elements. Risk reduction institutions – fiscal regulations such as "Six Pack", Fiscal Compact, "Two Pack", supervision of macroeconomic imbalances, Euro Plus Pact, the macroprudential supervisory system (European Systemic Risk Board) and partially the microprudential supervision (the first pillar of the Banking Union, the Single Supervisory Mechanism) – are all aimed at reducing the probability of future crises. If crises are inevitable, risk-sharing institutions (the European Stability Mechanism, the Single Resolution Mechanism and the European Central Bank as *de facto* lender of last resort) can be used to mitigate the negative impacts of the crises and to boost rapid recovery. The future set-up of European economic governance is not yet known, the Five Presidents' Report (Juncker et al., 2015) and the Reflection Paper of the European Commission (European Commission, 2017b) contain detailed information and radical ideas on it. Thus, the research topic of 'European economic governance' is going to provide an excellent and interesting field for economics and political science scholar in the future.

Summarizing, we have displayed the transformation of the European economic governance; even though this framework has substantially been reinforced with risk-sharing and risk reduction institutions, instruments, rules and regulations, however it is still incomplete. Nevertheless, a future crisis will test this framework, and scholars will have enough information to evaluate the efficiency, resilience and depth of the new European economic governance.

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Russia and the Transforming European Security

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Motto: *When the relationship between countries becomes critically complex or turns sour, ties between these countries' top officials are very often the last resort for restoring relations, and this door must never be shut. We must serve the interests of our nations. I must never forget this either.*
The Russian President Vladimir Putin, 20 June 2019

Abstract: Since the end of the Cold War, Russia has retained world's special attention as a key vector for both global and European security. While the energetic link is undeniable the backbone for EU-Russia relations, the sanctions game prove to be a stone corner for redefining not only the course of bilateral relations but the future of European security. In view of the new realities shaped by this rough geo-political game, our article aims to bring forward some essential issues for the new coordinates of European security, while highlighting both the challenges and opportunities brought by the current international framework. Our assumptions are based not only on core strategic European documents, but also on the latest transformations induced by Russian foreign strategy and by the international sanctions imposition. Also, it is our opinion that while the bilateral dimension of EU - Russia relations is important in itself, special attention ought to be paid to more general matters concerning the current global situation and issues of the emerging new world order that took place during the last G-20 summit. The heightened interest in those topics is understandable, because EU - Russia relations are not developing in a vacuum, and the dynamics and prospects of these relations are largely contingent on the global political and economic situation as a whole. Perhaps the most relevant conclusion for the future of Russia and EU relations has been highlighted by French President Emanuel Macron who concluded that Russia is considered a deeply European country, while he personally believe in a Europe, which extends from Lisbon to Vladivostok. It is on this positive note that we can affirm that a new architecture of security and trust between Russia and the European Union is needed, while undoubtedly both France and Germany, as joint leaders of Europe, will have to play an important role in this process.

Key-Words: European security, Russia, international sanctions, geopolitical framework, multipolar world, global governance

JEL Classification: F01, F02, F42, F5, F50, F51

1 Introduction - the international economy outlook and the implications for the relations between EU and Russia

Currently, the security imperative has become a key topic on the European agenda, this fact not meaning that this common policy would have been of minor importance in the past years, but only that the new

international realities, shaped by the decisions of the great powers representatives (the US President Donald Trump and the Russian President Vladimir Putin) have redefined the future evolution of this European strategic policy.

The new global outlook is different due to the fact that we are no longer in the bipolar world created by the Cold War, but the number of important global players is increasing while their priorities are redefined, hence the current international order becomes overcrowded because of the multitude of divergent interests that act as so many centrifugal forces inside it. As some international analyses (Trenin, 2018) have pointed out there is a fragile shifting balance between the great powers interests and the need for stability and security in the European areal.

In view of the results of the G-20 Summit, held on July 2019, in Osaka, Japan, we are in our opinion very close to reaching a new consensus between the US and Russia. This meeting designed to initiate the dialogue between this two great powers was difficult to obtain on the one hand due to the suspicions that Russia interfered in the 2016 presidential elections, and on the other hand due to the imposition of international sanctions on Russia (after the annexation of Crimea). As showed by Ehret (2019), the G20 summit from Osaka, revealed the emergence of a new triad between US-Russia-China, as it was foreseen by Henry Wallace, one of the best collaborators of President Franklin Delano Roosevelt in its post-war doctrine – the Atlantic Charter[1].

Through his "Century of the Common Man" speech, in 1942, Wallace prophesied a design of a new world order ruled by US, Russia and China, and in his 1944 book, "Our Job in the Pacific," he mentioned that " it is vital to the United States, it is vital to China and it is vital to Russia that there will be peaceful and friendly relations between China and Russia, China and America and Russia and America. China and Russia Complement and supplement each other on the continent of Asia and the two together complement and supplement America's position in the Pacific." Let us also remember that in another paper also from 1944," Two People - One Friendship ", Wallace advanced the idea of joint development by the US and Russia of transport links through the Bering Strait. If at the time Wallace's vision, this cooperation could not be realized, at the G-20 meeting in Osaka, agreements between Russia and China and the US intervened, reflecting the US reorientation towards an "alliance" with the superpowers of Eurasia. This emerging new alliance is all the more important as some analysts (Ivanov, 2019) have pointed out that is not exaggerate to consider that the former pillars of the world order, Yalta and Malta agreements are now obsolete, and new basis for new alliances must be enforce. While the trade war unleashed by Trump administration can be very well considered an important new threat to global and even European security, Trump’s announcement (made during Osaka summit) that he will lift the Huawei ban on American companies, together with his promise to cancel the additional $300 billion in tariffs with China, and his cancelling the sanctions on Turkey for its purchase of Russia’s S400 defence system (which renders a big chunk of the NATO ABM shield against Russia impotent) are undoubtedly signs that a new era of reopen dialogue is not only possible, but basic criteria seems to change drastically.

Beyond the suspicions that Trump's gestures were aimed at his campaign for re-election as US president for a second term, being possible in the context of the very good evolution of the US economy, it remains valid that they indicate, taking into account his visit to the demilitarized area between North Korea and South Korea, to meet Kim Jong-Un and be the first US president to step into the territory of North Korea, that US has a new international strategy against old rivals that could be turned into possible allies.

Until now, the two global powers, the US and Russia, have been confronted on different issues and in different areas, such as Syria and the Islamic State, have continued their joint space program and have issued mutual threats regarding non-compliance with the treaties of non-proliferation of nuclear weapons. During all this time, democratic Europe was in the throes of the shooting between the two powers, stating its allegiance for the democratic principles that represent the foundation of its unity, but also inviting on a dialogue based on calm and reason.

For the traditional post-war European security, a powerful blow came precisely from Trump's NATO line, which called for increased member states' contribution to the Alliance's military operational force by 2% of GDP, while the US is claiming that can no longer bear alone the expenses necessary for European collective security. The international reactions, especially from Germany side, are well, being delivered through the voice of Chancellor Angela Merkel, who spoke equally not only for Germany, but for the entire European Union. We

[1] This triad between US, Russia and China was anticipated by the American strategy which was firmly established during the 1941-1944 presidential term of America’s President Franklin Delano Roosevelt and his loyal collaborator Henry A. Wallace who had planned a grand design for a US-Russia-China New world order founded upon principles enshrined in the Atlantic Charter and enunciated in his Wallace’s 1942 “Century of the Common Man” speech.

are at the height of new diffuse tensions between the Western partners of the Alliance regarding the future of the continent's security, even when the commitments of mutual assurance of the security of the Member States have been renewed within NATO and from the US side. At the same time, we are also witnessing an escalation of tensions between NATO and Russia, at the Eastern border of the enlarged Alliance and at the Black Sea area. Each party, NATO, USA, Russia understands to strengthen its presence in front of the other through a combination of troops and military devices, the presence of military deterrent ships, bombing over flights and military exercises on the verge of inducing real aggression. This situation that implicitly affects Romania's security, through its geographical and material exposure based on NATO membership and the Strategic Partnership with the USA, is a "dèja vu". Expanded on the European continent, the impact of security threats through the tensions between the US and Russia needs a recourse to history to be fully understood and the past will reveal that nothing seems new in the way of approaching Russia's security and its impact on European space.

2 From history to present challenges – the legacy of Peter the Great

Some analysts (Dowling, 2014; Cracraft, 1993) point out that Russia continues to address the issue of its own security through a traditionalist paradigm, the origin of which can be traced back to the famous will of Peter the Great in 1725. Indeed, if we look at the problem of Moscow's security policy, but also that of Europe from a historical perspective, we note that the approaches of the two parties have remained largely unchanged, from the year of the famous will until now. Russia's continued obsession with expanding its influence over Europe has been a confirmed by indisputable historical facts. Regarding this perennial aspiration, in the will of Peter the Great, he considered it desirable "that the Russian nation be kept constantly in a state of war, so that its soldiers are always trained and ready to fight, so that the war is useful for peace and contributes to Russia's expansion and its future well-being."

By deciphering the instructions of Peter the Great through an historical key we find an explanation for the cynical approach of the Czarist Empire and, subsequently, that of USSR in the field of foreign policy relations. It can be said that through its natural resources and through its educated human resource Russia has sought to obtain all possible advantages from the other European nations without giving anything in return. Since the end of the 19th century, Russia has been present in all European disputes, interfering in the external problems of all the neighbouring states, including by providing financial support, provoking and maintaining revolts and divisions, applying the old principle known since the Roman Empire era: "divide and impera"[2]. Thus the conquests of Russia targeted territories from Western Europe to the Atlantic, from Southwestern Europe to the Black Sea extending its influence with an impressive number of countries, enmeshing them, and creating new alliances that, however, will prove both fragile and volatile. During the twentieth century, Russia has consistently pursued this strategy in terms of its external interests, and the greatest success in expanding its global influence has undoubtedly been registered at the end of World War II, when this state has obtained a place at the winners table.

A series of historical events (beginning of the Second World War and USSR participation in it, the alliance with US and UK against Germany, in violation of the Ribbentrop-Molotov treaty by which Russia contributed to the dismemberment of Poland -after having participated in the seventeenth century in other three divisions of this European state- the re-annexation, at the end of the war, of the Baltic countries, the occupation of Poland, Romania, Bulgaria, Hungary, Czechoslovakia, Austria and part of Germany, followed by the establishment of totalitarian communist regimes, obedient countries from Moscow, in the occupied countries the outbreak of the Cold War) confirms that the height of Russia's power was the most dangerous factor for the security of democratic Europe.

It should be noted that by spreading the communist ideology and its totalitarian economic model in Southeast Asia (China, North Korea and North Vietnam) and in the vicinity of the United States (Cuba), the USSR has far exceeded the geographical boundaries indicated in the testament of Peter the Great. However, the tensions during the Cold War did not lead to an open military conflict due to the moderate attitude of the two world leaders at that time Ronald Reagan, US President, and Mihail Gorbachev, USSR President. By their wise actions, these two leaders managed to stop the war for world domination (imperia mondo) predicted by Peter the Great centuries ago and to pave the way for negotiations and cooperation in the years to come. However, after the collapse of the USSR, due to the permanent expansion of the EU and NATO with former Soviet states, Russia

[2] Divide and conquer (Latin language).

again felt challenged in terms of its external security, being pushed by these events into a new logic of War type in order to ensure the security of its borders with the West. Thus, although the Cold War had ended with the dissolution of the USSR, Russia continued to express the same historical fears regarding its external security, maintaining a hostile attitude towards the West at the population level, resuming the arms race and eventually becoming an autarchic and centralized political power. Basically, the hostility of the population towards the West and its values has been maintained and permanently fuelled by the Kremlin authorities while the sanctions that Russia is currently facing have proved perfect for sustaining this anti-Western propaganda at the population level. Basically, the anti-West resentments have been and are successfully used by the Moscow authorities as an antidote to all internal problems, in order to distract the population from economic problems, but also to justify the new form of autocracy established after the 1990s (Vladimir Putin's regime) which only mimics democracy, respect for human rights, the rules of the market economy and international law.

3 New challenges for the EU and Russia and the consequences for the bilateral relation

When considering the current status-quo between EU and Russia the complete lack of trust in the bilateral relationship is the most serious security issue. While not so long ago, Russia strove to become part of a Greater Europe, while EU was willing to share everything with Russia except its institutions, now the foundation of bilateral relations has been totally dismantled. Europe's security is difficult to maintain if we take into account the fact that the EU is facing the challenge of being turned apart between US and Russian interests, especially with regard to its Eastern border. As some analyses (Glasser, 2018) have pointed out the impact of US President's decisions on European security is considerable. Presently NATO support for the EU it depends decisively on Trump's vision on common security for EU and US. This is a challenge in itself for Europe all the way more since Trump criticized Germany's reluctance to increase military spending in order to contribute to NATO strengthening. President Trump's criticisms has been fuelled by the fact that the current German Chancellor, Angela Merkel is bound to respect the Russian interests, as she wants to complete the much-discussed Nord Stream 2 energy project. In his statement, President Trump directly stated: "What could be good for NATO, if Germany pays Russia billions of dollars for gas? The US pays for the security of Europe, but losing billions of its trade. Germany must pay 2% of GDP for military purposes now and not in 2025". President Trump's straightforward approach seems opposed to a "patience strategy," as the one adopted by Angela Merkel who was advised to adopt the negotiations as main tool in its dialogue with the US. Some advisers to the US president have intervened to tone down his statements, showing that while President Trump may be unpredictable and tough, he is "even tougher with its friends and she (Mrs. Merkel) is among them. President Trump sees Germany as a prosperous country that should do more for military spending" and implicitly for NATO's collective security. In fact, another US official, Benjamin Rhodes, a former security adviser for President Obama, recalls that at the last dinner he had with Angela Merkel near the end of President Obama's term, he warned the German chancellor that "Trump's presidency will be like a storm ", a prediction that came true, taking European leaders by surprise, especially with regard to the issue of external security. Undoubtedly, in the future, Germany has a key role to play in the security of Europe but, in the view of the German Chancellor, Angela Merkel, the fate of Europe's security lies, above all, in the hands of all Member States: "The days when we could base unconditionally on other allied countries (such as US) no longer exists ", and this means that there is still a need for a major European leader to keep Europe united in the face of Russia's adversity, but also of China's expansion through its global Road and Belt Initiative (RBI) project .

Currently, the main threat to European security concerns Russia's adversity, but it is necessary to mention that Russia's aggressive attitude was determined by the fact that NATO keep expanding very close to its borders along with the continuously enlargement of the Eastern Partnership, to which Russia was not invited to join, both those phenomena being perceived by Moscow as aggressive moves in the "strategic chess game on foreign policy" played with EU (Engdahl, 2010). It should be noted that regarding the future of NATO-Russia relations, President Trump's approach, as evidenced by his statement given at the celebration of NATO's 70th anniversary, is a relatively optimistic one: "I hope that it's not going to be a security threat. I hope we have a good relationship with Russia, and with, by the way, China and everyone else. The fact that we have NATO, and NATO is a lot stronger since I was elected President. But I think we will get along with Russia. I do believe that". However, nowadays, more than ever, after the fall of the Berlin Wall, the security not only of Europe but of the whole world, is faced with multiple challenges (restructuring of economic powers and the impact of this process on the

balance of forces worldwide, climate change, digitization and artificial intelligence, terrorism, the arms race). As a result of all these realities, there is a need for increased cooperation between the great powers, and this is expected to happen as soon as possible. Currently, Russia's relations with Europe are a reason for division between Member States. The main criticism is related to Germany's hegemony over the continent and the consequences for the EU's relations with Russia. The disputes with the German Chancellor, Angela Merkel, are related to facilitating Russia's advance to central Europe through the Nord Stream 2 project, fervently supported by German interests. Nord Stream project is criticized for creating an energy dependence on Russia for the EU, but also because it would bring new funds to Russia's budget as a result of large and continuous energy sales to European countries with stable and prosperous economies.Critics of the Nord Stream 2 project are also showing that its realization would actually pose a threat to Europe's security as it would provide increased financial resources to Russia, making it easier for this state to make new military expenditures. In fact, at EU level, there is a suspicion that Russia exerts unwanted interference with European security also using subversive means, in particular through a constant manipulation in mass-media and within social networks. These manipulations and the propaganda maintained are aimed at supporting radical and Eurosceptic forces while being duplicated by other criminal actions such as: cyber-attacks, money laundering, and revenge against Russia's own spies. Of course, all these actions are denied by Russia and are hard to prove, but their consequences are quite visible, contributing to the stimulation of centrifugal forces that may lead to the dissolution of the European integration project, including major investment projects targeting open governments opposed to a new enlargement of the EU (such as in Hungary).Some analysis (Karaganov, Suslov 2018) are showing that although Russia has a key part to play in the New World Order, its main force of influence will be at geo-political level, not economic. Russia's geo-political approach aims to maintain the balance of military forces, but also to preserve its own territorial security challenged by the neighbourhood of Western ideologies and economic models, and that of post-communist regimes that aspire to become strong democracies and powerful economies. No doubt that the challenges faced by Russia in its efforts to maintain its status as an economic power are quite great and this is why, in our opinion, it is necessary that is better that Russia be treated as a legitimate global power. Otherwise, by emphasizing Russia's structural weaknesses a vicious domino effect in its proximity could be created, especially at the Eastern border of the EU, with unpredictable consequences for Europe future security.Considering all the arguments set out above in our analysis, we consider that there are some key issues that could contribute to strengthening European security from the perspective of relations with Russia (see Figure 1).

Figure 1: Three pillars for boosting European security

Source: Authors, based on studied literature.

In our opinion, the future of relations with Russia, viewed from the perspective of the other global powers, the US, EU and China, must be approached with pragmatism and not with the naivety that characterized the period that followed immediately after the fall of the Berlin Wall and that of the Iron Curtain. If in the 1990s the dream of establishing global peace still seemed possible, by Russia's accession to democratic and Western values, with the accession of the nationalist regimes of Vladimir Putin and Dmitry Medvedev to power, this dream proved to be only a utopia. Initially, both former US President George W. Bush and British Prime Minister Tony Blair believed that they could work with Russian President Vladimir Putin, but as his power strengthened,

during his successive mandates, the Western leaders came to realize that they are facing an aggressive leader, determined to implement in his international negotiations strategies enforced during the Cold War.

The dialogue with Russia was becoming increasingly difficult due to a resurrection of nationalism, practiced by Vladimir Putin's regime, a policy which was facilitated, according to Nina Khrushcheva, the exponent of the New Russian School of thought, by the "double standard" promoted by the West in the matter of territorial divisions. Thus, as much as they upheld Kosovo's right to independence (after the breakup of the former Yugoslavia and the ensuing bloody war), so did the Western leaders radically pronounced against Crimea's annexation. As a consequence of this apparent antagonism in the West's vision concerning the conflicts that are about to erupt at any point in the Eastern Europe and in the Balkans area, driven by the ethnic multitude and by the complicated history of those territories, the historian Robert Skidelsky shows that NATO's expansion toward Central Europe and ex-Soviet Baltic countries could be considered a main cause for the restoration of an authoritarian and anti-liberal regime in Russia.

Consequently, by asserting its absolute sovereignty, today Russia wants to contribute to the solution of global problems, but only if it obtains a special place in world domination. Related to this indisputable tendency political scientist Vladislav Surkov, in an article published in the Nezavisimaia Gazeta entitled "Why Putin's State Will Last After It", mentioned that Russia has become a new type of state, "Putin's State", the fourth of the three major models of governance known in the history of this country: the Great Kingdom of Ivan the Thirrd, the Empire of Peter the Great and the Soviet state. Russia may want to repeat the model of France today - the fifth Republic of De Gaulle, or that of Turkey - the state of Ataturk or that of the United States - the creation of the "founding fathers" (Vlad, 2019). In other words, Russia, like China, is moving towards an exportable societal model, and through it, Russia believes that it will be able to meet its internal and external challenges, while actively promoting its interests at a global scale.

As we will show in our analysis, regarding the "new geo-political game" practiced by Russia, a very hot topic is the problem of the EU at its Eastern border. This "Achilles heel" in the issue of European security is burdening the EU-Russia relationship, and in order to eliminate this obstacle Vaclav Havel, mentioned since 1991, that the tension between Russia and Europe will diminish significantly when both sides calmly agree "where one is finishing and where the other begins". According to other analysts, such as Russian political scientist Dmitri Trenin, in order to achieve sustainable cooperation with Russia, the West must accept this state as such, with its different political model and not try to brutally impose its values on this state, but rather attract Russia to the negotiating table with the promise of future economic prosperity because "the West should be more afraid of Russia's weaknesses than of its imperial design". Therefore, there is a general consensus that Russia's economic structural weaknesses should not be allowed to deepen. Otherwise, an antagonized and isolated Russia, with a collapsed economy, would become aggressive, thus pushing the whole world into a vicious circle in terms of international security.

4 Russia's come back in the global geo-political game

The need to cooperate with Russia must start from recent positive examples of international cooperation, because, as a result of sanctions, Russia is seeking to create new alliances (see its rapprochement with China) and reduce its dependence on oil exports who are highly affected by the US dollar fluctuations. Because oil export are providing an important source of revenue for the federal budget (see Table 1), the Russian authorities are aware that this is a vulnerability and are currently striving to diversify the economy.

Table 1: Budget system parameters for Russian federal budget (% of GDP)

	2017	2018	2019 (estimations)
Revenue	16.4	18.7	19.1
Oil and gas revenue	6.5	8.7	8.7
Additional oil and gas revenue	0.9	4.1	4.0
Non-oil and gas revenue	9.9	10.0	10.4
Spending	17.8	16.1	16
Balance	-1.4	2.6	3.1

Source: Authors based on data from the Central Bank of the Russian Federation.

Regarding the need to reduce the dependence of Russian economic growth on oil exports, the current Russian Foreign Minister, Sergei Lavrov, declared that Russia has drawn the necessary conclusions and does everything possible not to depend anymore on those countries that act in such a manner towards their international partners (with repeated sanctions), also underlying that a further prolongation of sanctions has the potential to create a great risk for the global stability. It should be mentioned that this idea has already been stated by some international analysts (Schoettli, 2018) and is also available for another major factor of geo-political destabilization - the US-China trade war.

According to a recent statements by Russian President Vladimir Putin, Russia is interested and may be involved in a process of rebooting the international cooperation, including by initiating dialogue with other major economic powers, provided that Russia's role and position as global power not being underestimated (as it happened in the case of cooperation with the US for the elimination of chemical weapons from Syria). However, there are opinions, such as the one expressed by Carl Bildt, former prime minister of Sweden, an international leader who is undoubtedly marked by the history of his own country relations with imperial Russia, which shows that Russia will always be ready to use all the necessary weapons to regain her former glory (Bildt, 2017). This opinion contradicts the ideas expressed by other international analysts (Skidelsky, 2003; Khrushcheva, Tayler, 2019) who see in Vladimir Putin a cautious leader who would hesitate to make decisions that can exacerbate global conflicts.

At the same time, Carl Bildt believes that the approach of both NATO and the EU regarding the continued expansion with new members was wrong, through this policy being jeopardised the European security as a result of increasing Russia's fears about losing its influence former soviet countries. In our opinion, Russia could abandon the restoration of its imperial ambitions, only if the West, even by continuing NATO and EU enlargement policy, would support the independence of the new military and economic allies, instead of trying to transform the former Soviet states into satellite states for the West. Undoubtedly it will also be in Russia's best interest to support the independence and the economies of the former Allied states. Such a policy from Russia would contribute to a better cooperation with these neighbouring states, thus obtaining important resources that could support the consolidation of Russia's own economic development.

A key issue for the global geopolitics remains how Russia can reopen the dialogue and cooperation with Western states, especially in the context of the current international sanctions imposed after the Crimea annexation. A further restoration of trust between Russia and the West would be all the more desirable since both sides are responsible for the current blockade of Russia's relations with the West. On the one hand, Russia was provoked by the continued expansion of NATO to the East, on the other hand Russia provoked the international community by annexing Crimea. Some authors (Pace, 2014) are underlying that Crimea's annexation was some sort of test from Russia's part, a test meant to see how the international community would react to a further expansion in the former areas of influence from the Soviet period.

Some analysts, such as Robert Gates, the CIA director in the 1990s, have admitted that the West and especially the US have underestimated, for various reasons, the effects of the humiliations suffered by Russia as a consequence of his defeat in the Cold War. Other analysts (Skidelsky, 2003) are showing that the liberal and pro-Western political forces in Russia could offer a better guarantee against Russia's "aggressive foreign actions" than the existence of NATO troops in Vilnius, Ukraine. In another context, at the NATO summit in Bucharest, Jaap de Hoop Scheffer's former General Secretary of NATO, has stated that Ukraine could become a member of the Alliance, a declaration that has been received with great concern by the Russia's leader Vladimir Putin. Such assertions as well as the lessons offered to Russia by Western leaders on how to behave in the international arena after the Cold War, have inevitably led to Russia's long-term resentment and bitterness. Through all its actions the West demonstrated that any concession of Russia was immediately replaced by a form of expansion of Western power, leading the Russian authorities to the conclusion that it was a big mistake to accept the dissolution of the USSR and the loss of the buffer offered by the ex-Soviets.

Despite all these historical mistakes made by both sides, we believe that there are currently favourable premises for a geopolitical repositioning of Russia, and this could have beneficial effects on European security as well. Both Russia and the West are calling for an international rule-based order (but it must be remembered that the West created a dangerous precedents by violating the UN Charter when NATO bombed Belgrade in 1999 and separated Kosovo from Serbia). The thesis promoted by Russia regarding the necessity of a multipolar world offers a chance to improve international relations as long as the US remains a global power, and China aspires to this status.

As a result, in an ever-changing world faced with multiple challenges for global security, it is important to restore mutual trust and dialogue between Russia and the West based on existing common interests: a relaxation of Russia's economic sanctions against new nuclear and chemical weapons arrangements, followed by a solution for Syria that would decide favourably on the fate of millions of refugees whose continued migration has created great tension in the EU. Skidelsky (2018) is of the opinion that pragmatic relations can be successfully resumed between the two parties provided that the West addresses Russia's concerns more closely hence setting a reconfiguration of global powers in the new international order that is about to emerge.

Currently the relations between Russia and the EU are characterized by a certain vulnerability of the latter, especially in the context of the Brexit emergency but also due to the imminent recession that could start even from Germany, a country that was traditionally considered the one of the main drivers of economic growth in Europe. Unfortunately, the EU situation is currently characterized by a number of divergences between Member States on key issues: migration, Brexit, sanctions against Russia. As a result of these dissensions, Russia can become involved in the problems of the Union by taking advantage of the misunderstandings between the Member States. The Brexit negotiation has created further difficulties in reaching a consensus on EU reform, which has created hopes for Russia that sanctions against it will relax. Trump's election in the US as president was also viewed as an opening to better relations between the US and Russia. But, nevertheless, Russia's relations with both the EU and the US remain marked by dissensions, not only because of sanctions, but also as a result of Russia's ongoing attempts to increase its influence in the former Soviet states. Russia has strengthened military cooperation with many of the neighbouring states, former members of the USSR, and has also sought to reinvigorate initiatives and processes of economic integration in the former Soviet space. Such initiatives as the Eurasian Economic Union and the Organization of the Collective Security Treaty have the potential to interfere with the objectives of the Eastern Partnership initiated and supported by the EU. Currently Russia is trying to improve her position in the international arena by securing its economy against a low crude oil price, using long-term contractual agreements, usually for a minimum period of five years with other oil producing states. Also, a successful policy was represented by Russia's informal affiliation with OPEC's (2016) policy of limiting oil production in order to support the price increase for this energy raw material.

As for the future of Russian-US relations, we can say that the closure of Special Counsel Robert Mueller investigation (which ended neither with incrimination nor with the accusation of Trump’s collusion with Russia) has created the conditions for Russia and the US to start a dialogue on an equal basis, according to their status as great powers. Such a dialogue could lead to a true new start of relations between the two countries, which would also have a major impact on European security (according to an opinion expressed by Nikolas K. Gvosdev, a specialist in Russian-American international relations and professor of national security studies at US Naval War College). Such a reset was predicted by the meeting of Russian Foreign Minister Sergey Lavrov with US Secretary of State Mike Pompeo (Sochi, May 2019). This meeting, although it did not result into an agreement on sanctions or other crucial issues for world security, was still a good signal for the future of the dialogue between Russia and US.

It should be noted that the Russian Foreign Minister received also Mohammad Javad Zarif, the Iranian Foreign Minister, even before receiving the US official. At is turn Vladimir Putin also welcomed Mike Pompeo to Sochi, but only after meeting with Chinese Foreign Minister Wank Yi and after his visit to Astrakhan to participate in testing new advanced weapons systems. Russia's message to Mike Pompeo and, consequently, to the US is more than explicit. Russia has been and remains a great military power that must be held at the table of the negotiation for world security. It is obvious that Russia, in its desire to be treated as a global power, is not intimidated by US threats, transmitting the message that it treats the USA and China equally and that the time for a single world power, as in the post-WWII unipolar world dominated by USA, has come to an end. As a result, Russia continues to engage in "hot spots" of global security such as the Middle East, Ukraine, or more recently, Venezuela. Russia's preference is to start negotiations with the US to establish that each of the two powers share their responsibilities in such a way that "everyone stays in their own sphere of influence", an approach which is difficult to accept by the US in the case of Venezuela and Ukraine respectively.

However, history has shown how dangerous and costly is the perpetual competition between two great powers and how bad are the consequences of dividing the world through an “Iron Curtain”. The consequences were both negative for the West and for Russia. Nonetheless Putin's meetings with Iranian President Hassan Rouhani and Turkish President Recep Erdogan, on the theme of ending the war in Syria (Sochi, 2015), are a strong signal that Russia has not given up on the Cold War logic, that it is seeking to bring new allies to his camp and that, as a consequence, history can be repeated. In fact, some international analysts have categorized the

summit of the three as "a new Yalta without Americans." The President of the Duma, Sergey Naryshkin, referred to the 1945 meeting of the "Big Three" as an example of solving the international problems that haunted the world. According to the opinions of Peter B. Doran and Donald N. Jensen, both analysts at the Center for European Policy Analysis (see "Putin's Strategy of Chaos"), the Sochi summit has been described as an "axis of order", possible even without the USA. Russia believes that the international system is treating it unfairly, although it has benefited from the existing international order. The most recent example was the East-West cooperation for Russia's stabilization after the collapse of the USSR. Russia also believes that the pillars of post-1990 international order - human rights, democratic norms and the rule of law - are pretexts for interference in its internal affairs. In fact, Russia is afraid of these "pillars" that can de-legitimize "putinism" as a nationalist autarchic regime, meant to endure for many years from now on. In this context, it is worth mentioning that Mihail Gorbachev has accused the USA, since 2017, of drawing Russia into a new Cold War, although the antagonism between the two countries was not as great as it is today. Gorbachev declared for Bild newspaper that "we must recognize that all the characteristics of time are those of the cold war that has already settled." Vladislav Inozemtsev, in his short article "Russia's Cold War Habit" (May, 2017) reminded us that Russia's adversity against the West began a century before the Cold War, when coming out victorious from the Napoleonic wars was, but, at the same time, remaining the most conservative but also most reactionary force from Europe.

Under Tsar Alexander I, Nicholas I and Nicholas II, Russia opposed any renewal and paid a high price as a result of the outbreak of the communist revolution whose consequences affected Eastern Europe for half a century.

It is beyond any doubt that Russia's relations with Europe have been and remain complicated, unless a formulation of cooperation or a satisfactory compromise has been found to alleviate suspicions on both sides. According to recent analyses by BESA (Begin-Sadat Center for Strategic Studies), a possible solution would be an economic space from Lisbon to Vladivostok, characterized by a unified economy, political understanding and possibly even deep military cooperation. In fact, both Russian and European analysts have launched the hypothesis of creating the "Greater Eurasia" project, which is considered an attractive solution even for politicians. Regarding the project "Greater Eurasia", Angela Merkel expressed the hope that "Russia will be able to intensify the development of relations with the European Economic Area and, finally, to result in a Common Economic Space from Lisbon to Vladivostok". The Russian business community and even Putin argued that "for the future, we could even consider a free trade area or even more advanced forms of economic integration (between the two geographical points) given the fact that such forms of cooperation would result in a continental market of billions of euros" (The End of Europe from Lisbon to Vladivostok", BESA, March 2019). Of course, that the realization of this project would mean giving up sanctions and relaunching the dialogue and cooperation, and this is difficult to achieve in the conditions of inflexibility and suspicion existing between both parties. However, the reopening of the cooperation would be desirable, given that both Russia and the EU need each other both from an economic perspective and for security reasons. Europe is dependent on the gas and oil exported by Russia, while Russia cannot afford to give up a market of 512 million consumers without major economic costs.

5 Conclusions

In view of all of the above, we can conclude that, taking into account the different views of the Member States on the issue of security, but also the need to continue the NATO role as guarantor of European security, the EU must nevertheless think about its own defence strategy, with the development of its own military capabilities. European security cannot be dissociated from global security, and conflict avoidance becomes absolutely necessary in order to achieve the New World Order. Based on the theory of concentric circles, European security depends first of all on Russia's attitude to this concept, whether it remains anchored in the tsarist tradition or whether it will think of a new type of security in light of current global transformations.

History shows that in the case of Russia a traditional inertia in approaching its own security remains unchanged over the centuries, whether if we talk about USSR or about present Russia. The ideologies and political models that have dominated Russia throughout history have emerged directly from tsarism: totalitarianism and the refusal to reform, while maintaining the perception of country's own isolation: Russia versus world. The USSR appeared on this background, following a violent revolution but brought no fundamental changes except through the new measures imposed by totalitarianism. The USSR disappeared for the same reasons: isolation and inability to adapt to new global realities.

That said, in our opinion the tensions between the EU and Russia are manifested against the background of the EU being stuck in endless debates while being unable to reach an agreement on the right solutions. In particular, there are disagreements between the Member States regarding the initiatives proposed by the Franco-German alliance regarding the future of European integration, but also with regard to some initiatives (for example the Banking Union) aimed at helping to strengthen the EU to become more united, stronger and democratic. Moreover, the security risks of the EU are enhanced by the risk of a possible new economic crisis, while the institutional reforms aimed at ensuring better prevention and resilience to external shocks are blocked by prolonged debates that are unable to provide effective long-term solutions.

The internal divergences of the EU motivate Russia to contribute to their amplification through the tools of propaganda, misinformation and direct political involvement in some Member States. It is a wrong approach, in our opinion, which will not benefit Russia in the long run. A divided and unpredictable EU is also a risk factor for Russia's borders. At the same time, taking into account the majority of analysed in the field, but also the history lessons, it is clear that European security cannot be ensured by isolating Russia, but by recognizing its high-power status.

According to many geopolitical views, Russia must be taken "as it is", by recognizing its formal imperial tradition of conqueror state, which means that its aggressive impulses must be tempered by to the international community, but without humiliating it or denying its status of great power. Antagonizing a state to the point where it has nothing to lose can be extremely dangerous for the global stability, as the case of Germany has shown. In this country, marked by the historical pride of a former empire and great power, Nazism erupted and led to the cataclysm of World War II as a consequence of the first world war economic catastrophe to which the punishment measures imposed by the allies to the defeated Germany made a very important contribution.
Perhaps a new approach to relations with Russia needs to start from clarifying the extent to which the "conflicting parties" are really and truly irreconcilable enemies. It seems that Donald Trump and Vladimir Putin are both inclined to eliminate such a perception, but there are still important issues that need to be discussed and renegotiated between the two great powers.

The sanctions imposed on Russia seem to count less and less from a political point of view, but it should be kept in mind that renouncing at them would be beneficial for both the EU's and Russia's economy. Putin's Russia and post-Putin's Russia must be convinced that a balance between its military and economic power gives more credibility to its own nationalism, first of all by ensuring a better standard of living for the population. From the Cuban crisis, the West has to learn that Russia can benefit from the idea that she is a permanent danger to the US and its allies. Such an approach will exaggerate Russia's importance in the international arena being overestimated the risk represented by this state for world security. We believe that what matters the most for a fruitful approach of European and Russian security is that all the great powers, US and China included, should optimally combine their resources for cooperation and growth and not use them as threats or deterrent tools.

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A New Paradigm regarding the Real Convergence of Romania to the EU

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Abstract: Our research paper is part of the larger-scale study regarding the readiness assessment of Romania and other five Central and Eastern European countries (CEE-6) for accession to the Eurozone in terms of the real convergence. We extended the analysis of the real economic convergence to the area of social convergence. The purpose of the extended analysis is to compare the living standards in Romania, CEE-6 and other European Union member states (EU-28) and to draw conclusions on the social convergence as a complement to real economic convergence. Using an analytical tool, the Social Progress Index 2018, at different levels of disaggregation, the work reveals the dynamics of social progress and also the gaps between Romania, CEE-6 and the EU, while identifying strengths, and weaknesses to achieve social progress on the road to real convergence with the EU. The outcomes could provide valuable inputs to the decision-makers highlighting some milestones to remove weaknesses and to turn threats into opportunities in the future social and economic policies of Romania.

Key-Words: economic and social indicators, welfare, country studies, comparative studies, Romania, Central and Eastern European countries, European Union

JEL Classification: I310, O52, O570

1 Introduction

Our research paper is part of the larger-scale study regarding the readiness assessment for accession of Romania and other five Central and Eastern European countries (CEE-6) to the Eurozone in terms of the real convergence (Câmpeanu et al., 2015). Now, we extended the analysis of the real economic convergence to the area of social convergence, according to a new international paradigm.

After ten years of global debates at the beginning of the 21st century in the international literature, revealing more and more objections regarding the use the GDP / capita as a measure of the living standards and progress of nations (Constanza, R et al., 2009, Porter, M., 2014, Stiglitz,J, 2019), the paradigm was changed: GDP is not considered anymore a sufficient measure of wellbeing, as it focuses only on material wellbeing rather than on the citizens' quality of life (International Commission on the Measurement of Economic Performance and Social Progress).

"What we measure, affects what we do, and if we measure the wrong thing, we will do the wrong thing. If we focus only on material wellbeing – on, say, the production of goods, rather than on health, education, and the environment – we become distorted in the same way that these measures are distorted; we become more materialistic". *(*Stiglitz, J., 2019)

The new vision on the economic and social progress of the nations has led to the creation of many global composite indices. Some indices include economic development and the well-being of nations, others refer only to the social progress, without the economic component as it has been shown that there are high developed countries with lower social progress than other countries with average level of economic development and better social progress. A relevant example is USA, the biggest economic power in the world, which ranks 25th in the world rankings of social progress, being surpassed by France (16th place) or Slovenia (22th); or, the example of some Central and Eastern European countries, as Czech R, or Estonia which registered high scores of social progress, close to that of the most developed Western countries (Social Progress Index 2018).

Given the change of the paradigm in the 21st century, our work performs a qualitative analysis of wellbeing in the EU-28, based on the global composite index –Social Progress Index. The purpose of our analysis is a) to estimate the efficiency with which Romania's economic success, materialized in accelerated economic growth in the last 5 years, has been transformed into social progress, in qualitative terms; b) to compare the standard of living, in terms of quality, in Romania and other five Central and East European that are not member of Eurozone with the levels of EU-28 and c) to draw conclusions on social convergence, as a complement of real economic convergence. In this way, we try to balance the significance of GDP (with its variants) in the analysis of real convergence with those components that reflect sustainable prosperity for all.

In this article we present the main outcomes of the analysis, related to the dynamics of social progress and its qualitative aspects, highlighting the strengths and weaknesses which could provide the decision-makers some milestones for the future social and economic policies.

2 Methodology

To compare the social progress achieved by CEE-6 non-members Eurozone: Romania, Bulgaria, Czech Republic, Croatia, Poland and Hungary with the minimum and maximum levels in the EU-28, we have chosen as a working tool the "Social Progress Index" (2018, 2015), a global composite index developed by Social Progress Imperative, USA and coordinated by the well-known Professor Michael Porter. The authors of the Social Progress Index (SPI) consider this new composite index as a tool to "*assess the efficiency with which the economic success of a country shall be converted into social progress and vice versa*" (Social Progress Imperative, 2015). "Social progress is the capacity of a society to meet the basic human needs of its citizens establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential." [Social Progress Index Methodology Summary, 2018] We analysed SPI 2018 at the aggregate and disaggregate levels, computed for 146 countries on 3 dimensions of 4 components each, and composed of 51 indicators: from nutrition and basic medical care to access to basic knowledge, IT, electricity, home or personal safety to the degree of assurance of personal and civil liberties.
The components, dimensions, and overall Social Progress Index scores are scaled from 0 to 100, which allow the interpretation of absolute performances of a country and comparative analysis between countries. (Social Progress Index Methodology Summary, 2018).

In this article we present synthetically the outcomes of our analysis, according to the following structure:

- *Dynamics of social progress (2014-2018)* achieved by Romania, Bulgaria, Czech Republic, Croatia, Poland and Hungary - non-members of the Euro Zone (CEE-6), compared to the minimum and maximum levels in the EU-28 (SPI does not calculate the average score for the EU 28). Analysis tool: SPI 2015 and SPI 2018 scores at aggregate level.
- *Qualitative performance analysis on the three dimensions of social progress in CEE-6 and the EU.* Analysis tool: SPI 2015, SPI 2018 scores disaggregated on *Basic Human Needs;* Foundations of Wellbeing, and Opportunity.
- *The evaluation of the efficiency with which the accelerated economic growth in the last 5 years has been transformed into social progress,* for the real convergence of Romania with the EU. Identification of specific aspects - strengths and weaknesses, on each dimension and components. Analysis tool: SWOT analysis, SPI 2015, SPI 2018.

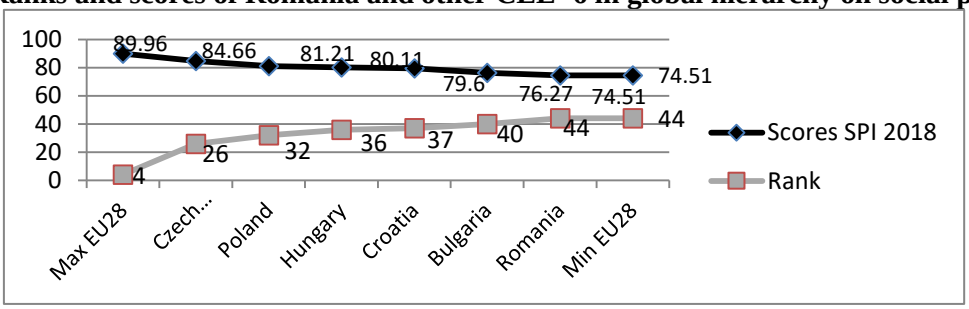
3 The outcomes

3.1 The dynamics of social progress in Romania within the global and European framework

Social Progress Index 2018 reveals big differences between 146 countries in their overall social performance, with scores between maximum 90.26 out of 100 (Norway) and minimum 26.01 (Central African Republic).

The first 14 countries with the highest scores include 11 European countries out of which 8 are EU member states. *The European Union* does not appear as a group in the hierarchy of the 146 countries covered by the SPI 2018, but only each of the 28 Member States. The highest social progress in the EU-28 was recorded by Denmark, which ranks 4th in the world hierarchy, with a score of 89.96.

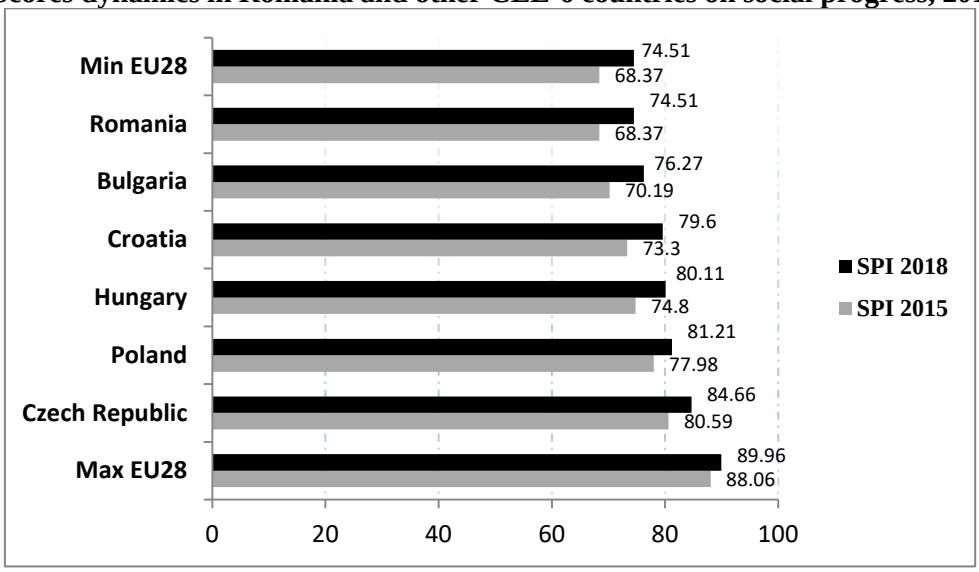
Fig.1: Ranks and scores of Romania and other CEE- 6 in global hierarchy on social progress



Source: Author's representation, 2019 based on SPI 2018

Three Central and Eastern European countries (Czech R, Poland and Hungary) have SPI scores above 80, and the other three CEE countries, including Romania have scores below 80 (Fig.1).

