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Climate Change, Industrial Activity and Economic Growth: A Cross Regional Analysis

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Abstract: *Industrial Activity and its related output continue to contribute to economic growth for emerging and already developed World economies. Industrial activity also has strong negative consequences for the environment, one of which is climate change, attributable to greenhouse gas emissions (GHG) and other causatives. This study investigates the link between climate change, industrial activity and growth for World regions using six regions of the World. The questions the study tries to answer include if industrial activity across regions were impacting climate change and if such industrial activity drives growth at the expense of climate change. The study provides an overview of the current implications of industrial activity on climate change at a time when world leaders and policy makers are drafting a World pollution mitigation blue print in Paris. It was found that there exists a link between industrial activity, climate change and economic growth. And that emission cuts and green economies are likely a way to go, in mitigating the impact of climate change on the environment.*

Keywords: *Climate Change, Entrepreneurial and Industrial Activity and efficiency, Innovation and Environmental Pollution*

JEL Classification: *C5, Q4*

1. Introduction

An introductory discuss is presented in this section. Carbon dioxide CO₂ is constantly being produced and exchanged among the atmosphere, ocean, and land surface and it is absorbed by many micro-organisms, plants, and animals. In reality, the removal of CO₂ by these natural processes tend to balance overall CO₂ content in the ecosystem (through the removal of radioactive forcing). It is on record that human activities have contributed substantially to climate change by adding CO₂ and other heat-trapping gases to the atmosphere (Environmental Protection Agency (EPA) 2013). Also according to the Environmental Protection Agency (EPA) of the United States “many industrial processes emit CO₂ through fossil fuel combustion. Several processes also produce CO₂ emissions through chemical reactions that do not involve combustion; for example, the production and consumption of mineral products such as cement, the production of metals such as iron and steel, and the production of chemicals”. Therefore this study seek to find pressing answers to the following questions which include: Is there a link between climate change, industrial activity and economic growth? Does regional energy use play a role, in average world temperature increases? To what extent does industrial activity affect temperature levels across regions in the world? The EPA also provides evidence that Electricity which is a significant source of energy in the United States is used to power homes, business, and industry, and that in 2015 alone the combustion of fossil fuels used to generate electricity was the largest single source of CO₂ emissions in the US, responsible for almost 35 percent of total U.S. CO₂ emissions and 29 percent of total U.S. greenhouse gas emissions. Climate change, industrial activity and economic growth are often intertwined particularly in many developing countries like China. How to control smog, attributable to high coal use as well

as industrial activity has become a strong challenge for the People's Republic of China in recent years, sparking red alert on air pollution in particular in over ten Chinese cities including Beijing (BBC Report, December 2015). While experts continue to argue for control of air pollution in particular other industrial externalities have also led to different negative consequences in other parts of the World and Africa in particular.

As of now experts and analyst have not managed to come up with a specific blueprint to reduce emissions and environmental pollution other than emission cuts and environmental policies aimed at pollution reduction. Carbon dioxide emissions are on the increase across regions largely due to population growth as well as increases in industrial activity across regions United Nations Statistics 2013. Industrial activity such as crude oil exploration, gas flaring in oil exploration processes in many developing countries, deforestation, mining of solid minerals, the production sector utilizing fossil power plants etc., contribute a great deal to greenhouse gas emissions. Also are domestic consumption patterns such as the use of automobiles, domestic gas usage, and the demand for wood in building and construction sectors driving activities that lead to increases in world average temperatures through emission and other industrial related pollution. This study examines the effect of a host of variables on climate change (temperature changes or global warming specifically). There also exist a strong debate on the effect of greenhouse gases and CO_2 (Carbon dioxide) build-up on global average temperature increases often referred to as global warming. The resultant effect of which is known to cause flooding, poor harvest, and other unbearable living conditions.

Industrial activity according the United Nations statistics 2013 is also on the increase especially with positive growth in the economies of many emerging and other developing countries specifically in the South East Asian Pacific and sub Saharan African regions. Associated with industrial activity and growth is the tendency for firms and industries to generate negative externalities such as various forms of pollution which include both land, water, air and noise pollution. Regional industrial output itself can also lead to increases in emissions depending on the nature and technology used in production, specific reliance on fossils can also affect the nature of emissions for instance, coal is known to cause a lot of air pollution except with specific technology to harness clean coal generation process. Other alternative energy generation sources can also affect regional specific contribution to emission buildup for instance reliance on renewable energy sources are not likely to generate as much negative externality for the environment leading to reduced negative consequences for the environment (i.e. clean energy sources are not likely to result in high level of greenhouse gases and CO_2 buildup).

1.1 Scope and Objectives of the Study

The scope and objectives of the study are introduced in this section. The study examines the link between climate change, industrial activity and economic growth in regions. The regions examined include Australasia (Australia and New Zealand), the European Union, Latin America, North American, South East Asia Pacific and Sub-Saharan Africa. The study depth involves examination of causes of climatic change with emphasis on temperature increases, the relationship between energy use and temperature changes and the relationship between industrial activity and climate change. The specific objectives of the study include to: a.) determine if there exist a link between climate change, b.) the relationship between industrial activity and economic growth, c.) investigate if regional energy use plays a role in average world temperature increases and the extent to which industrial activity affect temperature levels across regions.