Fig.2: Scores dynamics in Romania and other CEE-6 countries on social progress, 2014-2018



Source: Author's representation, 2019, based on SPI Report 2015, SPI Report 2018

Romania won 7 positions compared to 2014, occupying 44th place in the global hierarchy (51st place in 2014). We should mention that while Romania won 7 positions, Czech R. lost 3 positions compared to 2014, when it ranked 23rd in the world hierarchy. Romania and all other CEE-6 countries recorded improved performances in 2018 compared to 2014 in terms of SPI's own scores (Fig.2).

The dynamic analysis of scores reveals the diminishing of the scoring differential between each of CEE-6 and the European Union (maximum level). The tendency to reduce the differential against the EU in 2018 compared to 2014, confirms the tendency of social convergence between Romania and other CEE-6 with the EU. The largest differential reduction was recorded by Romania (4.24 points) and Croatia, and the smallest differential reduction by Poland (1.33 points) (Table 1).

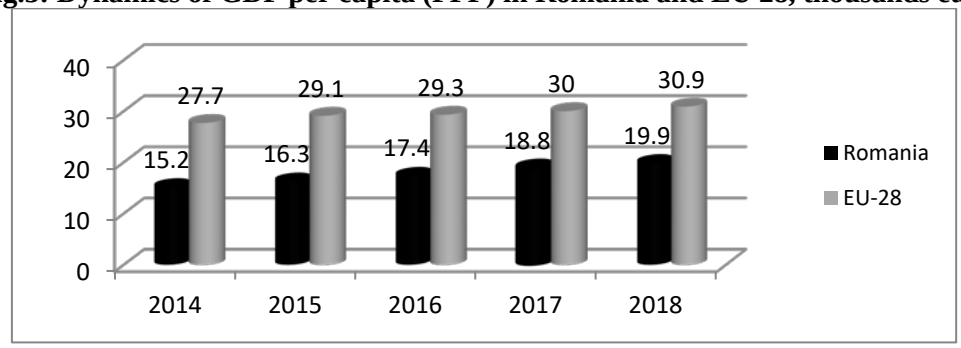
Table 1: Social progress differentials compared to maximum scores in the EU-28

Country	2018 Scores Differential/ max EU points	2014 Scores Differential/ max EU points	2018-2014 points
Romania	15.45	19.69	-4.24
Bulgaria	13.69	17.87	-4.18
Croatia	10.36	14.76	-4.4
Hungary	9.85	13.26	-3.41
Poland	8.75	10.08	-1.33
Czech R.	5.3	7.47	-2.17

Source: Computed by author based SPI 2018, SPI 2015

In Romania, the obvious trend of social convergence was doubled by the accelerated dynamics of real GDP in 2014-2018 (maximum 7% in 2017) and of GDP per capita (PPP) in similar proportions.

Fig.3: Dynamics of GDP per capita (PPP) in Romania and EU 28, thousands euro



Source: Author's representation based on Eurostat 2019

The continuous growth of GDP per capita between 2014-2018 (Fig.3) was the basis for improving the social progress in Romania, both in terms of score and place in the global hierarchy. Compared to the EU-28 average, GDP per capita in Romania (PPP) increased by about 10 p.p.in just 5 years, from 54.9% in 2014 to 64.4% in 2018 (based on Eurostat, 2019).

3.2 Social Progress Index disaggregated on dimensions and components

SPI 2018 has three dimensions: Basic human needs, Foundations of Wellbeing, and Opportunity. The comparative analysis of the scores by dimensions reveals the best performance on the Basic human dimension in all analysed countries and the smallest differences between them. The lowest scores for all were registered on the Opportunity dimension (Table 2).

Table 2: Social Progress Index 2018 disaggregated on dimensions

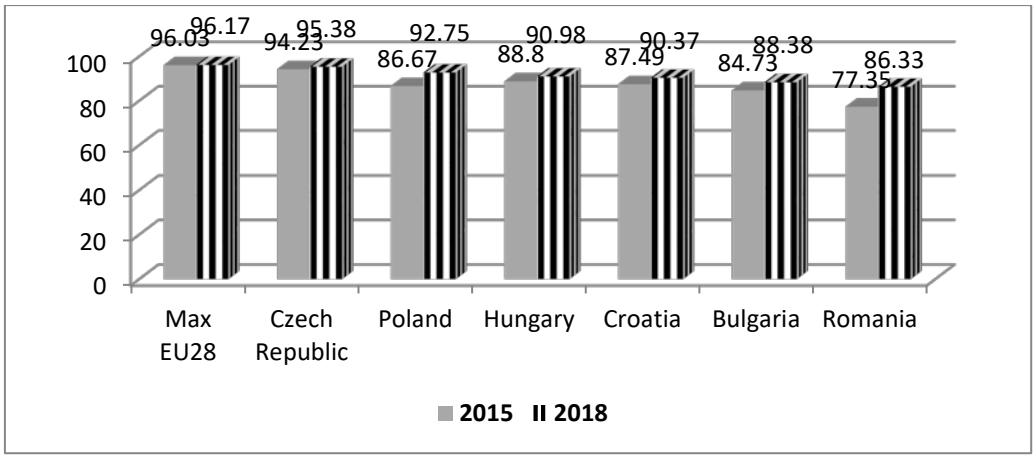
Country	SPI 2018 scores	Basic Human Needs scores	Foundations of Wellbeing scores	Opportunity scores
Max EU 28	89.96	96.17	92.06	82.29
Czech R	84.66	95.38	86.4	72.22
Poland	81.21	92.75	85.02	65.85
Hungary	80.11	90.98	81.09	68.26
Croatia	79.6	90.37	84.6	63.84
Bulgaria	76.27	88.38	76.6	63.84
Romania	**74.51**	**86.33**	**76.75**	**60.44**

Source: Author 2019, based on SPI 2018

3.2.1 The "Basic human needs" dimension and its components; strength and weakness

With a score of 86.33 for basic needs in 2018, Romania ranks 50/146 countries, a substantial progress compared to 2014 when it ranks 67/133 countries.

Fig.4: "Basic human needs"scores in Romania and other CEE-6, 2014-2018



Source: Author's representation, 2019 based on SPI Report 2015, SPI Report 2018

Romania and each of five other analysed CEE countries recorded better scores in 2018 compared to 2014 in terms of basic needs, four countries have scores above 90, and two countries (including Romania) score slightly below 90. The change in scores in 2018 was different, however, with the smallest increases in Czech Republic. Hungary and Denmark (which has the maximum score in the EU-28), and the highest increases in Romania and Poland (Fig. 4).

The substantial increase of the score in Romania led to the reduction of the gap compared to the maximum level in the EU-28, from 18.9 points in 2014 to 9.9 points in 2018, highlighting the ***tendency of social convergence of Romania with the European Union in the field of basic needs.***

The authors of the Social Progress Index (Porter et al., 2015) found that the Basic human needs of a nation consist of the following four components: nutrition and basic medical care; water, sewage and sanitation facilities; shelter; and personal safety. These components have different influence on the aggregate score, some positively, others negatively.

Nutrition and basic medical care: is the best Romanian component of social progress in 2018 with a 95 points score (compared with 74.51 aggregated SPI). It means that there are few problems of malnutrition and food shortages, and basic medical care is virtually assured in Romania. So, we can say that this is a strength for Romania. However, there are two other indicators within this component -deaths from infectious diseases and child mortality rate- which were much improved (rank 49/ 146 countries) compared with the year 2014, and exercise a positive influence on the component' score and constitute another strength for Romania.

Water, sewer, and sanitary facilities registered maximum scores (100) in eight EU Member States, and 5 out of 6 CEE countries are close to the maximum level of EU-28. In Romania this component of the basic needs is 87.24 in 2018, with a substantial increase from the 2014 score (69), with obvious progress at least basic sanitation facilities. The weaknesses of this component continue to be in 2018 *Access to piped water* and Access to at least basic sanitation facilities

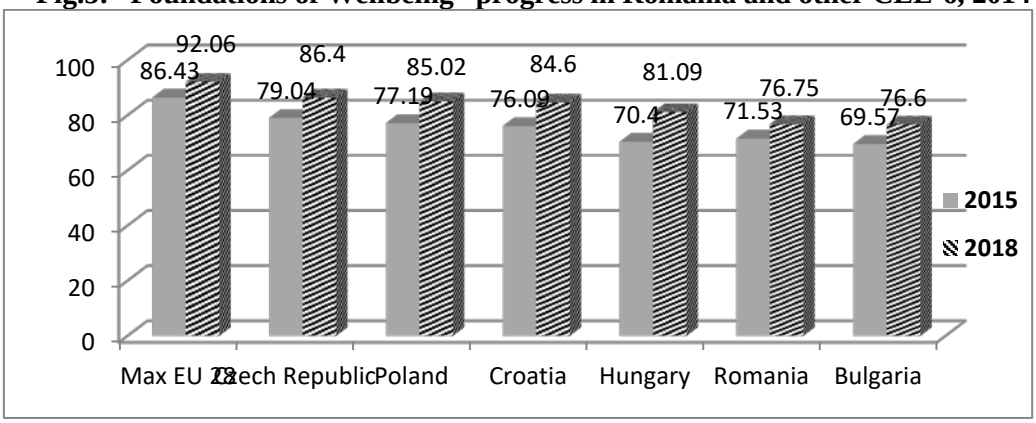
Shelter component recorded a substantial progress in Romania compared to 2014, with improved score and ranking 58/146 countries, compared to 127/133 countries in 2014, which means this is a better performance but the future social policies should still focus on it, namely on household air pollution attributable deaths. The component Water, sanitation facilities, along with component *shelter* are still the main weaknesses of the basic human needs of Romania.

Personal Safety is the fourth component of the basic needs. Romania has one of the highest personal safety in CEE 6 and EU 28, with a score that ranks 35th globally in 2018. A positive influence exerts in Romania some relatively low indicators' levels regarding homicide rates, violent crimes, perceived crime and political terror. But the relatively higher traffic fatalities have *a negative influence* on personal safety performance component, resulting in a lower score.

3.2.2 The "Foundations of Wellbeing" dimension and its components; strength and weakness

The comparative analysis between the 6 Central and Eastern European countries non-members of the Eurozone, in terms of Foundation of Wellbeing in 2018 reveals that the highest scores recorded Czech Republic and Poland and the lowest Romania and Bulgaria, the latter making the minimum level in the EU-28 (Fig.5).

Fig.5: "Foundations of Wellbeing" progress in Romania and other CEE-6, 2014-2018



Source: Author's representation, 2019 based on SPI Report 2015, SPI Report 2018

With a score of 76.75 for *Foundations of Wellbeing* in 2018, Romania ranks 50/146 countries. We note the shifting of the ranks registered in 2018 between Romania and Hungary. Due to a more accelerated progress of basic wellbeing in Hungary, Romania was being overtaken by Hungary and ranking 5th in 6 countries. Our observation refers to the slower growth of Romania's progress on this dimension compared to the CEE-6 countries and to the EU-28 max, which has led to ***a divergence trend***, with differentials increased in 2018 between the scores of Romania and the comparison countries.

The authors of the Social Progress Index (Porter et al., 2015) found that the dimension Foundation of Wellbeing of a nation consists of the following four components: access to basic knowledge; access to information and communication; health and wellness; and environmental quality.

Access to basic knowledge: Romania performs well in 2018, which means relatively high adult literacy rate and Gender parity in secondary enrolment; at the same time, Romania's weaknesses are recorded at Primary school enrolment (rank 91/ 146 countries), Secondary school enrolment (rank 74) and Access to quality education (rank 87).

Access to information, communication: is the best component of *Foundations of Wellbeing* in Romania 2018, ranking 45 in the world. The best indicators are: Mobile telephone subscriptions/ 100 inhabitants, which places Romania on the 1st rank / 146 countries in 2018, and Access to independent media (rank 38), a real progress compared to 2014, when it had a relatively small number of internet users and mobile subscriptions. On the medium level is Access to online governance. Another Romania's advantage is the high index of press freedom.

Health and Wellness: The scores of countries on this component are based on the evolution of the indicators regarding Life expectancy, Premature deaths from non-communicable diseases, Access to essential services and Access to quality healthcare. In Romania, this component records the lowest scores and ranks among all the components of *Foundations of Wellbeing* in 2018, (76/146 countries). The factors that have the greatest negative impact on the life expectancy and the health status of the Romanian population are Premature deaths from non-communicable diseases (rank 89/146 countries) and Access to quality healthcare (88). These two negative factors are slightly counterbalanced by above average level of the Access to essential health services (rank 52).

Environmental Quality: this component is one of the strengths of the Foundation of Wellbeing in Romania due to the relatively low level of greenhouse gas emissions (rank 39 in 2018) and the high level of biodiversity and habitat (rank 48). Outdoor air pollution attributable deaths remain the weak point.

3.2.3 The "Opportunity" dimension and its components; strength and weakness

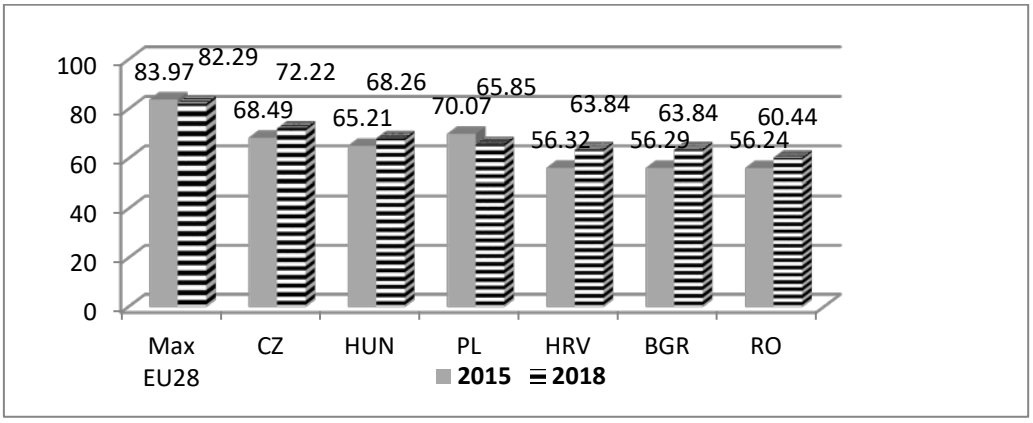
This dimension of SPI measures the prospects of a country in terms of social progress. In general, the scores of the EU Member States are comparatively lower than the other two dimensions of the Social Progress Index.

Romania's score on the Opportunity dimension in 2018 is also the lowest among the 3 SPI dimensions (60.44), but globally ranks the 44th place (56 in 2014), i.e. the best place among its 3 dimensions.

Ireland continues in 2018 to register the maximum score at global and European level at Opportunity, but its score is decreasing compared to 2014. With the exception of Poland, the other CEE-6 have made progress in

2018 compared to 2014 (Fig.6). The analysis of the differences in Opportunity scores between Romania and the comparison countries led us to the conclusion that in 2018 the differences were smaller and there was a tendency of convergence with the EU-28 and with the Central and Eastern European countries (except Croatia and Bulgaria).

Fig.6: "Opportunity" progress in Romania and other CEE-6, 2014-2018



Source: Author's representation based on, SPI Report 2015, SPI Report 2018

„Opportunity" dimension shows the aggregate size of 4 components: personal rights, personal freedom and choice, inclusiveness, and access to advanced education. Romania has strengths in personal rights component, based on respect for political rights, freedom of speech and other freedoms. For the personal freedom and choice component, Romanian indicators' value regarding modern slavery, human trafficking, early marriages and satisfied demand for contraceptive constitute relatively strong points. Romania performs on Opportunity dimension with a low score on Inclusiveness, especially due to the low level of Acceptance of LGBT as well as of Equality of political power by gender.

4 Conclusions

Real convergence ensures that the economic and social disparities between EU member countries are reduced and the standard of living increases. We performed the Comparative analysis of social progress in Romania, other CEE-6 and EU-28 countries using the new global composite Social Progress Index (SPI 2015, SPI 2018) in order to compare the quality of life in the Central and Eastern European countries (TCEE-6) with EU-28 levels and draw conclusions on social convergence within the European Union, as a complement to real economic convergence.

We have noticed a tendency of convergence of the social progress of Romania with CEE-6 and EU 28, except "Foundations of Wellbeing" dimension, to which the trend in 2018 was divergent.

The SWOT analysis performed for the social progress in Romania on the basis of SPI 2015 and SPI 2018 at the aggregate and disaggregated level reveals, on the one hand, the strengths and weaknesses for each analysed year, but also the improvements or their absence in 2018 compared to 2014 (Appendix 1, Appendix 2, Synoptic). The importance of this approach is to provide milestones to the decision-makers to address weaknesses and to turn threats into opportunities in the future social and economic policies.

Appendix 1: Strength of Romania's Social Progress

Strengths/ dimensions/ *components*	**Romania 2014**	**Romania 2018**
The ""Basic human needs" dimension		
Globally ranks: improved	67	50
Highest score increase / CEE6		x
Reduction of the score gap compared to the maximum level in the EU-28 (points)	18.9	9.9
Nutrition and basic medical care: ***the best Romanian component of social progress***	x	x

Low levels of the depth food deficit	x	x
Basic medical care assured	x	x
Improved mortality rate and the number of deaths due to the infectious diseases.		x
Water, sewer, and sanitary facilities-improved scores	69	87.24
Shelter improved rank	127/133 ctrs	58/146 ctrs
Shelter: housing available at reasonable prices and the quality of the available electricity		x
*Personal Safety**: highest personal safety in CEE 6 and EU 28***		x
The "Foundations of Wellbeing" dimension		
Globally ranks: improved	58	50
Score increase		x
Access to basic knowledge the relatively high adult literacy rate	x	x
Gender parity in upper secondary school enrolment.		x
Access to information, communication: **the best component** of *Foundations of Wellbeing*		x
Mobile telephone subscriptions/ 100 inhabitants, **Romania rank the 1st/146** countries		x
Access to independent media		x
Press freedom	x	x
Health and Wellness: Access to essential health services		x
Ecosystem quality		
Low level of greenhouse gas emissions		x
High level of biodiversity and habitat		x
The "Opportunity" dimension: the best rank among the 3 dimensions		x
Globally ranks: improved	56	44
Lower differential score against the EU-28 and the Central and Eastern European countries		x
Personal freedom and choice: low levels of modern slavery, human trafficking, early marriages and satisfied demand for contraceptive	x	x
Personal rights: respect for political rights, freedom of speech and other freedoms (association, movement), as well as the right to private property.	x	x

Source: Author, 2019 based on SPI 2015 and SPI 2018 data.

Appendix 2: Weakness of Romania's Social Progress

Weaknesses/ dimensions/ *components*	**Romania 2014**	**Romania 2018**
The ""Basic human needs" dimension		
Water, sewage and sanitation facilities: Access to piped water and Access to at least basic sanitation facilities	x	x
Personal safety: high traffic fatalities	x	x
The "Foundations of Wellbeing" dimension		
Slower growth of Romania's progress/ CEE6 and EU 28		x
differentials increased between the scores of Romania and the comparison countries		x

Access to basic knowledge secondary school enrolment	x	x
Primary school enrolment (rank 91/ 146 countries		x
Access to quality education		x
Health and Wellness: the lowest scores and ranks among all the components of *Foundations of Wellbeing*	x	x
Premature deaths from non-communicable diseases (rank 89/146 countries)		x
Access to quality healthcare		x
Environmental Quality: Outdoor air pollution attributable deaths		x
The "Opportunity" dimension		
Tolerance and Inclusion: low tolerance for immigrants and religious tolerance. Community network for personal safety.	x	
Low score on Inclusiveness, especially due to: • the low level of Acceptance of LGBT • Equality of political power by gender	x	x
Access to advanced education: low number of universities in the global hierarchy	x	x

Source: Author, 2019 based on SPI 2015 and SPI 2018 data.

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More Integration, Disintegration or Something in Between: Lessons from Brexit and Some Other Issues

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Abstract: This paper, by presenting and analysing some recent phenomena – like Brexit, the income (or more generally: prosperity) gap both between Western and Eastern, and Northern and Southern European member states, tensions within the Euro system, or even the resolution of the Greek crisis – would like to point to a certain direction which is worth to be considered in relation to the future of the European Union. In contrast to the standard narrative, it argues that instead of ever more integration – i.e. consisting of forcing more and more dogmatic economic policy under German domination –, Europe would benefit from a looser, multi-tier integration, based on mutually advantageous cooperation of nations. Such a solution would not exclude the preservation of a hard core of countries with deepening integration amongst their economies, but would give countries of the periphery the opportunity to preserve their room for manoeuver, their chances of development, and ultimately their dignity.

Key-Words: - EU, GDP per capita, REER, East-West divide, North-South divide, disintegration, net earnings, unemployment, depopulation, sovereign debt crisis, Brexit, democratic deficit

JEL classification: - F15, J11, E50, O11

1 Introduction

The major treaties, which are the milestones of the European integration, contain ambitious plans and noble goals. The Preamble of Rome Treaty says that the signatories are "*resolved to ensure the economic and social progress of their countries*"… affirming the essential objective of their efforts being "*the constant improvement of the living and working conditions of their peoples*" (EU treaties, 1957). In the Maastricht Treaty appears the desire of the contracting parties "*to promote throughout the Community a harmonious and balanced development of economic activities*", also "*a high degree of convergence of economic performance, a high level of employment and of social protection, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States*" (EU treaties, 1992). Finally, the Lisbon Treaty states that the Union "*shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress*" (EU treaties, 2007).

This paper[1] assesses how far reality is from expectations and from what the Founding Fathers and their successors have, from time to time, set themselves as goals to achieve by the (then) foreseeable future. It will be focusing on some crucial problems, like the remaining East/West divide and the growing North/South divide, as well as the way both Brexit and the Greek crisis have been handled. After presenting and analysing these dysfunctions in today's European policies, we conclude that a looser, multi-tier integration, based on mutually advantageous cooperation of nations would most probably better fit to Europe than continuing with the model of '*ever closer Union*'.

2 The old divide and the new divide

In this section, it is shown how the old divide between Eastern and Western Europe has remained considerable, and how the gap between Southern and Northern Europe has widened over the last one and a half decades. First,

[1] Paper presented at the 13th Hungarian-Romanian round table, Budapest, September 26, 2019.

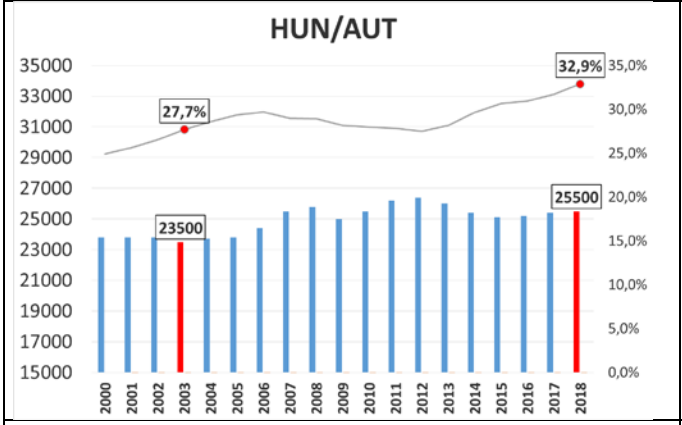
we present the catching-up paths of some of the new member states, and compare them and the development paths of some of the old member states to those of Germany and Austria. Then, in the second sub-section, we turn our attention towards the general picture, by comparing all three of North, East and South Europe as a whole, also by entering into such details as earnings, unemployment and demography.

2.1 Specific cases

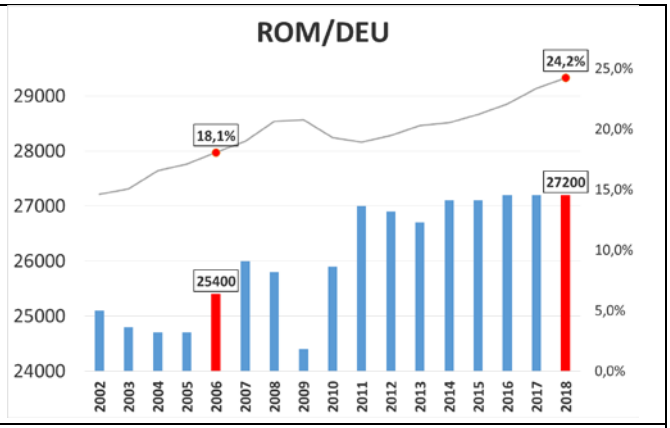
It has been a historical, centuries-long desire for nations of Central and Eastern Europe (CEE) to catch up with Western European countries in terms of economic development, or at least to reduce their gap significantly. The above aspirations have been gaining momentum following the regime change and democratic transformation of the late 1980s, when the opportunity for these nations to join Western structures (NATO, OECD, EU, etc.) became a manageable reality. Joining the European Union in particular was, for most of the countries of the region, what they felt promised the fastest way to reach the catching-up target.[2]

In order to measure economic development in the scrutinized countries, we use chain linked volumes of real GDP per capita at reference year 2010 prices, available on the Eurostat website (Eurostat, 2019a). We compare the economic performance of the CEE countries to that of Austria and Germany. As it is impossible to present all the comparisons that have been made, two archetypes of the different cases are displayed. In the first one, there are data on Hungary – having started transition from a relatively better situation, like Czechia or Slovenia –, which are set against those of Austria (Figure 1). For this first archetype, the development has been relatively slower and was interrupted by a period of several years of stagnation (in the case of Czechia) or even decline (for Hungary or Slovenia). The second archetype is illustrated by the example of Romania – having started transition from a relatively poorer situation, like Poland or Slovakia – for which data are compared with those of Germany (Figure 2). In this case, development has been relatively faster and was only interrupted for a couple of years (in the case of Romania), or not at all (for Poland), or was slowed a little bit down (for Slovakia). Common features of the two archetypes are as follow: first, these economies were already growing at a steady pace before accession, so the EU entry did not add further impetus to them; second, the EU membership did not protect new members (bar Poland) from shorter or longer periods of stagnation/decline; and third, differences in absolute terms between the CEE region and Austria/Germany have remained or even slightly increased.

Figures 1 and 2: Development paths of some EU member states compared to those of Austria and Germany (real GDP per capita, € 2010)



Explanatory notes: HUN = Hungary, AUT = Austria. Between 2003 and 2018, Hungarian per capita GDP rose from 27.7% to 32.9% of that of Austria. Meanwhile the difference in this indicator between Austria and Hungary rose from EUR 23,500 to 25,500. In red are marked the year before EU-accession, and the last year for which data were available.



Explanatory notes: ROM = Romania, DEU = Germany. Between 2006 and 2018, Romanian per capita GDP rose from 18.1% to 24.2% of that of Germany. Meanwhile the difference in this indicator between Austria and Hungary rose from EUR 25,400 to 27,200. In red are marked the year before EU-accession, and the last year for which data were available.

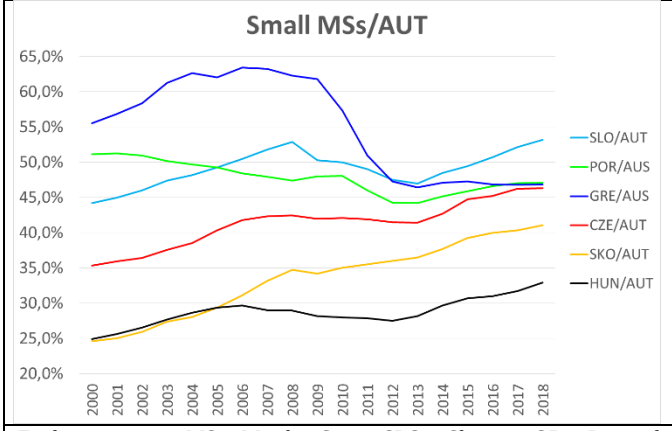
Source: Own compilation based on Eurostat (2019a).

In the next step, we bring into the investigation some older member states, especially from the Southern periphery of the EU. Figure 3 compares the development path of several small and medium-sized countries of both the CEE and the Mediterranean region with the Austrian one, while Figure 4 does the same thing for the

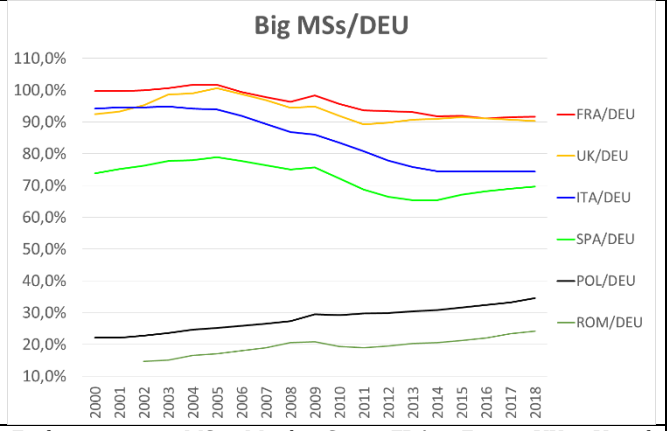
[2] Central and Eastern European countries with a communist past entered the EU in three waves: eight of them (the Visegrád Group, Slovenia and the Baltics) in 2004, two of them (Romania and Bulgaria) in 2007, and Croatia in 2013.

most populous representatives of the CEE region and the largest old member states benchmarking their data against those of Germany. What is clear from the graphs is that while the CEE countries have, at least percentage-wise, been steadily closing the gap with both Germany and Austria, all the older member states, presented here, have got behind. There are quite significant changes in the Mediterranean, with Italy departing from the most developed economies of Europe and heading towards "middle-class" Spain, and Greece and Portugal sinking into the group of the most advanced CEE countries. It also appears from the graphs that while more populated CEE countries do, despite unbroken development, still lag very far behind their peers among the older member states, some of the less populated CEE countries have been catching up: Slovenia first overtook Portugal, then Greece too, while Czechia got quite close behind.

Figures 3 and 4: Development paths of some EU member states compared to those of Austria and Germany (real GDP per capita, € 2010)



Explanatory notes: MS = Member States, SLO = Slovenia, OR = Portugal, GRE = Greece, CZE = Czechia, SKO = Slovakia, HUN = Hungary, AUT = Austria. Data for Austria = 100%.



Explanatory notes: MS = Member States, FRA = France, UK = United Kingdom, ITA = Italy, SPA = Spain, POL = Poland, ROM = Romania, DEU = Germany. Data for Germany = 100%.

Source: Own compilation based on Eurostat (2019a).

2.2 The general picture

After having presented some specific cases of certain member states, let us broaden the investigation to include larger geographic areas, and calculate regional averages.

For the purposes of this paper, EU member states have been divided into three groups. The first group consists of the most prosperous countries of Northern Europe (NE): Denmark, Sweden, Finland, Austria, Germany, Belgium, the Netherlands, Ireland and the United Kingdom. The second one involves semi-developed member states of Southern Europe (SE), namely Italy, Spain, Portugal, Greece, but also France, all of them being prone to run a relatively loose fiscal policy that led to competitive devaluations in the pre-Euro past, and all of them being, for long years, handicapped by their membership in the Eurozone.[3] To the third group belong all the East European (EE) new member states, except for Croatia.[4]

First, we produce population-weighted regional averages for the 'real GDP per capita' indicator, already known from the previous sub-chapter. During the period of 2003-2018, the indicator increased by 19.2%, 5.7% and 70.9% in NE, SE and EE respectively. In order to ensure a better comparison of the three regions, and track the catching-up/lagging-behind processes, we assume the data for the NE region to be 100, and express those for the other two regions as a proportion. We also display the differences in real per capita GDP levels between NE and SE, and NE and EE in absolute terms (i.e. in Euro).

Figure 5 shows that the EE and SE regions move in opposite directions: while the new member states are, although slowly, but gradually catching up with, the "Mediterranean" is lagging behind the developed North. From 2003 to 2018, the EE group climbed from 23.3% up to 33.4%of the NE level, while the SE group sank from 84.8% to 75.2% of it. Most of the latter decrease occurred in the worst years of the Eurozone crisis. As for the differences in absolute terms, while the one between the EE and NE regions has remained almost constant,

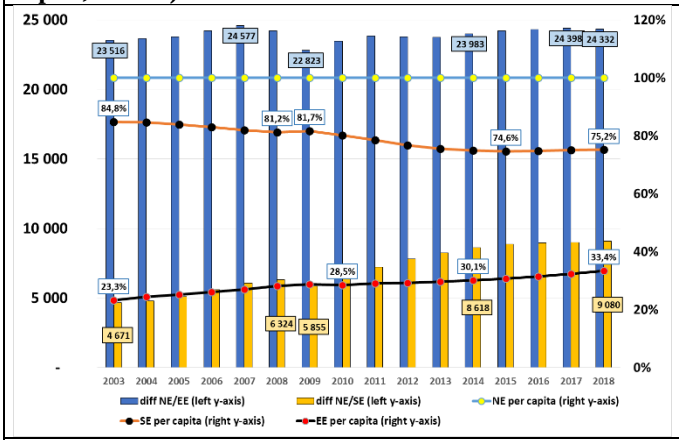
[3] This issue will be treated more in detail later on.

[4] When establishing the three groups of countries, Luxembourg, Malta and Cyprus were omitted because of lack of data and/or the small size of their economies, as well as Croatia due to its relatively recent membership in the EU.

the one between the SE and NE regions has nearly doubled. Nevertheless, concerning its level of development, Southern Europe is still much closer to Northern Europe than to Eastern Europe.

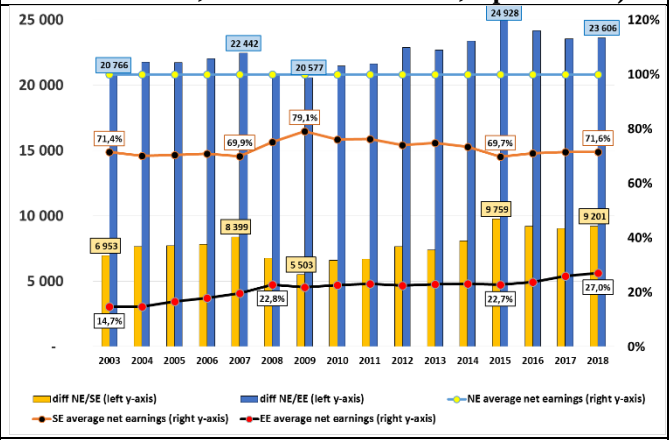
Figures 5 and 6:

Differences in development paths between Eastern, Northern and Southern EU member states (real GDP per capita, € 2010)



Explanatory notes: NE = Northern EU members, EE = Eastern EU members, SE = Southern EU members. NE = 100%. Bars show differences in absolute terms (in Euro). Regional averages are weighted by population size. Between 2003 and 2018, EE per capita GDP rose from 23.3% to 33.4% of that of NE. Meanwhile the difference in this indicator between NE and EE rose from EUR 23,516 to 24,332.

Differences in average net earnings between Eastern, Northern and Southern EU members (single person without children, with 100% of the AW, € per annum)



Explanatory notes: AW = average wage, NE = Northern EU, EE = Eastern EU, SE = Southern EU member states. NE=100%. Bars show differences in absolute terms (in Euro). Regional averages are weighted by the number of employees. Between 2003 and 2018, EE net earnings rose from 14.7% to 27.0% of that of NE. Meanwhile the difference in this indicator between NE and EE rose from EUR 20,766 to 23,606.

Source: Own compilation based on Eurostat (2019a; 2019b; 2019c).

A broadly similar picture to the one described above is painted by Figure 6 where we made the same sort of calculations for net earnings, weighted by the number of employees. There are, however, differences. First, the relative wage level in the SE region has not followed the GDP per capita trends over the reference period, but it ended in 2018, after some fluctuations, where it had been in 2003. Second, the catching-up process of the EE region has not been as frictionless as in the case of the GDP per capita indicator, but experienced stagnation from 2008 to 2015. Finally, the percentages for both SE and EE countries are inherently lower than in Figure 5, while differences in absolute terms between them and their NE peers have increased, even if marginally, since the beginning of the period.

It is an undeniable fact that, thirty years after the start of transition in Eastern Europe, a stark divide in wages between East and West remains. There is still a very sharp border in terms of net earnings in the very middle of the continent (Figure 7). Pay differences between neighboring countries are substantial: in Finland one can earn more than twice more money than in Estonia, in Germany more than thrice more than in Poland, in Austria more than three and a half times more than in Hungary, and in Sweden almost four times more than in Latvia or Lithuania. Differences in absolute terms vary from Euro 17.1 to 24.6 thousand between the countries in the examples above.

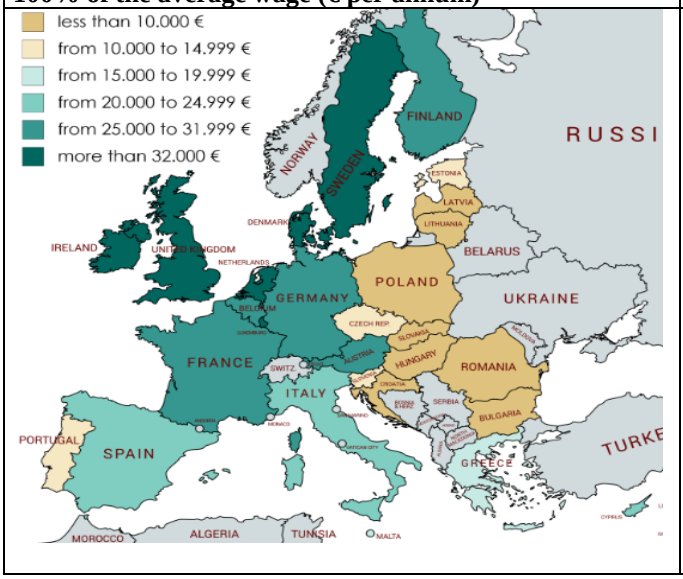
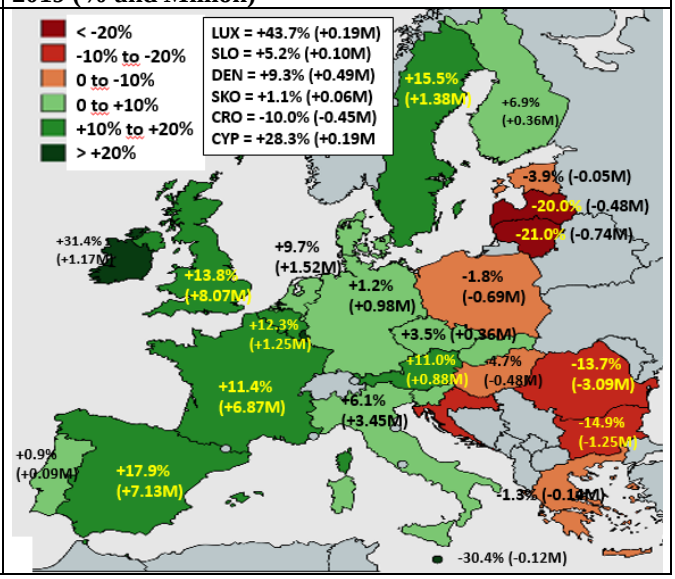
Investigating the differences in net earnings in absolute terms between countries is of great importance as this wage differential often plays a critical role in investors' decisions. In this regard, the EE region continues to offer excellent opportunities for investments – especially for low-medium value-added activities of both manufacturing and services – originating from more advanced member states of the EU. However, foreign investments cannot substitute for organic domestic economic development. That ship has unfortunately sailed when, at the dawn of transition, the loss of their former Soviet markets and the simultaneous opening up of their domestic markets before Western imports resulted, for a significant number of medium-size and large national companies, in being severely weakened or destroyed. On the ground of the dual economic model, which has emerged from the above process, even multinational companies were unable to build an organic pyramid of suppliers for themselves on the spot. What they were able to do was to attract the best workforce available locally.

And this brings us back to the other important consequence of the East-West wage gap: brain-drain. Since the accession of their home countries to the European Union, millions of Polish, Romanian, Baltic and other Central and Eastern European people have been flowing to the West, in several waves, in the hope of better earnings and working conditions. Naturally, this leads to serious tensions (i.e. labor shortages) in the domestic economy in a

number of occupations, of which best known are: health professionals (doctors), health and social welfare associate professionals (nurses, pharmacists, and physicians), skilled trades in construction and building (plumbers, carpenters, bricklayers, roofers, and plasterers). Although there are researchers (e.g. Meyer & Shera, 2017), stating that workers' remittances positively and significantly contribute to the economic growth in recipient countries, we are of the opinion that it is only a second best option. While most remittances go to consumption and thereby contribute to the survival of the current economic system (through the purchase of lots of imported goods), employing these people in meaningful workplaces in their home countries would have a much greater impact on development (public investment and investment development), as they have much higher tax and social security fees content than pure consumption has.

If we consider the facts – the existence of dual economies which do not generate sufficient taxable income, swathes of talented people working abroad and missing for the national economies, the lack of protected internal market (unlike as it was with some Asian emerging countries), strict EU rules on general deficit, state aide and public procurement process (mandatory EU-wide tendering) – we can reach the conclusion that it is no wonder almost all these countries face depopulation (Figure 8). If there are not enough well-paid jobs in the home country, public services are falling or becoming less and less available, working and living conditions are getting more and more difficult, and there is no prospect for having a life at least as comfortable as the one the parents had, people will tend to try their luck abroad.

Figures 7 and 8:

Net earnings of a single person without children, gaining 100% of the average wage (€ per annum)	**Change in population in EU member states from 1999 to 2019 (% and Million)**
	

Source: Own compilation based on Eurostat (2019b; 2019d).

Undeniably, there is an East-West divide in terms of demography in the European Union which is very similar to that of net earnings. In the last twenty years, the eleven EU member states with a communist past have lost 6.7 million people or 6.1% of their population. In absolute terms, population decline has been the most severe in Romania (minus more than 3 million humans), while percentage-wise Latvia and Lithuania have suffered the biggest loss (one-fifth of their population has gone). It is to be noted that depopulation has recently also reached Portugal (since 2011), Greece (since 2012) and Italy (since 2016). But the economic difficulties of the Mediterranean needs a separate analysis.

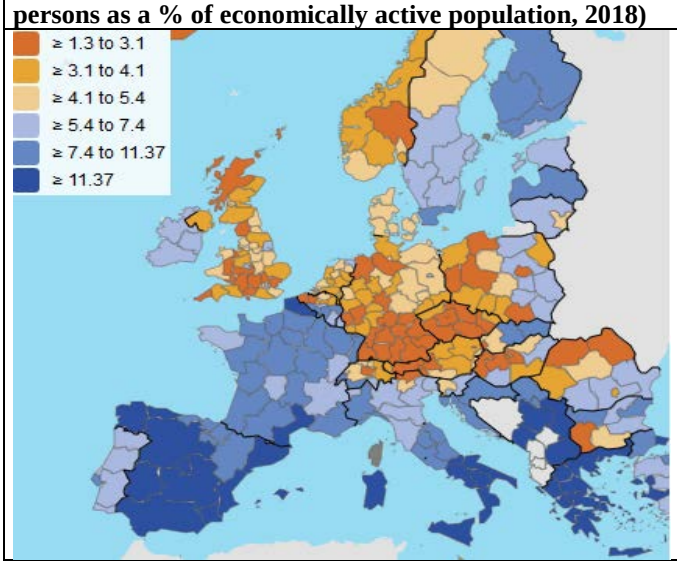
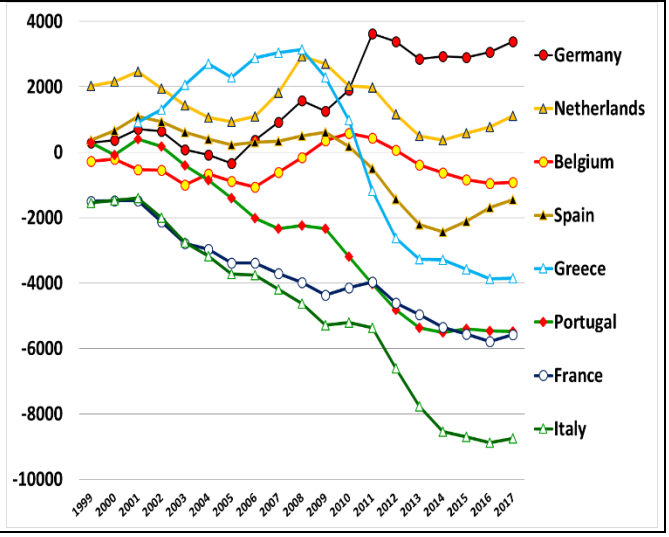
2.3 Problems with the Euro

We have already seen that The Southern European member states of the EU have been gradually lagging behind their peers in Northern Europe in terms of GDP per capita (Figure 5), while their handicap in terms of net earnings has remained at the same level (Figure 6). This situation can only make sense if there are problems with employment. And indeed, there are such issues. Especially, since the outbreak of the global financial crisis, the number of people aged between 20 and 64 has practically stagnated – went up by only less than half a million (from 75.1 to 75.5 million, i.e. +0.6 percent) – in SE region, while it has increased from 90.5 to 98.3 million (+8.5 percent) in NE region (Eurostat, 2019f). The main economic (and social) problem for Southern Europe is not a

mere lagging behind the rest of the EU, but a structural mass unemployment, compounded by extreme rates of youth unemployment (especially in Greece, Spain and Italy).[5]

Undeniably, there is significant North-South divide in terms of unemployment in Europe (Figure 9). We assume that membership in the Eurozone may play a role in this, as unemployment figures – except for Germany and closely tied to it Austria and the Netherlands – are only favourable in those countries which have retained their national currencies.