2. Short Review of Literature

A short review of literature is conducted in this section. Literature state that climatic changes are attributable to increasing world population and unsustainable development activities by humans. Fankhauser and Tol (2005), also state that climate change affect growth. Halgatte (2005), Eboli, Parrado, Rason (2010) and Bretscheger and Valente (2011) also agree that climate change have strong consequences for economic growth. Without major justifications Dietz and Stern (2014), Moyer, Woollet, Matteson, Glotter and Weisbach (2014) and Moore et al (2016) agree that there exist a relationship between climate change and technological progress. Further evidence is provided by Dell, Jones and Olken (2014), using different econometrics methodologies on the relationship between climatic change and economic growth. Olsson, Ola and Hibbs (2005) also argue that there exists a relationship between geography and underdevelopment, stating categorically that cases of underdevelopment are attributable to geographical conditions. Gallup, Sachs and Mellinger (1999), state that there exist a link between climate, diseases and poverty levels. While relationship between climate change and agricultural pest was established by Masters and MacMillan (2001), who explained that extreme winter cold kills pest and enhances productivity.

Acemoglu, Johnson and Robinson, (2001), (2002), and Easterly and Levine, (2003) state specifically that negative effects of climate change on development disappear when the impact of institutions are accounted for. Using a single Equilibrium model, however with strong support from multiple equilibrium models, Bloom, Canning and Sevilla (2003) find limited effects of climate change on past growth rates. The social cost of carbon is the environmental and economic cost of carbon on agents and stakeholders in the environmental sector of an economy. The environmental and social cost of carbon has been examined by Botzen and Van den Bergh (2012) and Van den Bergh and Botzen (2014), (2015) with both estimates paying primary concerns on alternative risk factors. Second estimates pay attention on preferences, risks aversion and inequality aversion (Anthoff et al, 2006, Tol, 1999, 2013a). Specifically Stern (2010), (2013); Van den Bergh and Botzen (2014), (2015) argue for a case of setting bounds on the social cost of carbon. Golosov, Hassler, Krussell and Tsyvinski (2014) explain that the social cost of carbon can be written as a function of total economic output, elasticity of damage due to atmospheric concentration of carbon dioxide and the rate of decay of carbon dioxide. Emerging statistics from International Energy Agency (IEA) and the World Bank 2013 depicts that there are increases in average World temperatures as well as CO₂ emissions Worldwide, showing a simultaneous increase in average world temperatures and regional emissions respectively even though past studies already state that in many instances no relationship have been found for both in many instances attributing such changes to increases in population (see the United States Environmental protection Agency Overview of greenhouse gases, 2013). Trends also show depict increases in World average temperature from 1960 till date (World Development Indicator Data of the World Bank) see Fig. 1. Increases in emissions across regions are also noticeable with North America, South East Asia (Comprising China) and the European Union Leading the regions in emission pollution. The trend in emissions also appear to coincide with systematic increases in industrial output suggestive of a relationship between the two.

Fig. 1

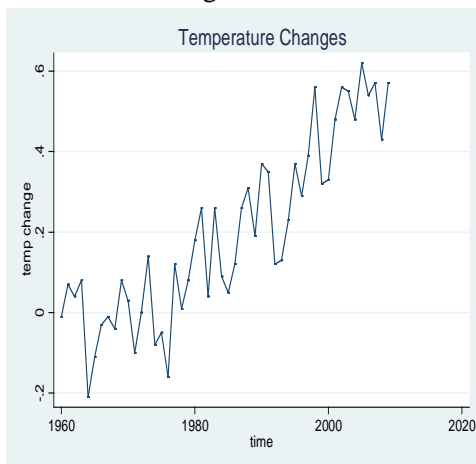
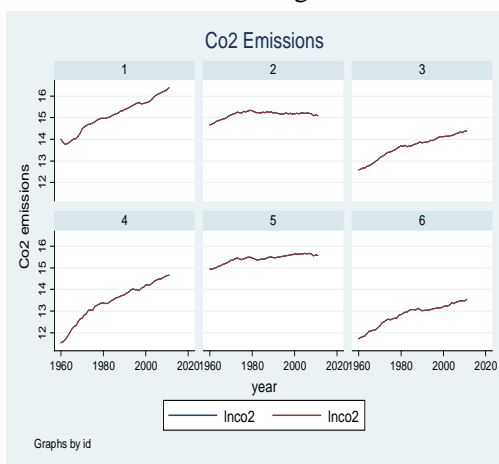


Fig. 2



Source: Authors Compilations- Note: figures 1 and 2 depict increases in World average temperatures as well as Co2 emissions

Fig.3

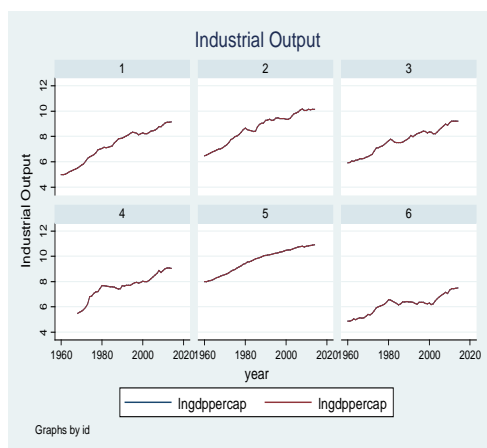
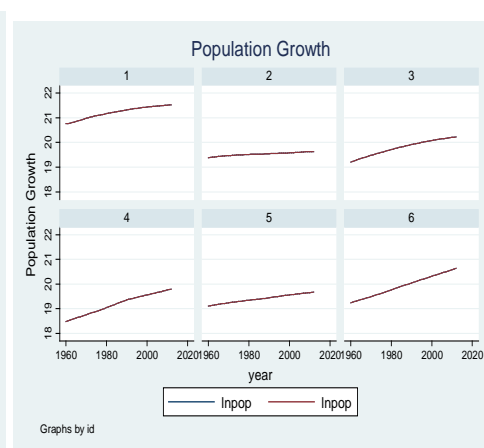


Fig. 4.