Figures 9 and 10:

Unemployment rate by NUTS 2 regions (unemployed persons as a % of economically active population, 2018)	**Impact of the introduction of the euro on GDP per capita in some members of the Eurozone (€ per annum)**
	

Source: Eurostat (2019e) and own compilation based on Gasparotti & Kullas (2019).

As already mentioned, the SE countries have often made use of competitive devaluation in the past to keep their economies in line with those of the NE region. But once within the Economic and Monetary Union (EMU), this practice came to an end. As a consequence, the competitiveness of these Southern European countries has been distorted by the replacement of their national currencies with the euro, which obliged them to manage differences in productivity gains vis-à-vis Germany, Austria and the Netherlands without the possibility of nominal exchange rate adjustments.

This phenomenon can be understood by several ways. One way is by examining data on real effective exchange rate (REER), assessed regularly by the International Monetary Fund (IMF). Based on data on the period of 2015-2018, there is an important difference in terms of REER between Germany and the Netherlands on one hand and the countries of the SE region on the other. For Germany, the difference is in the range of 12.5-25.8 percentage points (p.p.) with France, 11.0-30.0 p.p. with Italy, and 13.0-29.3 p.p. with Spain, while for the Netherlands the same figures are of 8.2-17.9 p.p., 6.7-22.1 p.p., and 8.7-21.4 p.p. respectively (IMF, 2016; 2017; 2018; 2019). This implies that German (and Dutch) products benefit from an undervaluation of more than 20 (those of the Netherlands roughly 15) percent against French, Italian or Spain products. This is quite a considerable advantage and largely explains the German (Dutch) trade surplus to the detriment of the other countries of the Eurozone. Also, it explains why member states of the SE region can only stabilize their trade balance by resorting to extremely restrictive internal market policies (Sapir, 2019).

When presenting the other way to understand the impact the introduction of the euro had on Southern Europe's competitiveness, we rely heavily on a recent CEP[6] study (Gasparotti and Kullas, 2019), published on the occasion of the 20th anniversary of the common currency, and trying to sort out which countries had, until then, emerged

[5] In 2018, the rate for young unemployed (aged 15-24 years) was 39.9%, 34.3%, and 32.3% in Greece, Spain and Italy respectively, while it was 9.4%, 7.2%, and 6.2% in Austria, the Netherlands and Germany (Eurostat, 2019g). Taking into account only those neither in employment nor in education and training, the same rates were 14.1%, 12.4%, and 19.2% for the SE countries, and 6.8%, 7.2%, and 5.9% for the NE countries (Eurostat, 2019h).

[6] Centre for European Policy, based in Freiburg close to the German-French border, is the European-policy think tank of the non-profit foundation Stiftung Ordnungspolitik.

as losers and winners of the euro experiment. In this study the so-called 'synthetic control method' has been used whereby the economic performance of selected EMU members was compared to that of an econometrically optimized group of non-Eurozone countries, having shown similar economic growth path to that of the given Eurozone member states in the years before the introduction of the euro. The meaning of all this was to answer the hypothetical question: what would be the per capita GDP of a given Eurozone member if it had not introduced the euro? Differences between reality and such a counterfactual scenario are summarized in Figure 10. It can be seen that, unlike Germany and the Netherlands which have almost continuously benefited from the euro over its 20 years of existence, the SE region as a whole have been suffering from the outset. Their situation has been made even worse following the financial crisis and the subsequent European sovereign debt (i.e. Eurozone) crisis. Overall, Germany's gain for the whole period of 1999-2017 corresponds to 7 months, while that of the Netherlands to 5.6 months of their respective GDP. On the other side of the coin, there are enormous losses: for France, it amounts to more than one and a half years, for Portugal to 2 years and two months, and for Italy to almost two years and a half of their respective GDP. Losses far outweighing gains, this looks very much like a "lose-lose" situation. The study concludes that the fundamental problem of the Eurozone, i.e. the divergence in member countries' competitiveness and the impossibility for those with weaker economies to devalue their currency in order to remain internationally competitive, does – despite any measures taken since the Greek crisis (e.g. bailouts, quantitative easing, etc.) – remains uncured.[7] In most SE countries, the introduction of the euro was the primary cause for an erosion of their international competitiveness which has led to slower economic growth, rising unemployment and mass impoverishment.

The above negative tendencies could naturally be addressed if the Eurozone was an optimum currency area. But it is notoriously not. It lacks fiscal integration, i.e. the ability to smooth asymmetric shocks through fiscal transfers from one region with booming economy and low unemployment to another one with economic problems and high unemployment. Currently, there is no separate Eurozone budget – even if a mini-budget of EUR 17 billion to be spent over 7 years has recently been agreed by EU finance ministers (NewEurope, 2019) – while the common budget is far from substantial to handle asymmetric shocks in the integration.[8]

3 Short comments on Brexit and the Greek crisis

These two topics, the withdrawal of the United Kingdom from the European Union and the Greek sovereign debt crisis, are not primarily presented here because of their economic aspects, but rather to show how European democracy 'worked' in these two delicate situations. As a remainder, Article 3a-2 of the Lisbon Treaty says: "*The Union shall respect the equality of Member States before the Treaties…. It shall respect their essential State functions, including the territorial integrity of the State...*"

As for the first Greek sovereign debt crisis in 2010, experts know it was a banking crisis. Instead of allowing Greece to go bankrupt, and fearing of contagion towards other countries of the Eurozone (like Italy, Spain or Portugal), European leaders – with the help of the IMF – portrayed the bailout of their own banks (mostly French and German banks, severely exposed to Greek sovereign bonds) as an act of solidarity with the Greek people. The IMF did even breach its own rule not to lend to a country before debt restructuring. As a consequence, Greece found itself being given the largest loan in history with no real hope to ever grow it out, also in a quasi-colonial status with a group of international experts (*troika*) replacing its government in all important state functions and imposing austerity policy measures on generations to come.

As for Brexit, it is an example of how the British and the European economic and political elites try to disregard the opinions and the interests of the people by manipulating them through the media, the parliament, and even the legal system. Already the narrative that has been developed on it is deceptive: there is no such thing as hard or soft Brexit. The only sensible option is a clean Brexit which means the UK would leave the EU institutions (the single market and the customs union), and regain control over borders, money and laws. Any other option leads to a messy Brexit whereby the UK remains tied to decisions in which it will have no say any more. Typically, Brussels has so far only supported solutions – either with the previous May government or the

[7] Countries seemingly on the winner side are not happy either, as financial assistance makes them liable for possible future problems in the bailed-out Eurozone members. The extremely accommodative (i.e. ultra-loose) policy pursued by the European Central Bank (ECB) for the last couple of years has recently been severely criticised by 6 former top ECB officials, of which 4 former governors/presidents of German, French, Dutch, and Austrian central banks (Forexlive, 2019).

[8] By comparison, the US federal budget in GDP terms is more than 20 times, its amount per capita is more than 35 times the size of the European common budget (2015 data).

incumbent Johnson government – that would deal Northern Ireland separately. Hence by not ensuring the integrity of the UK it would threaten the Irish peace process.

4 Conclusion

Today's functioning of the EU is marked by serious shortcomings. There are no substantial efforts towards convergence. The former East-West income/prosperity divide remains significant, and a new North-South divide is about to become permanent. There is an obvious deficit in democracy, as people's votes are often disregarded and disparaged by the establishment. Instead of ever deeper integration, a move towards a freer, looser community, and cooperation based on free choice of countries, also a better consideration of social and environmental impacts may lead to a more colorful and fair Europe.

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Economic Globalisation and the Development of the European Union

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Abstract: Economic globalization is a rational phenomenon, capable of delivering a larger volume of goods and services with fewer resources. In a broad sense, the process of economic globalization is seen as the dynamic process of increasing interdependencies between national states as a result of the expansion and deepening of the links between national economies on the global capital, goods and services market.
In the economic literature, it transpired that with the fall of the Berlin Wall in 1989, we entered the second era of globalization, the first one dating back to the middle of the nineteenth century and being interrupted by World War I, the pause period reaching the end once the Cold War was over. 1989 marks a new beginning of globalization, where economic and economic relations become devoid of borders and distances

Keywords: economic globalisation, European Union, development.

Classification JEL: F63;O11; O12; Q56.

1. Introduction

Globalization is among the most popular syntagms born on the border between industrial and informational society. The term "globalization" appeared in the late 1960s and it was launched by a Canadian specialist in mass media theory, Professor Marshall McLuhan of the University of Toronto, and the American expert on communism, Zbigniew Brzezinski of Columbia University . The term "globalization" first entered a dictionary (Webster) in 1961 , and in the form of a concept it was first used by Theodorov Levitt in *"Globalization and Marketing"* in 1980.

Since the mid-1980s, it has gained considerable circulation by joining as adjective on other terms such as markets, finance, communications, migration, civil society, etc.

Globalization is a very common concept used to characterize the current state of the world economy. Some perceive it as a complete equalization, others, on the contrary, as a huge diversification, based on the observance of common principles.

2 Defining globalisation

Globalization is seen as a multitude of processes that have the ultimate goal of achieving complete integration in various areas: economic, political, military, security, social, cultural, etc., meaning that this process does not give chances to states to live isolated. Globalization means, at the same time, freedom and dependence, uniformity, free movements of goods, people and ideas on a global scale, local traits combined and confused with the world ones, the whole world finding itself in every locality and at the same time every locality, region or nation being found all over the globe.

Globalization has three main causes: technological, political and economic. These causes triggered a process in which geographical distances became an unessential factor in establishing and supporting international economic, political and socio-cultural relations.

Globalization must be seen as a reordering trend of the world in order to overcome the mistakes that have been made as well as the limits of the old order. This transformation considers another way of functioning of the global economy, which shows its functioning in a global society that establishes global decision-making structures to solve global problems.

2.1. Economic dimensions of globalisation

As far as the development of the European Union is concerned, globalization is seen as an ample phenomenon, which has a great impact on governments, policies, cultures and societies. We can say that one of

the results of globalization would reflect a richer world with wider access to diverse markets, higher standards of living, much more advanced technology but also a greater availability of information, all of which leading to life quality improvement.

2.2. The determinants of economic globalization

A determinant of economic globalization is the liberalization of trade in services, especially in the banking, telecommunication and insurance sectors, liberalization that established the dominant tendency of the 1970s in the USA, continued in the 1980s in the United Kingdom and later in the European Union.

On the list of the determinants of economic globalization, we must add the deregulation and the privatization of the state economies, and without associating the term globalization with that of non-liberalism, I notice that in the space of the global economy the neo-liberal arguments against the "pro-active state intervention "in order to manage the functioning of the market are those that can best reflect the economic-political tendencies of the late 20th century.

If we refer to the process of globalization, we observe that it is reflected by a series of economic-social life aspects, such as:

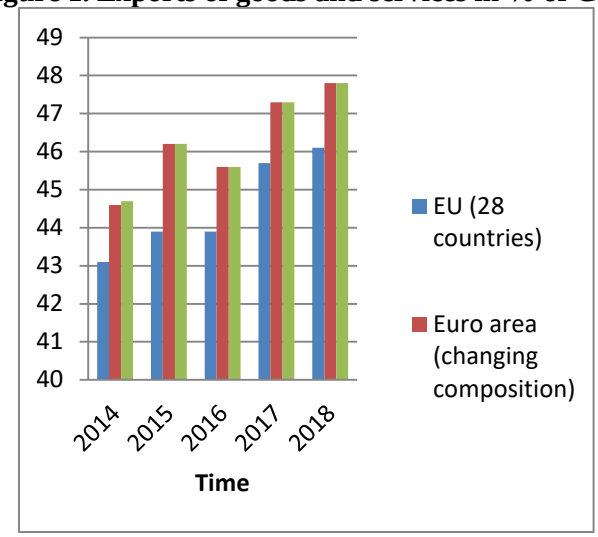
- the global nature of science and technology (scientific research is based on global resources, although the technical process finds its basis in developed countries, and the benefits are for the whole of humanity);
- global marketing (marketing strategies of the companies respond to the demands of globalization by promoting universal brands);
- communications infrastructure (media and internet worldwide).

Globalization is also considered as a factor determining the diminishing of the national government role as a result of the expansion of the share of foreign investment capital and transnational companies. In other words, we are witnessing a managing process of the world by transnational forces.

All these aspects lead to two main conclusions: on one hand they are not equally felt by the countries of the world (which is logical and normal) and on the other hand, globalization is not a totally controllable process and can not be avoided. Hence the fact that any national economy and any company, regardless of its size, must build its destiny considering this phenomenon.

For a harmonious development of the European Union, Member States have identified globalization as the highest priority in the research agenda of the forthcoming edition of the System of the National Accounts (SNA) and the European System of Accounts (ESA).

Figure 1. Exports of goods and services in % of GDP

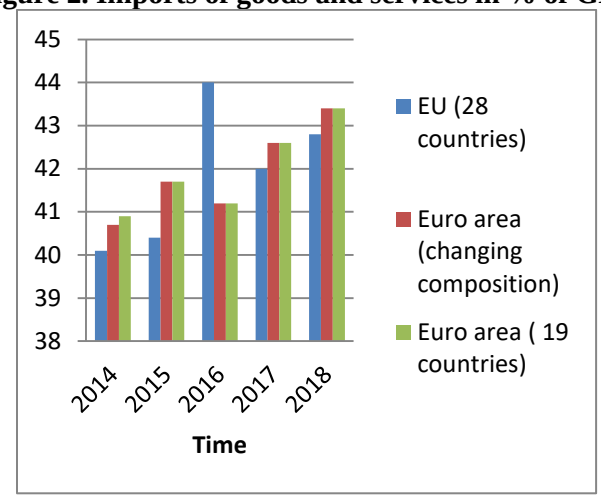


Source: Eurostat

In our analysis of imports and exports at European Union level, we found the following issues:

Between 2014 and 2018, exports increased year on year, while for the same period imports recorded the largest increases in 2016 for "Europe 28 countries", while "Euro area changing composition "and" Euro zone 19 countries "were kept on equal footing.

Figure 2. Imports of goods and services in % of GDP



Source: Eurostat

For exports, the best year was 2019, while the year 2016 recorded the best results for imports

2.3. Effects of economic globalization in the context of the European Union development

If about 60 years ago, the phenomenon of globalization was specifically aimed at foreign investments in stocks, in the international trade stimulated by the reduction of customs tariffs, it has now a completely different aspect and quite another meaning.

Originally America exported cars to Europe, importing clothing in exchange. Today the phenomenon of globalization is marked by an integration of different countries economies, where international trade refers to an enormous range of finished products of all categories, exchanges and financial transactions, raw materials of all kinds, exchange of services, investments in all spheres and so on.

On the one hand, it is conveyed the idea that globalization universalizes, and so there is the danger of homogenization, of creating a global culture, such as consumerism, which becomes the measure of all things. On the other hand, globalization customizes, favoring individualism and pluralism. Of course, not everything is part of the globalization process and not everything is overly determined by it.

If we refer to Europe, an important step on globalization was represented by the creation of the European Union, which in fact means a group of states that arose through the democratic will of the participating states, which decided to phase out their own independence in favor of a central authority - the abdication from independence is, of course, relative, given that the EU serves the interests of all Member States.

As an economic outcome, economic globalization is expected to lead to greater volume of goods and services, but with lower consumption of natural resources, thus ensuring the size of a rising GDP.

Table 1. Possitive and negative effects of the economy globalization

Positive effects of the economy globalization	Negative effects of the economy globalization
The emergence or expansion of some markets independent of the existence of natural resources;	Relocation of some economic activities or with a polluting impact on the environment, in countries with cheap labor or available resources;
Reduction of production costs due to the economy of scale;	Low prices for raw materials charged by developed countries;
The access of the economically and industrially developed countries to the resources needed to develop their economy, resources that are found in other countries;	Bringing into the global economic space the criminal organizations that lead a parallel, unequal economy but with connections to the real, legal economy;
Increasing the speed of commercial, financial and technological operations.	The economic life destabilization, inclusive of some states.

Source: Author's assessment

3. Conclusions

Regardless of the position adopted, pro or against globalization, we are all involved in this process and feel its effects. In this way, globalization is perceived as an extension, deepening and acceleration of the world-wide interconnection in all aspects of contemporary life.

In my opinion, globalization of the world economy can be seen as the particularly dynamic process of increasing interdependencies between national states as a result of the expansion of transnational ties in ever-wider and varied spheres of economic, political, social and cultural life, as an implication that problems are becoming global rather than national, and in turn demanding a solution rather global than national.

Most fear that the new economic conditions induced by globalization will generate increased poverty, job losses, or fear of spreading epidemics or incurable diseases. There are also many people who fear that human activity will irreparably damage the environment on which our own existence depends so much.

From the data we have obtained to the present, we see that it is true that globalization has contributed to the deterioration of nature and the draining of non-govern- mentable resources, but has also had pluses and created the possibility of world campaigns, offering quasi-universally recognized concepts and methods (an example would be the sustainable development). If we focus and watch the dangers of the future, we see that they have one thing in common: they do not respect the national borders. This means that not even the most powerful states of the world will not be able to protect their citizens against these dangers.

One thing remains universally accepted in the current development phase of the European Union: it is inconceivable that certain states or parts of the world act without regard to the others.

Economic globalization must be accepted as if it were a physical phenomenon that there is no point in circumventing, but we must necessarily understand it from the point of view of its causes and effects and use it constructively without letting it to destroy us. Economic globalization offers many opportunities for real global development but it is manifested by an uneven regional progress. Some countries are becoming more and more integrated into the world economy at a much higher speed than others. In another extreme, however, we find other countries, such as the poor ones, which are more unstable and more vulnerable to globalization.

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Narratives and Actions Regarding the Belt and Road Initiative in ASEAN Countries

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Abstract: In contrast with countries such as the United States, Japan, India and Australia (the Indo-Pacific Quad), the ASEAN countries are in general in favour of a consolidated cooperation with China in the framework of the BRI. In spite of the territorial disputes with China in the South China Sea, they put first their own economic development and strategic interests, therefore China is a relevant partner for all of them. They have a pro-growth and pro-development agenda and with the exception of Singapore, all of them need additional resources to finance the implementation of their national development and modernisation plans. They follow their national interest and have the ability to negotiate with strong partners, even with China. They support the BRI as a multilateral initiative led by multiple actors, are members of the Asian Infrastructure Investment Bank and are currently negotiating, implementing or supporting projects under the BRI. Bearing in mind these arguments, the present paper has as main goal an overview of China's relations with its ASEAN neighbours under the impact of the BRI.

Key-Words: Belt and Road Initiative, ASEAN, economic diversification, infrastructure development, negotiation

JEL classification: - F14, F50, F55, G11, H54, H77

1 Introduction

The Chinese BRI goes well beyond the most famous geopolitical theories even if it is not conceived as a tool to establish a new geopolitical order. It reminds us of the Alfred Mahan's sea power theory, Sir Halford Mackinder's heartland theory and also Karl Haushofer's Indo-Pacific thalassocracy principles, but as opposed to these, it puts development first. Naturally, together with development comes power, therefore the BRI has generated harsh critiques from countries such as the United States, Japan, India and Australia (the Indo-Pacific Quad) but also the European Union institutions.

The BRI is not only about development and investment (in energy, infrastructure, manufacturing, technology, Internet) but also on sustaining China's process of opening up and reform. It can be also considered as a country brand and an instrument of public diplomacy.

Tritto and Camba (2019) emphasize that the narratives on the BRI are **highly polarized**. At one extreme there is a dialectic focused exclusively on threats, with strong effects on the public via powerful labels such as: "debt-trap," "Chinese colonialism," and "yellow peril". At the other, Chinese official documents present extensively the positive economic effects associated to the BRI projects, which let aside geopolitical ones. But exactly this kind of geopolitical consequences affect the already established powers, determining them to form a common front against China.

By contrast, the member countries of the Association of the Southeast Asian Nations (ASEAN), similarly to other emerging and developing economies, have adopted a rather balanced attitude. It is labelled in the literature as "hedging", which includes "both containment and engagement" with China (López i Vidal and Pelegrín, 2018, Fowdy, 2019). Intensifying Sino-ASEAN economic relations surpasses the framework of the China-Indochina Peninsula Economic Corridor (one of the six economic corridors initially proposed by China as New Silk Roads) and the complementarities between the Masterplan for ASEAN Connectivity 2025 and BRI offer a host of opportunities. Bearing in mind the importance played by the BRI for infrastructure development

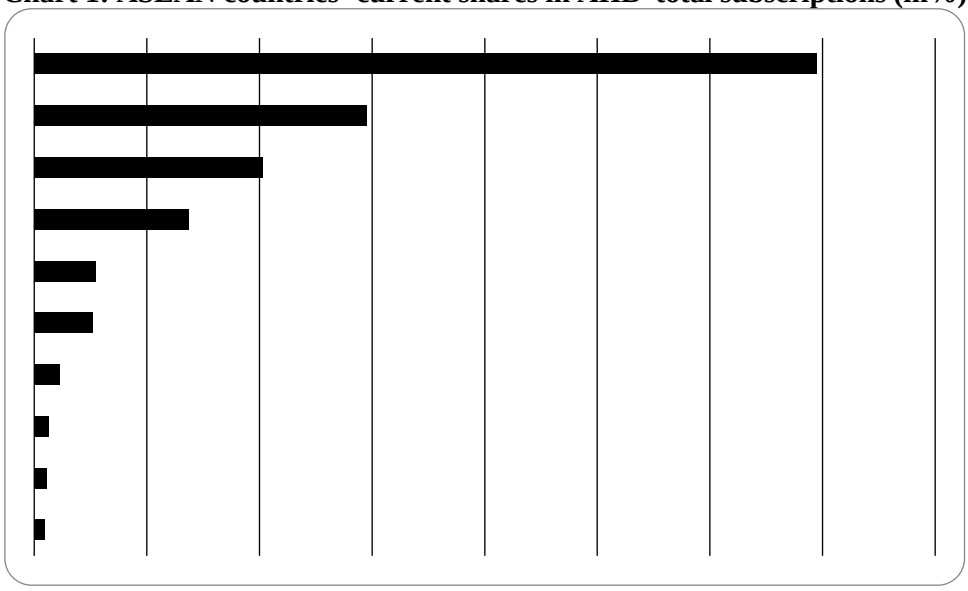
in ASEAN countries, the present paper[1] focuses on narratives and actions in these countries as regards the large scale Chinese initiative.

2 Specificity of the ASEAN countries as regards relationship with China and the BRI

China is the first dialogue partner of the ASEAN, having a strategic partnership with the group as a whole since 2003. Strategic partnerships were subsequently signed by China with: Indonesia (2005), Vietnam (2008), Laos (2009), Cambodia (2010), Myanmar (2011), Thailand (2012) and Malaysia (2013). Brunei and Philippines are late comers in the group of China's strategic partners (the bilateral relations were upgraded in November 2018 to a *Strategic Cooperative Partnership* and *Comprehensive Strategic Cooperation*, respectively). Singapore is the only ASEAN country with no clear strategic partnership with China, perhaps one factor explaining this situation being its position as the most important strategic partner for the United States in the region. However, China-Singapore bilateral cooperation is intense and the latter is one of the promoters of strong ASEAN-China ties, as well as the successful concluding of the trade talks for the Regional Comprehensive Economic Partnership (RCEP) (ASEAN plus China, South Korea, Japan, India, Australia and New Zealand).

The ASEAN countries support the BRI but in accordance with the organisation's principles, prefer a *multilateral initiative led by multiple actors*. Most of them have signed a Memorandum of Understanding, Joint Statement or other forms of cooperation documents attesting the support for the BRI.[2] All the ten countries are members of the Asian Infrastructure Investment Bank (AIIB) (Chart 1) and are currently negotiating/implementing projects under the BRI.

Chart 1: ASEAN countries' current shares in AIIB total subscriptions (in%)



Note: These six countries' percentages represent 7.5% of the total regional of 76.4%. China is the largest regional contributor (circa 30.8% of the total), followed by India (8.7%) and Russia (6.8%).

Source: Own representation based on AIIB (2019).

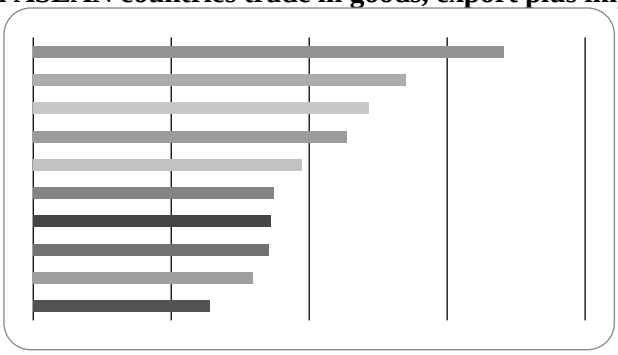
All of them have a pro-growth and pro-development agenda (Das *et al.*, 2018) and with the exception of Singapore, need additional resources to finance their infrastructure development (ADB, 2017) but also other priorities of the national development plans. It is also worth mentioning that nine of the ten ASEAN countries

[1] This analysis is part of the study "Economic Relations between Great Powers in the Indo-Pacific under the Current Geopolitical Context", coordinator Oehler-Sincai, I.M., Institute for World Economy, Romanian Academy, 2019.

[2] Please consult: https://www.beltroad-initiative.com/memorundum-of-understanding-belt-and-road-initiative/, Sayavong (2018).

were represented by their heads of state/government at the second BRI forum in Beijing in April 2019 and probably also the Indonesian President would have attended it unless he had not been engaged in urgent activities at the national level following his re-election (Tiezzi, 2019). As regards **trade in goods**, China is the main trade partner for eight of the ASEAN countries and the second for two of them (in the case of Laos, Thailand dominates its trade flows, with 51.6% of the total in 2018 and for Brunei the first trade partner is Japan, with 22.8% of the total) (DG Trade, 2019).

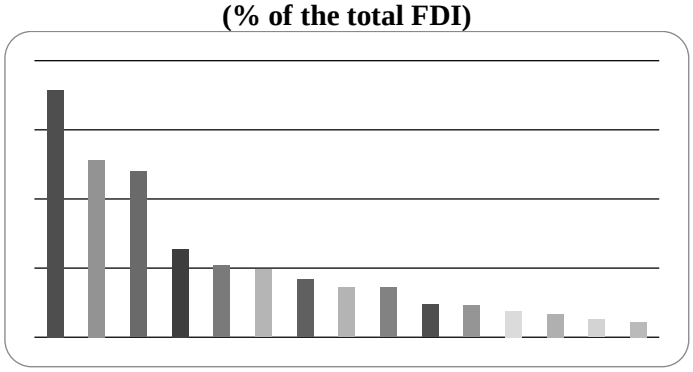
Chart 2: China's shares in ASEAN countries trade in goods, export plus import (% of the total trade)



Source: Own representation based on DG Trade (2019).

The interdependencies with China have been increasing in the recent years, as indicated by the evolution of **FDI** sources. From a marginal investor ten years ago, China has become the third largest foreign investor outside the ASEAN, after the United States and Japan (with a share of 6.4% of the total) in terms of stocks between 2010 and 2017 and the second after Japan (8,2%) in 2017, in terms of flows (ASEAN Secretariat, 2018, p. 55) (Chart 3).

Chart 3: Main 15 investors in the ASEAN, cumulative 2010-2017 (% of the total FDI)



Source: Own representation based on ASEAN Secretariat (2019).

Trade and investment flows follow their course, but the BRI framework is a supplementary stimulus due to its ripple effects generated throughout the partner economies.

3 Specificity of the ASEAN countries as regards relationship with China under the BRI

In our opinion, there are four groups of countries in the ASEAN according to the specificities of their relations with China from the standpoint of the BRI. *First*, **Indonesia, Thailand, Malaysia, Philippines and Vietnam**,five of the six largest ASEAN countries in terms of GDP in current prices.. In general they follow their national interest and have the ability to negotiate with their partners, even with China, as underscored by recent examples.

For instance, in Malaysia one can remark: (1) critiques regarding many Chinese-backed projects launched under the government led by Najib Razak (2009-2018), described as a "corruption bonanza"; (2) renegotiation of major projects (such as the East Coast Rail Link) under the re-elected prime-minister Mahathir Mohamad (formerly in office between 1981-2003); (3) continuation of an intense relationship with China, especially under

Malaysia's *National Policy on Industry 4.0* (or Industry4WRD), initiated in 2018 and poised to transform the national manufacturing sector and the related services; (4) similarly to the success story of the Proton-Geely consortium, the actual government is encouraging "strategic ventures between national government and Chinese champions" (Tritto, Camba , 2019).

The BRI ongoing projects in Philippines,[3] under President Duterte's "Build, Build, Build" infrastructure initiative demonstrate that these correspond to a strong demand for investment in infrastructure and connectivity development. Even if many of them are contested internally, on grounds related to environment issues, potential "debt trap" and disadvantageous dispute settlement mechanisms, such projects are necessary for the diversification of the economy.

In Vietnam, similarly to other ASEAN countries, there is ambivalence towards China's BRI: endorsement of this initiative is accompanied by caution as regards its complex implications (Le, 2018). Le Hong Hiep underscores that "there remains lingering distrust between the two countries and rising anti-China sentiments in Vietnam due to recent tensions over the South China Sea disputes, especially following the 2014 oil rig crisis" and the Vietnamese President supports the BRI but provided that several conditions are met, including: "sustainability, effectiveness and inclusiveness, openness, mutual respect and benefits, and compliance with the UN Charter and international law" (Le, 2018). These are exactly the principles set forth in the *Silk Road Spirit* by the Chinese authorities therefore the prerequisites for cooperation are in place.

Thailand, supporting connectivity development as a means to boost cooperation and peace, is aware of the complementarities between Chinese and Thai priorities, for instance those regarding: (1) Thailand 4.0 Strategy and Made in China 2025; (2) development of the regional North-South, East-West and Southern corridors under the BRI; (3) Chinese experience in poverty alleviation and the 20-Year National Strategy 2017-2036.

Indonesia's case study will be presented in detail in the following section.

Second, there are the least developed countries, **Cambodia, Lao and Myanmar.** The first two are in the category of fervent supporters of the BRI, while in Myanmar one can already remark a new trend of imposing more conditions such as transparency, social and environmental responsibility and protection of national interest (Frontier Myanmar, 2019). Such an approach is wise but it should be able to avoid the trap of labelling *ab initio* the BRI as a bad choice. Populations at large have become more sensitive and responsive to populist messages therefore the risk of losing good development opportunities is very high. Instead it is needed a critical, objective and impartial stance, in order to be able to balance risks and opportunities.

In spite of recent changes in Myanmar's attitude, all the three countries regard the BRI as a tool enabling their development strategies. For instance, Myanmar and China put forward at the second BRI forum in Beijing the idea of launching a *five-year plan on economic and trade cooperation under the BRI* (Myanmar Times, 2019). A Memorandum of Understanding in this regard has already been signed, together with a *Memorandum on the China-Myanmar Economic Corridor (CMEC) Plan for the period 2019-2030* and an *Agreement on economic and technical cooperation*.

As a part of their activities in international organizations, such as the United Nations (Department of Economic and Social Affairs), they consider projects under the BRI as a way to accomplish their **Sustainable Development Goals**. According to CCIEE-UNDP (2017), BRI "could serve as an accelerator, an effective enabler to achieve the Sustainable Development Goals".

Cambodia's *Rectangular Strategy for Growth, Employment, Equity and Efficiency* (following the *Triangular Strategy* of 1998-2003) entered the fourth phase in 2018. Among the government's priorities there are: economic diversification, private sector development, innovation, new technologies, governance reforms, rural development, natural resources management and environment protection, which are solid foundations for an upper-middle income country by 2030 and a high-income country by 2050 (Khmer Times, 2019). Examples of good practices in Cambodia include the special economic zone in Sihanoukville, which generated more than 20.000 jobs and also the Phnom Penh-Sihanoukville highway, which will become the first expressway of the country and is seen as an engine for regional trade and therefore economic growth.

For Laos, BRI is viewed as an enabler of its strategy of turning from a "land-locked" to a "land-linked" country and the "combined value of the Vientiane-Boten Railway, the Savannakhet-Lao Bao Railway, and some of hydropower plants exceeds $17 billion" (Sayavong, 2018). However the value of the Chinese-backed projects by value as a share of Laos GDP is around 100%, level considered too risky. Laos supports also the *Development*

[3] Such as: Kaliwa Dam, Chico River Pump Irrigation Project, the Subic-Clark Railway Project, bridges etc.

Plan for International Navigation on the Lancang-Mekong River (together with Myanmar, while in Thailand ecologist groups strongly oppose this Plan).

Third, it is **Brunei**, which in November 2018 was included in the group of China's strategic partners and signed a Memorandum of Understanding for cooperation within the BRI Framework. Considering the evidence of diminishing resources of oil and gas and also revenues in the long run, the Sultanate of Brunei is focusing on economic diversification and China is one of the relevant partners in this regard. Brunei is the second richest country of ASEAN, with a GDP per capita of more than $30,000 (after Singapore, with over $65,000 per capita). With almost no public debt and with large current account surpluses, Brunei can afford to reform its economy.

Fourth, Singapore, in contrast to other ASEAN members, is a high-income country with a highly competitive economy, one of the key world financial and technology centres. Therefore it is a valuable partner for China under the BRI as a financing hub and source for third-countries partnerships (infrastructure consultancies).[4]

4 Indonesia's case study

It was during the Chinese President Xi Jinping's visit to Indonesia in October 2013 that the BRI initiative was proposed for the first time. Focused on China's neighbours at the beginning, the BRI map has been extending continuously so that nowadays it surpasses boundaries of Asia, Europe and Africa and reaches the Americas, the Arctic, cyberspace and even the outer space (Hillman, 2018).

With ambitious plans to transform Indonesia into one of the top five economies by 2045 (when it celebrates 100 years of independence) but also into a World Maritime Axis (according to the Maritime Policy of 2017), the re-elected President Joko Widodo needs strong partners.

Indonesia's Vision 2045 – outlined by the Indonesian President in 2015, in close connection with the Indonesian Dream 2015-2085 and in line with the nine priorities of the National Development Plan, *Nawa Cita* (Hanan, 2019, UNDP, 2015) –, underscores the importance of further economic diversification. In its turn, Indonesia 4.0 reflects the need to adapt according to the transformations accompanying the fourth industrial revolution. National priorities included in the *Making Indonesia 4.0 roadmap* are generic (e.g. improve the flow of goods, attract foreign direct investment, boost the quality of local human resources) but also specific (technology and productivity upgrades in food and beverages, textiles and garments, automotive, electronics and chemicals – ADB, 2019, p. 275). In a time when China is "exporting" its excess production capacities, such priorities underline the complementarities of the two partners. Moreover, infrastructure development stimulates competitiveness, productivity and trade, therefore manufacturing industry and economic diversification.

China and Indonesia have a strategic partnership since 2005, transformed into a comprehensive one in 2013. Since 2016, China has been the most important trade partner for Indonesia, surpassing the traditional partners such as Japan, the United States, Singapore and South Korea, due to the implementation of ASEAN-China Free Trade Agreement, which came into effect in 2010 and spurred bilateral trade (Damuri *et al.*, 2019). China is at the same time an important investor in Indonesia, the largest shares being oriented to: (1) electricity, gas and water supply (23%), mining sector (20%) and basic metal industry, metal production, machinery and equipment (15.6%) (Damuri *et al.*, 2019).

In spite of the strong bilateral relationships, the Indonesian people are cautious and suspicious as regards the great powers' intentions (Priyandita, 2019), therefore also with regard to China's initiatives. Indonesia supports the projects under the BRI but in line with the national development strategy, i.e. "private sector-driven", "profit-oriented" and with no impact on the government debt (Soeriaatmadja, 2019).

In April 2018, companies from Indonesia and China signed in Beijing five contracts worth $23.3 billion (Table 1). It was signed also a memorandum of understanding regarding Tanah Kuning Mangkupadi Industrial Park in northern Kalimantan and on the development of electric vehicles. With that occasion was also underlined Indonesia's intention to cooperate with China on economic corridors (North Sumatra, North Kalimantan, North Sulawesi and Bali), the investment value being estimated at $51.9 billion. The estimated deadlines for the projects implementation are also important but in this investigation we aim at outlining an overview of China's relations with selected ASEAN neighbours as part of the BRI.

[4] Please consult: http://www.siiaonline.org/setting-the-record-straight-singapores-role-in-the-bri/#.

Table 1: List of Sino-Indonesian contracts signed in April 2018 under the BRI framework

Project	Value
Joint venture to build a hydropower plant on the Kayan river	$17.8 billion
Hydropower plant in Kayan, North Kalimantan	$2.0 billion
Joint venture to build a power plant in Bali	$1.6 billion
Development of a steel smelter (sector important also for the upgrade of port infrastructure)	$1.2 billion
Facilities to convert coal to dimethyl-ether	$0.7 billion

Source: The Jakarta Post (2018).

Soeriaatmadja (2019) underlines that many projects in Indonesia with strong Chinese government support have not been officially listed as BRI projects, even if the Chinese government includes them in this framework. Among them there are: the nickel industrial park in Morowali (completed before the BRI was launched) and the 142.3 km track between Jakarta and the textile centre Bandung, the first Indonesian medium-speed (200-250 km/hour) rail project which is partially financed by the China Development Bank (75%).

The construction of the Jakarta-Bandung rail started in 2016, it should have been finished in 2019 but according to mass media (The Jakarta Post, 2019) and specialised web sites,[5] there is a two-year delay from the initial plan. The total costs involved are estimated at $5.5 billion. A joint venture (60% Indonesian, 40% Chinese, made up of China Railway Construction Corp and a consortium of Indonesian state-owned enterprises) is developing the project. It is worth mentioning that at the project competition, China was elected instead of Japan, as it was prepared to offer guarantee-free loans. The maturity of the credit is 40-year, with 10-year grace period. The medium-speed rail is 40% cheaper than the original high-speed track. According to experts, the construction activities imply a new impetus for other industries (including smelting) and it is expected to generate 40,000 jobs each year during the project implementation.

The Indonesian government considers that state's role should be that of *facilitator*, and actual cooperation with China is not "government-to-government" but "corporation-to-corporation", even if most of the companies involved in the implementation of the projects are state-owned enterprises. However, as revealed by the List of signed documents during the official visit of the Chinese prime-minister to Indonesia during May 6-8, 2018,[6] including that of promoting cooperation on the development of *Regional Comprehensive Economic Corridors*, the "government-to-government" memoranda of understanding offer a solid base for "corporation-to-corporation" cooperation.

It is not China which comes with "strings attached" to projects in Indonesia, but the host country itself. These are related to the: (1) rejection of second-class technology with a negative impact on the environment; (2) encouragement of the use of local labour; (3) transfer of knowledge of technologies to local partners though training programs; (4) value added creation in order to reduce the still high dependence on extractive industries (The Straits Times, 2019).

5 Conclusions

In their efforts to strengthen national competitiveness, economic development and diversification, the ASEAN countries consider China as a key partner. Most of them have signed cooperation documents attesting the support for the BRI and all the ten countries are members of the Asian Infrastructure Investment Bank and are currently negotiating/implementing/supporting projects under the BRI. China is the main trade partner for eight of the ASEAN countries and the second for two of them and also a key investor.

[5] Please consult: https://www.railway-technology.com/projects/jakarta-to-bandung-high-speed-rail/.
[6] Please consult: http://www.xinhuanet.com/english/2018-05/08/c_137163660.htm.

This analysis highlights four groups of ASEAN countries according to the specificities of their relations with China from the standpoint of the BRI: (1) Indonesia, Thailand, Malaysia, Philippines and Vietnam, which in general follow their national interest and have the ability to negotiate with their partners, even with China. In spite of particular critiques towards the BRI instruments, Malaysia for instance is continuing previous projects, but these have been renegotiated under the re-elected prime-minister Mahathir Mohamad. (2) The least developed countries, Cambodia, Lao and Myanmar regard the BRI as a tool enabling their development strategies and also a way to accomplish their Sustainable Development Goals. The first two are in the category of *fervent supporters* of the BRI, while in Myanmar one can already remark a new trend of imposing more conditions such as transparency, social and environmental responsibility and protection of national interest. (3) Brunei is a late-comer in the group of countries which signed with China a Memorandum of Understanding for cooperation within the BRI Framework. Similarly to the other ASEAN countries, the Sultanate of Brunei is focusing on economic diversification and China is one of the relevant partners in this regard. (4) Singapore is a high-income country with a highly competitive economy therefore it is a valuable partner for China as a financing hub.

The case study on Indonesia's stance towards the BRI underlines on the one hand caution but on the other openness and support, but in line with the national development strategy, namely "private sector-driven", "profit-oriented" and with no impact on the government debt. The Indonesian government considers that state's role should be that of *facilitator*, even if most of the companies involved in the implementation of the projects are state-owned enterprises. In contrast to other projects, the Jakarta-Bandung rail will be developed in the absence of the usual government guarantees, which highlights the Chinese government and companies' flexibility in negotiations with determined partners.

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The New Trends and Developments of China-EU Scientific and Technological Innovation Cooperation

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Abstract: Building an innovative country is a core element of the modernized economic system in China, which will provide a new opportunity for the deepening of relations between China and the world's innovative countries. The relation between China and European countries has been recently intensified and the cooperation in the field of scientific and technological innovation tends to be diversified, innovative and forward-looking. This paper analyzes the new trends and developments from three different perspectives: first, ST and innovation cooperation between China and the EU under the Horizon 2020. The second, the Sino-British science and technology cooperation and the related innovative partnership, and, third, the innovative strategic partnership between China and Switzerland. These three cooperation models present a new direction of science and technology innovation development between China and European countries. They may lay basis for upgrading the "China-EU comprehensive strategic partnership" into the "China-EU innovative comprehensively strategy partnership" in the future.

Key Words: Sino-EU ST and Innovation; Innovation Cooperation Strategy; Innovation Strategic Partnership

JEL Classification: O1, O10, O19

1 Introduction

Over the recent years, China's attention towards science, technology and innovation-driven development has risen to an unprecedented strategic height. During the past 40 years of reform and opening-up, China has achieved remarkable economic development results and has become the world's second largest economy. However, there are many problems that come hand in hand with high-speed economic growth, such as low quality and efficiency of development, serious damage to the environment, weak innovation ability and the need to improve the level (of real economy) living standard The Chinese average annual economic growth rate has been unable to maintain its high-speed growth of nearly 10% over the past 40 years, settling for only a medium high-speed growth of about 7%. The economic growth pattern has entered a transition period that objectively requires a change in the driving force of economic growth, from "factor-driven" and "investment-driven" to "innovation-driven".

In this context, the Chinese Communist Party Central Committee and the State Council issued the Outline of the Innovation-Driven Development Strategy in May 2016, which put forward the strategy for innovation-driven development. In the report of the Nineteenth National Congress of the Communist Party of China, General Secretary Party Xi Jinping once again emphasized that "innovation is the first driving force for development and the strategic support for the construction of a modern economic system", and put forward clear goals and tasks for the establishment of an innovative country[1]: 1. Emphasizing that innovation is the first driving force for development and the construction of a modern economy, and the strategic support of the system. 2. Aiming at becoming the one of the world's innovating scientific research leaders, by strengthening basic research, focusing on forward-looking, leading and breakthrough research. 3. Strengthening the construction of national innovation system and building a system for technology innovation based on deep cooperation between industry, the academic universities and the research sector; 4. Training and cultivating international-level strategic scientific

[1] In the fifth part of the report of the 19th National Congress of the Communist Party of China, "Implementing the new development concept and building a modern economic system", it is clearly pointed out that China's economy has changed from a period of high-speed growth to a period of high-quality development, and is in the critical period of transforming the mode of development, optimizing the economic structure and transforming the driving force of growth. Building a modern economic system is a breakthrough considering the urgent need of the mouth and the strategic goal of our country's development, while accelerating the construction of an innovative country is a key in building a modern economic system.

and technological talents and scientific and technological teams. Relying on an innovation-driven development strategy and on the goal of building an innovative country created new opportunities for cooperation between China and the EU in the field of scientific and technological innovation and put forward higher requirements.

A large number of existing studies have confirmed that the reason why scientific and technological innovation has become the driving force of economic growth is that it can continuously improve the economic growth mode, create and increase productivity, step-up the upgrading of traditional industries, and comprehensively enhance economic competitiveness. "In the strategy of innovation-driven development, the scientific and technological innovation capability, as an important support of national core strength, has nurtured the evolution of national economic development to a stage of more detailed division of labor, more rational structure and higher performance, and then has overcome the "middle-income trap". Breakthrough technologies brought about by basic research and scientific exploration are constantly emerging. They reshape the world competition pattern and provide an opportunity window for the late-developing countries to become the front-runners of global economy. Through innovation and the cultivation of new economic growth points, they provide a basis for maintaining medium and high-speed economic growth and striding toward the "double goals" of industries at the high and middle levels. (Xielin, Yuchen, & Xuechen, 2017)

Over the recent period, China has been catching-up in technological terms. In the process of technological development, first of all, it relies on opening up, introducing, digesting and absorbing foreign advanced technology. In order to realize the "innovative national strategy" proposed in the report of the 19th National Congress nowadays and in the future, China should increase its openness to the outside world in the field of scientific and technological innovation and continue to promote the pace of international cooperation. Compared with the United States and Japan, China's scientific and technological cooperation with Europe has more strategic value. This is because the China-EU scientific and technological cooperation is the core content of the comprehensive strategic partnership between China and Europe. The EU is the main source of technology transfer to China. In recent years, the China-EU scientific and technological cooperation has significantly increased, and it has become more and more active within the EU, its member countries and other European countries. Establishing innovative partnership has become a new direction for promoting Sino-EU scientific and technological cooperation. The Sino-EU scientific and technological cooperation has gradually shifted from traditional technical cooperation to scientific and technological innovation cooperation. The new highlights and progresses of the China-EU cooperation in science and technology innovation are characterized by three aspects.

2 Scientific and Technological Innovation: A New Bright Spot in China-EU Relations

2.1 Turning from Scientific and Technological Cooperation to Innovative Cooperation

The China-EU science and technology cooperation has become a core part of the China-EU comprehensive strategic partnership. So far, the important moments in the process of Sino-EU scientific and technological cooperation are as follows: Firstly, in 1998, China and the EU signed the Sino-EU Agreement on Scientific and Technological Cooperation; the EU R&D framework programme and China's high-tech research plan and basic research plan (i.e. plan 863 and plan 973) are open to each other, which means precious opportunities for cooperation for scientists on both sides. So far, the Agreement on Scientific and Technological Cooperation has been renewed three times, namely in 2004, 2009 and 2014. Secondly, in May 2009, China and the European Union signed the China-EU Science and Technology Partnership Plan, and the relationship between China and the European Union in science and technology cooperation has gradually shifted from a European-oriented one to an increasingly equal partnership. The two sides jointly decide, select and fund research projects in mutually beneficial priority areas. At the same time, the China-EU Scientific and Technological Cooperation Working Group has been upgraded and renamed the Steering Committee for China-EU Scientific and Technological Cooperation. Through regular meetings, the coordination and management of scientific and technological cooperation between China and EU branches such as the General Research Department, the General Energy Department and the General Information Department have been strengthened. Thirdly, during the 15th China-EU Summit in 2012, China and the EU signed the Joint Statement on China-EU Innovation Cooperation Dialogue and held the first China-EU Innovation Cooperation Dialogue in Beijing on November 21, 2013. The two sides discussed how to optimize and adjust the innovation governance system and promote effective innovation support measures, to provide a better environment for innovation and other issues to strengthen communication and consultation. (Delegation of the European Union to China, 2016). Fourthly, in 2015, China and Europe

established a joint funding mechanism for scientific research and innovation (CFM). This is one of the results of the annual "China-EU Innovation and Cooperation Dialogue". On September 7, 2015, at the "Pursuing Excellence - Promoting the Exchange and Cooperation of Scientific Research Personnel between China and Europe", the two sides announced the launch of a new "China-EU Joint Funding Mechanism for Scientific Research and Innovation".

The innovative aspect of this kind of cooperative model is that the joint funding mechanism was set up by the Chinese Ministry of Science and Technology and the European Commission's Research and Innovation Directorate. In order to implement the joint funding mechanism highlighted in the joint statement of the 17th China-EU Summit, the mechanism relies on the European Union Research and Innovation Programme "Horizon 2020" and on China's relevant five-year research and innovation funding plan (2016-2020). The European Commission plans to continue to invest about EUR 100 million annually in the "Horizon Programme"[2]. Within the framework of the 2020 Plan, support institutions were established in Europe to participate in joint projects with Chinese institutions. The Chinese side has supported the establishment of institutions in China to participate in joint projects with European partners under the framework of the Horizon 2020 Programme. This mechanism has greatly increased the proportion of Chinese scientific researchers participating in the EU R&D framework programme as project hosts, and has transformed China's participation in the EU R&D framework programme from its previously decentralized application status to a centralized and unified declaration through the National Science and Technology Management Information System of the Ministry of Science and Technology, thus enabling the scientific and technological cooperation system between the two sides. (As a result, the China-EU scientific and technological cooperation initiative has been strengthened to yield win-win results. This model has been highly praised by both China and Europe[3].

2.2 Innovative Highlights of the China-EU Scientific and Technological Cooperation

2.2.1 The transformation of the scientific and technological cooperation governance system

The management mode of Sino-EU scientific and technological cooperation has completed three stages: one-to-many centralized management[4], multi-head management and collaborative management. The improvement of the management mode effectively integrates the existing resources of the Sino-EU scientific and technological cooperation and makes the cooperation between the two sides develop towards high efficiency and equality.

After the signing of the China-EU Agreement on Science and Technology, the model of China-EU cooperation was a typical multi-head management model (1998-2015). The 1998 agreement clearly states that "*China will continue to participate in EU research activities for development as a developing country"*. This provision guarantees not only that China can participate as an equal partner in the main part of the EU Framework Programme, but also continue to enjoy the assistance treatment applied to developing countries in the International Cooperation Specific (INCO) of the Framework Programme. Since then, China's scientific research

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[2] Launching a new joint funding mechanism for scientific research and innovation with China, International Online, http://news.cri.cn/gb/42071/2015/09/08/8011s5094725.htm.

[3] "Scientific and technological cooperation is an important part of China-EU comprehensive relations, and science and innovation will inject momentum into economic growth and social development," said Minister Wan Gang. "The establishment of joint funding mechanism will have a significant impact on the strategic partnership between China and Europe, and scientific research and innovation has become an important part of this partnership," said Carlos Modas, member of the Council of Europe for Scientific Research and Innovation.

[4] Before the signing of the Agreement on Science and Technology Cooperation between China and Europe, the one-to-many centralized management model was applied (1981-1998). The one-to-many centralized management model means that during this period, China was under the unified responsibility of the National Science and Technology Commission for scientific and technological cooperation with foreign countries, while the energy, information and development departments of the European side were equal. Given the decision-making and science and technology management functions, it was necessary to expand the functions of this department by developing cooperation in relevant fields of science and technology after the establishment of diplomatic relations between China and Europe. During this period, China and the EC mostly adopted the aid and demonstration mode in their scientific and technological cooperation. As the leading role of the EC, China was in a passive position, and the costs of personnel training and expert visits were basically borne by the EC. Most of the Sino-European cooperation projects were related to projects under China's plan "863". Although China was relatively weak in cooperation, it has also improved the research level of domestic researchers and accumulated international cooperation research experience.

institutions and personnel do not need to use the National Science and Technology Commission (Ministry of Science and Technology) as an intermediary, as long as they can find EU research partners, they can directly establish links with them to apply for funding within the framework plan (Gao, Liu, 2019). This agreement at the national level has transformed the "one-to-many" model of Sino-EU cooperation into a "multi-to-many" multi-head management model, and the Sino-EU scientific and technological cooperation has entered a full blooming stage.

Since 2015, the collaborative management mode has been applied. In accordance with the China-EU Joint Initiative to establish a Joint Funding Mechanism (CFM), beginning with 2016, the Ministry of Science and Technology of China provided financial support for Chinese institutions to participate in the research and innovation projects of the Horizon 2020 Programme and the exchange of research personnel. During 2016-2020, China and Europe were going to raise EUR 1.5 billion and EUR 500 million, respectively, for the joint funding scheme. Since then, the EU R&D framework projects hosted by China have been submitted to the website of the Ministry of Science and Technology, and the proportion of projects hosted by Chinese researchers has been greatly increased. In the past, the Chinese decentralized application procedures were aligned to the unified application procedure through China's National Science and Technology Management Information System and the European Union Scientific Research Information Network. This scientific and technological cooperation mode effectively integrated the existing resources of China-EU scientific and technological cooperation, changed the decentralized state of previous multi-pronged cooperation, and promoted efficient and equal development of bilateral cooperation.

The main reasons for adopting the third cooperative management system are as follows: Firstly, multi-head management mode promotes the cultivation of scientific research teams on both sides, but it cannot avoid unnecessary competition and waste of resources. When Chinese scientific research teams directly apply for European projects, they can't get the direct support of the Ministry of Science and Technology, and the Ministry of Science and Technology does not have an overview of the situation and of the actual project cooperation progress. There is a gap between the scientific and technological cooperation management agencies and the specific departments executing the projects. Secondly, in the Horizon 2020 Programme, which has been implemented since 2014, China and other emerging economies have no longer automatically received Horizon 2020 project funds. Chinese participants had to provide funds or in-kind contributions to participate in projects. Therefore, the China-EU scientific and technological cooperation under the government-led participation, with the Chinese Government Providing research funds was the basis for promoting the establishment of a partnership between China and Europe for scientific and technological innovation.

2.2.2 Cooperation between China and Europe under the R&D Framework (Plan) Programme

The EU's R&D Framework Programme (FP) has been fully open to China since 1998[5]. The cooperation between China and the EU in the FP has been the main channel for China-EU scientific and technological cooperation. 1998 coincides with the implementation period of the Fourth Research and Development Framework Programme of the European Union. "In the fourth R&D framework programme of the European Union, China participated in 81 projects, 52 of which were the Cooperation Programme for Developing Countries (INCO-DC), which received EUR 25 million from the European Union, and was the developing country with the largest amount of projects and funds in the INCO-DC plan. In the fifth R&D framework plan, China participated in a large number of projects altogether. There were 110 projects, of which 44 were INCO-DC projects. In the sixth R&D framework plan, China participated in 239 projects and received about EUR 35.19 million of EU research funds, accounting for 10.88% of the total EU project funds received by the third countries (non-EU countries), second only after Russia. In the seventh framework plan, China successfully applied for 410 projects (Zhang, 2018).

At present, China is the largest partner of the EU Horizon 2020 programme, focusing on cooperation in the food, agriculture and biology, energy, water, information and communication, nanotechnology, space and polar research industries. The Chinese University of Science and Technology, Tsinghua University, Peking University, Shanghai Jiaotong University and other universities joined the programme. The EU also encouraged Chinese

[5] In 1998, the fourth EU R&D framework plan included cooperation with third countries (INCO) for the first time. The INCO sub-plan, i.e. the Cooperation with Developing Countries (INCO-DC), emphasized the participation of developing countries, which provided the possibility for China to participate in the EU scientific research program.

personnel to apply for scholarships and exchange schemes provided by the European Commission for Scientific Research and the Marie Curie Action Plan.

2.2.2 New Development Opportunities for the China-EU Innovation Cooperation

During the Third China-EU Dialogue on Innovation Cooperation (June 2, 2017), China and Europe signed the Agreement between China's Ministry of Science and Technology and the European Commission on the Implementation of the Sino-EU Flagship Cooperation Plan for Research and Innovation and Other Research and Innovation Cooperation Projects in 2018-2020 through the Joint Funding Mechanism, in order to create intergovernmental scientific research for the follow-up of China and Europe. The new cooperation provides guidance and basis.

At the end of October 2017, the European Commission officially announced the allocation of innovative R&D funds in the last three years of the EU Horizon 2020 (2014-2020) (2018-2020). According to this programme, the EU will invest up to EUR 30 billion in the Horizon 2020 project in the period of 2018-2020, of which EUR 2.7 billion will be used to launch the European Innovation Council, the new research management institution of the EU. As soon as the scheme was announced, it attracted wide attention from the outside world because it focused on pioneering scientific research with large-scale funds and significant breakthroughs, sociality and market-driven. The new round of project cooperation has the following three new characteristics: (1) EU funding in the field of R&D will be better targeted to change the past wide coverage, funding projects, almost "pepper noodles" funding mode. (2) Focus will be put on supporting innovative, market-driven research, with technological breakthroughs and seeking linkage and balanced development between technological breakthroughs and the market. (3) To adjust and reform the system of the European Research Council and establish and launch the European Innovation Council, project funding, key breakthroughs and scientific and technological innovation governance have been adjusted and changed, which provides new opportunities for more effective innovation cooperation between China and Europe.

Nevertheless, it is noteworthy that the Horizon 2020 programme, which takes reciprocal openness, two-way cooperation, fund allocation and sharing as the new rules and trends of the Sino-European cooperative research projects, puts forward higher requirements on research priorities, fund requirements and intellectual property ownership of research results, which makes it possible for Chinese scholars to participate in research and development projects. The objective is very challenging.

According to the latest plan announced in this report, between 2018 and 2020, the European Commission will allocate EUR 3.3 billion for future low-carbon, climate change adaptation research, EUR 1 billion for circular economy research, EUR 1.7 billion for digitalization and transformation of European industry and services, EUR 1 billion for EU security research and EUR 200 million for immigration research. In addition, EUR 2.2 billion will be allocated to projects in four related areas of clean energy: renewable energy, energy-efficient buildings, electric transport and energy storage. From this sum, EUR 200 million is used to support the development and production of next-generation batteries.

According to the above-mentioned R&D funding priorities over the next three years, China can jointly tackle key issues with the EU in the research and development of in the fields of low-carbon and green development technologies, and provide new technologies, new programs and new practices for China in the areas of green development and low-carbon growth. Strengthening R&D cooperation between China and the EU in the fields of low carbon economy, digitalization and clean energy technology will help China and EU to jointly contribute to a new era of low carbon and green development for mankind.

3 Sino-British scientific and technological innovation cooperation has entered an era of co-consultation and decision-making

The cooperative management system between China and EU and its Member States is divided into super-national level and Member State level. China and EU Member States have signed scientific and technological cooperation agreements and established scientific and technological cooperation committees. The scientific and technological cooperation with major EU Member States such as France and Germany is getting closer and closer. However, the scientific and technological funding schemes at various national levels are very important. After all, China's openness is limited. At present, Britain is ready to leave Europe, but the bilateral scientific and technological cooperation between China and the UK has continued to advance and made breakthroughs. The

Sino-UK cooperation in the field of scientific and technological innovation is unique and worthy of attention and research.

From January 31 to February 2, 2018, British Prime Minister Teresa May made her first visit to China during her term of office, announcing the opening of a new journey in the "golden age" of Sino-British relations, which has injected new vitality into the realization of strategic relationship between the two countries and the strengthening of pragmatic cooperation in various fields. It has become a hot topic to build an enhanced version of the "golden age" of Sino-British relations. President Xi Jinping declared: to jointly create a "golden age enhanced version", we should constantly enhance and highlight the strategic, pragmatic, global and inclusive nature of Sino-British relations.

3.1 Sino-British scientific and technological cooperation has always been at the forefront of the world

In 2015, President Xi Jinping visited Britain, creating a "golden age" of Sino-British relations. In recent years, China and the United Kingdom have been moving on the established track, and their willingness to cooperate has been growing. They are drawing grand blueprints. The deepening of cooperation in the field of scientific and technological innovation has become a highlight in the development of Sino-British relations. So far, the scientific and technological cooperation between the two countries has been fruitful and unique in the global scientific and technological cooperation. Sino-British scientific and technological cooperation is characterized by a pragmatic, pioneering, strategic, forward-looking and global approach. It has become one of the most important areas of cooperation with "golden texture" and "strategic connotation" in the "golden age" of Sino-British relations. Under the current international situation, Sino-British scientific and technological cooperation is in line with the strategic vision of "Globalized Britain" and "Globalized China", and is committed to the long-term goal of building a new type of cooperative relationship between the East and the West, between major developing countries and developed countries (Zhang, 2018).

In 1950, Britain became the first Western power to recognize the New China with a strategic vision of facing the world and embracing both East and West. Since the establishment of diplomatic relations in 1972, the two sides have achieved fruitful cooperation results in various fields. The development and deepening of a series of bilateral relations thus set out vividly illustrates every historic moment in which Sino-British scientific and technological cooperation has always been at the forefront of the world. In November 1978, China and Britain signed the Intergovernmental Agreement and Protocol on Scientific and Technological Cooperation. After the smooth handover of the Hong Kong's regime in 1997, bilateral relations entered a new stage of all-round development. In 1998, Sino-British relations were upgraded to a comprehensive partnership. In September the same year, the agreement on scientific and technological cooperation was revised, the high-tech field was identified as the focus of cooperation, and the regular mechanism of joint scientific and technological committees was established, which endowed the bilateral scientific and technological cooperation with a deeper strategic connotation. In 2004, the two countries established a comprehensive strategic partnership. In January 2009, the British Government published the first strategic document on China entitled "UK-China Cooperation Framework", which further strengthened the comprehensive strategic partnership between China and Britain. Then, in 2012, the high-level human-cultural exchange mechanism between China and Britain was launched, and the exchange of scientific and technological talents became a major trend. President Xi Jinping's state visit to Britain in October 2015 ushered in the "golden age" of Sino-British relations and formally established the Sino-British Innovation Partnership, thus bringing Sino-British scientific and technological cooperation into a new era of scientific and technological innovation cooperation. So far, the two countries have held eight ministerial-level meetings of the Joint Committee on Scientific and Technological Cooperation (renamed the Sino-British Joint Committee on Scientific and Technological Innovation and Cooperation after 2015).

3.2 The Newton Fund and the Research and the Innovation Bridges Project have achieved fruitful results.

Under the framework of the China-UK comprehensive strategic partnership, scientific and technological cooperation between the two countries has developed steadily along the lines of equality, mutual benefit and reciprocity. Attention should be paid to the innovative R&D activities of basic theory and applied science, and joint action related to major scientific research activities should be carried out. For example, the Sino-British Innovation Program, the Sino-British Science Bridge Program, the "China Tomorrow" Program and the Fudan-Tindor Center for Global Environmental Change Research have enhanced the innovative R&D capabilities of China and Britain. We should build innovative partnerships, emphasize talent training, cooperative research and

technology transfer, stimulate innovative vitality and get industrialization of innovative achievements. The Newton Fund and Research Innovation Bridges Project and other innovative research funding methods and cooperative research relationship models constitute a beautiful scenic line in the process of Sino-British scientific and technological innovation cooperation.

The Newton Fund, known as the Sino-British Joint Research and Innovation Fund, was officially launched in 2014. It plans to invest £ 200 million jointly by China and the UK over the course of five years to carry out scientific research and innovation cooperation in seven key areas: health, environmental science and technology, food and water security, urbanization, energy, education and creative economy. The implementation of the Newton Foundation series of projects has promoted the strong alliance between the Chinese and British intergovernmental science and technology departments, with the participation of relevant authorities, scientific research institutions and non-governmental organizations from both countries. So far, the Newton Foundation has supported about 460 cooperative projects. Deputy Prime Minister Liu Yandong spoke highly of it, calling it "a masterpiece of innovation and cooperation between the two countries". Talent projects under the Newton Foundation project: Newton Senior Scholars Foundation, Newton International Scholars Foundation and so on, are becoming boosters for training top talents in the field of scientific innovation in China and Britain.

During Deputy Prime Minister Liu Yandong's visit to Britain in September 2015, the two sides signed a plan for launching the Sino-British Joint Scientific Innovation Fund, Research and Innovation Bridge. The plan aims to support innovative cooperation between China and the UK in the field of transformation of scientific research achievements and provide solutions to specific challenges facing the two countries in their development process. The "Research and Innovation Bridge" project has built a bridge between the two countries for the cooperation in industry, education and research and the transformation of scientific research achievements, with a planned investment of £ 350 million. Through a series of projects, the scientific researchers of the two countries are encouraged to carry out a series of cross-disciplinary, full-chain and high-level scientific innovation cooperation research.

The Research and Innovation Bridge initiative advocates technology transfer cooperation, in which higher education institutions in China and Britain play an important role. British universities are keen on scientific and technological cooperation with China, and promote technology transfer between China and the UK through personnel training and technological exchanges. For example, the Oxford University Technology Transfer Company has constantly promoted technology transfer to China. At present, four joint ventures have been set up in Changzhou and other places. Bradford University and Sichuan University have jointly established the China-UK Advanced Materials Research Center.

The "Research and Innovation Bridge" program promotes the innovation and diversification of the Industry-University-Research cooperation. The two sides have established long-term scientific and technological cooperation or regular exchanges with scientific research institutions, universities or enterprises. The "one belt and one road" initiative encourages Chinese enterprises to "go out". Chinese enterprises, in addition to directly acquiring and developing strong R & D companies, cooperate with universities and research institutes in the UK to set up R & D centers and make use of advanced international scientific and technological resources to carry out industrial R & D and personnel training. For example, the China Aviation Industry Group has established joint R&D centers with the Imperial College of Technology and Nottingham University; China National Car Group and Birmingham University, Imperial College of Technology and Southampton University are planning to establish a joint R&D Center for rail transit technology between China and Britain, aiming at R&D cooperation in high-speed rail and other fields. The center will focus on the key areas of rail transit vehicle dynamics, structural strength, vibration reduction and noise reduction, with new technologies, new materials, new structures and new processes as the starting point, and will focus on the study of international rail transit "interconnection" technology and standard and normative system, in order to build a research and development base for new high-speed rail technology in Europe. These future achievements of industry-university-research cooperation will enhance the international R&D level of the two countries and lay a solid foundation for China to build an innovative country.

3.3. Sino-UK scientific and technological innovation leaps to a new level

Year 2018 marked the 40th anniversary of the Sino-British scientific and technological cooperation, and the cooperation in scientific and technological innovation between the two countries will continue to thrive. This started with the intergovernmental agreement on scientific and technological cooperation, which laid the foundation for the two countries to move towards the era of innovative partnership. Not long ago, China and

Britain jointly formulated the Sino-British Strategy for Scientific and Technological Innovation Cooperation for the first time, which achieved a leap in the bilateral scientific and technological cooperation. On December 6, 2017, China and the UK signed the Memorandum of Understanding on Science and Technology Innovation Cooperation, formally promulgating the China-UK Strategy for Science and Technology Innovation Cooperation. This is the first bilateral science and technology innovation cooperation strategy jointly formulated by China and other countries. China and Britain foresee that today's scientific and technological revolution and industrial change are brewing and rising, which is a major opportunity for the future prosperity and development of all countries in the world. Jointly formulating the scientific and technological innovation cooperation strategy will further tap into the potential of cooperation, enhance complementarity, and promote the development of cooperation in a multi-field, deep-seated, all-round and high-quality direction.

This joint strategy will open a new chapter of the Sino-British cooperation, which is a concrete reflection of the enhanced version of the "golden age" of Sino-British relations. In accordance with the objectives and requirements of the Sino-British Strategy for Scientific and Technological Innovation Cooperation, China and the UK are both responsible big powers. They will lead international scientific and technological innovation cooperation by raising the level of cooperation between the two countries. By gathering global intellectual resources, we can jointly meet global challenges with all countries in the world and build a community of human destiny for the benefit of all mankind. In the future, the achievements of scientific and technological innovation in China and Britain will shine brightly as we advance the construction of China-UK global partnership.

4 Innovation Strategic Partnership between China and Switzerland

In April 2016, the China-Switzerland relations were upgraded to innovative strategic partnerships, which became a major initiative in the development of China-EU relations and underlined the "innovation highlights" of China-Switzerland relations. Switzerland has become China's first innovative strategic partnership country and the first foreign relations country named after China's five major development concepts. The development process of Sino-Swiss relations on the 67th anniversary of the establishment of diplomatic relations shows that Sino-Swiss cooperation can be regarded as a model of friendly cooperation among countries of different social systems, different stages of development and different sizes, and it has become a new benchmark for Sino-European bilateral scientific and technological innovation cooperation.

4.1 The development of Sino-Swiss relations has created many first places

Switzerland has set many "world records" in its contacts with New China: Switzerland was one of the first European countries to recognize the founding of New China and formally established diplomatic relations with China on September 14, 1950; Switzerland is one of the Western countries actively participating in the process of China's reform and opening up, and the Swiss Schindler Group has become the first joint venture to enter the Chinese market. In contrast to the European Union's reluctance to recognize China's market economy status, Switzerland took the lead among European countries in 2007 and recognized China's full market economy status; Switzerland attaches great importance to its cooperation with China in a more open manner at a time when economic growth in European countries is weak and trade protectionism is on the rise. Switzerland became the first Continental European country to sign a free trade agreement with China in 2013. In April 2016, China and Switzerland established a strategic partnership for innovation, which is the first time that China has established a partnership named "innovation" with foreign countries. This series of milestones will set an example for the opening, inclusive and win-win cooperation between different systems in the East and the West, and provide positive energy for China-EU pragmatic cooperation in various fields.

4.2 Innovative cooperation: highlighting the strategic relationship between China and Switzerland

The cooperation between China and Switzerland in the field of scientific and technological innovation plays a leading role. In April 2016, Article 5 of the Joint Statement on the Establishment of Innovation Strategic Partnership between China and Switzerland clearly stated that bilateral cooperation in all fields, from basic scientific research to scientific and technological innovation, had achieved remarkable results. The two sides have established a joint working group mechanism for scientific and technological cooperation between China and Switzerland to provide a platform for China's innovation-driven development strategy and Switzerland's docking of innovation advantages. We will work together to enhance innovation capabilities and support and actively promote innovative cooperation between the enterprises, universities and scientific research institutions of the

two countries.

Compared with land area, per capita GDP level and international innovation capability ranking, Switzerland and China have many advantages in complementary cooperation between a highly innovative country and a fast developing country to achieve the long-term goal of science and technology innovation-driven development. Switzerland is a small country in Europe, with an area of only 40,000 square kilometers, but relying on fine developed industries such as machinery and electronics, metals, medicine and chemical industry, clocks and watches, finance and so on. Switzerland ranks among the top 20 in the global economy, and the per capita wealth of its residents ranks first in the world. Switzerland attaches great importance to innovation. The annual investment in scientific and technological innovation R&D accounts for more than 3% of GDP. Swiss clocks and watches, Swiss army knives and other industrial innovation achievements with the "Swiss label" are well known all over the world. Among the global competitiveness rankings issued by the World Economic Forum, Switzerland ranks first in the world competitiveness rankings of the World Economic Forum for nine consecutive years[6], ranks first in the global innovation index issued jointly by the World Intellectual Property Organization for seven consecutive years, and is known as the "country of innovation"[7].

China is a large developing country. In 2017, the per capita GDP was equivalent to USD 8583 (IMF, 2017) (in terms of market exchange rate), which is about one tenth of that of Switzerland's[8]. As the second largest economy in the world, China's GDP and R&D investment rank second in the world. In 2017, the total R&D investment was CNY 1.75 trillion, accounting for 2.12% of GDP[9]. Our country's innovation ability does not match the world's second largest economy, R&D investment is less than half that of the United States, and science and technology innovation ability ranks low in the world. In 2017, China ranked three places higher in the global innovation index and was 23rd in the world. Although it was the first middle-income country to enter the world ranking of less than 25, there was a huge gap between China and Switzerland. Switzerland ranked first for seven consecutive years. In the future, strengthening innovation cooperation between China and Switzerland will help to improve China's manufacturing level and innovation capability, and gradually narrow the income gap between China and developed countries (Zhang, 2017).

4.3 Connecting "Made in China 2025" with "Swiss Industry 4.0"

From January 15 to 18, 2017, President Xi Jinping visited Switzerland for the first time in the New Year and for the first time in the new century. During the visit to Switzerland, the two countries signed 10 Sino-Swiss cooperation agreements. In the field of scientific and technological innovation, the most important item of cooperation is to establish a practical cooperation platform for Sino-Swiss scientific and technological innovation docking, strengthen the docking between "Made in China 2025" and "Swiss Industry 4.0", and further highlight the innovative meaning of Sino-Swiss strategic partnership for innovation. This is also an important innovation platform for technological docking with European countries, which is clearly promoted by our country after Germany.

Made-in-China 2025 is the first ten-year action plan for China to implement the strategy of strengthening the country. In the future, manufacturing capacity will be comprehensively enhanced in ten key areas. The "European Industry 4.0" Industrial Revolution will provide strong technical support for the transformation from Made-in-China to Created-in-China and from Chinese products to Chinese brands. "Swiss Industry 4.0" is

[6] In the Global Competitiveness Report 2017-2018 issued by the World Economic Forum, Switzerland ranked first in global competitiveness for nine consecutive years.

[7] On June 15, 2017, the World Intellectual Property Organization (WIPO) released the tenth edition of its Global Innovation Index 2017: Innovation Feeding the World. Through 81 indicators, the report assesses the innovation capacity and measurable results of 127 economies worldwide. Switzerland continues to lead the global innovation list with a high score of 67.69, which is the seventh consecutive year that Switzerland ranks first in the global innovation index.

[8] Switzerland's GDP per capita in 2017 is equivalent to USD 80,837 (at market exchange rate).

[9] According to the preliminary results of the annual report of comprehensive science and technology statistics, the total investment in R&D in China in 2017 was CNY 1750 billion, an increase of 11.6% compared to the previous year, and a percentage point higher than the previous year, according to the data released by the National Bureau of Statistics on February 13, 2018. At present, the total investment is second only after the United States, ranking second in the world. In addition, the intensity of R&D investment (the R&D expenditure to GDP ratio) in China is 2.12%, which is 0.01 percentage points higher than the previous year.

embodied in: Switzerland gives full play to its advantages in traditional fine manufacturing of machinery, textiles, tools and watches, vigorously promotes intelligent manufacturing, transfers information of machines, raw materials and products through the "Internet of Things" and cooperates to complete production tasks.

In the future, "Made in China 2025" and "Swiss Industry 4.0" will closely and effectively cooperate. Through a series of technical cooperation in intelligent manufacturing, digital economy, environmental protection and energy, we will absorb and draw lessons from Switzerland's "craftsmanship" and "brand awareness", which will help build a "golden signboard" of Chinese manufacturing based on the world and enjoying global reputation.

5. Conclusions

The above three levels represent the latest development direction of scientific and technological innovation cooperation between China and Europe. They have strategic, forward-looking and breakthrough characteristics. The China-EU scientific and technological cooperation highlights the "R&D innovation" dimension and plays a leading role in the cooperation between China and other European countries in the field of scientific and technological innovation. Europe-EU relations will be upgraded to "China-EU Comprehensive Innovative Strategic Partnership" in the future[10]. Making full use of external scientific and technological innovation resources is one of the important ways to enhance the driving force of innovation in China. Strengthening cooperation in scientific and technological innovation with European countries and different EU member countries will help China to catch up with the latest frontier of world scientific and technological development, accelerate the upgrading of the scientific and technological innovation capacity, and provide theoretical and practical guidance for the construction of innovative power. Therefore, at this stage and in the future, we should learn from the experience of China-EU scientific and technological innovation cooperation to provide theoretical and practical support for the construction of a modern economic system and achieve the strategic goal of China's innovative power.

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[10] The basic orientation of China-EU relations is the "China-EU Comprehensive Strategic Partnership" established in 2003. In 2013, the two sides signed the Strategic Plan for China-EU Cooperation 2020, which identifies the common goals of strengthening cooperation in the fields of peace and security, prosperity, sustainable development and cultural exchanges, and promotes the deepening of the development of China-EU comprehensive strategic partnership. In 2014, China and Europe jointly built four major partnerships of peace, growth, reform and civilization.

Environmental Managmenet Accounting – Priorities to the Reporting Company Systems

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Abstract: Environmental management accounting serves as a mechanism for identifying and measuring the full spectrum of environmental costs of current production processes and the economic benefits of pollution prevention or cleaner processes, and to integrate these costs and benefits into day-to-day business decision-making. For the last decade, corporate environmental accounting has gained increased importance in practice, of which cost accounting receives most attention. Limits of traditional financial and cost accounting methods to reflect efforts of organizations towards sustainability and to provide management with information needed to make sustainable business decisions have been broadly recognized. Information on environmental performance of organizations might be available to some extent, but, decision-makers of internal company, as well as those in public authorities, are seldom able to link environmental information to economic variables and are crucially lacking environmental cost information. As a consequence, decision makers fail to recognize the economic value of natural resources as assets, and the business and financial value of good environmental performance. Beyond "goodwill" initiatives, a few market-based incentives exist to integrate environmental concerns in decision-making. This paper gives an overview of the approaches of environmental management accounting and we analyze environmental cost in condition by current economic context.

Keywords: environmental management accounting, environmental cost, environmental performance, corporate reporting, environmental financial statements

1 Introduction

Traditional tools used for planning economic and development policies cannot identify environmental costs. The concept of lastingness actually involves restrictions on the exploitation of natural resources and the modification of the lifestyle, in sourcing the maintenance costs of the natural heritage and the preservation of the natural balance. In order to reach this objective, all the decision making processes must be improved for the purposes of increasing responsibility and accountability in relation to environmental issues at all the hierarchical levels. The identification and acknowledgement of the environmental costs associated with a product, process or system are important for making good managerial decisions. The achievement of the objectives related to the reduction of environmental expenses, the expansion of the recovery processes and the improvement of the environmental performances involve paying special attention to current and potential environmental costs. This led to the development of *Environmental Management Accounting - EMA* over the past decades[1].

2 What is environmental management accounting?

Environmental management accounting has received special attention lately[2].
The analysis of specialized literature and of the related practices indicates the fact that a series of different concepts were developed with regard to environmental management accounting and that a tendency towards their standardization has been registered lately, thus:

[1] Bennett, M., Rikhardsson, P., Schaltegger, S., ***Adopting Environmental Management Accounting: EMA as a Value-adding Activity***, 2013, Dordrecht, Kluwer Academic Publishers. pp. 1-14
[2] Green, I.M., ***Monetary Green Accounting and Ecosystem Services***, Working Paper No. 86, July 2013, Published by the National Institute of Economic Research Stockholm

The International Federation of Accountants defines environmental management accounting as[3]: *the management of environmental and economic performance through the development and implementation of appropriate environment-related accounting systems and practices. While this may include reporting and auditing in some companies, environmental management accounting typically involves life-cycle costing, full-cost accounting, benefits assessment, and strategic planning for environmental management*.
The United Nations Division for Sustainable Development – UNDSD provides a slightly different definition of EMA. Its definition emphases that environmental management accounting systems generate information for internal decision making, where such information can be either physical or monetary in focus. As the UNDSD states[4]: *the general use of EMA information is for internal organizational calculations and decision making. Environmental management accounting procedures for internal decision making include both physical procedures for material and energy consumption, flows and final disposal, and monetarized procedures for costs, savings and revenues related to activities with a potential environmental impact*.
The Environmental Agency of Australia[5] defines EMA as *the identification, collection, analysis, internal reporting and use of the information concerning the flow of materials and energy, environmental costs, as well as other costs necessary for decision making within an entity*. This definition of EMA is similar to that of traditional management accounting, registering at the same time a series of essential differences, such as:

- it puts special emphasis on environmental costs;
- it incorporates information about the costs, as well as information related to the physical flows and to the consumption of raw materials and energy;
- the information provided by EMA can be used for any type of decisional process within an entity, but it is generally useful for activities with significant consequences on the environment.

Until now, a consensus with regard to the EMA field, contents or procedures has not been reached, and it would probably be of no use to try to reach a consensus or to promote standardization. EMA must be adjusted to the managerial needs and priorities of each particular company and to their own reporting systems[6].

3 Environmental cost

Discussion of environmental accounting and environmental management accounting generates reference to environmental costs - a term that can take on a variety of meanings[7]. Environmental costs have traditionally been thought of as being the 'end-of-pipe' costs, such as the costs associated with cleaning up sites after production, or waste-water treatment costs. Environmental management policies that focus on these end-of-pipe costs and technologies can generate short run returns, but such a focus will be costly in the long run as it will ignore the consumption of resources within the organization. A broader interpretation, and one that is consistent with the definitions applied, would see the term environmental cost also encompass material and energy used to produce goods and services (particularly from non-renewable sources), the input costs associated with wastes being generated (including the capital costs, labor costs, materials and energy costs used to produce the waste) plus any associated disposal costs, storage costs for particular materials, insurance for environmental liabilities, and environmental regulatory costs including compliance costs and licensing fees, inclusive of any fines[8].
The achievement of the objectives of reducing environmental expenses, expanding recovery processes and improving environment performances requires a shift of attention in the direction of current and potential

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environmental costs[9]. The identification and acknowledgement of the environment costs associated with a product, process or system are important for making good managerial decisions. The costs for the reduction of pollution, waste management, supervision, regulatory reporting, legal fees, etc., increased at a fast pace in the past 20 years, especially due to the increasingly stricter environmental norms[10]. Traditional management accounting systems include many of these environmental costs in the category of overhead expenses, which means that production managers do not have any stimuli to reduce costs, and the executive management is not aware of the dimension of the environmental costs[11].

By clarifying the structure of the environmental cots for a process or a product, EMA will enable the management to accurately understand the aspects that must be stressed in order to render costs more efficient. Financial implications usually play an important role in the decisions of the entities concerning environmental aspects[12].

In this approach, internal environmental costs to the firm are composed of direct costs, indirect costs, and contingent costs. These typically include such things as remediation or restoration costs, waste management costs or other compliance and environmental management costs. Internal costs can usually be estimated and allocated using the standard costing models that are available to the firm.

Direct costs can be traced to a particular product, site, and type of pollution or pollution prevention program (e.g., waste management or remediation costs at a particular site). Indirect costs such as environmental training, R&D, record keeping and reporting are allocated to cost centers such as products and departments or activities[13].

External costs are the costs of environmental damage external to the firm. These costs can be "monetized" (i.e., their monetary equivalent values can be assessed) by economic methods that determine the maximum amount that people would be willing to pay to avoid the damage, or the minimum amount of compensation, that they would accept to incur it.

The impact of environmental issues on production costs is often underestimated. They are like an iceberg.

EMA helps to identify and analyze these hidden costs[14]. For example, minimizing the amount of waste not only reduces incineration and waste disposal costs but also total purchasing costs of materials (as fewer materials are needed if there is less waste), operating costs (fewer materials need to be processed), labor and administration costs of handling materials and waste, etc.

Hidden costs are, most of the times, part of overhead expenses, since they are not known.

A well-substantiated environmental management accounting system manages to identify as direct many costs which were initially included in overhead expenses. Under these circumstances, when an entity analyses a new manufacturing procedure it must, among other things, also identify the following aspects:

- emissions in the environment, elimination modalities and associated costs;
- elimination or reduction of the harmful or oxidizing compounds in the products;
- the sources, quantity and cost of the used energy;
- the costs generated by the compliance with the legal regulations and provisions in force;
- the costs of potential compensations etc.

The traditional accounting system does not allow the distinct identification or evaluation of the data regarding the environment, data about the management of residual waste, the prevention of pollution, recycling, compliance with legal provisions, health and work safety[15]. Therefore, the identification and quantification of environmental

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[15] Gale, R., ***Environmental costs at a Canadian paper mill: a case study of Environmental Management Accounting (EMA)***, *Journal of Cleaner Production*, vol. 14, 2016, pp. 1237-1251

costs and benefits are necessary for the calculation of the profitability of the environment-related projects. Without this information, managers can reach a false and expensive conclusion.
In order to integrate the environment in accounting, an information management system, similar to that in the annual financial reports, must be established. At the end of each accounting exercise the entity can present an environmental report which will comprise the expenses made for the protection of the environment; the recapitulative evaluation of the environment incidences and performances of its activities. The environmental data provided by the environmental management accounting are considered one of the key elements in an environmental report and enable the users to understand the perspective of the entity as concerns environmental protection and the way the environmental problems are dealt with. It is worth mentioning the fact that some companies, such as Baxter - USA, Carillion, Wessex Water – Great Britain, Canon – Japan, etc., publish environmental financial statements in which they present their environmental costs and the benefits obtained following these expenses.

For example, the ***Baxter*** group (the United States of America) has been presenting an *environmental financial statement* in its environmental report ever since 2012, in which it publishes information about environmental costs and the benefits obtained due to environment protection actions. The presentation modality and the published data were modified in time. When the determination modality of a certain index was changed, corrections of the data in the previous exercises were performed so that the presented information could be compared. In the annual report for 2013 information concerning environmental taxes for electronic products was added, and sometimes it is necessary to perform some corrections for the data presented in the previous report. Thus, in the report for 2018, the information regarding the reduction of waste, the elimination of non-harmful waste, the income from recycling, was updated. The estimation of the costs, incomes and savings realized in the field of environment by the Baxter group in 2013- 2018 is presented in Table 1 [16].

Table 1. Baxter - Financial Statement - Environmental Costs (dollars in millions)

	2018	**2017**	**2016**	**2015**	**2014**	**2013**
Environmental Costs						
Basic Program						
Corporate Environmental – General and Shared Business Unit Costs	1.9	1.6	1.4	1.5	1.3	1.2
Auditor and Attorney Fees	0.3	0.4	0.4	0.4	0.4	0.3
Energy Professionals and Energy Reduction Programs	1.2	1.1	1.1	1.0	1.0	0.9
Corporate Environmental – Information Technology	0.4	0.3	0.3	0.3	0.3	0.5
Business Unit/Regional/Facility Environmental Professionals and Programs	7.8	7.7	7.4	7.0	6.5	5.4
Packaging Professionals and Packaging Reduction Programs	-	-	1.3	1.2	1.0	1.0
Pollution Controls – Operation and Maintenance	3.0	3.1	3.2	2.8	3.2	2.8
Pollution Controls – Depreciation	2.4	0.9	0.8	0.7	0.8	0.8
Basic Program Total	**16.9**	**15.1**	**14.6**	**13.6**	**13.5**	**12.9**
Remediation. Waste and Other Response (proactive environmental action will minimize these costs)						
Attorney Fees for Cleanup Claims and Notices of Violation	0.1	0.1	0.1	0.1	0.1	0.7
Settlements of Government Claims	0.0	0.0	0.0	0.0	0.0	0.0

[16] www.baxter.com

Waste Disposal	7.6	8.2	6.5	6.3	5.9	6.9
Carbon offsets	0.2	0.1	0.0	0.0	0.0	0.0
Environmental Fees for Packaging	0.9	0.9	0.9	1.1	1.0	1.0
Environmental Fees for Electronic Goods and Batteries	0.1	0.1	0.1	0.0	0.0	0.0
Remediation/Cleanup – On-site	0.2	0.5	0.1	0.1	0.1	0.4
Remediation/Cleanup – Off-site	0.1	0.0	0.3	0.0	0.2	0.1
Remediation. Waste and Other Response Total	**9.1**	**9.9**	**8.0**	**7.6**	**7.3**	**9.1**
Total Environmental Costs	**26.0**	**25.0**	**22.6**	**21.2**	**20.8**	**22.0**
Environmental Income. Savings and Cost Avoidance						
From Initiatives in Stated Year						
Regulated Waste Disposal	-0.1	-0.7	0.1	0.1	0.7	0.4
Regulated Materials	-1.3	-2.8	0.5	0.5	2.1	1.6
Non-hazardous Waste Disposal	0.7	0.0	-0.1	0.2	7.0	0.4
Non-hazardous Materials[5]	1.7	1.5	-2.0	5.0	4.8	6.7
Recycling (income)	5.1	4.3	4.3	3.9	3.0	2.9
Energy Conservation	5.1	4.2	2.3	7.3	12.0	4.2
Packaging	-	-	0.0	3.5	2.9	1.7
Water Conservation	0.7	0.6	0.5	0.0	1.1	0.5
From Initiatives in Stated Year Total	11.9	7.1	5.6	17.0	30.7	18.4
As a Percentage of Basic Program Costs	70%	47%	38%	125%	227%	143%
Cost Avoidance from Initiatives Started in the Six Years Prior to and Realized in Stated Year	**80**	**76.4**	**82.1**	**75.6**	**62.2**	**32.7**
Total Environmental Income. Savings and Cost Avoidance in Stated Year	**91.9**	**83.5**	**87.7**	**92.6**	**92.9**	**51.1**

Source: Sustainability Report Baxter 2016, 2017, 2018, p.19, sustainability.baxter.com/EHS

The analysed information shows that the group presents information about the *costs that were avoided* due to their efforts, and that have big values (80 billion dollars in 2016.