Source: Authors Compilations-Note: Figures 3 and 4 show growing industrial output and regional population increases

Trends in Fig. 3 and 4 on plotting the same data graphs, also show that population and industrial output were also increasing meaning that increasing industrial output demand is likely to be linked with increasing consumption trends across regions. The likely implication of this is that the practice of non-environmentally friendly industrial activities can have strong negative consequences for many countries across regions. World emission cuts talk have also progressed in recent times but many modalities are yet to be set in place for a proper implementation of a single emission cut policy that will yield significant decreases in greenhouse gases as well as save the environment from industrial related degradation. The scope of this paper as stated earlier is specifically to examine the effect of industrial sector activity on climatic changes (specifically global warming) for six regions which include East Asia Pacific, the European Union, Latin America, Middle East and North Africa, North America and finally Sub Saharan Africa. In achieving the study a host of factors such as increasing world population, industrial output, CO_2 emissions, use of fossils in regions as well as other alternative energy sources are identified to be likely factors that can affect global warming. Growing world population (See Fig. 4) for instance will mean increased consumption and this can place strong demand on industries forcing them to increase their productive capacities resulting in more volumes of pollution and increases in greenhouse emissions that can affect emission build up leading to increases in World average temperatures increases. Literature also admit that the world is threatened by human activity and greenhouse gases often traced to four types of gases which include carbon dioxide CO_2 , methane CH_4 , Nitrous oxide N_2O and halocarbons (a class of gases which contain fluorine, bromine and chlorine) these gases are known to accumulate in the earth atmosphere in concentrates leading to the destruction of the earth's atmosphere Ozone layer. The consequences of industrial pollution have also been seen to have devastating consequences on clean inhalable air as well as visibility with night visibility more heavily hampered. See fig 5 and 6 respectively. Mecaptans, also pose strong consequences on humans through air pollution, with China facing strong negative effects of New Economic Growth of Industrialization, with its effect felt in strong air contaminations affection visibility, inhalable air and negative health conditions in general, (Fig. 5 and 6 show negative consequences of industrial pollution on inhalable air and visibility in Tianjin and environs of the People Republic of China).

Fig. 5



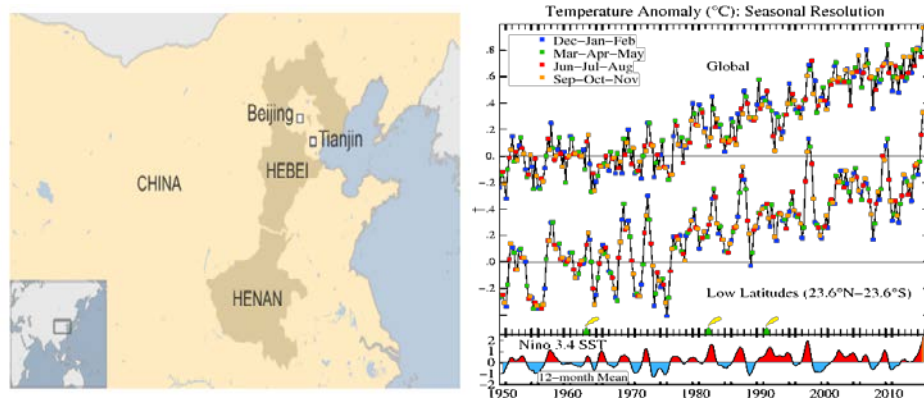
Fig. 6



Source: Authors Compilations from BBC world Report on Asia December 2015- Note: Smog effects in Tianjin China affecting available clean inhalable air and burring night vision.

Fig.7

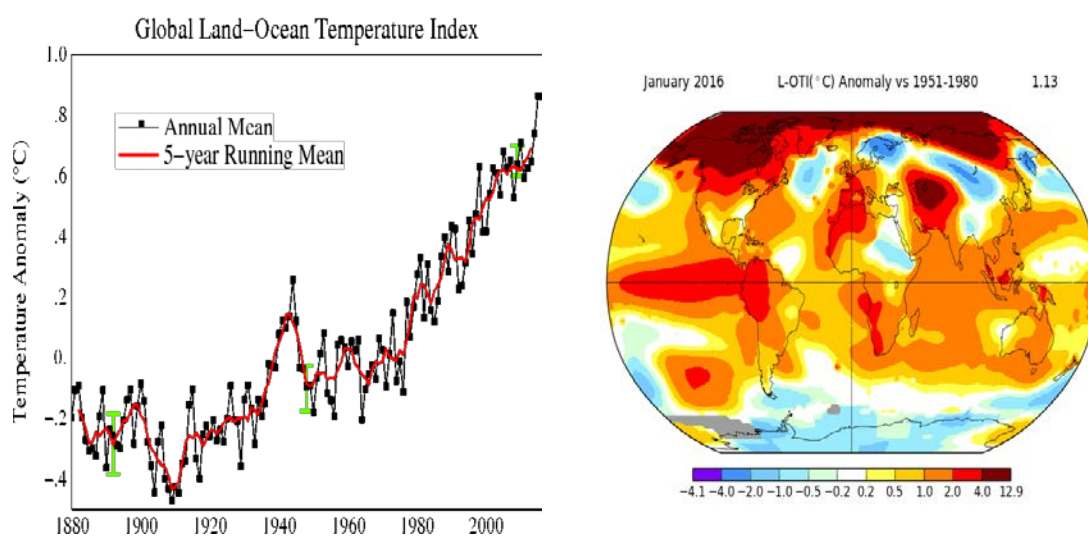
Fig.8



Source: Authors Compilations from BBC World Report December 2015 and EPA climate report 2015- Note: Fig.7 and 8. Depict Tianjin pollution prone region and US average temperature anomaly since 1800.

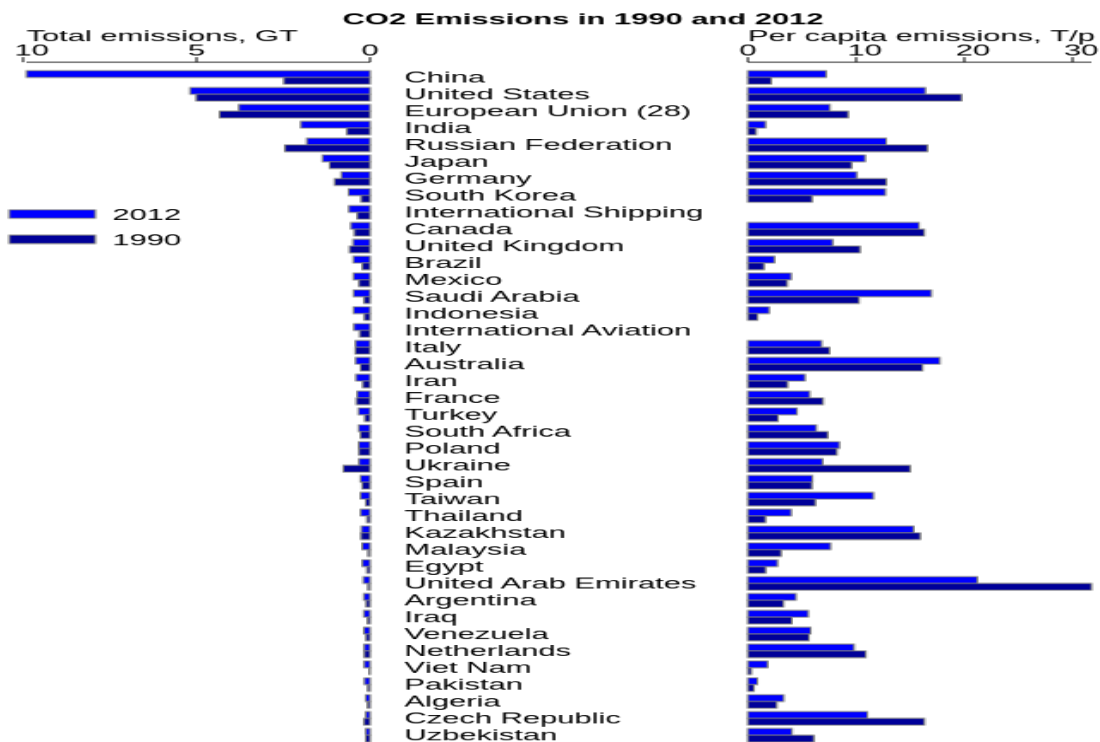
Fig. 9

Fig 10



Source: Authors Compilations from EPA 2015 Report - Note: Fig. 9 and 10 show land – ocean Temperature index and average World Temperature Anomaly from 1880 to 2010 respectively.

Fig. 11



Note: The above show carbon dioxide emissions from 1990 to 2012 for selected countries.

Source: EPA Statistics 2013.

The World is also experiencing strong temperature anomalies and higher variations in temperature changes than ever before. With the highest increases experienced in the 1930s and early 1940s, and also in the late 1970s upwards (See Fig. 9 and 10). This is largely attributable to the rapid industrialization of many World economies. With this have come higher pollution levels and strong tremendous increases in human pollution which has placed strong demand on world industrial outputs in general. Statistics also show (see Fig. 11) that while China leads in total world emissions in general it lags behind the United States and the European Union in Per Capita emissions, making the United Arab Emirates, Saudi Arabia, Australia United States and the EU, the highest per capita emission generators globally.

3. Data Sources, Theory and Methodology

3.1 Data Sources

All data to be used in the study are presented in this section. In this study specific channels through which climate change (proxied using temperature increases) is affected are identified. Some of these channels include through increasing world population, industrial output, emissions (proxied using CO₂ emissions the singular most significant cause of global temperature increase) and two other variables that capture regional specific energy use which could reflect the current strength of the environmental policies which include use of coal energy sources to capture use of fossils which is termed unclean energy source and alternative energy use which is renewable and termed cleaner energy sources. Some specific question the study will address include a.) To what extent does the growing world population affect global temperature increase? b.) Does increases in world average industrial activity `drive World temperature increases? c.) Are emission increases affecting world temperature and affecting climate change and to what degree does regional energy use specifically the reliance on fossils,with emphasis on coal energy sources and other alternative energy sources affect climate change across regions. The study utilizes panel data for six regions which include the European Union, East Asia Pacific region including China, the Middle East and North Africa, Sub Saharan Africa, Australasia and Latin America and the Caribbean. The period under consideration is from 1960 to 2013 a period of 54 years although some years of data are missing. To control for unobservable effects year dummies are utilized. Other studies which utilized panel data in the studies of similar nature include Ojeaga and Odejimi (2014) and Ojeaga P. et al (2014) respectively.