We can also notice that, in this six years period, the highest value of the total environmental costs was registered in 2016 (26 billion dollars). The avoided costs and the obtained savings grew from 51.1 billion dollars in 2013 to 92 billion dollars in 2018. With the help of its environment protection actions, the group manages to obtain significant advantages; thus, in 2019 they spent 26 billion dollars and they saved three times as much, that is 80 billion dollars.

The environmental report for 2018 present some group objectives regarding the environment for the period to come, giving special attention to environment protection actions. Thus, by 2019, the group plans to:

- Reduce total waste generation 30% indexed to revenue from 2013 baseline.
- Reduce energy usage 30% indexed to revenue from 2014 baseline.
- Eliminate 5 million kilograms (5,000 metric tons) of packaging material from products sent to customers from 2015 baseline.
- Reduce water usage 35% indexed to revenue from 2016 baseline. To help achieve this, by 2017 evaluate potentially vulnerable watersheds associated with Baxter facilities and establish aggressive water conservation goals for high-risk areas.
- Implement two projects to help protect vulnerable watersheds and/or provide communities with enhanced access to clean water.

The Canon Japanese group presents, in its environmental report, the information related to environmental costs in a slightly different manner, rendering them in physical units as well as in financial ones (Table 2) [17].

[17] www.canon.co.jp/web/english/web/frame/kankyou_f.htm

Table 2. Canon - Environmental Costs

Cost Items		Environmental preservation cost (thousand yen)		Economic effect (thousand yen)	Effect of environmental preservation (amount)	Effect of environmental preservation (reference)	
		Investment amount	Cost	Actual amount of reduction effect	Reduction amount	Reduction amount of CO_2	Effect of afforestation
Pollution protection cost		4,820	0	-	-	-	-
Global environment preservation cost	Reduction of electrical consumption	35,099	0	2,066	-164,000 kwh	-69 t-CO_2	10.6 ha
	Reduction of copy paper	24	0	1,064	-7,600 kg	-25 t-CO_2	3.8 ha
Resource circulation cost	Reduction of waste	0	0	6,955	-465,543 kg	-143 t-CO_2	22.1 ha
Upstream and downstream cost	Reduction of packaging materials	0	0	-6,758	43,600 kg	122 t-CO_2	-18.9 ha
Management activity cost		0	540	-	-	-	-
Research and development cost		0	0	-	-	-	-
Social activity cost		0	0	-	-	-	-
Environmental damage cost		0	0	-	-	-	-
Total of environmental preservation cost		39,943	540	3,327	-	-115 t-CO_2	17.6 ha
		Total:40,483					

Source: http://www.canon.co.jp/web/english/web/frame/kankyou_f.htm

Other companies present environment-related information in their annual financial report. This information is, most of the times, less detailed.

In 2017, Stora Enso's environmental investments amounted to 40 million euro (33 mil. euro), environmental costs total 184 million euro in 2017 (178 mil euro in 2016), including taxes, fees, refunds, and permit-related costs, repair and maintenance, chemicals and materials, but excluding interest and depreciation and environmental liabilities total of 81 million euro (68 mil. euro in 2016). The quantitative information: 8.58 million tones of fossil CO_2 equivalents in 2013, 9.91 in 2016 and 10.44 in 2015; electricity consumption are 17.9 terawatt hour in 2012, 19.5 terawatt hour in 2014 and 19.8 terawatt hour in 2015; hazardous waste 3 626 tonnes in 2016, down from 3 982 tonnes in 2017 etc.[18]

The data offered by EMA are used for making decisions within, and sometimes outside a company, depending on whether this information is published or not.

4 Conclusions

The challenge of environmental management accounting is to develop new practices for the identification of the production and control alternatives of pollution, the selection of raw materials that make cost reduction and environmental protection possible, the monitoring of pollution, the identification of alternative processes, etc. The estimate of the cost of environmental degradations is an ambitious goal. An accurate evaluation is ideal for the identification of the various emissions that cause the degradation of the environment and for the establishment of a policy for setting the priorities. The difficulties are generated by the lack of knowledge concerning the nature and dimension of the caused damages, as well as by the fact that the destruction of the environment does not often have a market price, being difficult to assess.

[18] www.storaenso.com

It is common knowledge that most expenses are indirect, and, in order to accurately determine the costs, it is necessary to identify a pertinent repartition base. It is also very important to appropriately select the calculation method. A well-substantiated environmental management accounting system succeeds in identifying as direct many costs that were initially included in the overhead expenses.

The information provided by the environmental management accounting, just like in the case of traditional management accounting, is used within the entity for decision making. Nevertheless, sometimes a part of this information is made public in the environmental reports (Baxter, Canon, etc.). The environmental data offered by environmental management accounting are considered one of the key elements of an environmental report and enable the users to understand the perspective of the entity on environmental protection and the way environmental issues are dealt with. Also, apart from the information presented in currency units, they also offer information expressed in physical units.

The analysed data helped us reach the conclusion that the adoption of environmental management accounting:

- ensures the accurate determination of the production costs by taking into consideration environment-related aspects;
- contributes to a better repartition of the overhead expenses related to the environment, and thus the managers have access to information that help them make decisions;
- enables the persons who make decisions to identify the cost reduction modalities and to preserve or launch only those products that are profitable from the perspective of the environment;
- encourages the adoption of processes related to clean technologies.
- offers competitive advantages.

EMA provides a complete array of tools and methods that help companies reduce their expenses and improve decision making. In the context of the current economic crisis, it is estimated that the level of the environmental costs will decrease, primarily due to the restriction of activities, but, for the long-term, most companies prevision the increase of investments in actions for the protection.

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[14] www.baxter.com;

[15] www.storaenso.com;

Reversible Depreciation of Property, Plant and Equipment - Tax Implications vs. Ensuring the Quality of the Accounting Information

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Abstract: In this paper, the reversible depreciation of the tangible fixed assets is addressed to the companies applying the provisions of Order of the Minister of Public Finance1802/2014 for the approval of the Accounting Regulations regarding the individual annual financial statements and the consolidated annual financial statements. Also, the need to recognize the adjustments for the depreciation of tangible fixed assets is highlighted by analyzing, from the accounting and fiscal perspective, the impact on the indicators in the balance sheet and the profit and loss account. The importance of the accounting information regarding the adjustments for the depreciation of the tangible fixed assets in the management, investment and lending decisions, is a topic of this work.

Key words: accounting information, users of accounting information, reversible depreciation of the intangible assets, the result of the financial year, taxable result

1. Introduction

Accounting information has an important role in carrying out the activity of an economic entity. The accounting quantifies the economic activities, recording the data regarding them for future use, stores them as long as necessary, and then processes them and communicates them to the decision makers. [1] In order to assist users in making decisions, accounting information must be relevant and represent what they intend to represent [2], that is, be complete, neutral, error free.

Accounting information is presented in the form of internal reports, intended for managers, or periodic reports intended for the general public, employees, customers, suppliers, creditors, investors, state authorities, known as financial statements.

The internal reports include information according to the information needs of the managers, while the information presented in the financial statements refers mainly to the financial position and the financial performance of the company, respectively to the value of assets, liabilities, equity and results obtained from the activity.

The information regarding the reversible depreciation of the coporal fixed assets influences both the indicators in the balance sheet regarding the tangible assets, as well as those in the profit and loss account regarding the operating result, the gross result of the year.

Of all the categories of users of accounting information, those whose decisions are largely influenced by the recognition in the accounting of an economic entity of the reversible depretiations of the tangible fixed assets are the managers, investors and creditors.

For investors, it is necessary to know the real value of the assets, liabilities, equity of a company, but especially the size of the net results obtained from carrying out the activity, which shows the entity's ability to pay dividends, respectively its ability to remunate them. Investors need such information to decide whether they should buy, hold or sell equity instruments. [3]

The assets of an economic entity are the main instruments generating future economic benefits, by increasing the revenues or diminishing the expenses, their value influencing the capacity of an organization to carry out the activity and to obtain profit. Therefore, knowing the real value of the assets, especially the tangible assets, plays an important role in the management decisions.

The credit decision of a legal person assumes an analysis on the basis of the data in the financial statements and the balances of verification submitted by the applicants here shows the need for accounting information to be real, complete, neutral.

In the following, the impact of the recognition in the accounting of the economic entities that apply the provisions of Order of the Minister of Public Finance 1802/2014 for the approval of the Accounting Regulations regarding the individual annual financial statements and the consolidated annual financial statements of the reversible depreciation of the tangible assets on the balance sheet and profit and loss account is treated, from both the accounting perspective and the tax perspective. Also, it is emphasized the importance of such information in decision making by managers, investors and creditors.

2. Reversible depreciation of property, plant and equipment - accounting issues

At the time of preparing the financial statements, the economic entities have the possibility to choose, through the accounting policies, the valuation of the tangible assets on the principle of the acquisition cost or of the production cost or to proceed to their revaluation.

If the entities choose to reassess the tangible assets, their value in the balance sheet is the fair value established by the authorized valuators, being a present value of the assets.

The economic entities that choose through the accounting policies the valuation of the tangible assets on the basis of the acquisition cost or the production cost principle, will present in the balance sheet such assets at its cost less any accumulated depreciation and any accumulated impairment losses.

Depreciation of tangible fixed assets shows a decrease in its value as a result of physical wear and tear, which will be recognized in accounting as amortization or as a result of moral wear and tear, which will be recognized in accounting as a reversible depreciation, called an adjustment for depreciation.

Reversible depreciation of the value of an intangible asset may be caused by the significant decrease in the market value of the asset; significant changes, with negative effect on the economic entity, of the technological, commercial, economic or legal environment in which they operate their activity or on the market where the asset is destined. Also, information from the internal reports of the economic entity may show the reversible decrease of the value of the tangible assets, such information regarding the degree or the way in which the fixed assets are used or expected to be used. The indices of depreciation of the fixed assets, made available by the internal reports, include: the cash flow required to purchase a similar fixed asset, for the operation or maintenance of the fixed assets is significantly higher than initially provided in the budget; the operating result generated by the tangible fixed assets is noticeably lower than that provided for in the budget; a significant decrease of the operating profit provided in the budget, respectively a significant increase of the losses foreseen in the budget, generated by the tangible fixed assets. [3]

Reversible depreciation of the value of a tangible asset is recorded in accounting on the basis of the expense accounts and those for adjustments for the depreciation of the tangible fixed assets.

The expenses regarding the adjustments for the depreciation of the fixed assets are operating expenses recorded in the accounting of the economic entity in the financial year in which it was found the reversible decrease of the value of the asset, thus it is influenced both the result of the operation and the gross result of the year.

The adjustments for the depreciation of the tangible fixed assets correct in the sense of diminishing their book value, and the resulting value is recognized in the balance sheet as the present value of the respective assets. Therefore, the reversible decrease in the value of the tangible assets influences both the balance sheet indicators, reducing the value of the tangible fixed assets up to the present value, as well as the indicators in the profit and loss account that reflect the results of the operation and the gross result of the financial exercise.

To illustrate how the reversible depreciation of tangible assets affects the indicators presented in the financial statements we suppose that at the end of 2015 an economic entity purchased a technological equipment under the following conditions: acquisition cost 240,000 lei, useful life of the asset - 8 years, the method of depreciation - straight-line . The inventory at the end of 2018 shows that the inventory value of the asset is 140,000 lei, taking into account the technological evolution in the field. Other information necessary for carrying out the analysis regarding the impact of the recognition of the reversible depreciation of the value of the tangible assets on the indicators presented in the financial statements for 2018 can be found in the following table:

Table 1

Technological equipment acquisition cost	240,000 lei
Useful life of the technological equipment	8 years
Depreciation method	straight-line

Accumulated depreciation form 2016 till 2018	90,000 lei
Carrying amount before the inventory in the year 2018	150,00 lei
Inventory value	140,000 lei
Impairment loss	10,000 lei
Equipment value presented in 2018 balance sheet	140,000 lei
Operating income	550,000 lei
Operating expenses, excluding impairment loss	450,000 lei
Amount of the impairment loss	10,000 lei
Operating result	90,000 lei
Financial result	-
The gross result of the exercise	90,000 lei

The principle of prudence requires that the valuation of the assets when preparing the financial statements should be done on a prudent basis and that all the depreciation of value in the amount of expenses be recognized, regardless of the impact on the result of the financial year.
The impact of the impairment loss of the technological equipment on the 2018th balance sheet indicators :
Tabel 2

Indicator	Indicator value at the end of the year 2018 without acknowledging the impairment loss	Indicator value at the end of the year 2018 with acknowledging the impairment loss
Tangible fixed assets (technological equipment)	150,000	140,000

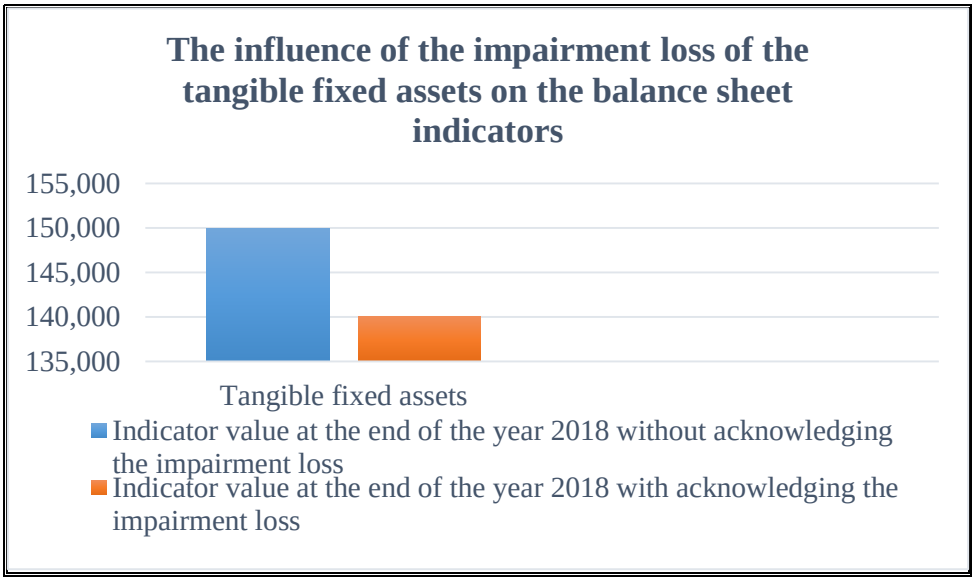

Fig. 1 The influence of the impairment loss of the tangible fixed assets on the balance sheet indicators

In case the reversible depreciation of the value of the technological equipment was not recognized in the accounting of the economic entity, the value of the tangible assets presented in the balance sheet would represent the good's cost corrected with the depreciation calculated from the moment of putting into operation up to 31 December 2018. The recognition of the reversible impairment of the value of the technological equipment will cause the value of the asset to decrease with the difference between the carrying amount before inventory and the inventory value. Therefore, the recognition of the reversible impairment of the value of the tangible assets will diminish the value of the goods in question presented in the balance sheet of 2018 and implicitly of all the indicators of the statement to which the tangible assets are component, respectively total fixed assets and total assets minus current liabilities.

The impact of recognizing the impairment of the value of the technological equipment as operating expenses:

Table 3

Indicator	Indicator value at the end of the year 2018 without acknowledging the impairment loss	Indicator value at the end of the year 2018 with acknowledging the impairment loss
Operating income	550,000	550,000
Operating expenses	450,000	460,000
Operating result	100,000	90,000
Financial result	-	-
The gross result of the exercise	100,000	90,000

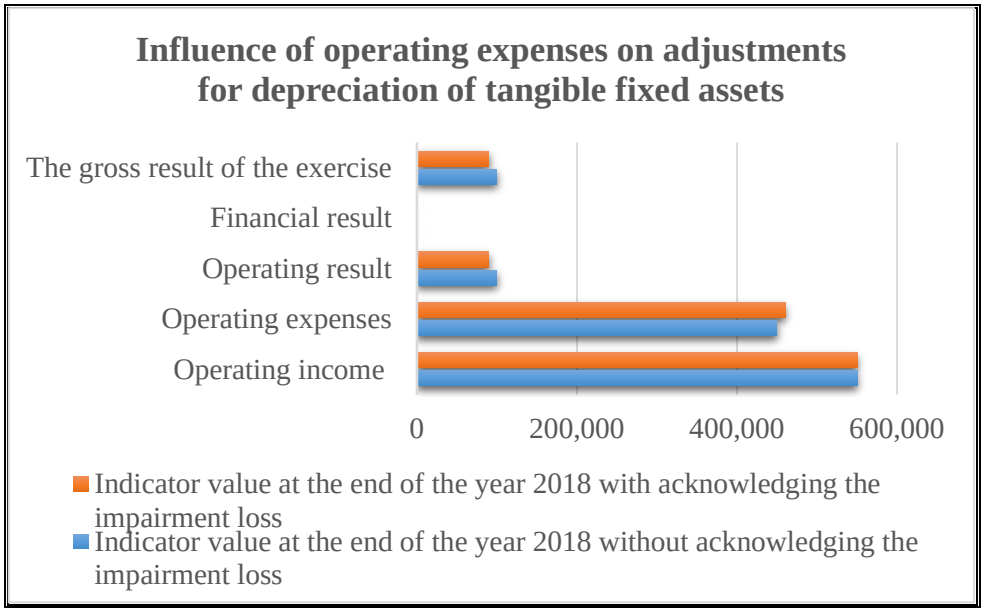

Fig. 2 The influence of the recognition of the reversible impairment of the value of the tangible fixed assets on the indicators in the profit and loss account

Analyzing the information presented in table 3, it appears that the recognition of the reversible impairment of the value of the technological equipment will increase the operating expenses and will diminish the operating result and the gross result of the financial year 2018.

If, when assessing the assets made at the inventory for the purpose of preparing the financial statements, there are indications that an impairment loss recognized in the previous financial years for a tangible asset no longer exists or has been reduced, the impairment adjustments of the tangible assets must be resumed at total or partial income. he information that shows the diminution or lack of depreciation of the value of the tangible assets has external and internal sources. Information from outside sources that would indicate a decrease in impairment loss can be as follows: the market value of the fixed assets increased significantly during the period; during the period significant changes have had a favorable effect on the entity or it is estimated that such changes will occur in the near future, in the technological, commercial, economic or legal environment in which the entity carries out its activity or on the market to which the asset is dedicated. [4] Information from an internal source that may show an increase in the value of the asset compared to the book value would be the following: during the period significant changes have taken place, with a favorable effect on the entity, or such changes will occur in the near future regarding the degree or how asset is used or expected to be used. These changes include the costs incurred during the period to improve and increase the performance of the fixed assets or to restructure the activity to which the fixed assets belong; internal reports prove that the economic performance of an asset is or will be better than originally envisaged, etc. [5]

The resumption of income from the impairment value of the intangible assets will determine the increase in operating income related to the financial year in which they are recognized in accounting as income from

adjustments for the depreciation of the fixed assets. They will also determine the increase of the operating result and the gross result of the respective year.

Non-recognition of operating expenses regarding adjustments for depreciation of fixed assets in the accounting of an economic entity that has clear indications of depreciation of the value of the assets in question, besides that it would mean a violation of the principle of prudence, would mean a distortion of the accounting information regarding the real value of assets, of operating result and gross result of exercise. The real value of the mentioned indicators represents an informational basis for managers, creditors and investors in making decisions.

If the real value of a tangible asset is lower than the one presented in the financial statements, the asset will not generate the expected economic benefits, and during its useful life will lead to losses. Thus, if the managers do not know the real value of the assets held by the entity, they will not be able to make decisions either regarding the improvement of the functional parameters of the asset in order to increase the economic benefits generated by it, or regarding the replacement of the good with a more efficient one.

The creditors of an economic entity before granting the loan to the applicants carry out an analysis of their creditworthiness, having as a starting point the indicators in the balance sheet and their profit and loss account.

Therefore, the presentation of real values, established in compliance with the accounting principles, in the financial statements plays an important role in granting the loans, as well as for their recovery, respectively collecting the related interests.

Current and potential investors are analyzing the ability of the economic entity to generate profit and pay dividends. The size of the net profit is influenced by the size of the gross result of the year and of the tax due.

The result of the exercise depends on the recognition or non-recognition of the operating expenses regarding the adjustments for the depreciation of the fixed assets. The recognition in the accounting of the economic entity of the operating expenses regarding the adjustments for the depreciation of the fixed assets determines the diminution of this indicator in the year in which these adjustments are constituted and to its increase when the adjustments are diminished, respectively canceled by their restatement to operating income.

3. Reversible depreciation of property, plant and equipment - tax issues

Companies that carry out economic activities and fulfill the legal conditions from a fiscal point of view are tax payers or tax payers on the income of micro-enterprises. In both cases, the companies must determine a fiscal result /tax base, taking into account the provisions of the fiscal code, to which the related tax rate applies.

A. The influence of the recognition of the reversible impairment of the tangible assets on the fiscal result determined by the companies paying tax on profit

The fiscal result, determined by the companies paying tax on profit, is calculated as follows:

Fiscal result = The gross result of the exercise - Non-taxable incomes - Tax deductions + Non-deductible expenses

Non-taxable income includes, among other things, income from the cancellation of expenses for which no deduction was granted. Non-deductible expenses also include expenses with adjustments for the depreciation of depreciable fixed assets constituted for situations where they are not destroyed as a result of natural disasters or other causes of force majeure, under the conditions established by the rules of the tax code or for those that they have not signed insurance contracts. Considering the way of determining the fiscal result it is deduced that in the financial year in which the reversible impairments of the tangible assets are recognized in the operating expenses accounts, for the above example, the expenses with the adjustments for the depreciation of the fixed assets cancel the effect on the tax base, as shown in the following table:

Table 4

Indicator	Indicator value at the end of the year 2018 without acknowledging the impairment loss	Indicator value at the end of the year 2018 with acknowledging the impairment loss
The gross result of the exercise	100.000	90.000
Non-taxable incomes	-	-
Tax deductions	-	-
Non-deductible expences	-	10.000

Fiscal result	100.000	100.000

In the financial year in which the adjustments will be resumed to the revenues from adjustments for the depreciation of the fixed assets, they will be, in the calculation of the fiscal result, both in the result of the year and in the category of non-taxable income, canceling their effect on the tax base.

B. The influence of the recognition of the reversible impairment of the tangible assets on the fiscal result determined by the companies paying tax on the income of the micro-enterprises

Companies paying tax on the income of micro-enterprises, take into account the taxable income of any source, from which they subtract:
a) revenues related to the costs of product stocks;
b) revenues related to the costs of running services;
c) revenues from the production of tangible and intangible assets;
d) subsidy revenues;
e) income from provisions, adjustments for impairment or for loss of value, which were non-deductible expenses in the calculation of taxable profit or were constituted during the period when the Romanian legal entity was subject to the tax on the income of micro-enterprises;
f) the revenues from adjustments for expected losses related to the financial assets constituted by the Romanian legal entities that carry out activities in the banking field, in the fields of insurance and reinsurance, of the capital market, which were non-deductible expenses when calculating the taxable profit or were constituted during the period in which the person Romanian legal entity was subject to tax on the income of micro-enterprises;
g) the revenues resulting from the return or cancellation of interest and / or late penalties, which were non-deductible expenses when calculating taxable profit;
h) the incomes obtained from damages, from the insurance / reinsurance companies, for the damages caused to the goods of the nature of the stocks or of the own tangible assets;
i) income from exchange rate differences;
j) the financial income related to the receivables and debts with settlement according to the exchange rate of a currency, resulting from their evaluation or settlement;
k) the value of the commercial discounts granted after the invoicing, registered in the account 709 Commercial discounts granted, according to the applicable accounting regulations;
l) the incomes related to the payment titles obtained by the persons entitled, according to the law, initial holders who are in the records of the Central Commission for the Settlement of Compensation or their legal heirs;
m) compensation received based on the judgments of the European Court of Human Rights;
n) the revenues obtained from a foreign state with which Romania has concluded a convention to avoid double taxation, if they were taxed in the foreign state.[6]
and to which adds the following:
a) the value of the commercial discounts received after the invoicing, registered in the account 609 Commercial discounts received, according to the applicable accounting regulations;
b) in the fourth quarter or the last quarter of the taxable period, in the case of taxpayers who cease to exist, the favorable difference between the exchange rate income / the financial income related to the receivables and debts settled according to the exchange rate of a currency, resulting from their assessment or settlement. , and the expenses due to exchange rate differences / related financial expenses, recorded cumulatively from the beginning of the year;
c) reserves, except those representing tax facilities, reduced or canceled, representing the legal reserve, reserves from the reassessment of fixed assets, including land, which were deducted from the calculation of taxable profit and were not taxed during the period when the micro-enterprises were also paying by tax on profit, regardless of whether the reduction or cancellation is due to the change of the destination of the reserve, its distribution to participants in any form, liquidation, division, merger of the taxpayer or any other reason;
d) reserves representing fiscal facilities, set up during the period in which the micro-enterprises were also tax payers, which are used to increase the share capital, to distribute to the participants in any form, to cover the losses or for any other reason. If the tax reserves are maintained until liquidation, they are not taken into account to determine the taxable base as a result of the liquidation.[7]

Considering the way in which the tax base is determined by micro-enterprises, it follows that the recognition of the reversible depreciation of the tangible assets in the operating expenses of the company does not influence it in any way, they are not taken into account when calculating the tax base.

In the financial year in which the adjustments will be resumed to income from adjustments for depreciation of fixed assets, they will fall both in the income category from any source and in the income category that fall from the aforementioned, canceling their effect on the tax base.

The conclusion is that the recognition of the adjustments for the depreciation of the tangible fixed assets does not influence the tax base to the detriment of the companies paying tax on the profit or on the income of the micro-enterprises.

4. Conclusions

The companies must present in the financial statements, in accordance with the principle of prudence, the tangible assets at their real value, respectively, they must take into account all the permanent and reversible impairments when determining it. The real value of the tangible assets plays an important role in the decisions of the managers, investors, creditors.

Managers need the information regarding the present value of the tangible assets because an impairment would mean a decrease of the future economic benefits resulting from the use of the asset, which during the years of using such assets would lead to losses.

The reversible impairment of the value of the tangible assets is recognized in the accounting of an economic entity as an operating expense in the financial year in which it is ascertained, thus influencing the result of the operation, the result of the exercise and implicitly the net result. The net result of the financial year is an indicator pursued by investors, its size providing them with information regarding the company's ability to make a profit and to pay dividends.

The creditors of an economic entity make the decision of granting loans by analyzing the information from the financial statements and from their balances, such information allowing them to determine the extent to which they will recover their financial resources and to collect the related interests.

The recognition of the reversible impairments of the tangible assets in the accounting of the economic entities, allows them to prepare credible financial statements, which will facilitate their access to loans for which they will have the capacity to repay and pay the interest. It will also allow managers to make decisions regarding the improvement of the functional parameters of the impaired assets or to replace the respective asset with a better one in order to avoid or reduce losses.

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[4] Order of the Minister of Public Finance 1802/2014 for the approval of the Accounting Regulations regarding the individual annual financial statements and the consolidated annual financial statements article 86, paragraph (5)

[5] Order of the Minister of Public Finance 1802/2014 for the approval of the Accounting Regulations regarding the individual annual financial statements and the consolidated annual financial statements, article 86, paragraph (6)

[6] Law 227/2015 on the Fiscal Code, article 53, paragraph (1)

[7] Law 227/2015 on the Fiscal Code, article 53, paragraph (2)

Theoretical Approaches on Optimal Capital Structure

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Abstract: F. Modigliani and M. Miller demonstrated in 1958 that in the context of perfect market the financial structure of the firm does not influence its value. Since then, many researchers have approached the issue of financial structure in less restrictive hypotheses. Without reaching a consensus, they have tried to prove that the optimal capital structure exists. The goal of this article is to synthesize the literature on the financial structure and to relate the theories to known empirical evidence. The main models of the optimal financial structure belong to the agency theory, the signalling theory, the transaction cost economics and the pecking order theory. Financing decision varies according to a number of factors that may influence capital structure differently: firm profitability, dividend policy, growth opportunities, asset specificity, corporate tax shield, company size and some macroeconomic factors such as inflation rate and capital market condition.

Keywords: optimal financial structure, agency theory, signalling theory, transaction cost economics, pecking order theory

1. Introduction [*] *

The capital structure of a firm is the relative proportions of debt (bank loans or bonds issuance) and equity (common and preferred stocks) in the total financing of its assets. Planning the capital structure leads to optimizing the use of funds and the ability of adapting easily to environmental changes.
The goal of this work is to synthesize the theories on the capital structure and where is possible, to relate these theories to known empirical evidence.

An archetypal construction of the image of a theory that relies on a set of hypothesis empirically tested in order to describe the information as foundation element required for the fulfilment of the needs of a company has been shaped by professor Raymond J. Chambers in the '50s. Using this framework as a preceding mechanism to the formation of the positive theory leads to the idea that the theories can present a set of objectives and hypothetical realities based on a process rich in theoretical knowledge.[1]

The first theorists who analysed the optimal capital structure are F. Modigliani and M. Miller who claimed in 1958 that the value of the enterprise is the same regardless of its financial structure[2]. Their research was based on the hypotese of no taxes (either personal or corporate). Five years later, the two authors reverted to this statement, pointing out that in the presence of corporate income tax, the value of an indebted firm is equal to the value of an unindebted firm, increased by the tax savings achieved as a result of indebtedness[3].

[1] V. M. Stefan-Duicu, Contabilitatea si rationamentul profesional, Nemira Publishing House, pg. 105, 2016.
[2] F. Modigliani and M Miller, The cost of capital. Corporation Finance and the theory of investment, American Economic Review, 49, 1958
[3] F. Modigliani and M Miller, Corporate income taxes and the cost of capital: A correction, American Economic, Review, 53, 1963

The main criticism that can be attributed to F. Modigliani and M. Miller's model is its unrealistic assumptions. According to the two authors, the only goal of the company is to produce cash-flow and share it between shareholders and creditors. They consider that managers always act according to the shareholders' interests and there are no conflicts between the objectives of the creditors and those of the shareholders. For F. Modigliani and M Miller the majority shareholders and the minority shareholders have the same objectives. In addition, information is accessible to all and there is no information asymmetry between those who hold capital and those who need it.

Since F. Modigliani and M. Miller, many researchers have approached the study of the corporate capital structure based on less restrictive hypotheses, trying to find the optimal capital structure. In this paper will be analysed the most relevant results of these researches, namely the agency theory, the signalling theory, the contracting cost theory and the pecking order theory.

2. Theoretical approaches on optimal capital structure

2.1. The financing decision and the agency theory

In the agency theory, the company is no longer seen as an actor, aiming to maximize profit, but as a group of partners, each with its own goal. The company's behaviour is comparable to the market, in the sense that it is the result of a complex balancing process. Different participants in the life of the enterprise (managers, shareholders, creditors, employees etc.), taken separately, have certain goals and interests that are not necessarily conciliatory in a spontaneous manner. Consequently, conflicts can arise between them, especially since the function of the modern enterprise, based on the separation of property and power, requires that the administration be entrusted to managers by those who hold the funds.

The optimal financial structure results from a compromise between the different types of capital (equity or debts) that can solve these divergences of interests, considering that leverage and use of equity diminish certain conflicts and induce others. This financial structure should allow maximizing the company’s global value.

In the agency theory, indebtedness is considered a way to resolve potential conflicts between managers and shareholders. In 1976, M. Jensen and W. Meckling[4] showed that in order to find the optimal financial structure of the firm, two consequences of indebtedness must be taken into account:

- In the presence of corporate income tax, managers are interested in indebtedness because interest expenses are deductible leading to reduced corporate tax and net profit growth;
- The indebtedness generates three types of agency costs: control costs (for shareholders) and justification costs (for managers); costs caused by the risks related to the firm's investments, which lead to the increase of the interest rate required by the creditors; bankruptcy costs.

The indebtedness allows shareholders and managers to adhere to same objectives.

Companies are interested to indebt until the point on the increase of its value owed to the financed investments will be equal to the marginal costs generated by the indebtedness. The optimal level of indebtedness is the one that allows the minimization of overall agency costs.

The indebtedness incites managers to be efficient. More the company is indebted, more its bankruptcy risk is higher. For managers the bankruptcy means generally losing their jobs, the remunerations and other advantages. For this reason managers will aim to maximize cash-flow and choose investment projects with positive net present value. In the absence of indebtedness, the bankruptcy risk is limited, but the market will assume that the managers do not aim maximum performance. The value of the company will decrease and, if there exists a managers’ co-interest system (remuneration related to the value of company shares), they will lose.

For shareholders, the indebtedness has two advantages over the issuance of new shares. The first is the leverage effect on the return on equity. The second advantage is that the loan does not lead to dilution of the share capital.

The indebtedness resolves certain conflicts of interest between shareholders and managers, but generates new conflicts (between shareholders, sometimes allied with managers, and creditors) and costs (costs of bankruptcy and reorganization, agency costs, monitoring costs).

Allying, shareholders and managers can divert in their advantage part from the company’s assets to the detriment of the creditors. For example, they can use a loan to distribute dividends.

[4] M. Jensen and W. Meckling, Theory of the firm: Managerial behavior, agency costs and ownership structure, Journal of Financial Economics, vol. 3, octombrie 1976

In a company with high debts reported to the equity, the owners of the firm could be tempted to take excessively risky projects. Shareholders will practically benefit from all the advantages if the investments turn out to be profitable. Otherwise, most of the losses are borne by the creditors. The interests of creditors and shareholders are therefore in direct conflict. This inefficiency is one of the costs of indebtedness.
Creditors know that shareholders are tempted to choose risky investments or to incite managers to do so. Therefore, they may include in the loan agreement clauses that restrict the managers' abilities to make risky investments on the duration of the loan agreement or clauses that allow creditors to demand early repayment of the debt in case of excessive risk.

The second problem of over-indebtedness is the company's inability to finance profitable investments because its indebtedness level is too high. For example, a company with a debt of EUR 10,000,000 has the opportunity to make an investment of EUR 5,000,000 with a gross profit of EUR 12,000,000 and a net present value of EUR 7,000,000. If the EUR 10,000,000 loan clauses provide for the priority reimbursement of this debt, then no new lender or investor will want to fund the new investment. From the net profit of EUR 12,000,000, the first EUR 10,000,000 will go directly to current creditors, leaving only EUR 2,000,000 instead of EUR 5,000,000 to repay the new loan. This investment cannot therefore be realized, resulting in a loss of value.

In order to find solutions to the conflicts that may arise between shareholders and managers on the one hand and creditors on the other hand, it is necessary to look for the means by which shareholders and managers are prevented from acquiring a share of the wealth of the enterprise to the detriment of the creditors. Therefore, it is necessary to try to limit or avoid decisions that increase the risk of company's assets or that lead to sub-investment and tend to reduce the value of existing debts, even if this involves a decrease of the company's value. In addition to the various legal subtleties that can be incorporated into loan agreements, other solutions are also in practice:

A solution to resolve these conflicts is the special clauses set out in the loan agreement, such as: guarantees or security clauses, setting limits on debt, dividend distribution limitation clauses and early repayment clauses.

Another solution is the issuance of convertible bonds or bonds with stock option. The convertibility clause or the exercise of the stock option may prompt the current shareholders to change the structure and risk of the asset portfolio in order to increase their long-term profit, as this could also come to the bondholders who are potential shareholders.

2.2. The capital structure and the signalling theory

Empirical studies demonstrated that the announcement of a stock issue can drive down the stock price, while additional indebtedness leads to an increase in the stock price. In addition, for complex securities transactions (such as shares with priority of dividends or convertible bonds) or for the simultaneous sale and purchase of securities of various forms (such as bond issue to finance share repurchase), we can see that the more issued securities are more like equity, the more the stock will fall. All of these findings can be explained by the signalling theory.

The basis of the signalling theory is the concept of information asymmetry. Managers of a company know more than outside investors (shareholders or creditors) about the profitability and prospects of the company. Hence, investors may be interested in a signalling activity done by managers.

The information disseminated by managers is not necessarily true. According to the signalling theory, the managers of the performing firms can send specific and effective signals that separate these companies from the non-performing ones. The particularity of these signals is that they are difficult to be imitated by the non-performing companies. The most used signals of this type are the capital structure, the dividend policy or the use of complex financial securities.

Another signal regarding the value of the firm is the degree of diversification of the portfolio of a majority shareholder. If he owns a profitable investment project, he will affect a large part of his savings for this project, to the detriment of other forms of placement. Given the asymmetry of information, the low degree of diversification of his portfolio can be interpreted as a signalling activity tending to prove the value of the project to the market.

Starting from this observation, H. Leland and D. Pyle[5] argue that the value of a company is positively correlated with the share of capital held by the majority shareholder. Any change in the portfolio of the majority shareholder will lead to a change in the market's perception of future cash flows.

Research in this direction is continued by S. Ross[6] who deduces that the financial structure chosen by the managers for their company is a signal regarding the type of the firm. For S. Ross, the market only evaluates the perceived cash flow. Managers, who have privileged information about these flows, can make changes in the financial structure of their business and thus change the perception of the market. Managers must derive an interest in the issuance of these signals and be penalized for the issuance of a misleading signal. A good company is therefore the one that borrows and repays the debts at maturity, according to the loan agreements. The model proposed by S. Ross[7] consists of the balance based on the combination between a signalling activity and an incentive system. This model leads to the following conclusions, which can be compared to those of M. Miller and F. Modigliani: the cost of capital is independent of the financing decision, even if the level of indebtedness is specific to each enterprise; bankruptcy risk is an increasing function of the level of indebtedness.

Despite the reserves and criticisms addressed to S. Ross's model, it presents a coherent theory of the financial structure of the enterprise.

2.3. Transaction cost economics and the financing decision

The contracting cost theories have their origin in the "Nature of the Firm" of Ronald Coase[8], and were developed later by Oliver Williamson in "Markets and Hierarchies"[9]. One of the contractual theories is known as Transaction Cost Economics (TCE) and comes from the work of these authors. TCE argues that in some circumstances a hierarchy (a firm) can make a more efficient allocation of resources than a market (a bargaining system). This is due to imperfections in markets such as imperfect information and bounded rationality. These imperfections generate three types of transaction costs:

- Information costs: costs associated with searching relevant information and meeting the agents with whom the exchange will take place. For example, stock brokers mediate the market transactions of investors and their fees reflect the information costs.
- Bargaining costs: costs associated with coming to a reasonable agreement and drawing up an appropriate contract.
- Policing and enforcement costs: costs related to supervising the fulfilment of the contract and make sure that the other party sticks to the terms of the contract. This category includes the litigation costs.

O. Williamson starts from the observation that after signing a contract, the parties to the contract (shareholders, managers, creditors) can change their behaviour to their advantage, which can lead to perpetual ex-post adjustments to make the long-term contractual relationship viable. In the case of a financing contract, the issue of debt or equity is no longer just a source of funding, but also a means by which these adjustments are made. It is a different approach to what has been presented so far, because the financing decision is taken according to the company's assets, not its liabilities. The decision to issue debts or equity to fund an investment project is similar to the company's decision to buy a product from the market or to produce itself. Loan financing corresponds to the market, while equity financing is closer to the hierarchy.

According to Williamson[10], the choice of funds will be determined by the degree of specificity of the assets. Asset specificity can take a variety of forms, including: location specificity (a buyer or seller locates its facilities next to the other to economize on inventories or transportation costs), physical asset specificity (investments are made in specialized equipment or tooling designed for a particular customer), human capital specificity (one or both of the parties develop skills or knowledge specific to the buyer-seller relationship) etc.

Investment in a specific asset is generally the subject of incomplete contracts between the firm and investors to allow significant subsequent adaptations. The issue of equity is more efficient than the debt to make these adjustments. For example, if the specific investment is a research and development project, the shareholders

[5] H. Leland and D. Pyle, Informational asymmetries, Financial Structure and Financial Intermediation, Journal of Finance, 32-2, 1977
[6] S. Ross, The determination of financial structure: the incentive – Signaling approach, Bell Journal of Economies, 8-1, 1977
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will tolerate more than the creditors the fact that it does not generate the expected profitability within the planned deadlines.

Instead, indebtedness does not allow for ex-post adjustments because the interest must be paid at regular intervals, the loan must be reimbursed at the due dates, otherwise bankruptcy procedure will occur. Moreover, if the investment is specific, the borrowers will fear this potential bankruptcy and therefore require very high interest rates.

If the asset funded is not specific, debt, which is a simpler financing formula, seems more appropriate. Indeed, the probability of making ex-post adjustments is minimal since this investment will probably generate income more regularly.

In some situations the most advantageous form of financing is leasing, which corresponds to the hybrid form of organization.

Suppose an enterprise needs regular (not specific) equipment and that the purchase of products resulting from the use of this equipment is defective or unsatisfactory. We also believe that this equipment easily supports intensive use (its maintenance and overheating costs are low). Under these circumstances, the most advantageous way for a company to obtain those products is by using that asset under a leasing contract. Firstly, the company has no interest in being the owner and user of the equipment at the same time, the cost of use being the same. Secondly, the owner (the lessor) can specialize in this type of equipment and can resume and rent the equipment more efficiently than a financial lender could do. Leasing appears for the asset considered as the lowest-cost financing method.

2.4. The pecking order theory and the optimal capital structure

If for O. Williamson the specificity of the assets explains the choice of financing mode and therefore the financial structure, for S. Myers and Majluf[11] the preference for a particular way of financing has another explanation.

S. Myers sees the firm as a coalition seeking to increase the volume of corporate wealth, which is made up of equity and organizational surplus. The last one reflects the present value of the costs of overly high wages, too many staff, gratuities, and so on. Creditors can impose reduction of the organizational surplus if the reimbursement of the debt or the payment of interest is compromised. This situation can be avoided if the company is financed by internal funds, meaning by earnings retained and reinvested.

If it is necessary to resort to external financing, the issue of debts will be preferred over the issue of equity that would implicitly require the distribution of additional dividends. The indebtedness has a minor effect on stock price. There is less scope for debt to be misvalued and therefore an issue of debt is a less worrisome signal to investors.

According to the pecking order theory of capital structure companies prefer internal finance, because these funds are raised without sending any adverse signals that may lower the stock price. If external finance is required, firms issue debts first and issue equity only as a last resort. This pecking order is due to the fact that investors consider the debt issue as a good omen and the equity issue as a bad omen.

The pecking order theory seems to work best for mature, profitable companies of most business. But there are exceptions. For example, fast-growing high-tech firms often issue common stock to finance their investments.

3. Conclusions

Considerable work has been done to test the validity of the main theories of capital structure. *Table 1* shows a summary of the origins and evidence of these theories.

The inventory of empirical works shows that there is no clear solution for finding the optimal financial structure. The four theories analyzed and their outcomes are valid only under certain conditions and with certain limitations. The conflict arises also between the outcomes and recommendations of the various theories that are often mutually exclusive.

In conclusion, there are many factors affecting the capital structure of firms. The most prominent factors that have been correlated to leverage are:

[11] S. Myers and N. Majluf, Corporate financing and investment decisions when firms have information that investors do not have, Journal of Financial Economies, vol. 13, Iunie 1984

• Firm profitability. The pecking order theory hypothesises that profitability is inversely related to leverage. In contrast, the agency and signalling theories suggest that profitability is directly related to leverage for two reasons: to take advantage of the interest tax shields associated with higher leverage, and to discipline managers by paying out cash to creditors instead of wasting the funds on negative net present value projects.
• Asset specificity. The general consensus among researchers is that debt financing is suitable for low specificity assets, and equity is preferred when the level of specificity is high.
• Size of the company. Size can be considered as an explanatory predictor for variations in firm leverage. Several financial theorists consider that the larger firms can negotiate for loans on more favourable terms, so are more likely to take on more debt than smaller firms. In addition, banks prefer to loan larger firms because they are less risky than smaller firms. Other analysts argue that the fixed costs associated with equity issues should be smaller for large firms. On that account, the company's size should be inversely correlated to leverage.
• Age of the company. Age plays a significant role on firms' ability to acquire debt. Older firms are deemed to be more stable and thus more reputable due to their ability to survive over a longer period of time. Therefore, the prediction is that older firms will have more long term debt in their capital structures.
• Growth prospects. The general consensus among researchers is that growth opportunities are negatively related to leverage, principally because future growth prospects are intangible and hence cannot be easily collateralised.
• Corporate income tax. Modigliani and Miller demonstrated that the tax savings associated with interest tax shields induce firms to take on more debt. Therefore, a positive association between tax and leverage should be observed.
• Dividend policies. Empirical evidence on the relevancy of dividend policy has provided conclusive evidence on the dividend signalling theory, which suggests that dividend increases are associated with managements' confidence of future stability of cash flows. Dividend pay-out ratio is theoretically predicted to be negatively correlated to leverage due to the positive association between dividend pay-out and the market value of equity.
• Institutional, legal and financial factors. Fan, Titman and Twite (2008: 2) examine a cross-section of firms in a heterogeneous sample of firms in 39 countries, and they conclude that institutional differences are an important determining factor of capital structure choices compared to other factors like industry affiliation. For example, they document that firms tend to use less debt in countries where dividends are preferentially taxed.
The cost-benefit analysis of the funding options allows for the optimal financial structure.