3.2 Theory and Methodology

3.2.1 Theory

The theory utilized in the study is described in this section. In adapting to existing literature that emphasize on understanding and implementing climate change policies, the study revisits the dynamic integrated model of climate and the economy (DICE). The most unique subject of the concept been the social cost of carbon (SCC). Nordhaus D. (2016) state that DICE 2016 model is the most recent although there exist other versions, which include the DICE 2013 model etc. The DICE model itself is predated by the Ramsey Model which did not include climate investments, which were found to be analogous to capital investments in the standardized model (i.e. the 2016 model). The DICE 2016 model optimizes the social welfare function (SW), which is the discounted sum of population weighted utility of per capital carbon consumption, expressed below in equation 1 as adopted from Nordhaus (2016),

$$(Eqn. 1) \quad SW = \sum_{t=1}^{Tmax} N [C_t, L_t] R_t = \sum_{t=1}^{Tmax} U [C_t] L_t R_t$$

Where R_t is the discounted factor, $R_t = (1 + \rho)^{-t}$ and ρ is the pure rate of social preference and discount rate of welfare, e_t is the per capital consumption L_t is population. The utility function is expressed as

$$(Eqn. 2) \quad U_C = C^{1-\alpha}/(1 - \alpha)$$

The parameter α is the generational inequality aversion. The net output of damages and abatement to the environment is given by $Q_{(t)}$ expressed as

$$(Eqn. 3) \quad Q_{(t)} = \Omega_t [1 - \Lambda_t] Y_t$$

Where Y_t is gross output, which is given a Cobb Douglas function of capital, labour and technology. Total output in this case is the ratio of total consumption and total gross investment. The variables Ω_t and Λ_t are the damage and abatement functions respectively, (see Golosov, Hassler, Krussell and Tsyvinski (2014) and Nordhaus D., 2016). The damage function can be expressed as

$$(Eqn. 4) \quad \Omega_t = D_t / [1 + D_t]$$

Where $D_t = \phi_1 T_{AT(t)} + \phi_2 [T_{AT(t)}]^2$. The above describes the economic impact or damages of climatic change. This is in reality a key factor in calculating the SCC where T_{AT} is referred to as a sufficient statistics for damages. It should be noted that the damage function was revisited in 2016. Other uncontrolled industrial carbon dioxide emissions are given by a level of carbon intensity $\gamma_{(t)}$, times gross output. Total emissions $E_{(t)}$ are equal to uncontrolled emissions reduced by the emissions reduced rate $\mu_{(t)}$, plus exogenous land use emissions expressed as

$$(Eqn. 5) \quad E_{(t)} = \gamma_{(t)} [1 - \mu_{(t)}] Y_t + E_{Land(t)}$$

This can be linked geophysically to greenhouse gas emissions therefore to carbon cycle, radioactive forcings and climate change expressed below as ,

$$(Eqn. 6) \quad M_{j(t)} = \phi_{oj} E_{(t)} + \sum_{i=1}^3 \phi_{ij} M_{i(t-1)}$$

The three earth geophysical reservoirs are given by j, where j is = AT (Atmosphere), UP (Upper Oceans and biosphere) and LO (the Lower Oceans). All emissions are assumed to flow into the atmosphere, absorbed partly by the oceans and other ground or surface waters. The relationship between greenhouse gases (GHG) accumulators and increased radioactive forcing is shown below as :

$$(Eqn. 7) \quad F_{(t)} = \eta [\log_2 [M_{AT(t)} / M_{AT(1750)}]] + F_{EX(t)}$$

$F_{(t)}$ is the change in total radioactive forcings from CO₂ and other anthropogenic sources. It is essential to state that radioactive forcings lead to global warming, allowing us to express temperature changes in a specified two level global climate model as

$$(Eqn. 8) \quad T_{AT(t)} = T_{AT(t-1)} + \epsilon_1 \{F_{(t)} - \epsilon_2 T_{AT(t-1)} - \epsilon_3 [T_{TAT(t-1)} - T_{LO(t-1)}]\}$$

$$(Eqn. 9) \quad T_{LO(t)} = T_{LO(t-1)} + \epsilon_A [T_{TAT(t-1)} - T_{LO(t-1)}]$$

Where $T_{AT(t)}$ is the global mean surface temperature, $T_{LO(t)}$ is the mean temperature of the deep oceans respectively. The above climate model have been revised to reflect the Earth Climatic Systems (See Nordhaus D. (2016)) for further discussions). The social cost of carbon can therefore be expressed based on the aforementioned as

$$(Eqn. 10) \quad SCC_{(t)} = \frac{\partial SW}{\partial e_t} / \frac{\partial SW}{\partial C_t} = \frac{\partial C_t}{\partial e_t}$$

Thereby expressing $SCC_{(t)}$ as a ratio of change in consumption per unit change in emissions over time, depicting the value of consumption enjoyed per unit emissions in tons over time.

3.2.2 Methodology

In introducing the methodological section we follow the literature on the social cost of capital and assert that governments across regions will want to maximize its utility by imposing a cost on the use of energy specifically those that lead to high carbon emissions Botzen and Van den Bergh (2012) and Van den Bergh and Botzen (2014), (2015). Where energy policy (Epolicy) is dependent on regional specific energy use (Euse), available energy sources (Eresources) and specific environmental risks (Erisk) associated with such sources either through harnessing or specific utilization. This will be particularly true through since government will want to drive the use of clean energy sources (renewable and sustainable sources in particular), through available energy resources within its territories to cut issues of cost and capital flight associated with the purchase of external resources. It will also want to mitigate environmental risk associated with energy use and harnessing. This is enforced through its specific policy on energy use allowing us to state equation 11 and 12 as;

(Eqn. 11) Energy policy $f(Euse, Eresources \text{ and } Erisks)$

(Eqn12.) $Epolicy = Euse + Esources + Erisk$

Emissions will also be dependent on the nature of energy use if it is largely domestic or industrial in nature with industrial use demanding larger generation and leading to higher pollution, human activity (Hactivity) which will affect energy consumption and will be a function of population increases, energy policy (Epolicy) which will be a function of cost and efficiency in the generation and allocation of energy resources and other associated risk to energy generation, such as hazardous nature of generation and its impact on the ecosystems and humans in general as depicted in equation 13.

(Eqn. 13) $Emissions = Euse + Hactivity + Epolicy + Erisk$

Industrial output is also likely to cause major strains in energy demand, with the manufacturing and other production sectors of economies in countries across regions responsible for energy generation increases. Waste from industrial consumables is also likely to affect the climate leading to increases in greenhouse gases and affect health conditions generally. Therefore industrial output will depend on industrial demand (*Ind demand*), energy sources (*Esource*) and environmental risks (*Erisk*).

(Eqn. 14) $Indoutput = Ind \text{ demand} + Esource + Erisk$

Climate change will also be affected by emission, increases in population (*Pop.Increase*), industrial output (*Indoutput*), use of fossils sources (*Fossilsuse*) which is termed unclean or environment polluting energy sources and finally use of renewable energy (*Rene.use*) sources which is termed clean energy source.

(Eqn. 15) $Clim.change = Emissions + Pop.Increase + Indoutput + Fossilsuse + Rene.use$

The econometric model to be estimated now becomes;

(Eqn. 16) $Clim.change_{it} = \beta_1 Clim.Change_{it-1} + \beta_2 Emissions_{it} + \beta_3 Pop.Increase_{it} + \beta_4 Indoutput_{it} + \beta_5 Fossilsuse_{it} + \beta_6 Rene.use_{it} + \epsilon_{it}$

Where Climate Change in equation 16, is captured using world temperature anomalies, and will depend on emissions captured using CO₂ emissions, population using logarithm of regional population increases, industrial output using regional specific GDP per capita, fossils use using coal energy generating capacity and renewable energy using clean alternative energy sources in countries across regions. The entire control variables are lagged to resolve issues of misspecification (e.g. multi-co linearity and serial correlation) although this was done for only one period. The variable year dummy is included to control for robustness in the estimation results while the country dummy results are not reported even though they are included in the regression. The control for the endogeneity of the control variables is based on past literature which suggests that specific independent variables are likely to be endogenous Przewoski A. (2004). The application of GMM in addition to control for multiple endogenous variables, deals with issues of panel bias and fixed effects since the disturbance term ϵ_{it} consist of the fixed effects μ_{it} and the idiosyncratic shocks v_{it} see Arellano, and Bond (1998), Doormik, Arellano, Bond (2002) and Roodman (2006). Some other obvious advantages of the GMM estimation are that it controls for long run effects and the estimates are robust even in the presence of heteroscedastic errors. The lag of the dependent variable ($\alpha_0 - 1$) is also added as an explanatory variable and the system GMM includes all explanatory variable and their lagged values as instruments allowing us to resolve the problem of searching for a suitable instrument, see Roodman (2006), for in-depth explanations of the GMM estimator technique.

3.2.3 Results Presentation and Discussion

The result of the study is presented in this section. The study investigates the relationship between climate change, industrial activity and economic growth in regions. Various factors were identified as likely

drivers of climate change. Some of these included CO₂ emissions, industrial output (measured using regional GDP per capita), increases in regional population, and regional coal and alternative energy use respectively. To resolve issues of likely presence of endogenous regressors and omitted variable bias, the generalized methods of moment technique and panel data provided suitable means to do so and were hence employed for the study. The Arrelano Bond

Table 1. Temperature Change, Industrial Activity and Population Growth Regressions

VARIABLES	(1) Panel Regression (OLS) Temperature change	(2) Differenced GMM Temperature change	(3) System GMM Temperature change
Log Co2 Emissions	-0.0735*** (0.00840)	-0.00624 (0.0130)	-0.164* (0.0887)
Log GDP per Capita	0.0789*** (0.00730)	0.0693*** (0.00738)	0.117*** (0.0360)
Log of Population	0.0795*** (0.00817)	0.177*** (0.0299)	0.401*** (0.132)
Log of Coalenergy use	0.00138 (0.00238)	0.0137* (0.00734)	-0.0117 (0.0149)
Log of Alternative energy use	0.0184*** (0.00420)	0.0608*** (0.00779)	0.0227 (0.0218)
Year Dummy	Yes	Yes	Yes
Constant	-0.788*** (0.137)	-4.158*** (0.520)	-6.025*** (1.423)
Observations	267	261	264
Number of id	6	6	6

Note: Authors Compilation Using Stata. All Standard errors are in parentheses with *** p<0.01, ** p<0.05, * p<0.1 representing 1%, 5% and 10% significant levels respectively.

Test for serially correlated errors and the Hansen Test for over identifying restrictions were conducted in both cases for the difference GMM and the System GMM estimation techniques respectively Roodman (2006). The null hypothesis of no serially correlated errors was accepted and results depict the instruments were valid and relevant for both tests respectively. The year dummies also appear to be significant depicting that no specific unobservable effects affect temperature increases in the model specification other than those that have been stated in the model. The preferred results from the system GMM regressions is interpreted even though the OLS and System GMM results are all presented for interested readers, owing to its superiority as stated earlier. It was also observed that contrary to the notion that carbon dioxide emission affect temperature changes positively (and hence climate change negatively) it was having weak negative significant effects on average World temperatures (hence weakly affecting climate change positively) reducing average World temperatures by 16.4 percentage points. It was also found that the two most significant drivers of world temperature increases were regional population and regional industrial output (measured using regional GDP per capita) contributing 40 and 11.7% points to positive temperature changes respectively. Coal energy use and alternative energy use, was found to have no effect on global temperatures, depicting regional energy use had no significant effect on temperature increases globally. This showed the weakness of regional energy policy in reducing average world temperatures and mitigating the causes of global warming and climate change across regions specifically and therefore showing no strong direct link between emissions and climate change.