Table 1: Summary of the origins and evidence of the main theories of capital

Theory	Origin of theory	Evidence for	Evidence against
Agency cost theory	Jensen and Meckling (1976)	Kim and Sorensen (1986) Vilasuso and Minkler (2001) Harvey et al. (2004) Berger and Bonaccorsi di Patti (2006)	Brounen, DeJong Koedijk (2006)
Signalling theory	Leland and Pyle (1977) Ross (1977)	Myers and Majluf (1984) Smith (1986) Brennan and Kraus (1987) Baker and Wurgler (2002)	Barclay and Smith (1996) Barclay and Smith (2005) Brounen et al. (2006)
Transaction cost economics	Coase (1937) Williamson (1975)	Bradley, Jarrell and Kim (1984) Barclay and Smith (1995) Frank and Goyal (2009)	Abor and Biekpe (2005) Mutenheri and Green (2003)
Pecking order theory	Myers and Majluf (1984)	Kester (1986) Titman and Wessels (1988) Rajan and Zingales (1995) De Migueland Pindado (2001) Flannery and Rangan (2006) Leary & Roberts (2010)	Helwege and Liang (1996) Frank and Goyal (2003)

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Early Warning Systems for Currency Crises

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Abstract: *Currency crises may appear and propagate under many forms, a fact which led to their analysis through various methods. In a meta-analysis, a couple of authors (Frankel and Saravelos) review more than 80 papers of the literature on early warning systems for currency crises in which they found out that low central banks' reserves is the most reliable warning indicator. There are indicators such as "Exchange Market Pressure Index (EMPI) developed by Girton and Roper which is used to quantify pressures on a currency. This indicator is relevant whether the exchange rate is flexible, fixed, or intermediate". In case of currency risk in Africa, "the EMPI is calculated monthly as a weighted sum of both the annual change in the exchange rate against the US dollar, and the change in reserves. As such, it can be either positive or negative. A higher EMPI - indicating a depreciation and/or depletion of reserves- reflects increased tensions in the foreign exchange market". The need to predict systemic crises has led to the creation of a monitoring instrument known as the early warning system - EWS. The early warning system used for currency crises makes it possible to predict the appearance of a crisis within a well-defined period of time. Such a method may be applied both for currency crises, as well as for banking or fiscal ones. This method consists in the analysis of economic and financial indicators that facilitate the collection of information related to the potential vulnerability of the payment balance or to the non-sustainability of the exchange rate.*

Keywords: early warning system (EWS); signal-based approach; methods of a logit/probit type; methods used for analysing the impact of a currency crisis; currency market pressure indicators, currency crisis indicators etc.

1. Introduction

The present paper deals with currency crisis warning methods, as well as with preventing currency crisis methods. In devising the EWS, several methods are used; the most important ones are as follows:

a) methods based on a signal-based approach, consisting in monitoring a set of indicators: if these methods surpass a certain threshold, which was previously calculated, this is considered to be a warning signal. Indicators can be: calculated indicators – composite indicators of vulnerability (currency market pressure indicators, banking system stability indicators (sentiment indicators): GDP increase, budgetary deficit, capital market indices, securities spread (Kaminsky, Lizado and Reinhart) [1];

b) logit/probit type methods (limited dependent variable - LDV): they estimate an econometric model of a logit/probit type wherein the depending variable indicating the appearance of a crisis is calculated on the basis of the currency market pressure indicator, whereas explaining variables are economic and financial indicators. The model has the advantage that it allows to measure the effect of each explaining variable over the crisis probability (Frankel and Rose, 1997 or Bussiere and Fratzscher, 2002)[2],

c) model for analysing the impact of a currency crisis (severity of crises indicators): this model determines which countries will be most seriously affected if a financial external crisis bursts out in a country from a certain region. The method is used to define a crisis indicator over a period and during a stress period for international financial markets – the differences incurred by the index for every country are explained by the variables that describe economic conditions of the analysed crisis (Sachs, Tornell and Velasco, 1996)[3]. The first two of the methods enumerated above are going to be presented in the next lines.

2. Literature Review

1. Methods relying on a signal-based approach

Signal-based approach methods have been considerably developed in a set of works by Kaminsky, Lizondo and Reinhart (1996, 1998)[4], whose methodology will be used in the next lines. We should point out that,

in calculating some indicators, depending on the existing data, a larger sample of countries has been used in comparison with the second model (Argentina, Brazil, Bulgaria, the Czech Republic, Chile, Columbia, South Korea, Croatia, Estonia, Philippines, Indonesia, Latonia, Lithuania, Malaysia, Mexico, Poland, Romania, Russia, Slovakia, Slovenia, Thailand, Turkey, Hungary, Venezuela):

In this context, the crisis is defined as the period in which the currency pressure indicator surpasses the average value and it surpasses two times and a half the standard difference. The currency pressure indicator is a moderate sum of three factors: the increase rate of the real exchange course and the increase rate of the international reserves.

An indicator issues a signal when it surpasses a certain percentile in the distribution of the values of that indicator[1] (here we have chosen 15 %, and 85 %, depending on the indicator). One should mention that these limits are specific to each country, in the sense that, even if the percentiles are identical for all countries, the value of the signal-based indicator varies depending on the country.

The analysis may be synthetized as in the matrix comprised in Table 1. The signalling period was chosen *a priori* as lasting 12 month. Thus, if the chosen indicator issues a signal followed by a crisis 12 months before the crisis starts, this is a good signal; if the signal is not followed by a crisis then the signal is a false one.

Analysis of the signal issued depending on the identified crisis period Table 1

	Crisis in the next 12 months	No crisis in the next 12 months
Signalling a crisis	A	B
Non-signalling a crisis	C	D

The results of the analysis relying on this method are presented in Table 2 .

Performance of indicators when using the signal-based model Table 2

No.	Indicators	Issued signals	Correct signals Total number of potentially correct signals A(A+C)	False signals Total number of potentially false signals B(B+D)	Noise to signal ratio [NS/ (B/(B+D)] / [A/(A+C)]	Conditioned probability (crisis/signal) A/(A+B)	Unconditional crisis probability (A+C) /'(A+B+C+D)	Persistence degree of a signal (crisis VS normal period) 1/NS
0	1	2	3	4	5	6	7	8
1	M2/Reserves	527	0.44	0.12	0.28	0.20	0.07	3.55
2	Overestimation of the real currency exchange rate	440	0.45	0.14	0.31	0.17	0.06	3.25
3	Short-term debt / total debt	487	0.38	0.14	0.36	0.16	0.06	2.75
4	Private debt/GDP	455	0.22	0.10	0.47	0.11	0.06	2.14
5	Total debt/GDP	456	0.22	0.11	0.48	0.11	0.06	2.07
6	Current account/GDP	548	0.35	0.18	0.53	0.10	0.06	1.90
7	Portfolio investments/GDP	406	0.24	0.15	0.62	0.09	0.06	1.61
8	Short-term debt/ Exports	481	0.22	0.14	0.62	0.10	0.06	1.61
9	Export increase	489	0.19	0.14	0.71	0.09	0.06	1.40
10	Budgetary deficit	434	0.25	0.18	0.73	0.09	0.07	1.37

[1] E,g, for the increase of the non-governmental credit we used the superior perception of the distribution (85 %), while for the current account / GDP we used the inferior percentile (15 %).

11	Non-governmental credit /GDP	473	0.17	0.14	0.84	0.07	0.06	1.19
12	ISD/GDP	2153	0,.7	0.85	1.10	0.05	0.05	0.91
13	Public debt/GDP	445	0.12	0.13	1.12	0.05	0.06	0.89
14	ISD/Total debt	2318	0.76	0.86	1.14	0.05	0.06	0.88
15	Exports/GDP	2457	0.60	0.80	1.32	0.05	0.06	0.76
16	Increase in the real GDP	455	0.10	0.17	1.66	0.04	0.06	0.6
17	Degree of opening	722	0.04	0.24	5.60	0.01	0.06	0.18

Column 3 indicates the share of correctly signalled crises in relation to the total number of crisis signals that could have been sent correctly. According to Kaminsky (1998), 100 % indicates that there is a crisis signal for each of the 12 months preceding the crisis. One can notice that the share of direct foreign investments expressed in relation to the GDP (ISD/GDP), followed by the share of direct foreign investments expressed in relation to the total debt (ISD/total debt) and the share of exports expressed in relation to the GDP (exports/GDP) poses the highest percentage of good signals. However, one has to be very cautious when interpreting these signals. Column 4 indicates the number of false signals expressed as a percentage of the total potential of false signals that could have been sent. One can notice that the previously mentioned variables (ISD/GDP, ISD/total debt, exports/GDP) have recorded a high degree of false signals. The first three of them, for which there is a low percentage of false signals expressed in relation to all the sent signals, are: private debt/GDP, total debt/GDP and M2/reserves.

In order to simultaneously measure the ability of an indicator to send good and false signals, Kaminsky et. al. (1998) suggest using what they call noise to signal ratio defined as a fraction illustrating the relationship between signalling an unfulfilled crisis and the periods without crisis B/(B+D) and the relationship between signalling a real crisis and the periods of crisis A/(A+C). This is illustrated in column 5 of Table 2. For an indicator which sends signals at random and for a sufficiently large sample, the law of large numbers implies a noise to signal ratio that is equal to 1. Thus, those indicators that point noise to a signal ratio higher than 1 have an extremely low power to signal crises. In the present context, they are: ISD/GDP, public debt/GDP, exports/GDP, real GDP growth, opening degree (calculated as a relation between the sum of exports and imports and the GDP) and inflation. The high value of the indicators recorded for variables like the growth of the real GDP and inflation, as pointed out by Kaminsky et.al. (1998), predicts crisis relatively well.

The indicators that have a sub-unitary degree of correctly signalling crises and of avoiding false signals are: M2/reserves, overestimation of the real rate, short term debt/total debt, short-term debt/exports, exports growth, governing deficit, non-governmental credit/GDP.

Another aspect pointed out by Kaminsky et.al. (1998) refers to the difference between the probability conditioned by the appearance of the crisis (column 6) and the unconditioned probability (column 7). If that indicator has a high degree of predictability, conditioned probability should be at a relatively higher level than the unconditioned one, a fact which is true for the first 6 indicators. One should notice that, for the used sample, the probabilities record relatively low values, which are, e.g., comparable with the ones estimated by Kaminsky et.al. (1998); the last aspect may be determined by the inclusion in the sample of some countries which, during the investigated period, did not experience major crises, a fact which leads to the mitigation of the conditioned and unconditioned probability.

The last column in the table indicates the degree of persistence for the indicators for the 12 months interval before the crisis and in relation to the other periods. Thus, M2/reserves and the overestimation of the real exchange rate are three times more persisting during the pre-crisis periods in comparison with the ones in which no crises are incurred. A coefficient higher than 2 is also obtained for the 3 indicators that involve different forms of debt in relation to the GDP.

The relatively good performance of the total and private debt expressed in relation to the GDP, and in comparison with the poor result recorded by the total public debt/GDP, may be due to a higher share of the private debt in relation to the total debt for the countries that underwent a currency crisis period and/or a poor quality of

the data for these indicators; these facts are reconfirmed by econometric analyses in which these indicators are not relevant when estimating the crisis probability.

Berg et. al. (1998)[5] were some of the first who tested the accuracy of the models (both the ones developed by Kaminsky et.al. in 1998, and the logit/probit ones) during the insample and the out-of-sample periods. To achieve this goal they assess the models using observations made until 1995 and make predictions for the next 2 years. The authors use a threshold of probability of 25 % and 50 % to indicate the appearance of the crisis. The authors compare the results obtained with the real values.

The model of Kaminsky, Reinhart and Lizondo (1998)[6] predicts the observations in a correct manner for 70 % of the cases. However, the prediction of crisis is of interest considering the previous result, which may be due to the prolonged periods in which crises did not occur. Thus, the mentioned model correctly predicts only 34 % of the pre-crisis period, when the threshold is 25 %. At the same time, more than half of the signals are false. Moreover, the crises occurred in 24 % of the cases without being signalled.

In contrast, the logit/probit models have a high degree of predictability. When the threshold is 25 %, the model correctly anticipates 79 % of the observations. 73 % of the precrisis periods were correctly predicted and the proportion of false alarms is a little below 50 %. In order to surpass a series of shortcoming specific to the above mentioned models, a LDV model was used, which was based on a logit multinomial procedure.

2. Limited dependent variable - logit multinomial methods

This model belongs to the category which is based on variables of a qualitative nature, but, in this case, the explained variable is not binary. The used econometric instrument is a logit multinomial model. In comparison with a binary model, the crisis period is split into two parts: the pre-crisis period and the crisis period and post-crisis period. This separation allows avoiding the post-crises bias effect, which records different evolutions for the macroeconomic indicators during the two periods (Bussiere and Fratzscher, 2002)[7].

The creation of a warning model based on a logit multinomial model involves the following stages:

calculating a pressure indicator for the currency market: this allows defining the crisis period, including not only the successful attacks on a currency (forcing the central bank to give up a fixed regime), but also the external vulnerability moments in which the measures taken by the monetary authority or the favourable external situation of the country made it possible to avoid a currency crisis;

calculating the indicator of currency crisis;

calculating the crisis indicator (the multinomial indicator);

estimating the model by the econometric logit multinomial method;

determining the optimum threshold for signalling a currency crisis.

On the basis of the crisis indicator the logit multinomial model is created. Explanatory variables are the ones which may depict the external financial and economic situation of a country.

The main variables used in the model were (a selection criterion that we used was the signal-based analysis, as described before) [8]:

external competitiveness indicators: overestimation of the exchange rate, current account, commercial balance, imports/exports – at an absolute level and as a growth rhythm. The use of the real effective rate instead of the real rate is motivated by the necessity of identifying external competitiveness issues and it allows for fixed-rate savings to be evaluated;

external exposure: short-term debt/reserves, total debt/reserves, growth rhythm of debt on a short-term;

internal economic indicators: the growth of the real GDP, budgetary deficit, inflation rate;

financial indicators: non-governmental credit, governmental credit, currency multiplicator, M2/GDP, volume of banking deposits;

contagion indicators: contagion and the banking system.

Calculating the contagion indicator of the banking system was used through the method proposed by Fratzscher (2000)[9]:

$$CB_{ij} = \sum \left(\frac{F_{dj} \cdot F_{di}}{F_d \cdot F_i}\right) \qquad (1)$$

where F_{dj} represents credits which were granted by country "d", and F_d stands for the

total number of credits which were granted by country "d".

In the present analysis, countries marked with "d" are developed economies, whereas countries marked with i,j(iF) are emerging economies. The interpretation of this indicator relies on the effect of the common lender

(common lender effect): if country "j" faces a currency crisis and the degree to which the "d" country is indebted to the former one is a high one, the probability for country "d" to refuse prolonging the debt or the probability for this country to withdraw the capitals placed in country "i" is also higher.

In order to signal a crisis for the chosen countries and periods we chose an optimal threshold (if a probability surpasses this threshold, the signal indicates a crisis). Thus, the result obtained on the basis of this model corresponds to the situations depicted by using the signal-based method.

Choosing the optimum threshold and period must rely on the number of crises that were not signalled and the number of false alarms, which is regarded as optimum for establishing the currency policy. Let us consider the following cost[10] function:

$$\alpha(T) = \theta \cdot P_{CN}(T) + (1-\theta) \cdot P_{CS}(T) \qquad (2)$$

where T is the probability threshold; P_{CN} is the probability of not signalling a crisis; P_{cs} is the probability of signalling a crisis; Θ the cost of non-signalling a crisis or the degree of aversion to risk.

The increase of the temporal horizon and the probability threshold determine the increase of the number of non-signalled crises but it reduces the number of false alarms.

3. The pressure indicator for the currency market

The pressure indicator for the currency market is calculated as an average sum of three factors: the increase rate of the real exchange rate, the increase of the real interest rate and the increase rate of the international reserves; this is calculated as follows:

$$EMP_{i,t} = (\frac{1}{\sigma_e^2}) \cdot (\frac{\Delta e_{i,t}}{e_{i,t-i}} + \frac{1}{\sigma_r^2}) \cdot (\frac{\Delta e_{i,t}}{\gamma_{i,t-i}} - \frac{1}{\sigma_{res}^2}) \cdot \frac{\Delta res_{i,t}}{res_{i,t-i}} \qquad (3)$$

where σ_e^2 represents the volatility of the exchange rate, σ_r^2 the volatility of the interest rate, σ_{res}^2 the volatility of international reserves.

The motivation for defining the pressure indicator in this manner is that, in the event of a currency attack, the currency authority has two options: either it attempts to maintain the rate (this is the situation of fixed currency regimes) by mitigating reserves and/or the increase of the interest rate or it gives up supporting the rate and then the currency is strongly devalued.

The use of the inverse variation as a weight factor is due to the fact that the factors with a lower volatility are considered to be more important (the most important factor used to determine the crisis is the modification of international reserves). Similarly, the use of a constant weight for all the countries makes the pressure indicator, including the crisis indicator, comparable for all the countries; this is true especially for the economies that use fixed exchange regimes (the volatility of the exchange rate is lower in this case, a fact which granted more weight to the exchange rate).

Some studies (Edison, 2000[11] or Mills and Omarova, 2004[12]) do not include the interest rate when they calculate the pressure indicator; this omission is most of the time motivated by lack of data in emerging countries. Other studies (Berg, Borensztein and Pattilo, 2004[13]) explain the lack of the interest rate data by referring to the fact that the devaluation of the exchange rate and the increase of the interest rate are different events; thus, the use of the interest rate when calculating the pressure indicator would lead to an accrued prediction of the two events.

4. Currency crises indicator

The currency crises indicator defines the crisis period as the moment when the pressure indicator exceeds the average value and it twice exceeds the standard deviation[2].

$$CC_{i,t} = \begin{cases} 1, daca \ldots \overline{EMP_{i,t}} \succ EMP_i + 2\delta EMP_{(i)} \\ 0, in \ldots rest \end{cases} \qquad (4)$$

0, *for...the...rest*

Once the currency crisis periods are defined, one can identify the crises indicator which will be used in the logit multinomial analysis.

The main problem in defining this indicator is the period in which the currency crisis probability is observed. The separation of the two pre-crisis and post-crisis periods may be made in relation to this period. However, the economies that experienced currency crises underwent different periods of recession and recovery. Thus, defining the pre- and post-crisis periods must be a compromise between the analysis horizon (which the authority in charge with maintaining financial stability set) and the period comprised between the first signs of external vulnerability and the currency crisis incurred by the chosen countries and during the analysed period.

The most used periods of time in economic literature comprise 12, 18 and 24 months.

In this analysis, the best results were obtained for the 12 month period.

The crisis indicator is calculated as follows:

$$y_{i,t} = \begin{cases} 1, daca\ \exists k = \overline{1,12} \ldots CC_{i,t+k} = 1 \ldots si \ldots CC_{i,t+1-k} \neq 1 \\ 2, daca\ \exists k = \overline{1,12} \ldots CC_{1,t+1-k} = 1 \\ 0, in \ldots rest \end{cases} \quad (5)$$

the values of 0.1 and 2 have the following significance:

- y=0, a quiet (normal) period: no currency crisis occurred 12 months before and there is no probability for a new crisis to occur in the next 12 months;
- y=l, the pre-crisis period: a crisis is anticipated for the next 12 months but no crisis occurred before;
- y=2, the post-crisis period: a crisis occurred 12 months before.

5. The results obtained with the econometric model

The logit multinomial analysis was accomplished for 21 emerging economies. Only two emerging countries were used because in these countries domestic and external financial problems are a key factor in the outset of a currency crisis – a fact which does not refer to developed countries. This result was also obtained with the study accomplished by Kaminsky (2003)[2].

The analysed period covers the maximum temporal interval of 1994-2004[3]. The main crises incurred during this period for the chosen countries occurred in: Mexico (1994), the Czech Republic (1997), Bulgaria (1996), Asia (1997)', Russia (1998), Brazil (1999) and Turkey (2000). The results of this econometric model are presented in Table 3.

We used the following indicators:

- overestimation of the national currency (calculated as a real and effective departure from a linear trend);
- GDP; the rhythm with which the non-governmental credit grew as a percentage from the
- the share of the current account deficit of the GDP;
- the relationship between the monetary M2 aggregate and the reserves;
- the rhythm with which exports grew.

The choice of the indicators was also made in relation to the noise-to-signal values, which were calculated previously according to the criterion that indicators whose value is lower than the relation may better explain crises.

The results of the econometric estimation were calculated with the logit multinomial model for the period comprised between: 1994-2004.

[2] For the signal-based model the data referring to the following countries were used: Brazil, Bulgaria, The Czech Republic, Chile, Columbia, South Korea, Croatia, Estonia, Philippines, Latonia, Lithuania, Malaysia, Mexico, Poland, Romania, Russia, Slovakia, Slovenia, Turkey, Hungary, Venezuela.

[3] The period of time established for each country was determined in accordance with the existing data.

Table 3

Multinomial logistic regression					Number of obs.= 2349 LR Chi2(10)= 653.33		
Log likelihood =-973.47669					Prob>Chi2= 0.0000 Pseudo R2= 0.2513		
	Y	coef.	Std.Err.	Z	p»|z|	[95% Coef. Interval]	
y=i	Overestimation	0.1087522	0.00922105	11.81	0.000	0.0907	0.1268043
	NGC/GDP	0.136496	0.0069529	1.96	0.050	0.0000223	0.027277
	CA/GDP	-0.0444268	0.0201994	-2.20	0.028	-0.084017	-0.0048367
	M2/Reserves	0.6886401	0.0707071	9.74	0.000	0.5500568	0.8272235
	Export growth	-0.0082245	0.0048127	-1.71	0.087	-0.0176571	0.0012082
	Constant	-5.675106	0.3016928	-18.81	0.000	-6.266413	-5.083799
y=2	Overestimation	-0.0659354	0.0088901	-7.42	0.000	-0.0833598	-0.0485111
	NGC/GDP	-0.0124348	0.004345	-2.85	0.004	-0.209891	-0.0038805
	CA/GDP	0.0306049	0.0116045	2.64	0.008	0.0078605	0.0533494
	M2/Reserves	0.9095183	0.0647752	14.04	0.000	0.7825613	1.036475
	Export growth	-0.0270937	0.0036976	-7.33	0.000	-0.0343409	-0.0198465
	Constant	-4.59022	0.2282077	-20.11	0.000	-5.037498	-4.142941

(y=0 is the main group)

The first part of Table 3 illustrates the coefficients for the five used variables, while indicating a pre-crisis probability in relation to the probability of experiencing a normal period. The variables are included in the equation with the expected signal. The overestimation of the national currency and the M2/reserves ratio have a significance of 1 %; the increase of the internal credit is related to the GDP increase, the current account deficit related to the GDP amounts at 5 %; the export increase amounts at 10 %.

An increase of the real effective rate in relation to the trend, a lending boom (the increase of the non-governmental credit/GDP), an increase of M2 in relation to reserves all lead to an increase in the crisis probability. Similarly, a high current account deficit and a decrease of the rhythm of export growth indicate an increased crisis probability.

One can notice the difference between the pre- and post- crisis period especially as to the overestimation of the rate and the increase of the non-governmental credit. Moreover, the current account deficit is significantly improved after the crisis.

The general capacity of the model is relatively good if we consider the values obtained with the panel data (pseudo R2 amounts at 0.2513). However, this is not the only evaluation criterion. Table 4 offers a more detailed analysis of the performance degree for the model calculated and in relation to the probability threshold chosen for signalling the crises.

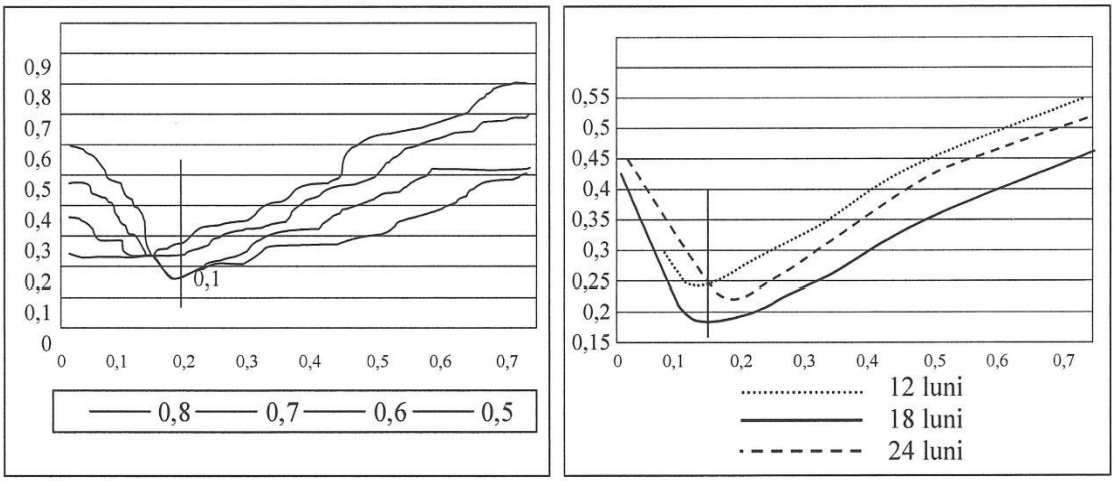
Model performance degree (with crisis threshold of 10%):

Table 4

	Signal		
Crisis	S=0	S=1	TOTAL
y=0	1825	148	1973
y=1	58	89	147
TOTAL	1883	237	2389

% correctly estimated observations:	90,28%
% correctly estimated crises:	60,54%
% false alarms in relation to the total number of alarms:	62,45%
% signal crisis probability:	37,55%
% non-signalled crisis probability:	6,15%

The choice of this threshold was made by minimizing a function of cost which was presented for the limited dependent variable-logit multinomial method and which, in the event of an authority that is neutral to risk (0=0.5), amounts at 10 %, as one can see in Graphic 1. By increasing the risk degree, one has to consider the compromise (trade-off) between the costs of non-signalling a crisis and the one of signalling a crisis (i.e. implementing a measure) for the situations in which there are no real chances for a crisis to occur.



Graphic 1. The policy function in the event of risk neutrality for different crisis period and different degrees of risk aversion (%)

The performance degree of the model is estimated for the pre-crisis period (i.e. for PCY=1). In this case, 90% of the observations and 60.5 % of the crises are correctly estimated, while the crisis probability indicated by the signal amounts at only 37.55 %. In comparison with the models estimated by the International Monetary Fund (IMF-Developing Country Studies Division), Kaminsky-Lizondo-Reinhart (1998)[14], the GS-WATCH model of Goldman-Sachs and Credit Suisse First Boston[15], the estimated model is quite successful as to the number of correctly estimated observations, the total number of false alarms, the likely non-signalled crises, the signalled crisis probability (37.55 % in comparison with 37.2 %, 29.7 %, 26 % and respectively 6.5 %).

The percentage of correctly estimated crises remains relatively around the values obtained by these models (60.54 % in comparison with 65.1 %, 59.8 %, 62.2 %, respectively 61.1%). However, the performance of the model is below the models estimated by Bussiere and Fratzscher (2002)[16]: the number of crises that are correctly estimated in their case is 73.7 %, the total number of false alarms is: 44.1 %, the signalled crisis probability is of: 55.9 %; the inclusion of countries that did not experience major crises might explain these results. Similarly, the performance of the model may be assessed in the graphical analysis of the estimated crisis probability established for each country and also by comparing the obtained results with the real data.

6. Simulating the crisis probability by using scenarios

As previously mentioned, the logit multinomial model consists in dividing the crisis period into two sub-periods: the pre- and post-crisis periods; this allows avoiding the postcrises bias effect, caused by the different evolution of indicators during the two sub-periods. Table 5 presents the medium values of the studied indicators.

For example, the pre- crisis period is characterised by a high overestimation of the real effective exchange rate, while the post-crisis period incurs a devaluation of the real effective exchange rate. The normal periods are the ones in which the real effective rate does not record significant deviations from the trend.

Intermediate values for the used indicators Table 5

Variables	The whole period	The normal period	The pre-crisis period	The post-crisis period
Overestimation of the real exchange rate	1.04	0.45	13.77	-1.14
NGC/GDP *	5.02	4.87	7.69	6.39
CA/GDP *	-2.26	-2.50	-3.63	0.3
M2/Reserves	2.67	2.52	4.21	3.02
Export growth	12.01	14.06	4.97	0.16

*NGC = non-governmental credit; CA = Current account

Due to the impossibility to interpret the coefficients in a logit/probit regression as marginal effects, as a consequence of the non-normal distribution of the explained variable, the marginal effects must be calculated at a pre-established value for the explanatory variables.

Table 6 presents the effect of the estimated probability in relation to a set of scenarios. As a reference level, we chose the scenario in which all variables have a medium level during the normal period. In this scenario, the probability for a crisis to occur during the next 12 months is extremely low, i.e. 2.02 %. On the other hand, when all variables have a medium level during the crisis period, the probability for a crisis to occur is significantly higher in comparison with the normal period, amounting at 27.58 %.

The probability for a currency crisis to appear – scenarios Table 6

Scenarios	Crisis Probability (%)	Modification of the probability (expressed as percentage points)
(1) All variables amount at the intermediate level for a normal period	2.02	-
(2) All variables amount at an intermediate level for the crisis period	27.58	+25.56
(3) All variables amount at the intermediate level for the normal period, except for:		
(a) The exchange rate +2%	2.51	+0.49
(b) The exchange rate +5%	3.48	+1.46
(c) The exchange rate +10%	5.92	+3.90
(d) M2/reserves+2.5%	7.33	+5.21
(e) CA/GDP: deterioration with 5%	2.53	+0.51
(f) NGC/GDP: growth with 5%	2.16	+0.14
(g) Decrease of the export exchange rate with 15%	2.22	+0.2

The table points out that, in order to establish the impact of the different variables on the probabilities estimated by the crisis, one considers that all variables amount at an average level during a normal period, except for a variable which records a change as indicated in the table. One can notice that the highest impact is illustrated by the increase of the M2/reserves ratio, whose double value (illustrating the pre-crisis period) generates a modification in the crisis probability of 7.23 %, i.e. 5.21 percentage points in relation to the reference level and an overestimation of the real effective exchange rate of 10 %, which indicates a probability of almost 6 %, i.e. 3.9 percentage points higher than a normal period.

The presented analysis confirms the previous one, which is based on noise to signal ratio and in which M2/reserves and the increase in the real level of the currency exchange rate were the factors for which the ratio between the signalling of a false crisis related to periods that did not incur crises and the ratio between signalling a real crisis related to the period of crisis was the lowest one of all.

7. Conclusions

The present paper empirically tested two early warning systems for currency crisis on a sample of emerging countries. The approach, using the methodology proposed by Bussiere and Fratzscher (2002), more comprehensive in comparison with the one initiated by Kaminsky, Lizondo and Reinhart (1998), suggested the main indicators signalling currency crises: overestimation of the national currency (calculated as a deviation from the real effective rate in relation to a linear trend), the rhythm of increase of the non-governmental credit expressed as a percentage in relation to the GDP, the share of the current account deficit incurred by the GDP, M2/reserves and the rhythm of increase in exports.

Of the above mentioned indicators, M2/reserves and overestimation of the national currency have the most serious impact on triggering a potential crisis, caeterus parebus (although, in reality, defining factors may manifest simultaneously).

In terms of central banks' reserves, an example is the attack on the Thai baht which have been exerted in July 1996, following the collapse of the Bangkok Bank of Commerce and the Bank of Thailand's injection of liquidity to support the financial system. In May 1997 occurred the most severe attack on the baht. First of all, the capital markets started reporting increasing purchases of U.S. dollars by Thai banks, finance companies, and corporations, as well as accounts of capital flights. This was followed by more intensive speculative pressure on the baht, primarily on the parts of hedge funds and foreign banks. The Bank of Thailand drawing down its reserves and sold US$26 billion forward, based on an end June 1997 estimate. On 15 May, the Central Bank stopped intervening and started to let the interest rate rise, while instituting capital controls to defend the currency and on 2 July, the baht was finally allowed to float. This drove down the currency by 15% onshore and 20% offshore on the same day.

The performance degree of the logit multinomial model, in comparison with the models estimated by the International Monetary Fund (IMF-Developing Country Studies Division), Kaminsky-Lizondo-Reinhart (1998), GS-WATCH model of Goldman-Sach and Credit Suisse First Boston, is higher, but it is lower than the performance of the model developed by Bussiere and Fratzscher (2002); the inclusion of certain countries in the sample did not record significant crises, which may be regarded as a potential explanation of this fact.

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Professional EXO-JUDGMENT Perception – a Quantitative Research Based on an Innovative Conceptual Structure. Part II

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Abstract: This paper is the second part of an elaborated quantitative research. The innovative concept we conceived – "professional exo-judgment" has been described in the first part of the research through the defragmented component elements and thoroughly analyzed, thus highlighting the complex mechanism of the professional judgment. Importance has been given to defining the professional judgment through the respondent's point of view, through the existence within companies of documents that certify the use of the professional judgment, on the types of information on which the professional judgment relies and onto the extremely important role of the professional judgment within an organization.
In the present article we will continue the presentation of further integrated elements of our research and the results of the quantitative research until this stage of the research.

Key-Words: - conceptual framework, research, exo-judgment, companies, knowledge

1 Introduction

The main objective that has been exposed since the previous article, targets the delimitations brought by the professional judgment's perception from a causal point of view. From the set of adjacent objectives that we are exposing today notions come apart that seek to build a veridical research namely general information regarding sex, age and years of work for the respondent, the position of the company regarding the use of professional judgment, the frequency of the use of professional judgment and the reason of using the professional judgment. Taking into consideration the presented objectives, we have centered on the hypothesis according to which **"the rigor of the professional judgment has a direct impact on the decisions' quality".**

2 Steps made for the research.

The stages of our research and the starting point have been thoroughly presented in article "Professional Exo-Judgment Perception– a Quantitative Research Based on an Innovative Conceptual Structure", 2018, 6.2: 17-25, published in Global Economic Observer Journal. We issued a questionnaire that comprises of 20 questions. We have used the Google Drive platform for the distribution of the questionnaire along with e-mail, social networks and through distribution of the physical material. The questionnaire, as a basis of our survey has been sent toward employees within companies from environments like academics, production, distribution, legal, consultancy and management, medical services. 229 questionnaires have been validated and centralized into a table on which we have analyzed both the single-variations and multiple-variation data.

The whole process of gathering the data, processing and interpretation of the data has a vector, on one side, the close tracking of the hypothesis through the prism of its validation or invalidation, and on the other side the statement of conclusions based on the completion of the research."1

3 Results and discussions

Within this article, the interpretations of the research's results are as follows:

- **General information regarding sex, age and years of working of the respondent**

The structure of the attendants at the quantitative research is relatively homogenous, 51.1% of the respondents being female and the rest of 48.9% males.

A percent of 37.1% of the respondents are aged between 31 and 40 years, being followed by the respondents aged between 20 and 30 years with 31.4%. The other two categories of respondents refer to the age between 41 and 50 years with a percent of 17.9%, while the interval between 51 and 60 years comprises of 13.1%.

In the research, the majority of the attendants have a working experience between 5-10 years (21%), followed by the respondents with a working period between 11 and 15 years and those over 20 years of work (17.5% for both situations). Regarding the working experience below 5 years, a percent of 13.5% has been recoded.

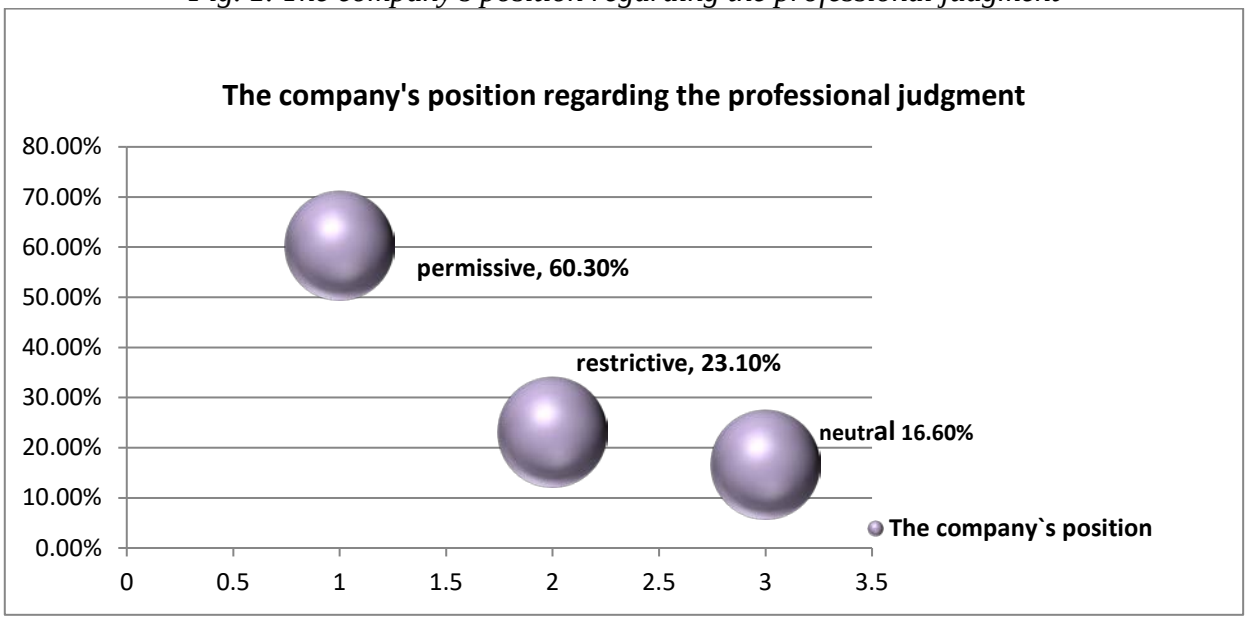
- **The posture of the company regarding the use of the professional judgment**

60.3% of the participants have highlighted the fact that the attitude of the companies in which they act is permissive. This posture depends significantly on the domain in which the company operates. A permissive posture is found in the domains such as: academics, management and consultancy. The employee has a larger decision taking freedom at an organizational level.

The neutrality of the company in the given context has been highlighted by results as being a quality of the companies acting in production and services areas. Within these companies, the employee is guided by the use of the professional judgment based on specific documents but also possesses a certain degree of freedom in assuming their decisions.

The restrictive arbiter of the company applies to legal domain. The strictness imposed to the professional judgment derives from the legal coercive regulations, regulations that guide in a significant manner the judgment system of the employee.

Fig. 1. The company's position regarding the professional judgment



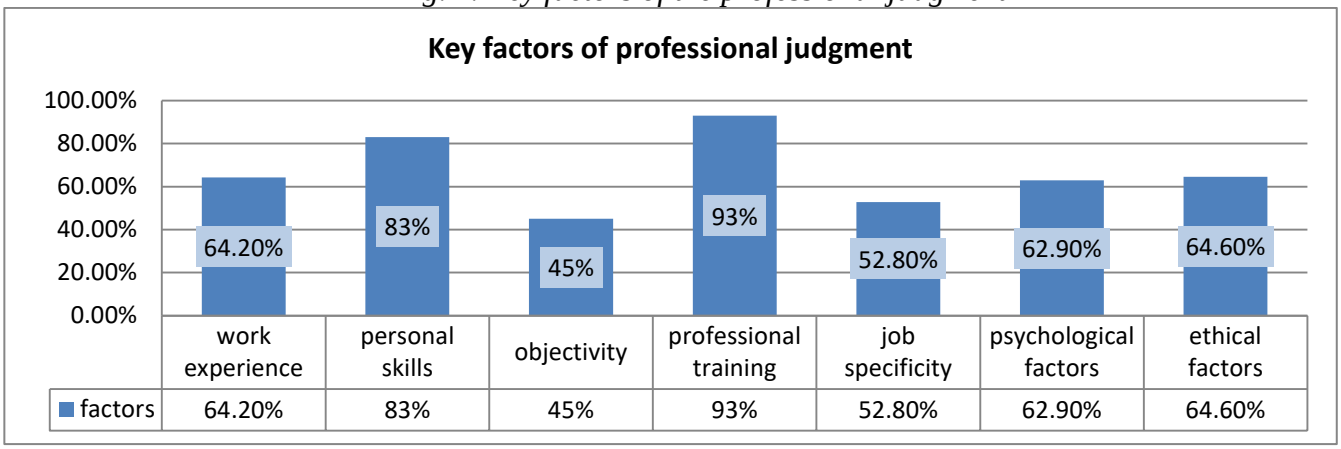
Source: issued by the authors

- **The assembly of determinant factors in the formulation of the professional judgment**

[1] Stefan-Duicu, V. M., & Stefan-Duicu, A. (2018). Professional Exo-Judgment Perception–A Quantitative Research Based On An Innovative Conceptual Structure. Global Economic Observer, 6(2), 17-25.

Employees that have attended our research have appreciated the professional judgment is a structure that requires a cumulus of determining factors. The first position, with 93%, the professional training indicates that it is the main determinant factor being closely followed by the personal skills, with a percent of 83%. In a proportion of over 60% amongst the determining factors we find the working period, psychological and ethical factors.

Fig. 2. Key factors of the professional judgment



Source: issued by the authors

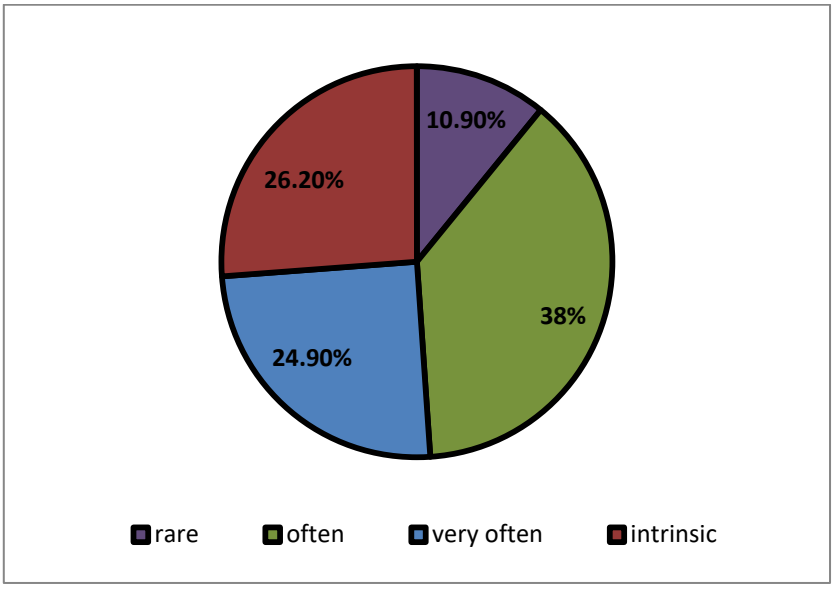
- **The frequency of the use of professional judgment**

The usual attribute of using the professional judgment is strongly highlighted by the options of the respondents, 38% have confirmed that they use often the professional judgment, 24,9% very often and 26.2% have associated the use of the professional judgment as being intrinsic.

A percent of 10.9% are rarely using the professional judgment within the company. This occurs because the specificity of the professional domain's activity.