4. Conclusion and Recommendation

In this section of the study the research questions are answered and the study is concluded with recommendations made. The study investigates the relationship between climate change, industrial activity and economic growth for six regions name earlier. There already exist scientific findings which state that specific gases such as CO₂, N₂O, CH₄ and halocarbons are the specific causative agents on climate change. However in this study we find no direct relationship between the proxy for emissions (CO₂) and climate change (temperature changes specifically) consistent with IEA 2013 Report. However increases in population and

industrial activities appear to affect climate change (in this case temperature changes) significantly. It appears that increase in human activity due to growing world population and the associated growing demand for consumables from the industrial sector and other industrial related negative externalities (leading to radioactive forcing) is primarily responsible for global temperature increases and thus drastic negative changes in climatic conditions. The implication of this outcome for stakeholders in the environmental sector is that measures to adequately manage World population increases are becoming necessary as well as control of industrial and manufacturing companies practices. Regional specific energy policies appear weak with both coal and alternative energy sources remaining weak. This shows that industries in countries across regions were probably not doing enough in terms of policies to mitigate human and industrial activities that were not environmentally friendly, therefore innovative policies in this direction is hence necessary.

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The CETA Treaty - The Trojan Horse of Europeanization

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Abstract: *The Comprehensive Economic and Trade Agreement (CETA), that numbers about 2,000 pages, is a free trade agreement between Canada and the European Union. By adopting it, there will be eliminated 98% of Canada-EU trade tariffs. According to a study made by the Impact and Sustainability Commission (SIA), the EU economy will grow by 0.03% over the long term due to the CETA Agreement, while Canada's economy would increase by 0.2-0.4%. Critics who oppose the treaty argue that it will weaken consumers' rights from a food safety perspective and that tariffs are already negligible. Negotiations ended in August 2014, the agreement was approved by the Council of the European Union and the European Parliament and was ratified by all EU Member States. Ratification of the CETA (Canada & Europe Trade Agreement) has always been the subject of serious concerns, first of all Canada was "cautiously optimistic" about the fate of this Treaty.*

Keywords: *trade negotiations, free trade agreement, regional opposition, ratification, free movement of labor, recognition of qualifications, arbitration tribunal*

JEL Classification: *F, F02, F1*

1. Introduction

On September 21, 2017, the Comprehensive Economic and Trade Agreement between Canada and the European Union (CETA) entered into force, creating new opportunities for both the EU and Canada. In this context, the customs duties between Canada and the EU member states have been eliminated at a rate of 98%. The agreement creates new and far-reaching opportunities for both European and Canadian countries, opens new markets for exporters, generates quality jobs and strengthens the existing relationship between Canada's economy and the economies of the EU.

2. Arbitration tribunals - the most controversial side

European Commissioner for Trade, Cecilia Malstrom, remained discreet after signing on 27 October 2016, first by Belgium (then by EU presidency) of the Free Trade Agreement with Canada, known as the CETA Treaty (Cecile Ducourtieux et Jean-Pierre Stroobants, *La ratification du CETA reste semee d'embuches*, in *Le Monde, Economie et Entreprise*, 29 octobre 2016, p. 4). Mrs. Malstrom posted the following comment on the tweet: "Finally, white smoke on CETA. The Belgians agreed. Let us hope that once will be found quickly for an EU-Canada summit. "

After initially saying NO to the CETA Treaty on the grounds that it is a threat to the economy and regional social standards, the Parliament and Wallonia's Prime Minister, Socialist Paul Magnette, have obtained an agreement considered "honorable".

The interpretative statement on the CETA provisions - a point of view signed by the representatives of Austria, Germany and Slovenia - was negotiated separately from Wallonia and the Brussels region, which provided Canada with guarantees that the social protection of their citizens would not be affected by the Treaty,

as well as a withdrawal clause for a CETA country, if imports of Canadian agricultural products disturb the country too much.

Arbitration tribunals between multinationals and EU Member States - the most controversial part of the agreement - will not be implemented during the provisional implementation period of the CETA agreement; the Ministers of the 28 EU Member States agreed on this provision on 18 October 2016.

Following the negotiations with Canada on the treaty, held between 19 and 26 October 2016, the Kingdom of Belgium committed itself to refer the matter to the Court of Justice of the EU on the compliance of the arbitration tribunals of CETA. Wallonia province said it received from Canadians assurance that judges charged with settling disputes will not be selected from business environments, but elected and paid by the signatory states of the Treaty.

Paul Magnette, the craftsman of this European claim, which raises the hopes of the opponents of free trade and globalization, has positively evoked the new rule on the compliance of CETA arbitration tribunals; this was not, however, likely to convince left-wing radicals and ecologists, hostile to the CETA Treaty in principle. The tentative procedure for the signing of the Treaty by the Heads of State and European Governments, followed by the EU-Canada Summit, was pursued to allow Canada's Prime Minister Justin Trudeau to paraphrase the Treaty.