Fig. 3. Professional judgment – the use frequency

The frequency of using the professional judgment

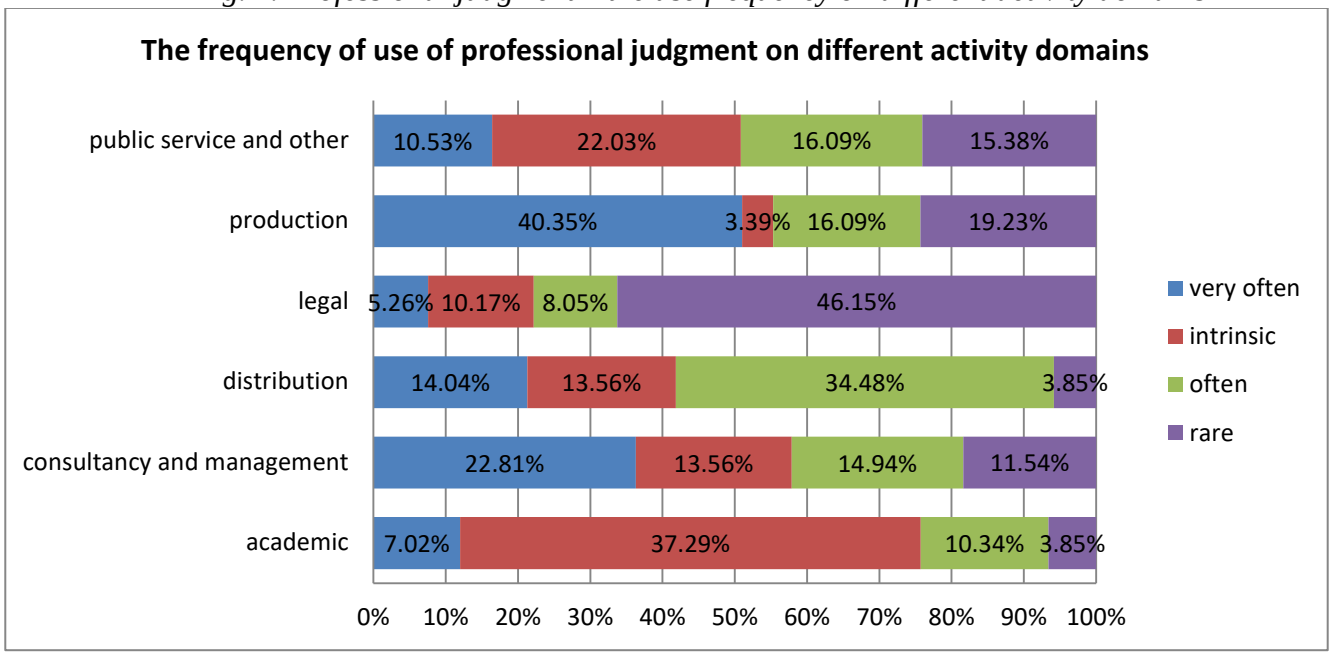


Source: issued by the authors

In the academic domain (37.29%) and public services (22.03%), the respondents have expressed their opinion regarding the association of the intrinsic character of the professional judgment. Diversified activities such as the high number of demands that require a fast resolution, therefore a decision make, provides to the named domains an intrinsic character transposed to the professional judgment.

Into production (40.35%), consultancy and management (22.81%), the employees use very often the professional judgment and often in the distribution domain (34.48%). In the legal domain, 46.15% of the respondents have highlighted the fact that rarely they use the professional judgment due to regulatory limitations.

Fig. 4. Professional judgment – the use frequency on different activity domains



Source: issued by the authors

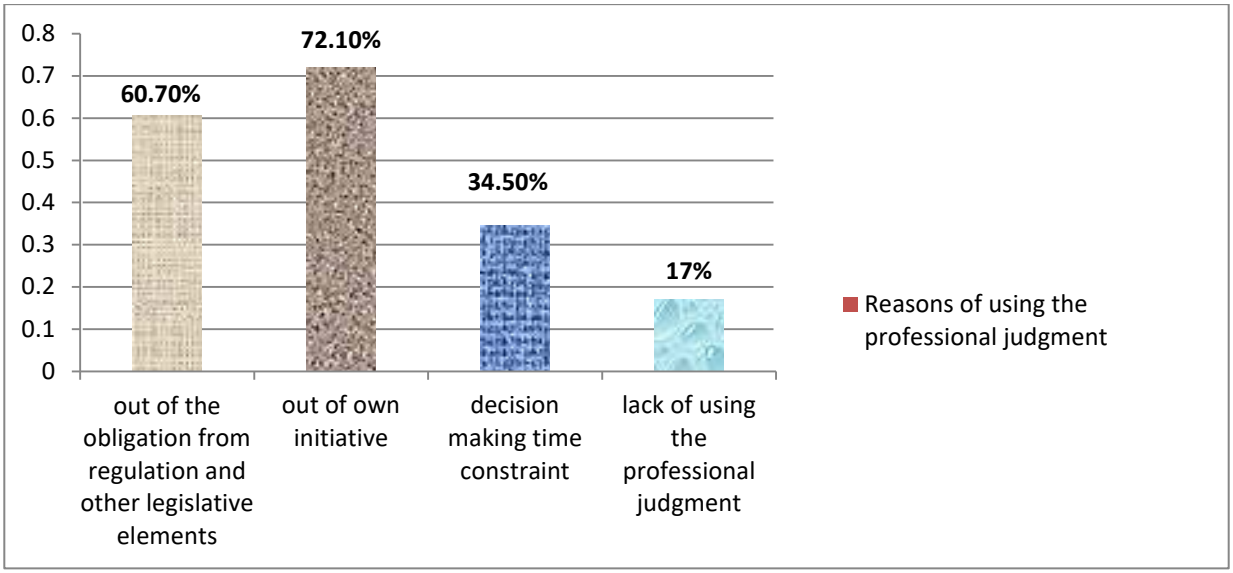
- **Reasons for the employee to use the professional judgment**

The questioned employees within this research use the professional judgment from own initiative (72.1%) and then because the obligation exercised through regulation and other legal nature elements (60.70%). Decision time pressure is another reason that refers to the use of professional judgment (34.05%) along with the lack of existence of additional specific regulations to the domain (17%).

In the legal domain, employees are guided by the regulation and legal active documents. Academicians call up to the professional judgment predominantly by own initiative and by the obligation exercised through regulation and other legal nature documents, while the remaining elements have an insignificant weight.

In other domains the other two reasons intervene: decision time making pressure and the lack of other specific stipulations. Employees that are found in a pressing posture take decision meant to solve the issues that appear by using the professional judgment because particular motives to their activity.

Fig. 5. Reasons of using the professional judgment



Source: issued by the authors

4. The conclusions of the quantitative research regarding the perception of the professional judgment within the companies

The study of the composing elements of the complex mechanism of the professional judgment based on the main established objective has been fully accomplished.

Another accomplished objective is the one referring to the establishment of the frequency of use of the professional judgment. Following its result evaluation we found that 38% of the respondents often use the professional judgment and 24.9% very often. A percent of 26.2% of the respondents associate the professional judgment with the intrinsic character of its use.

The perception of the professional judgment at a company level has made the quantitative research on which our study was based. We have carried methodological demarches presented under the form of a questionnaire, being thoroughly realized, complex and innovative simultaneously, involving empirical procedures preceded by qualitatively content interpretation. The questionnaire has been distributed within companies specialized on several domains, respondents (in the count of 229) being receptive to the proposed study thematic. The gathered information had a very important role in the consolidation of the central theme of the research through *the validation of the hypothesis regarding the high level of academic knowledge that determines a better use of the professional judgment and the rigor of the professional judgment that has a direct impact over the quality of the decisions.*

The professional exo-judgment takes several multi-varied forms and represent an innovative concept proposed by the authors, concept that finds its final conclusion and the last additions and explanations into a third part of the research that imposes the future issue of another article that led to the validation of the initial hypothesis and have underlined that the perception of the professional judgment represents a high degree of importance regardless the domain of the company.

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The Role of Sovereign Debts in the Development of the Actual Macroeconomic Environment

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Abstract: Globally, the volume of public debt, most of which is sovereign debt, has increased significantly and although the macroeconomic development of most states has made good progress since the consequences of the global financial crisis triggered by the United States since 2007, their share has become a major concern for global financial equilibrium. In this context, the analysis of the evolution of public debt in each country as well as in the geographic areas of strategic importance for the international economic conjuncture is an imperative for international financial analysts and institutions as well as for those who develop forecasts and propose economic-financial policies in the short term, and especially in the medium and long term. The analysis of public debt in each country, region or community / association of sovereign states is of major importance both for assessing the financial stability and, implicitly, the economic at national, global as well as presently when capital, as well as goods and services circulate with great ease between countries and continents to identify potential risk factors that may affect the macroeconomic development and social life of the communities involved. The aggravation of free movement, along with the increase in public debt, along with other factors of an economic, political and social nature, contributes to the establishment of a new world economic order characterized by a new hierarchy of world states, new economic and financial relations between countries with a developed economy and those with important natural and human resources, but whose level of macroeconomic performance is well below the level of developed ones.

Keywords: public debt, gross public debt, net public debt, public debt ratio, budget deficit, public finance, negative balance.

1 Introduction

The purpose of public debt contracting may have two different directions: on the one hand, balancing public finances, covering current and / or accumulated deficits in previous years, and, on the other hand, funding of investment programs / projects of major importance great for the community, both from the social point of view and as producing added value.

At the same time, the position of the state towards its debtors, especially foreigners, allows analysts to assess the country's financial standing. Thus, international rating agencies, such as Moody's, Standard & Poor's, Fitch, etc., embrace the national economy on a specific risk scale, which has an immediate impact on the behavior of economic agents, both internal and external. Risk degradation causes a decline in national macroeconomic developments caused by the diminished investment activity of domestic entrepreneurs, as well as external capital flows for business financing, so-called foreign direct investment. Also, the international financial environment borrowing funds is worsening in the direction of rising real interest rates, all of which exert an increasing pressure on the domestic currency exchange rate, which makes it even more difficult to pay public debt service, affecting even the sustainability of public finances.

The theoretical approach, in order to evaluate how the evolution of public debt influences macroeconomic development, as well as the social life of a country, takes into account the internal and external conjuncture characteristics as well as the specificity of the respective economy.

There are many currents of thought, but according to the assessment of the consequences, especially in the medium and long term, and the proposed strategies to be applied in the management of public debt and the national economic and financial balance, they can be divided into two distinct categories: classical and neoclassic currents, which argue that the public deficit is damaging to the national economy, and its borrowing funding leads to a drain effect - the crowding-out effect of credit to the private sector means that it is declining due to the targeting of capital temporarily free to the public sector, which has the zero risk, to the detriment of credit to the private sector - the financing of private investment, with immediate consequence in the diminishing of domestic demand, which will lead to the decrease of the domestic productive activity and the accumulation of the added value in the economy. As a consequence, public revenue resulting from taxation, being mandatory levies from the newly created value, will decrease, deepening the primary budget deficit, i.e. the negative balance between revenues and expenditures of the budget, which decrease the expenditures related to the public debt.

Financing of the deficit by loan will involve contracting new loans, the pressure exerted by the increase in the public debt service - especially as the real interest rates will increase and the national currency will depreciate as a result of the deterioration of the country rating - will contribute to unbalance of public finance.
International financial institutions support these theories, considering that they apply especially to developing countries with a high leverage ratio, their economies being more vulnerable to economic or financial shocks than developed economies.

In the table below, we selected a few countries classified according to the position of the GDP per capita indicator as compared to the world average, eight years after the financial crisis. This indicator shows the level of development of the national economy and the information in the table shows the very large differences between the states of the world, and consequently the degree to which each economy feels the pressure exerted by the public debt. It shows the place that our country occupies in the world hierarchy, which means that together with a sustainable rate of external public debt, it gives the Romanian economy an average level towards low financial risk.

Per capita GDP (current USD) selecting a few states

- % of the world average-

Conutry	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Luxembourg	1172.9	1103.2	1107.6	1010.6	1058.9	1094.8	996.3	986.8	971.0
US	534.2	508.4	476.4	487.1	491.9	502.2	554.3	564.1	555.2
Germany	474.3	439.2	447.9	417.2	433.6	441.1	405.8	413.7	414.8
UK	434.9	408.8	396.2	395.6	398.2	429.6	435.1	395.8	370.5
France	472.5	427.1	419.0	387.0	396.9	394.9	359.6	361.2	358.9
Japan	464.3	467.8	460.9	460.1	377.0	349.9	339.5	381.7	358.4
Republic of Korea	207.9	232.1	230.4	230.6	241.3	255.4	266.2	270.4	277.4
Czech Republic	224.4	208.2	207.8	186.8	185.6	181.3	174.0	181.1	190.0
Greece	337.7	282.9	248.0	210.6	203.9	199.8	177.5	175.2	173.6
Hungary	148.1	137.6	135.1	122.0	127.4	130.4	122.6	125.6	132.7
Poland	131.0	132.4	132.9	124.4	128.4	131.7	123.3	121.8	129.3
Romania	96.3	86.3	87.1	80.8	89.0	92.1	88.2	93.7	100.9
The Russian Federation	97.3	112.2	137.3	146.1	149.2	129.7	91.8	85.8	100.2
World Media	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Turkey	102.7	112.2	108.5	111.0	116.9	111.4	107.9	106.4	98.4
China	43.6	47.9	53.9	60.0	66.0	70.6	79.2	79.5	82.3
Bulgaria	79.2	71.9	74.8	69.8	71.3	72.2	68.7	73.2	76.7
Moldavia	17.3	17.1	18.9	19.4	20.9	20.6	18.0	18.7	21.4
Burundi	2.4	2.4	2.4	2.4	2.4	2.5	3.0	2.8	2.7

Source: https://databank.worldbank.org/data/reports.aspx?source=2&series=NY.GDP.PCAP.CD&country=, prelucrarile autorilor

The public debt ratio is determined as a ratio between the actual public debt (contracted and drawn debt minus the reimbursements from it up to the moment of the statistical registration) and the GDP, and the level considered excessive differs according to the appreciation of the analysts and / or international institutions (or regional, in the case of the European Union). Thus, some analysts believe that for the developed countries the

excessive level of over-indebtedness would be 90% (Reinhart C. and Rogoff K. (2011)) or even more than 100% (eg. 115% Minéa A.and Parent A. (2012)).

In the Stability and Growth Pact in the EU Treaty, the leverage threshold, established without a statistical basis under the Maastricht Treaty Defined Criteria, is 60%, but most developed Euro zone countries go beyond this threshold.

Interventionist thought patterns originally formulated by J.M.Keynes and continued by neo-Keynesians, claiming that debt contributes to the revival of domestic demand through the financing of new investment programs / projects, the multiplier effect of which increases the value added in the economy.

The positive effects of public debt are felt, according to Keynesian theory, in economies that are experiencing a slowdown or even decline in economic development marked by a significant public deficit. Conversely, if the economy is in a full-time employment cycle, or when demand for money on the domestic market leads to an increase in the interest rate, it is estimated that public debt will have a negative impact on macroeconomic development.

The theories and strategies proposed by both national authorities and international institutions, such as the International Monetary Fund (IMF), the World Bank (WB) and the European Union, rely on several factors considered relevant to economic growth, among which the most important are:

- the rate of investment, in direct (positive) correlation with the macroeconomic development rate;
- the population growth rate, which is analyzed according to the economic and social specificity of the country and according to the internal and international situation.

Thus, the negative growth rate of the active population in most developed countries in Europe and North America is considered a negative factor for economic growth. A large number of the active population - the definition of the active person is in accordance with the national law, namely the person in good health, between the minimum and the maximum working age - who has the professional skills appropriate to the current activity is a factor favoring the growth economic development in developing countries, especially in emerging countries (China, India, etc.).

If the population does not have the necessary professional skills and / or the age structure, i.e. the population above the working age, shows the necessity of supporting this category of public funds, the impact on the public finances, respectively the budget deficit and, consequently, the indebtedness is negative . This is the case for many developed European countries, Japan, etc.

2 Theoretical Approach To Public Debt

2.1. Definition of public debt

The terms expressing public debt are numerous and show different structures and compositions, as well as spheres of coverage, depending on the purpose of the analysis for which they are used.

There are two broad categories of public debt: gross public debt and net public debt, and the references that they define are global statistical approaches such as the National Accounts System (SCN) or economic and / or financial institutions which performs macroeconomic analyzes to examine national or regional circumstances and to propose appropriate policies for balancing and economic development. Among the most known such institutions are the IMF and the BM, the European Commission, the Organization for Economic Cooperation and Development (OECD), the national statistical institutes and others.

Gross public debt

Government gross debt in the SCN sense is defined, according to the patrimony account of this system, as the total liabilities of the Public Administration as a whole, without consolidation between the constituent institutions.

Gross public debt in the European Union's sense is defined in the Maastricht Treaty (1992) as a consolidated public debt: debts of a public administration to another public administration are deducted from the liabilities of the former and the assets of the latter (the Maastricht Treaty, Protocol No. 12).

According to the BM methodology, gross government debt is composed of all liabilities of the public administration in the form of debt, these items being considered financial instruments that define third party claims on the public sector. According to the BM, they are considered as public debt instruments: Special Drawing Rights (SDRs), which designate the IMF account currency transactions, cash and deposits in public institutions, third-party debt securities to the public sector, loans contracted by public institutions, insurance systems, pensions and standardized guarantees, other payment accounts.

Net public debt

Government net debt is determined in Eurostat - the Commission's statistical data portal - by subtracting from gross public debt in the SCN all financial assets of the same general government. The OECD also calculates net public debt by designating this indicator under the heading of "net government financial commitments".

2.2. Sustainability of public finances

Public finances are said to be sustainable when responsible public authorities can finance all of their budgetary expenditure, including their liabilities from the contracted or guaranteed public debt and not yet reimbursed, in a long time horizon, in the absence of political changes. Public policies are not exclusively economic and financial, but also institutional, because the State's authority is exercised through its institutions, which implies the coherence and high quality of the functioning of the public services under their responsibility.

In this respect, with regard to public finances, the issues to be taken into account are the budgetary process and the electoral cycle, both closely linked to the public policies implemented by policy makers.

The financing needs of the public sector are multiple, the functional structure of public expenditures being able to reveal the priorities that public authorities grant in the respective budget cycle. The negative balance, meaning the budget deficit resulting from a higher level of spending versus public revenue, can be funded mainly by two methods: tax increases and debt leverage, both of which involve risks that may prove important both at macro level, as well as microeconomic.

At macroeconomic level, an inadequate policy of financing the budget deficit may affect the financial stability of the public sector. This stability is defined according to three main criteria: the liquidity, credibility and solvency of the responsible public authorities:

- the liquidity corresponds to all the short-term means of payment available to the state, which allows it to face immediate financial obligations. Potential liquidity means the ability of the State to pay in the near future, three months to one year;
- credibility is the confidence that public authorities enjoy from economic agents, especially when they are state debtors or in their current activity, as operators carrying out public services as a result of delegated authority management, or as investors who borrow the State - private lending banks, natural or legal persons investing in government securities;
- the solvency shows that the state has a real or implicit inter-temporal repayment capacity, meaning it can actually deal with current and future financial commitments. Solvency refers to both potential liquidity, which can be based on the value of public assets that can be capitalized, and on the state's ability to use the tax to increase public revenues.

The impact of mandatory levies on the stability of public finances is different depending on the reaction of economic agents towards an increase in taxation. In this respect, Arther Laffer's theory, which illustrates the relationship between tax revenues and the rate of pressure that taxation exerts on the economy, is relevant. In a period of economic growth, economic agents will not consider increasing mandatory levies as a hindrance to their development and will honor their fiscal obligations correctly so that public revenues will increase and the budget deficit will decrease. It is said that this is a situation of fiscal neutrality. But as tax pressures increase, activity becomes discouraged, demand falls, followed by supply, the tax base narrows, and if a certain sustainability threshold is exceeded, revenue collected from tax and tax will decrease, even if the fiscal pressure will continue to increase.

The budget deficit deepens; public authorities no longer have enough liquidity to finance their short-term obligations or are unable to meet their medium- or long-term commitments, with the stability of public finances being destabilized. Given the constraints imposed by the behavior of economic agents over tax increases, to cover the public deficit, the State may resort to contracting (a new) public debt without involving taxation, obviously under the conditions of national law in that field.

Classical theory (Bachellerie et Couillault, 2005) states that financing the budget deficit through indebtedness will result in economic agents anticipating a systematic tax increase due to the obligation to repay the contracted debt and to pay the cost of the debt. Instead, policy-makers claim that public debt, as an exogenous source of funding, does not make a direct levy from their income, which will immediately diminish their purchasing power. In this way, demand is not affected, individuals do not decrease their consumption, and businesses do not give up planned investments, consequently the tax base and hence tax revenues will remain unchanged. In conclusion, the impact of public debt on the financial stability of public finances is more favorable than the application of a tax policy that would increase taxes to increase budget revenues.

3. The Evolution of Sovereign Debts

3.1. Recent macroeconomic conjuncture

Economic cycles are driven by aggregate supply and demand fluctuations. Large supply variations are generally related to sudden changes in commodity prices, such as energy products, while large variations in demand are the result of changes in monetary or fiscal policies that restrict or, on the contrary, stimulate private spending. Also, cyclical changes depend on the level of stocks that companies hold and which have a considerable impact on industrial production growth, as they are sufficient or, on the contrary, they are too small to meet needs.

With regard to the current economic cycle, growth dynamics in developed countries seems sufficiently robust to keep the current expansion cycle on the same path in the near future. There are, however, a number of factors that disturb the observed cyclical development.

Thus, the dollar's oscillations tend to destabilize the global economy and financial markets. US trade policy exerts considerable pressure on their trading partners, especially China, but also Mexico, Canada and South Korea, as well as the European Union. This type of aggressive, protectionist US policy is a destabilizing factor not only for bilateral relations between the US and these countries, but also because of the major role of these countries in the global economy, including globally.

The impact of the fiscal-budgetary interventionist policy of the United States is set to decrease gradually, but the so-called quantitative easing period, including investment spending with it, will also fall, and the steady rise in jobs and of wages should extend the cycle in developed countries. At the same time, the rhythm of the growth of the Chinese economy shows a steady trend of slowdown, as Chinese leaders opt for economic consolidation rather than a strong expansionist policy.

In order to analyze the impact of important public debt on financial stability, the macroeconomic environment and imbalances of the different categories of economic agents, such as households and / or corporations, should be observed. Thus, the US financial crisis of 2007-2008 started with the liquidity of households on the mortgage market. However, in the US, household accounts are much less unbalanced than in 2007, and the risk of a financial crisis is very low, despite a significant budget deficit. In the European Union, current and budget account deficits are within acceptable limits, and for developing countries, the situation varies with each economy.

Recent evolution

One of the main risks to the American continent's economy caused by the US President's actions against Mexico and Canada diminished as a result of the renegotiation agreement for the NAFTA treaty between the three states. At the same time, it is estimated that the US economy will continue to grow, even if the effects of expansionary fiscal policy will gradually decline and inflation will increase slightly, with the Fed increasing its benchmark rates accordingly. The US budget deficit will continue to be high, and its long-term funding may become an unsustainable risk. The two neighboring US economies, Canada and Mexico, should benefit from the strong growth of the US economy.

It is also estimated that European economies, mainly those in the Eurozone, will continue the slightly upward trend due to domestic demand, employment growth and an accommodating monetary policy. Also, the strong growth of the US economy, China's macroeconomic stabilization and emerging economies are estimated to be potential export support factors. In addition, the European Central Bank will gradually increase interest rates as a result of higher inflation rates and, in correlation, the euro will appreciate very little, thus supporting foreign trade. An important risk to the European Union as a whole is the uncertainties introduced by Brexit, as well as the predictable crises of public debt, which are reflected in Italy as well as in other indebted European states. Developing and emerging countries are expected to benefit from rising raw material prices and energy resources so that national public finances mark a stabilizing trend.

3.2. Global public debt in the European Union

3.2.1. Public debt worldwide

The most indebted countries in the world are also the richest, the top three countries with the highest debt being in the United States, China and Japan. Together, they represent more than half of world debt (56%), much higher than their combined share of world production (38% of world GDP in 2017, expressed in purchasing power parity (PPP)). Low-income countries account for only 1% of world debt, significantly lower than their share of world production (Duceux Alice Jetin (2019)).

The US public debt has risen to over 100% of GDP, but it does not include some unpredicted commitments. It should be noted, however, that US debt financing is not a problem at the current level of interest

rates, and their growth is unlikely, as the Fed may continue to act as a lender of last resort. But in an economy to the maximum of its capabilities, such as the US economy, a relaxation of monetary policy could allow inflation to increase. On the other hand, a restrictive tax policy - higher taxes and / or lower public spending - could improve the fiscal position but risk and mitigate economic growth.

In terms of second place in the world economic hierarchy, China, its debt is mostly denominated in the local currency, and the debt of strategic sectors is guaranteed by the central government, and the financial crisis risk is thus rather limited. In addition, China is making sustained efforts to reduce its public debt and, at the same time, to reduce loans contracted outside the banking system. Changes in financial policy and concerns about over-indebtedness have been and will continue to be obstacles to the growth of the Chinese economy. Current trade-offs between the United States and China and other possible shocks may affect the economic recovery policy proposed by the Chinese State to counter the slowdown in GDP growth, but a financial crisis seems unlikely.

In conclusion, for most countries and sectors, the risk of financial instability appears to be lower than before the 2008 crisis. Emerging countries are those whose companies are more vulnerable due to the high level of indebtedness in foreign currency. Chinese and American companies are also very indebted, but since this debt is mainly in local currencies, the risk is lower. For the euro area, the financial stability indicators have improved significantly, but political risks are still present and, as far as commercial litigation is concerned, they are mainly political in nature and the authorities are not supposed to take action to destabilize financially.

In recent years, many low-income countries have had access to new sources of funding, including private sources and external creditors at the Paris Club, which brings together rich states and institutions with significant financial resources. Thus, underdeveloped states have been able to implement large-scale development projects, but their public debt has grown significantly. Only in the last four years, in low-income countries, the share of public debt in GDP has increased from 30% to 50%, which means that a large part of their public revenues is intended to pay interest on government debt, and public debt service will exert significant pressure on national public finances.

A factor with a very significant contribution to stimulating activity is a low and stable rate of increase in consumer prices and public authorities wishing to implement a policy of revival the economy in the current context characterized by a relative slowdown in the pace of development, must take into account the mastery of inflation, including the proper management of the main factors that determine this inflation.

Due to overcoming the effects of the financial crisis, many economies currently operate close to full labor utilization, with increased pay being a predictable factor, which may involve increasing the deficit and increasing the public debt to finance it. The pressure of the public debt spill may affect the financial stability of the state, thus imposing the need to resort to restrictive budgetary and monetary regimes.

3.2.2. Public debt in the European Union

The following table shows the vulnerabilities stemming from national public debt - the EU Member States being sorted according to the debt ratio recorded in 2017, the last year in which government debt information is statistical data for the year 2018 referring to the end of the quarter third.

Thus, following the rate of government debt to national GDP, in descending order, four states with a rate exceeding 100% are reported: Greece, Italy, Portugal and Belgium, but France and Spain are very close, and in what concerns the financial stability criteria of the Maastricht Treaty on public debt - the highest level of public debt accepted being 60% of GDP - 16 Member States do not respect it.

Gross public debt marked a sharp rise after the financial crisis triggered in 2008, but improvement has been seen in recent years due to the economic reforms and debt reduction policies promoted by the most borrowed European countries, especially Greece. However, as the main concern of the euro area financial equilibrium, the public debt of Italy and Portugal remains, but the high level of indebtedness of other developed Eurozone countries such as Belgium, France, Spain, and should be treated with caution, although they do not present the same risks, due to their structure by type of creditor - most of which is an internal public debt, as in the case of the most indebted country, Japan.

An important problem, which is found in many EU Member States, as in many other countries around the world, is the need to develop and implement a pension policy, including the age and retirement age, the calculation of budgetary allocations for the system social insurance public, etc. This approach in public financial policy, together with other economic stimulus measures, while reducing the cost of public actions, should contribute to budgetary balancing and allow public authorities to reduce government debt.

In this regard, the case of Italy is relevant in the European Union because it has so far managed to manage in the short term the pressure generated by the high level of public debt due, first of all, to the low interest rates on the European financial market as a result of very high inflation low, even negative. However, in the medium and

long term, the forecasts for interest rates show a slow but sustained growth trend, which will require a public financial policy approach to diminish the budget deficit, even obtaining a primary surplus and consequently a decrease gradual public debt.

Gross government debt (sovereign)

- % din GDP -

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 T3
UE28	***60.7***	***73.3***	***78.8***	***81.4***	***83.8***	***85.7***	***86.4***	***84.4***	***83.3***	***81.6***	***80.8***
Greece	109.4	126.7	146.2	172.1	159.6	177.4	178.9	175.9	178.5	176.1	182.2
Italy	102.4	112.5	115.4	116.5	123.4	129.0	131.8	131.6	131.4	131.2	133.0
Portugal	71.7	83.6	96.2	111.4	126.2	129.0	130.6	128.8	129.2	124.8	125.0
Belgium	92.5	99.5	99.7	102.6	104.3	105.5	107.6	106.5	106.1	103.4	105.4
France	68.8	83.0	85.3	87.8	90.6	93.4	94.9	95.6	98.2	98.5	99.5
Spain	39.5	52.8	60.1	69.5	85.7	95.5	100.4	99.3	99.0	98.1	98.3
Cyprus	45.6	54.3	56.8	66.2	80.1	103.1	108.0	108.0	105.5	96.1	110.9
United Kingdom	49.7	63.7	75.2	80.8	84.1	85.2	87.0	87.9	87.9	87.4	86.3
Austria	68.7	79.9	82.7	82.4	81.9	81.3	84.0	84.8	83.0	78.3	75.6
Croatia	39.0	48.3	57.3	63.8	69.4	80.4	84.0	83.7	80.2	77.5	74.5
Slovenia	21.8	34.6	38.4	46.6	53.8	70.4	80.4	82.6	78.7	74.1	71.0
Hungary	71.6	77.8	80.2	80.5	78.4	77.1	76.6	76.6	75.9	73.3	72.4
Ireland	42.4	61.5	86.0	110.9	119.9	119.7	104.1	76.8	73.4	68.4	68.8
Germany	65.2	72.6	81.0	78.6	79.9	77.4	74.5	70.8	67.9	63.9	61.0
Finland	32.7	41.7	47.1	48.5	53.9	56.5	60.2	63.6	63.0	61.3	58.8
Netherlands	54.7	56.8	59.3	61.7	66.2	67.7	67.9	64.6	61.9	57.0	52.9
Malta	62.6	67.6	67.5	70.1	67.7	68.4	63.7	58.6	56.3	50.9	45.9
Slovakia	28.5	36.3	41.2	43.7	52.2	54.7	53.5	52.2	51.8	50.9	51.5
Poland	46.3	49.4	53.1	54.1	53.7	55.7	50.4	51.3	54.2	50.6	49.4
Sweden	37.7	41.3	38.6	37.8	38.1	40.7	45.5	44.2	42.4	40.8	38.3
Latvia	18.2	35.8	46.8	42.7	41.2	39.0	40.9	36.8	40.3	40.0	37.1
Lithuania	14.6	28.0	36.2	37.2	39.8	38.8	40.5	42.6	39.9	39.4	35.0
Denmark	33.3	40.2	42.6	46.1	44.9	44.0	44.3	39.9	37.9	36.1	35.2
Romania	**12.4**	**22.1**	**29.7**	**34.0**	**36.9**	**37.6**	**39.2**	**37.8**	**37.3**	**35.1**	**33.9**
Czechia	28.3	33.6	37.4	39.8	44.5	44.9	42.2	40.0	36.8	34.7	33.9
Bulgaria	13.0	13.7	15.3	15.2	16.7	17.1	27.1	26.2	29.6	25.6	23.1
Luxembourg	14.9	15.7	19.8	18.7	22.0	23.7	22.7	22.2	20.7	23.0	21.7
Estonia	4.5	7.0	6.6	6.1	9.7	10.2	10.5	9.9	9.2	8.7	8.0

http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

Our country is in the debt-to-GDP ratio among the least indebted countries, but the pace of debt variance compared to the pace of change in macroeconomic development has to be analyzed - at a time when the impact of the economic crisis in the European Union, Romania's public debt has doubled, while national GDP has been downgrading.

Currently, the sustainability of sectors policy funding is being pursued, and in order to diminish the vulnerability of the national economy, the structure of public debt on creditors will change, the share of domestic debt becoming the majority. Thus, the current situation is characterized by an increase in personal income, which makes it possible to stimulate saving, including by attracting investors from the native population to government or local public debt.

4 Conclusions

Impact of public debt

By the obligations to repay borrowed capital and to pay the cost of public debt, it affects the financial balance of the public administration and implicitly the activity of the public sector. If, however, the public debt pressure on national public finances is high, the impact may be significant, especially if the national economy is not strong and the international economic environment is not favorable.

In this situation, there are many developing countries whose public debt, mainly foreign, has become very important in the context of fragile internal economies, and international financial institutions require repayment of public debt and payment of its cost as a priority obligation to continue to provide financial assistance.

In order to finance public debt service, indebted developing countries have no other choice but to adopt an austerity budget policy, with the lowest possible public spending. This means, however, that the lowest available funds are allocated to key areas for national economic and social life: health, education, public investment in road infrastructure, railways, aeronautics, communications, generating jobs, neglecting research and development, etc.

In order to honor the obligations arising from the external public debt, the public authorities of the developing countries must acquire the contract currency in which the debt is expressed - generally an international currency: USD, Euro, British pound, Swiss franc, yen etc. - which is obtained from exports.

Indebted developing countries can obtain the amounts needed to pay for the public debt service through a high volume of exports, which requires an intensive exploitation of national natural resources - on the basis of which they have also obtained credit from external donors. The intensive exploitation of national resources, whether mineral resources, agricultural products, forest riches, etc., leads to the depletion of the deposits, the destruction of the natural environment, the damage to biodiversity, etc. In addition, as operating costs have to be as low as possible, the living and safety conditions of workers and the population are left second.

Relations between public debt in the sense of the SNA and the general government deficit in the sense of the Stability and Growth Pact

Financial coverage of the public deficit can be achieved in a number of ways: public debt, tax increases, asset depreciation / increase of liabilities in the patrimony account of public authorities in the National Accounts System (SCN). Thus, the public deficit can be financed by the repayment of the contracted and drawn public loans, the transfer of some financial assets held by the public administration, the decrease of the liquidities at the disposal of the public institutions, etc., thus not affecting the gross public debt within the SCN but the net public debt will increase.

In the patrimony account of public authorities, acquisitions of non-financial assets are recorded positively and their negative transfer, affecting in the same way the public deficit if the acquisition of financial assets - Primary shares issued by the private or public sector, whether national or foreign - is financed by a public loan to its creditors, the gross public debt will increase without thereby affecting the public deficit. Explanation of the spread between gross government debt in the sense of SNA and the government deficit is based on the net flow of nominal assets (or financial assets) and different accounting methods. Thus, the budget revenues and expenditures underlying the determination of the public deficit are recorded in accrued entitlements rather than cash - actual receipts and payments. if an expense is found to be unpaid, it is recorded in public debt in the sense of the SCN and the public deficit increases, but the gross public debt in the Maastricht sense does not change.

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Electromobility in the Automotive Industry. What Role Does Technology Change Play in the Geographic Pattern of Production?

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Abstract: *The current internal combustion powertrain technology of road vehicles is unsustainable in the long run, due to the possible exhaustion of fossil fuels, and the socio-economic changes which are accompanied by increasing environmental impacts. Furthermore, there are limits to the emission reductions that can be achieved by developing or improving the efficiency of internal combustion powertrain technology, as well as stricter emission targets and a move towards electromobility. Therefore, automotive manufacturers implement technology change, although current technology will be in use for a long time to come. However, since the 2008 crisis, the territorial distribution of the automotive industry has been undergoing a major transformation. China's role has been growing and is now the world leader in terms of production and consumption. The forecasts assume a decline in consumption in developed regions. This results in a major restructuring of the automotive industry owing to the technological change.*
The purpose of this study is to examine this transformation, taking into account the possible consequences of changes in technology and changes in global production. The focus of our study is a group of Central European countries (Czechia, Hungary, Poland and Slovakia) that play a significant role in the European automotive industry.

Key-words: electromobility, automotive industry, global value chain, Central Europe

JEL classification: O33, F60, F15

1 Introduction

Gasoline-powered road vehicles and related manufacturing developments have been revolutionizing mobility since the first half of the twentieth century. Due to mass production, individual relocation is no longer just a privilege of the rich. Over the past decades, the previously underdeveloped part of the world has become a part of global consumption, and as a result of economic development, demand has been increasing. However, the internal combustion powertrain technology is unsustainable in the long run, due to possible exhaustion of fossil fuels, and the socio-economic changes which are accompanied by a growing environmental impact such as the increase of greenhouse gas and particulate matter emissions or the problems of waste management and recovery during and after use. There are limits to the emission reductions that can be achieved by developing or improving the efficiency of internal combustion powertrain technology and the stricter emission targets and move towards electromobility.

Furthermore, countries are increasingly tightening their environmental regulations on emissions. Not only the European Union has stricter emissions standards[1], but in the U.S. California State has forward looking regulations which has been adopted by more than a dozen federal states. Road vehicle pollution is on the increase and is the biggest problem in Chinese cities (Wang et al., 2019), therefore the Chinese government is enforcing strict environmental regulations in order to reduce emissions (Xinhuanet, 2019).

Despite the success of active and passive emission control systems in the reduction of air pollutants from transport (European Environment Agency, 2018), there are limits to the emission reductions that can be achieved by developing or improving the efficiency of internal combustion powertrain technology (Emőd, 2012).

[1] EU regulation 2019/631 targets by 2030 that the average emissions of the new passenger car fleet should apply a 37.5 % reduction of the target in 2021.

Additionally, analyses pointed out that short term solutions i.e. hybrid and plug-in technologies are not real answers of emission reduction, although manufacturers prefer to use them (Stephan et al., 2019).
Automotive companies are turning to electromobility. Since 2008 when the first serial produced battery electric vehicle Tesla Roadster came out, the number of launches of new battery electric vehicle (BEV) models has increased worldwide.[2] The largest 50 car manufacturers (OICA, 2019) have 30 pure battery electric models on the market. So technological change is on the way in the automotive industry: producers are now moving towards electromobility, mostly battery technology, and some manufacturers (Honda, Hyundai) also see a future for fuel cell (FCEV) technology as well.

This transformation raises two important questions. Firstly, what will the production look like after replacing internal combustion powertrains? Secondly, what role does technology change play in the geographic pattern of production?

Taking into account these questions, in the present paper[3] we deal first with forecasts on the spread of electromobility, highlighting the advantages and disadvantages of the possible solutions. Second, in addition to developments in global sales, we also cover regional trends, which determine the prospects for local production due to the regional distribution of vehicle production and sales (Sturgeon et al., 2008).

2 Spread of alternative drives in the automotive industry

Currently there are two alternatives for pure electric drive. Battery electric vehicle (BEV) and fuel cell (FCEV) electric vehicle. The transition between battery and internal combustion engine (ICE) is hybrid technology. Plug-in hybrid (PHEV) and hydrogen fuel cell plug-in hybrid (FCHEV) vehicles play a significant role in this "transitional period", with manufacturers being able to reduce pollutant emissions without the need for a major technology change using mixed technology (ICE and electric drive or battery and fuel cell), although this does not provide an adequate solution to reduce pollution (Greenpeace, 2019).

Ideas for the future drive are divided along the question whether the power from the battery drive (BEV) or the fuel cell (FCEV) is the right way to go. If you consider the different aspects, the picture from the perspective of choice is quite complex. In terms of the ecological or carbon footprint, Well-To-Wheel (WTW) analysis shows that due to the high cost of hydrogen production, liquefaction and storage, battery-powered vehicles have lower carbon dioxide emissions then the fuel cell (Roland Berger, 2016). If we take into account not only operational emissions but also lithium-ion battery production, the picture for BEV vehicles is less favorable. Ellingsen and Hung (Ellingsen and Hung, 2018) calculated the lifecycle greenhouse gas (GHG) emission of the BEVs and the conventional internal combustion vehicles. Currently, battery manufacturing emits more greenhouse gases than fossil fuels, and even if electricity is produced using conventional energy sources, BEVs are also disadvantageous in operation. At last, in terms of efficiency, BEV vehicles are proven to be the most efficient. The U.S. Environmental Protection Agency has a database on the fuel efficiency of available cars.[4] The miles per gallon gasoline equivalent (MPGe) values show that BEV vehicles with the lowest efficiency (69 MPGe) are two times more efficient than the ICE vehicles with the highest values (35 MPGe). The fuel cell vehicles are amid these two groups with an MPGe value between 68 and 57.

There are calculations for the future costs of conventional and alternative drives, but the uncertainty of the cost factors that can be considered leads to different results. An almost ten years old study by Offer and his co-authors (Offer et al., 2010) estimated the costs of the various drive modes currently known for 2030. Regarding capital costs (purchase of the vehicle) conventional drive (ICE) will still be cheaper than the alternatives (FCEV, BEV and FCHEV). However, the costs are different if the lifetime (total) costs based on TTW (Tank-to-wheel) efficiency for 100 thousand miles are taken into account. ICEs and FCEVs have 1.75 times higher lifecycle costs than FCHEVs and BEVs. Tan and his co-authors (Tan et al., 2014) had the opposite result by taking into account the cost of the main components and costs i.e. fuel cell, battery pack, electric motor and controller, hydrogen storage and conventional engine. Based on estimates for 2030, ICE vehicles will be the cheapest, as the total cost of FCHEVs will be two times higher, followed by the BEV and FCEV.

On this basis, it is clear that consumers must in some way be made interested in paying more for electric vehicles (Bloomberg, 2016). In addition to state incentives, the importance of environmental/emission regulations on conventional cars should be emphasized (Porter et al., 2013). However, empirical studies show that, in addition

[2] https://www.statista.com/statistics/871061/battery-electric-vehicle-model-launches-worldwide/
[3] Paper presented at the 13th Hungarian-Romanian round table, Budapest, September 26, 2019.
[4] https://www.fueleconomy.gov/feg/findacar.shtml

to government benefits, regulation (Musti & Kockelman, 2011; Whitehead et al., 2019) or fuel prices (Beresteanu & Li, 2011) can more effectively influence the spread of alternative drives.

Table 1: Electric car announcements of the OEMs

OEM	Announcements
BMW	15-25% of the BMW Group's sales in 2025 and 25 new EV models by 2025.
BJEV-BAIC	0.5 million electric car sales in 2020 and 1.3 million electric car sales in 2025.
BYD	0.6 million electric car sales in 2020.
Chonquing Changan	21 new BEV models and 12 new PHEV models by 2025, **1.7 million sales by 2025 (100% of group's sales).**
Dongfeng Motor	6 new EV models by 2020 and 30% electric sales share in 2022.
FCA	28 new EV models by 2022.
Ford	40 new EV models by 2022.
Geely	**1 million sales and 90% of sales in 2020.**
GM	20 new EV models by 2023.
Honda	**15% electric vehicle sale share in 2030** (part of two-thirds of electrified vehicles by 2030, globally and by 2025 in Europe).
Hyundai-Kia	12 new EV models by 2020.
Mahindra & Mahindra	0.036 million electric car sales in 2020.
Mazda	One new EV model in 2020 and 5% of Mazda sales to be fully electric by 2030.
Mercedes-Benz	0.1 million sales in 2020, 10 new EV models by 2022 and **25% of the group's sales in 2025.**
PSA	0.9 million sales in 2022.
Renault-Nissan-Mitsubishi	12 new EV models by 2022. Renault plans **20% of the group's sales in 2022 to be fully electric**. Infiniti plans to have all models electric by 2021.
Maruti Suzuki	A new EV models in 2020, 35 000 electric car sales in 2021 up to 1.5 million in 2030.
Tesla	Around 0.5 million sales in 2019 and a new EV model in 2030.
Toyota	More than ten new models by the early 2020s and 1 million BEV and FCEV sales around 2030.
Volkswagen	0.4 million electric car sales in 2020, up to 3 million electric car sales in 2025, **25% of the group's sales in 2025**, 80 new EV models by 2025 and 22 million cumulative sales by 2030.
Volvo	**50% of group's sales to be fully electric by 2025.**

Source: IEA 2019, pp. 84-85.

Forecasts predict further dynamic growth in sales of battery electric vehicles (BEV). Although in this growth government policies have a key role, it is not only due to direct state incentives (see Whitehead and his co-authors, 2019). Also with the advance in battery technologies and the lowering of the cost of batteries, manufacturers will enable more people to buy battery-powered vehicles (International Energy Agency 2019, p. 4). Currently the lack of electric vehicle charging infrastructure, price and driving range are the biggest barriers to the spread of battery powered electromobility (KPMG, 2019). According to the Bloomberg New Energy Finance (BloombergNEF), electric vehicles will impact road transport from 2040, when sales of the battery electric (BEV) and plug-in hybrid cars (PHEV) exceed traditional vehicles (Bloomberg Electric Vehicle Outlook, 2019). Other expectations agree with this and predict the complete changeover from the internal combustion engine powered vehicle to an electric car over the long term, roughly to 2050 (Robecosam, 2017). Taking into

account the OEMs announcements of the light-duty vehicles[5] to 2025 (see Table 1), figures are rather extreme, between 15 and 100 percent of OEM's sales. At the same time, figures refer not only to BEV vehicles, but also to PHEV, which indicates that technology change is a major step in terms of both market introduction and enterprise resources. And not only OEMs play a vital role here, but suppliers also make significant innovations (e.g. Lithium-ion like battery producers). As long as the major or well-known vehicle manufacturers are more conservative and have a lower rate of electromobility (in average of 15-25%), the newcomers like Chinese Chonquing Changan or Geely have the highest 2025 commitment. Of course, these are much smaller companies, so they are more responsive to changing expectations, and their products are less known to the market.

These remain mere speculations if the economic environment and the prospects for markets to develop do not meet. Regarding the possibilities, a PWC survey distinguishes (PWC, 2019) three scenarios for 2023, an optimistic, a pessimistic and a realistic: when EV development is fast-paced, delayed or when market conditions are difficult.

Regarding technological change, there are two major consequences. Transformation from the internal combustion drive to electromobility is manifested not only in the built-in components, i.e. the product, but also in the structure of the industry's vertical integration, i.e. dividing the various tasks in the value chain (Klug 2013, 2014; Ciarapica et al., 2014; Slowik et al., 2016). Consequences on the product side are, on the one hand, the outdated products. Production of the whole powertrain system (internal combustion engine and transmission) will cease. After the Volkswagen's diesel scandal in 2015, experts thought that diesel cars would stop selling in the foreseeable future. However, the change of technology and the removal of polluting technologies are not proceeding as justified by the tightening of environmental regulations. In 2018 Toyota announced that it would discontinue the production of diesel-powered cars after 2020 in Europe.[6] However, globally the company was more cautious. In 2019 it stated that it won't discontinue diesel engines in the MPV (multipurpose vehicle) and SUV (sports utility vehicle) in India, because its diesel-powered cars have a major role in the company's sales in the country.[7]

On the other hand, new technologies and materials redound to new suppliers. In the BEVs the battery pack provides the highest rate, one-third of the cost, and it is projected that despite its decline in sales price in the next 5-6 years, its share of costs will remain unchanged (UBS via Portfofio.hu 2018). China has a leading position in the lithium-ion battery market accounting for two-thirds of the world production in 2019 (Electrec, 2019). In order to ensure its role in Europe in the battery production and cover the European demand for the new electric vehicles, it needs to build at least 20 giga factories in the next five years, according to the European Battery Alliance (via European Commission, 2018). Despite the high prices, there are sometimes stock shortages in the automotive supply chain. Currently, there are remarkable production capacities in Germany, Poland and Hungary[8] in Europe. In terms of battery production these Central European Countries will have a key role in the near future which will ensure their position in the global value chain. According to short term projections by Tsiropoulos and his co-authors (Tsiropoulos et al., 2018) and a study by Eddy and his co-authors (Eddy et al., 2019) there will be four countries in Europe with large capacity of production by 2023 and 2030, namely: Sweden (32.0 GWh), Germany (14.1 GWh), Poland (12.0 – 45 GWh) and Hungary (9.5 – 16 GWh).

In the former years, it has happened several times that production had to be reduced because the battery suppliers were unable to meet the delivery volume. This battery shortage happened in 2019 with the Koran Kia[9] and the German Volkswagen production of the Audi e-tron[10]. OEMs are vulnerable to battery suppliers, which are solved by purchasing from multiple sources (e.g. General Motors, Ford but even the Japanese Honda or Nissan) or creating their own production (e.g. Tesla with Panasonic).[11] How this develops and which paths each company takes will determine the future of the value chain, which has already affected the production side.

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[5] any motor vehicle with a gross vehicle weight rating of 4,500 kg or less.

[6] https://www.irishtimes.com/business/transport-and-tourism/toyota-to-end-production-of-diesel-cars-this-year-1.3415933

[7] https://www.gaadi.com/car-news/toyota-to-retain-diesel-engines-in-innova-crysta-fortuner

[8] LG Chem (ROK) has in Poland the world's 5th largest (giga)factory, GS Yuasa Corporation (JP) , Samsung SDI and SK Innovation (ROK) have large capacities in Hungary.

[9] https://www.autoblog.com/2019/10/18/supply-issues-force-kia-to-delay-the-new-soul-ev-until-the-2021-model-year/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAAMWNznWcEoJnKb0CupEAPHunCq_nm9IDvBYAoY0EvKbuORMa5JnyrB6L_lpahvNLi_ygKOJWcbk8bR89ucjg5aOttrq2V2ZV8qxTfm11qOvDM1UzaKtDmsFnaLdUWQ1J90zLIQDO3yhh3SkkxmqFvf5JCnoYY99NV6GjC-XGreM

[10] https://www.brusselstimes.com/brussels/55536/battery-shortage-forces-audi-brussels-to-slow-down-production/

[11] https://www.marklines.com/en/report_all/rep1115_201210

On the **production side**, because of the structure of the vehicles is much simpler, according to Volkswagen's CEO Herbert Diess, EVs are less complex to build, it takes 30 percent less time to assemble[12], therefore, don't require as many workers as conventional vehicles. Switching to electromobility could cost thousands of jobs[13] and would mean an allocation of the production to east. Union leaders on Volkswagen's board drew attention to the proposals that because of cost savings, the company wants to shift some production from Germany to the Czech Republic.[14] At the same time, industry 4.0 and robotics may cause a kind of reshoring of automotive investments from the semi-periphery to the core countries (Bailey and De Propris, 2014; De Backer et al., 2016). That will reshape the geographical pattern of the global value chains, including the demand for labour. Therefore, the technological transformation raises the question of the long-term sustainability of the current production capacities in the automotive-related and export-based economies (semi-periphery countries) and the core countries (North America, Western Europe, South Korea and Japan) as well. The economic and social costs of the transformation can be a shock, with layoffs, as well as export decline that threaten the sustainable economic development of these countries.

Scholars usually pay less attention to the value chain consequences of ongoing technological changes. This question is pertinent in the sense that the Central European countries have been deeply integrated into this international production network as part of the global vehicle production. Technological transformation raises the question of the long-term sustainability of the current production capacities in the automotive-related and export-based Central European economies.

3 The influence of global trends on the geographic pattern of electric vehicle production

The regional dimension of the automotive industry is not only described in terms of regional implications of OEM's strategies, but as market growth and the expected regional development trends. Although in some cases, a global relationship system may be discovered in the trading of individual affiliates (Túry, 2017), the automotive industry is a regionally embedded activity and this shows a larger regional breakdown for production and sales (Sturgeon et al., 2008).

Table 2: Global road vehicle (including cars, trucks, and buses) stock estimations (million units)

	2010	2030 (est.)	Increase
Brazil	65	84	19
China	77	390	313
Germany	47	58	11
India	21	156	135
Japan	75	87	12
South Korea	18	31	13
United States	247	314	67
other OECD	311	418	107
other non-OECD	465	542	77
Total	1,015	2,080	1,065

Source: Porter, Cunningham & Sanz, 2013, p. 5.

The triad countries heavily rely on the automobile industry. In Europe, the industry has been one of the most important growth engines for economic prosperity (Cornet et al. 2019, p. 32.). Core countries like the U.S. or the Western European countries built their value chain by integrating their peripheral countries (Mexico, Southern and Central Europe, South East Asia) into production via outsourcing the labor intensive activities. Additional overseas production after World War II began in the 1960s, when European and Japanese car manufacturers intensified their production abroad. Therefore, changes of the regional allocation of sales also transformed the spatial structure of production. The pattern of the global vehicle production changed in the 1980s, when due to the significant increase in production Japan surpassed the U.S. and became the first in road vehicle

[12] https://www.volkswagenag.com/en/news/2019/03/diess-safeguarding-our-future-can-only-succeed-together.html
[13] https://arstechnica.com/cars/2018/11/volkswagen-plans-to-make-50-million-electric-cars-ceo-says/
[14] https://www.ft.com/content/8cadb19a-e5c7-11e8-8a85-04b8afea6ea3

production (Dicken, 2003). The dominance of the triad countries was ended by the increase in Chinese production following the global crisis of 2008. China became the world leader in road vehicle production in 2009, ahead of Japan's leading manufacturer (OICA, 2010).

Mid-term forecasts show that the increase will be outstanding at such emerging markets like China and India (Porter et al., 2015). However, car fleet will almost double in South Korea (see Table 2) and the increase of road vehicles in other matured countries like the U.S. and other OECD countries will be remarkable. Not only global uncertainties, as the consequences of the Brexit or the disagreements about trade treaties, will transform the global value chain, but also the restructuring of the focal points of global growth. The forecasts predict a decline in European production. KPMG (KPMG 2018, p. 15.) estimates that by 2030 the Western European production will account for less than a third of world production. Compared to the output in 2017 (about 15%) by 2030 less than 5% of the global car production will originate from Western Europe. If we accept electromobility forecasts, then regardless of the change in technology, the geographic pattern of the global value chain will fundamentally be transformed by spatial change in sales.

In recent years, European demand has provided a solid backdrop for Central European production. Central Europe has significantly increased its share of the European production. Between 2000 and 2017 production of the Central European countries became more than two times higher, 3.6 million cars compared to 1.4 million, while European production stagnated, and the global production increased by only 20%. It was 3.7% of the world and 19.3% of the European output in 2017 (OICA 2018). Because of the wage increase in the Central European region low value added and labour-intensive activities, i.e. assembly and parts production, are moving further to low cost countries (Bloomberg, 2019) to Eastern Europe, Turkey, North Africa or China.

Currently, the Central European region is facing not only the problem of low value-added activities but also the challenge of moving to new technologies i.e. electromobility. Considering the technological change, the territorial distribution of BEV models of the largest 50 automotive manufacturers (OICA 2019) offers a significant role for the triad countries, South Korea and China (see Table 3). The spatial pattern of the production shows similar territorial order to the one described in the Vernon's product life cycle theory. The biggest producers are Germany, the U.S., South Korea and China. There are only three periphery countries like Slovakia, Turkey and Mexico where electric vehicles are assembled. The production in Slovakia was moved to the country due to the local production of the original internal combustion engine version (Volkswagen Up) of the electric model.

Considering the short-term market development projections, the current production trends and the electric vehicle forecasts show a rather mixed picture. Market development projections show a remarkable increase in the number of the vehicles in China and India. In contrast, in the electric vehicle sales China is the largest market followed by Europe and the U.S. (International Energy Agency, 2019, p. 4.). However, these predictions do not only take into account in-vehicles but also hybrid drives. Nevertheless, based on sales in recent years, the ratio between pure electric and hybrid propulsion is different in China, the United States and Europe. In Europe, the hybrid propulsion ratio is declining year by year, but it was still at its highest level of 50% in 2018. Europe, therefore, needs significant investment from OEMs, which will also affect production capacities in Central Europe. In addition to battery factories, this involves starting the production of an electric motor, as well as other major components of the electric vehicles.

Table 3: Regional distribution of the mass BEV production

Battery electric vehicle currently available, considering the production of the TOP 50 companies (OICA)

Region	Country	OEM	Model
Europe	France	Renault-Nissan	ZOE
	Germany	Ford	Focus Electric
		BMW	i3
		Daimler	Mercedes-Benz EQC
		Daimler-Geely	Smart electric drive
		Volkswagen	e-Golf
		Ford	Focus Electric
	U.K.	Renault-Nissan	Nissan Leaf
	Belgium	Volkswagen	Audi e-tron
	Austria	Jaguar	I-Pace
	Slovakia	Volkswagen	Volkswagen e-Up!
	Turkey	Renault-Nissan	Fluence Z.E.

Asia	India	Mahindra	e2o
	Japan	Mitsubishi	Mitsubishi i-MiEV, Peugeot iOn and Citroen C-Zero
		Renault-Nissan	Nissan Leaf
	South Korea	KIA-Hyundai	Hyundai Ioniq Electric
		KIA-Hyundai	Hyundai Kona Electric
		KIA-Hyundai	KIA Soul EV
		KIA-Hyundai	KIA Niro EV
		Renault Samsung	Renault Samsung SM3 Z.E.
	China	KIA-Hyundai	Hyundai Kona Electric
		BYD	BYD e6
		BMW Brilliance	BMW Brilliance Zinoro 1E
		Chery	Chery QQ3 EV
North America	U.S.	Nissan	Nissan Leaf
		Tesla	Tesla Model3
		Tesla	Tesla Model X
		Tesla	Tesla Model S
		GM	Chevrolet Bolt EV
	Mexico	FCA	FIAT 500e

Source: Author's compiling, based on OEM's data

Hungary and Poland are favored in battery production, but there are also progressive developments in vehicle assembly, like in Hungary the Chinese BYD automotive or the Swiss Fox Automotive[15] companies established production (both in Komárom) where electric buses and cars and light commercial vehicles are assembled. Next to one of the largest internal combustion engine plant in Győr, Audi started the series production of electric motors in late 2018.[16] In Czechia the leading car manufacturer, the Volkswagen owned Škoda auto, started the production of electrical components for plug-in hybrid models in 2019.[17] Czechia has remarkable production capacity for public transport. Not only Iveco owned Irisbus in Vysoké Mýto (formerly Karosa), but main component producers of trolleybuses and electric buses. The major supplier is Škoda Transportation who produces traction drives and control systems for electric buses.[18]

In Poland, there is a private initiative 'Electro Mobility Poland' which was established by four Polish power companies.[19] In addition to promoting electromobility, the development and production of a domestically-produced electric car that meets the needs of the market is also an objective of the 2016 initiative. There is significant commercial vehicle production in Poland. Among the world's major manufacturers of MAN, Scania and Volvo are also present. Moreover, electromobility is the flagship of the Polish-based Solaris bus (currently owned by the Spanish CAF). The company is Europe's largest electric bus manufacturer[20] which purchases traction drives from companies such as[21] the Czech Skoda Transportation, the German Kiepe or the Polish Medcom.

In Slovakia, Volkswagen e-ups are assembled in the company's Bratislava factory. In 2019 the French PSA announced the launch of battery production in its Trnava factory[22] where in the future the battery electric Peugeot 208e will be assembled.[23]

[15] https://bbj.hu/business/fox-automotive-to-produce-mia-ev-reboot-in-hungary_171739
[16] https://www.volkswagenag.com/en/news/stories/2018/09/electric-motor-now-in-series-production-in-gyoer.html
[17] https://www.skoda-auto.com/news/news-detail/all-electric-vehicles
[18] https://www.skoda.cz/en/company-profile/
[19] https://electromobilitypoland.pl/o-firmie/
[20] https://emerging-europe.com/business/polands-solaris-now-europes-largest-manufacturer-of-electric-buses/
[21] https://www.solarisbus.com/en/vehicles/zero-emissions/urbino-electric
[22] https://www.reuters.com/article/us-peugeot-batteries-slovakia/psa-to-assemble-batteries-for-hybrid-electric-cars-in-slovakia-idUSKCN1TF1NG
[23] https://cleantechnica.com/2019/01/17/new-electric-peugeot-spells-out-a-brighter-future-for-group-psa/

The prospects for electromobility, however, are greatly influenced by the development prospects of Europe and the developed countries, especially the German economy. In Slovakia, there are already visible signs of this[24], with production cutbacks or postponement of investments.

4 Conclusion

The purpose of this paper was to examine the transformation related to electromobility, considering the possible consequences of changes in technology and in global production. Changes of the structure of the product and production will transform the whole value chain and will modify the tasks of the individual suppliers. We analysed the global automotive trends as well as the current issues in electromobility.

It is predicted that the explosive propulsion will be dominant in the medium term, as the electric propulsion (BEV, FCEV) is uncompetitive under current frameworks, even though electric car sales (HEV, PHEV, BEV) have been growing dynamically for years. However, government policies have a significant role to play in the increase, and this often artificially maintained growth carries significant risks.

The vast majority of electric car manufacturing (BEV) comes from the triad countries to which China has joined, building significant capacities and knowledge. Medium-term forecasts for the global automotive market highlight China and India's growth in sales, while the US and Europe are the two most advanced regions in electromobility alongside China. Market prospects fundamentally influence opportunities and create challenges, especially for the European car industry. Central European countries play a decisive role in European production, but European manufacturing is declining, so if they want to remain competitive, European OEMs will have to take the lead in electromobility. It is a question for us whether this investment is made in the mother country or in the semi-periphery. There are offshoring and reshoring processes as well. Some manufacturers have moved towards electromobility in Central Europe, while other manufacturers are still developing the traditional driving production.

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Highlighting the Factors that Influence the Behavior of Consumers in Air Transport in Romania

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Abstract: The aerial sport has experienced a vast development generated by economic growth, the needs of fast transport, tourism, as well as the involvement of Romania in international freight transport. At the same time, this is added to the specific characteristics of air transport, which, together with the characteristics of other modes of transport, is gaining increasing importance for particular transport objects. Air transport in Romania has reached historic highs in recent years, through the number of domestic and international flights, and the number of passengers exceeded 2 million in 2018.The transport companies that operate in and from Romania aim to attract passengers with increasingly tempting offers and most often at competitive prices with traditional transport. In order to be able to create a strategy that is as competitive as possible for Romanian passengers, the airline companies aim to identify the elements that define the behavior of the Romanian consumers.
This article aims to highlight the most important factors that influence the purchase of the air transport service, at the level of Romania, as well as their financial valence.

Key-Words: air transport, Romania, consumer influence, complaints

1 Introduction

In general, the behavior is a set of external reactions by which the individual responds to stimuli. From a psychological point of view, behavior designates what is objectively observable in the individual's global reaction, regardless of what he or she declares, his or her psychological thoughts and attitudes. From a sociological point of view, the behavior is the activity of the subject up in a given social situation. American psychologist Harold Leavitt says that three are the essential elements that define human behavior: the stimulus that represents the cause; the need that is the desire that can be fulfilled; the goal that is its purpose. As the needs multiply exponentially, due to the technical-scientific progress leading to the invention of others, and the satisfied need leads to the appearance of others, obviously the behavior of the individual also changes. (P. Mâlcomete coordinate. - Marketing Dictionary - Ed. Junimea - Iasi 1979 p.72).

Identifying the way consumers are influenced is one of the critical advantages of companies' activity. In order to increase market share, an entity must be continuously innovative, have the capacity to understand the recent consumption trends and to meet the new consumer wishes. Taking into account the impact of social, cultural, political, and economic factors, contemporary society manifests behaviors, ideas, feelings, reasoning, and processes for analyzing information and making increasingly sophisticated and personalized decisions. On the one hand, given the considerable diversification of the offer, the final beneficiaries of the tenders get to benefit from extensive possibilities of choice. At the same time, increasing purchasing power, while raising the level of education and culture, gives consumers the opportunity to meet more needs, more complex, and higher quality.
Marketing approaches the notion of consumer behavior both in the narrow and in the broad sense, but most specialists are placed with its definition between the two extremes. Thus, narrow consumer behavior reflects the habit of people in case consumption of goods and services and broad it covers all end-user behavior d s tangible and intangible.

Based on the analysis of the purchasing behavior of the passengers, the operators of the airline companies must take into account:

- consumer reaction to the marketing strategy of the company, which has an impact on its success in the market;

- the marketing mix of the company, which must satisfy the consumers;
- the possibility to predict how consumers will respond to the company's strategies;
- the high cost of this research, the difficulty of carrying it out, and the risk of obtaining incorrect information.

Research in the field of consumer behavior shows that the way in which the consumer responds to numerous stimuli can be structured into four types of behavior (MW Pride, OC Ferell - "Marketing - concepts and strategies," 7th Houghton Mi fin Company, Boston 1991) :

- the behavior of the routine answers, which the consumer practices frequently, for the purchase of the articles with low cost and of current consumption, for which does not spend too much time and effort to select a brand or product;
- making the decision at the limit, when buying an occasional product, for which it needs a moderate amount of time to look for information and to deliberate;
- making an extensive decision when buying expensive non-family products, so it involves a complicated decision. Several criteria are used to evaluate the possible alternatives, which requires a longer time;
- impulsive buying behavior, driven by a consistent and robust incentive to buy something immediately. For some individuals, buying behavior is dominant, although it often causes emotional conflict.

In his extensive analysis of consumer behavior, Ph. Kotler (Ph. Koller, G. Armstrong, p.334-348) starts from the analysis of the factors that influence it, grouped into:

- cultural factors - represented by culture, subculture and social class;
- social factors - which include: reference groups, family, roles, and statuses;
- personal factors - which refers to age and stage of the life cycle, occupation, lifestyle, economic circumstances, personality, and self-opinion;
- psychological factors - designated by motivation, perception, learning, beliefs, and attitudes.

Particularly interesting in the approach I seemed classification of I. Cătoiu (I. Cătoiu, N. Teodorescu - "Consumer Behavior Theory and Practice" - Ed. Economica, Bucharest 1997 p.25-45), who believes the buying behavior is influenced by two types of variables: directly observable and deduced by the interferential type research. Dubois and Jolibert (p.83-193), group the factors that influence consumer behavior as follows: individual factors, including personality, cognitive style, lifestyle and perceived risk, respectively environmental factors, which refers to factors socio-demographic (family life curve, social classes), reference groups, family, economic environment.

As a result, it classifies the factors influencing consumer behavior as follows: direct influences exert, demo-economic factors, factors specific to the marketing mix, situational factors, such as time pressure, the importance of the purchase, the occasion with which the purchase is made.

We find that often, buying a product does not determine the same type of behavior when making the decision. In some cases, individuals are engaged in making an extensive decision the first time they buy a particular type of product, but a limit decision is sufficient when they buy the product a second time. If, in a routine purchase, the brand, until then favorite does not satisfy it, will make a decision at the limit or an extension, to move to a new brand.

2. Factors that influence the behavior of passengers

As with any market, the aerospace industry and the market are diverse, multi-dimensional spaces. They are by no means partitioned and cannot easily be classified into distinct segments. Part of the problem with defining segments is that the market can be stratified or defined in so many ways. We can identify segments based on the size of the aircraft, such as airlines, shuttle, business aircraft, and general aviation aircraft. Alternatively, we can divide the market into two broad categories of civilian products and military products, or by the technological nature of the products, such as aircraft, propulsion systems, structural components, hydraulic systems, and flying vehicles. We can divide the market into products destined for outer space and products that operate in the atmosphere of the earth. The elections are endless. One of the problems with any arbitrary classification system is that the significant delimitations between categories tend to be ambiguous and that many products fit into several categories. Clear examples are that many types of equipment are used for both military and civilian aircraft and that some equipment is used for both space and conventional aerospace applications.

The most visible aerospace segment is the civil passenger aircraft category. As the data show, this segment is relatively more important in Europe, where the decline of military spending during the Cold War was pronounced. In the United States, where high levels of defense spending have persisted, and exports of military aircraft are aggressively promoted, the value of military aircraft production continues to outpace civil aircraft production.

Demand for civilian transport aircraft, which comes from economic wealth and geographical factors, continues to grow. The largest market remains North America, where the expansive territory is combined with a large, relatively affluent population, creating a strong demand for air travel. The second-largest market is Europe, where large populations of wealthy consumers favor the development of airlines. The third-largest market, significantly smaller than the two leaders, but overgrowing, is Asia air travel has historically been limited by the relatively low available income of populations outside Japan. Air travel has increased rapidly with the rapid development of the region. Airbus and Boeing anticipate that Asia's wealth is growing, combined with Asia's vast populations and geographies, and will create a stable future market for commercial aircraft sales.

In Romania, with the liberalization of the air transport market since the 1990s, a number of operators have pursued market shares. Until the 1990s, the market was predisposed to a single local operator, which had state capital, and at that time, owned a monopoly. At the level of 2019, in Romania, there are companies with both private capital and also financed from the state budget through the Ministry of Transport, which together managed to carry over 21 million passengers.

Types of transport	Types of operations	Measure units	Years		
			2016	2017	2018
Comercial air transport	Passagers	No.of persons	16398045	20221814	21815809
-	Goods	Tones	40130	44983	48520
-	Aircraft mouvements	No.	162652	186665	194940

Table 1. Values of air transport in Romania

As in any field, in order to carry out current marketing analysis, a theoretical marking analysis must first be performed. Second, consider those factors in this environment that should be considered by airlines. Third, to discuss the specific impact that each of these issues should have on properly designed marketing policies.

A number of determining factors are found in the procurement process. For the passengers in Romania, the most important landmarks when making a purchase are: the price of a ticket, the duration of the flight, the amount of luggage transported, the airport of destination, and the services offered onboard.

3. Research methodology

In this article, quantitative research has been carried out, in which the order according to the degree of influence of the reasons that are decisive when forming the decision to purchase air transport services in Romania was sought. The purpose of the research was to identify the most important attributes that determine the decision to purchase the air transport services offered by one operator to the detriment of another, and from objectives we can note the realization of a classification of the factors of influence according to the perceived value of the consumers towards them, identification of internal and external factors (both endogenous and exogenous in nature) , as well as identification of the existing correlations (if any) between the socio-demographic characteristics of the consumers and their choices vis-à-vis air transport services in Romania.

The research instrument used was the questionnaire (consisting of 22 questions, of which one filter question, 2 close dichotomous questions, five multihotomic closed questions, 2 compound questions, five structured questions on likert and semantic differential scales and seven identification questions and classification). The questionnaire was completed on Otopeni Airport, for 120 respondents.

One of the questions found in the questionnaire related to the elements that the Romanians consider relevant for the purchase of a plane ticket. Out of these elements, a number of five aspects were considered relevant, as follows.

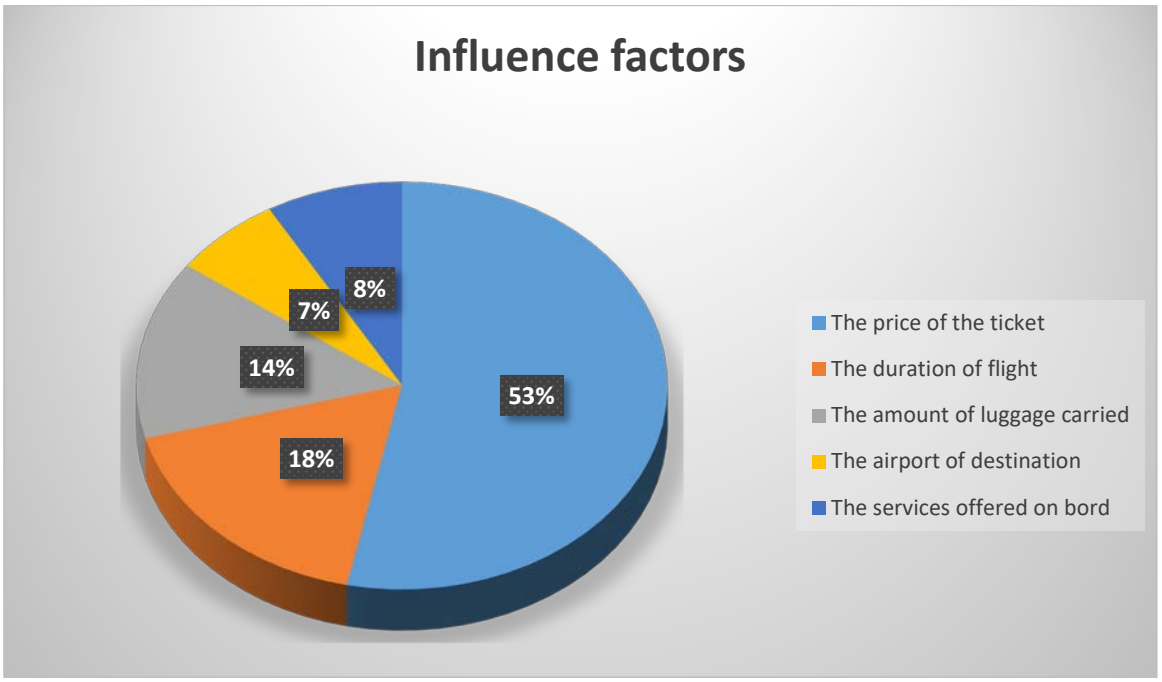

Fig.1. Influence factors

It can be noticed that the price is the most critical element that guides a choice in the case of air transport services. This price in recent years has suffered successive decreases and is considered by specialists as one of the elements that made a decisive contribution to the growth of this transport row. Issues such as luggage transport policy and flight time brought together approximately 30% of respondents. It can be seen how these not-so-important items gained notoriety, especially after individual companies changed certain policies (for example, luggage transport).

Another question from the surveyor sought to highlight the importance of the price in the final purchase. It can be seen how air transport services are guided by two major options when analyzing the price, ie, low-cost transport services and line transport services, which have a varied cost, significantly higher than the competition direct, but also offering more services, as well as greater diversity.

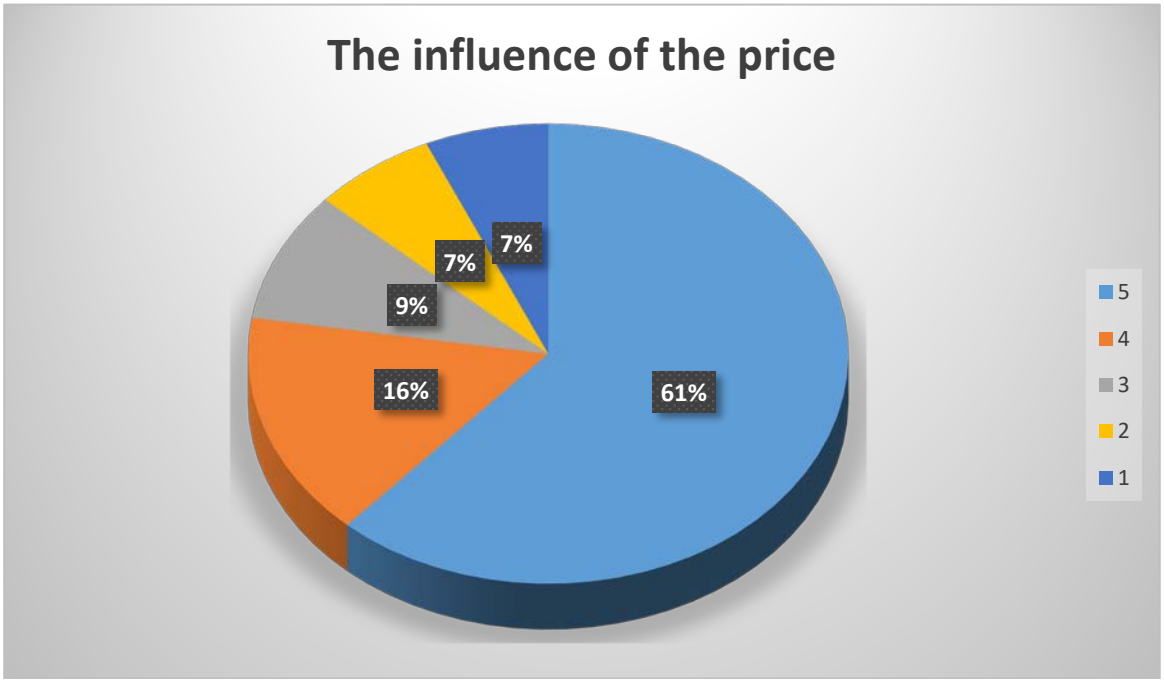

Fig.2 The influence of price

It is noted that over 60% of the respondents consider that the price largely influences a purchase. This wave a is core can be wide, and rising values of air transport services discounted found globally. The other respondents were of the opinion that the price could not represent such an important element, preferring to purchase the services of line or business transport.

4. Conclusion

Consumer behavior is an extremely important element for all entities in the market, and the Romanian air transport services market is no exception. The fact that our country follows the global trend of the rise of the air transport services reinforces the idea that the operators in the field have analyzed and applied the main wishes of the passengers, creating services with a fair value for money. Toto, we can note videnţiem importance is the price of service transport, whether considering transport services Air low-cost air transportation or line.

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Analysis of Nutritional Principles Addressed and Nutrition in Romanians: A Case Study

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Abstract: With the evolution of technology, people have begun to become more and more informed about all the topics of interest, including regarding their eating habits. The lifestyle, the stress, the tendency of sedentarism has generated in the last years an increased interest in maintaining and improving the state of health. In the previous decades, there has been a tendency towards a "standardization" in the consumption habits of the people living in countries with advanced economic development. This was caused both by the change of the available products and by the lifestyle, as well as by the "power" acquired by the new distribution channels. Also, over the last ten years, however, there has been a growing interest in dietetics, health and hygiene products, characterized by high-quality production and content, which may or may not be strictly linked to the history or culture of territory (Chinnici, D'Amico si Pecorino, 2002). However, despite the knowledge and information available, people cannot capitalize on food and cannot maintain a certain food standard. In this article, we will show what the current situation in Romania regarding the consumption of food from a nutritional point of view is.

Key-Words: nutritional values, nutritional marketing, consumer behaviour

1 Introduction

Factors that influence consumers 'intention to buy organic food create environmental awareness and develop ecological preferences among consumers, which influence consumers' plan to buy. Consumer choice is influenced by many factors where concern for health was the primary concern of consumers and other factors such as environmental and nutrition concerns (Paul and Rana, 2012).

In addition to the nutritional values that people have learned to take into account, "the demand for environmentally friendly goods and services is continually growing. This demand conditions the behaviour of consumers and industries, and exerts its influence on the legislative framework. In recent years, there is an increasing interest among consumers for quality agricultural and food products "(Maniu and Gradinaru, 1994, p. 432). Tsakiridou et al. (2008) believe that health, concern for the environment, animal welfare and support of the local economy are the determinants of ecological consumption. Organic products cover a wide range of foods: from fruits, vegetables, meat, to drinks and dairy products.

2 The quality of food perceived by Romanians: a marketing perspective

As Aertsens et al. (2011), assessing the impact of knowledge, as well as other factors on food consumption, creates a better understanding of food consumption behaviour.

On the other hand, consumers buy organic food to be in good health as the main reason for consumers to buy organic food. Attitudes toward organic vegetable consumption are generally positive. The most reliable motivations for the use of organic vegetables are the fact that they are produced without synthetic pesticides, they

are better for the environment, healthier, of a higher quality and a better taste (Aertsens et al. 2011). Other factors that may influence the consumption of organic foods have been identified in the relevant literature, namely, concerns for, concern for chemical residues in conventional foods, pesticides, nutritional concerns. Natural products are obtained by cultivation techniques that take into account the attributes of the final product and production methods. Thus, an increase in demand for organic foods is expected to continue in the future (Tsakiridou, et al. 2008).

Thus, when it comes to choosing healthy foods, consumers are still guided by myths. This criterion is always present due to the lack of adequate consumer information. That's why we still see in supermarkets and markets people who look after the worms for fruits or who are guided by texts such as: like at home, mother, peasant product, natural product. These are easy to use as a marketing strategy and not because the product is like the text, which leads to the loss of confidence in the producers and also in the sellers (Grigoraș, 2015). Awareness of the harmful effects of chemicals present in food is increasing among consumers.

According to Jensen et al. (2019) There is a research gap by investigating the perception of organic consumers on local foods and by associating these perceptions with purchasing behavior, in the idea that natural products are chosen as the research context, because the purchase and consumption of these products are determined by social considerations, such as consumers' self-concept, social feelings, social groups and social networks. Health considerations play a significant role in consumer preferences, followed by environmental and quality attributes. However, environmental concerns were the main reason for the consumption of organic products (Persaud and Schillo, 2017).

Moreover, Loizou, Michailidis and Chatzitheodoridis (2014), with several studies, argue that young consumers (under 45 years) have a higher tendency to consume organic products than older consumers.

What is neglected and influences consumers in purchasing organic products is the visibility, the fact that the products are not very visible on the market, they have little sales space, they cause consumers to resort to conventional foods, which have a broader market (Singh and Verma, 2017).

"Presentation, positioning, accessibility, the whole set of attributes and conditions that support spatial visibility by inducing commercial visibility, stimulating and stimulating for pro-ecological behaviours, are negatively valued by those investigated" (Florian et. Al., 2005).

A high price can be thought to negatively influence the attitude of consumers towards organic products compared to conventional ones, but what influences more is the degree of knowledge. The more you know, the more informed you are of higher education, the more you will resort to bioproducts because you know that this high price is reflected in the quality of the product and the benefits it offers (Singh and Verma, 2017).

Prior research on the decision-making process by consumers regarding the purchase of organic food is limited. These findings have implications for future sector-based communications to consumers and, possibly, for product development and labelling, Padel and Foster (2005) argue. "Consumers expect organic foods to contain no chemical pesticides and mineral fertilizers. In total, two factors affect consumers' expectations: how natural the products are; additional sustainability issues (such as, for example, saving resources). Although there does not seem to be a large gap between what consumers expect from organic foods and organic labelling products, specific attributes may not be the same for each consumer, they may be a source of disappointment (Meyer-Höfer, Nitzko and Spiller, 2015).

3 Level of nutritional consumption in Romania: Case Study

Thus, we can see that the use of the population is influenced by factors that tend to focus on the perceived quality of the food and less on the actual nutritional quality of it. According to INSSE studies, it is possible to highlight the dietary values consumed by the nutrition of the population in Romania, classified by nutritional categories (calories, proteins, lipids, carbohydrates) and by development regions.

	Values	
Nutritional categories	**Average of Trimestrul I 2018**	**Average of Trimestrul I 2019**
Calories (number)	**2413,7375**	**2442,0125**
Bucuresti - Ilfov Region	*2218,6*	*2218*
Center Region	*2363,7*	*2405,3*
North-East Region	*2587,5*	*2601,8*

North-West Region	*2573,4*	*2503,9*
South-East Region	*2324,9*	*2374,8*
South-Muntenia Region	*2305,5*	*2281,7*
South-West Oltenia Region	*2520,4*	*2521,5*
Vest Region	*2415,9*	*2629,1*
Carbohydrates (grams)	**293,2875**	**295,025**
Bucuresti - Ilfov Region	*258,3*	*263,6*
Center Region	*289,2*	*294,3*
North-East Region	*314,2*	*312,9*
North-West Region	*305,8*	*296,8*
South-East Region	*286,1*	*285,5*
South-Muntenia Region	*287,6*	*282,5*
South-West Oltenia Region	*311,4*	*307,7*
Vest Region	*293,7*	*316,9*
Lipids (grams)	**89,2625**	**90,6875**
Bucuresti - Ilfov Region	*86,5*	*85,5*
Center Region	*87,5*	*87,8*
North-East Region	*94,4*	*95,7*
North-West Region	*101*	*98,2*
South-East Region	*83*	*87,1*
South-Muntenia Region	*81,5*	*81,5*
South-West Oltenia Region	*88,6*	*89,1*
Vest Region	*91,6*	*100,6*
Proteins (grams)	**82,3**	**83,25**
Bucuresti - Ilfov Region	*80,1*	*78,6*
Center Region	*79*	*80,2*
North-East Region	*87,4*	*88,4*
North-West Region	*84,3*	*82,2*
South-East Region	*81,4*	*84,9*
South-Muntenia Region	*80,5*	*79,5*
South-West Oltenia Region	*84,7*	*86*
VEST Region	*81*	*86,2*
Grand Total	**719,646875**	**727,74375**

Tab 1. Comparison between the quantity of nutritional values consumed by Romanians, by development regions, between Trim 1 2018 and Trim 1 2019

From the analyzed statistical data, we can see that from the number of calories consumed by Romanians, no significant differences are depending on the region of development. Still, from the point of view of evolution over time, we can observe a slight increase in the number of calories consumed. In 2019 as compared to 2018. We can consider that the existing differences are due primarily to the level of stress that is higher with time, but also due to the diversity of food and the increasing accessibility. If a few years ago in certain areas the Romanians had to move even a few kilometers to have access to food (and in this case access was limited), nowadays the number of shops has increased allowing them to have almost unlimited access to a variety of foods.

Another reason that could have led to high food consumption is the impact of healthy eating, which in Romania was a significant one, noting the rapid development of organic agriculture. The turmoil in the urban environment and the unhealthy lifestyle determined the Romanians to be more concerned about their health. Thus, they have adopted diets based on bio foods or nutritionally balanced, and more and more young people are about to follow this example. Nowadays, customers have become more and more interested in what they consume and are informed whenever possible. Often, it associates eco-products with the process of weight loss (Oroian et

al., 2017). Sometimes, organic products even have a higher number of calories compared to processed foods precisely because of the elimination of the processing process was intended to degrease and pasteurize foods.

Another element that contributes to the impact of healthy eating on the Romanian market is the price that affects the attitude towards buying organic products. Specialized studies have shown that people are willing to pay a much higher amount for popular products (Petrescu, A.G., Oncioiu and Petrescu, M., 2017). Going on the principle of healthy foods, people no longer took into account the number of calories or their actual nutritional content.

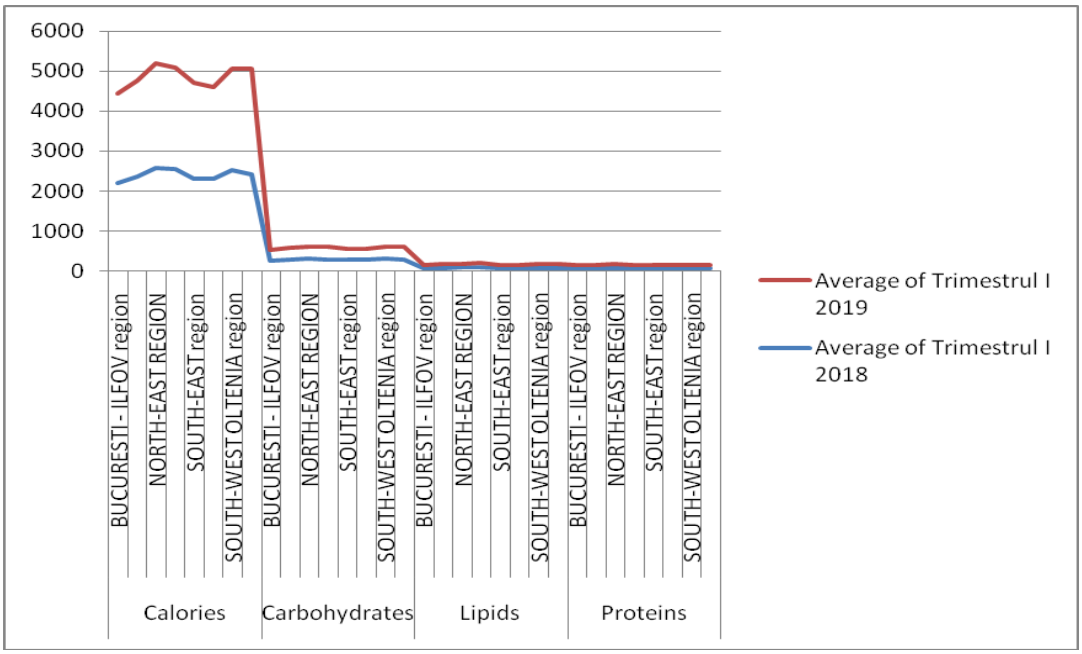

Fig 1. Comparison between the quantity of nutritional values consumed by Romanians, by development regions, between Trim 1 2018 and Trim 1 2019

Regarding the number of nutrients consumed by Romanians (proteins, lipids, carbohydrates) we can also observe that their consumption level increased in 2019 compared to the same period of 2018, and we also find that there are differences between the consumption levels in the regions. North East and South West, where the level of consumption is higher compared to the other developing areas. And this is due to the temperatures and the level of physical exertion of the population within each development region. If, for example, in mountain areas, temperatures are low and people tend to consume more fat, in the plains, for instance, they tend to increase carbohydrate intake and decrease protein and fat intake.

However, a significant role in the nutrition of Romanians is the marketing strategies that exert influence on their consumption decisions through promotion, merchandising and sampling techniques.

4 Conclusion

We can conclude by saying that regardless of the influencing factors we take into account in the analysis of Romanians' food consumption, marketing plays an essential role in their purchasing and consumption decisions. It is well-known that the level of income is a significant factor in the purchasing decisions, the Romanians preparing their shopping list according to the available income. Another consideration with considerable impact is the state of health, which most often determines the quality of the foods consumed and their quantity. However, in the absence of specific problems that impose a particular type of behaviour, marketing is the central pillar that determines the level of food consumption, their quantity and quality.

When shopping, a consumer may have a well-established list of food and goods they must buy. There are common foods on that list, but the brand you choose on the shelf depends on the TV advertisement you saw before you left home. Also, at the shelf next to the existing products on the shopping list, others are at the price offer, thus generating a new buying impulse. Besides all this, in the supermarket where they are shopping, there is a tasting session, and when trying a new product our consumer realizes that they like it and decides to buy it,

thus getting home from most with a considerable number of compared foods. outside the shopping list and without feeling the need for them

We can, therefore, conclude by saying that the number of calories ingested by Romanians and the nutritional quality of the foods consumed by them is mostly due to the marketing techniques used by the producers.

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