After a favorable vote in the European Parliament, the CETA Treaty could be applied in a provisional manner, pending the ratifications of the 38 national and regional parliaments of the EU, which generally takes several years. Wallonia and the Brussels region have crystallized the opposition of those opposed to free trade. In Austria, Germany or Luxembourg, the anti-CETA and anti-TTIP movements (formerly the US Free Trade Agreement) were less virulent than in Belgium. Indeed, the EU needs Canada, which is a friendly country, at least for the relocation of a part of emigrants now facing the EU. The opposition to the provisions on investor-to-state relationship within the CETA is increasing on both parts of the Atlantic on behalf of civil society organizations, trade unions and even public opinions expressed in some of the EU Member States. In response, the European Commission and the Canadian government are conducting a propaganda to minimize the risks of investment arbitrations and to divert attention from the fundamental problems of the system by focusing on "cosmetic reforms" (Eberhardt, Pia; Redlin, Blair and Toubeau Cecile, *How CETA's Investor Protection Rules threaten the Public Good in Canada and the EU*, on site <https://www.tni.org/sites/www.tni.org/files/download/ceta-isds-ro-executivesummary-1.pdf>).

2.1. Canada's "Optimistic Prudence"

"We are cautiously optimistic about the evolution of the CETA Treaty," Canadian Foreign Minister Stephane Dion said on October 27, 2016 after the Wallonia Parliament's veto on the treaty. Canada wants this treaty, and Mrs. Dion also admitted that, "We are ready to sign the Treaty and hope the EU speaks in one voice, as Canada does." In turn, Canada's international trade minister, Chrystia Freeland, proved to be very prudent when, on October 21, 2016, after three days of talks with Wallonia's Prime Minister, took note of the deal concluded in Belgium, which she described as "a positive one," adding that there is much to do and other steps to go through before signing the treaty. Regarding foreign investments and the risk of seeing a multinational in front of an arbitration tribunal against a European state (sensitive topics for Wallonia) Stephane Dion said that this uncertainty would be slightly modified: "With this agreement it will be possible we start to respect the sovereignty of states."

3. The 2,000 pages that crystallize fears

Agriculture, customs duties, arbitration tribunals are sensitive topics and CETA aims to combat trade barriers existing between European countries and Canada in many sectors (Anne Pelons, *Le Canada, "prudent optimiste" pour l'avenir du traite*, Le Monde, Economie et Entreprise, 29 octobre 2016). Like its bigger cousin, the TTIP, CETA develops more fear, so the ambition to boost EU-Canada trade is greater. The CETA agreement aims to tackle trade barriers on all fronts. Trade rights are placed first on the agenda and they are reflected in the drastic reduction of duties still paid by exporters. In the agriculture field, quantitative quotas that regulate very closely the trade of products between the two parties will be widely assumed through the increase of the Canadian quotas authorized on the European market to: a) beef (from 4,122 to 45,828 tons per year); b) pork (from 5,549 to 75,000 tons per year); c) wheat (from 38,853 to 100,000 tons per year). These quantities accepted by Brussels are marginal compared to the size of the European market – the importing quotas for Canada represent less than 1% of European consumption, and the new quotas caused some fear for the most fragile agricultural regions of Europe, which are facing more competition.

Milk producers will benefit more from CETA, on the one hand, because there are increased export quotas from 13,472 to 18,500 tons per year, but also because the European cheese brands exported to Canada - Feta, Reblochon, and Roquefort - are indeed part of the protected trademarks whose names cannot be used by Canadian manufacturers; so does the Parmesan or Agen plums.

According to the CETA Agreement, only 145 of the 1500 European protected trademarks benefit from protection; these are the most famous and therefore the least likely to be counterfeit. The CETA must help European enterprises willing to emerge on Canadian market - after signing CETA, at least 30% of Canadian public markets will be open, compared to 10% now. Free movement of people and public recognition of qualifications will be facilitated.

4. CETA Trojan horse

CETA is perceived as a Trojan horse of liberalization that threatens the citizens' interests and the environment protection. Relatively harmless in the automobile sector, where Europeans and Canadians have common standards, CETA becomes more sensitive in terms of food security or the environment protection. So far Brussels has banned Canadians from exporting into the EU beef with hormones, pork containing rectopamine, the new genetically modified organisms. The EU has also pledged to talk with Canadian representatives on the possible future convergence that is coming out from the context of the Treaty.

The threat to European public services is now more serious: the EU has so far pledged to liberalize only the sectors explicitly cited in trade agreements that are subject to privatization or in the position of public monopolies. Services such as autonomous (electric) or intercontinental transport are not mentioned in the CETA Treaty, but they will also need to be negotiated in the future.

The biggest criticism is focused on the arbitration mechanism, which will allow businesses to complain to European states about financial compensation if they deviate from the CETA rules. The most flagrant deviations observed in the recent years in investment arbitration have to be corrected by replacing free elected judges with a panel of independent judges appointed by states to limit conflicts of interest.

The CETA treaty gives "fair and equitable treatment" to all businesses and leaves room for maneuver to challenge state decisions, even those that target public goods, such as anti-smoking policy and the privatization of renewable energy. The CETA Treaty follows the long road of ratification in the 38 national and regional parliaments of the EU - which will last for at least 2-3 years. It is hoped that the Treaty will be applicable at the earliest by 2020.

5. The Wallonia region has tried to block CETA

The Wallonia Region initially blocked the signing of the CETA agreement, unsatisfied with several of its provisions, in particular those relating to arbitration of commercial disputes, social protection, effects on agriculture, traditional industry and environmental protection. Wallonia proposed new rules for negotiating international treaties by the EU through the Namur Declaration. Wallonia's Prime Minister Paul Magnette said on December 2, 2016 that he was again blocking the EU-Canada Free Trade Agreement (CETA), accusing the prime minister of the federal government in Brussels, Charles Michel, of failing to respect the terms of the compromise through which Wallonia gave its agreement to sign the treaty at the end of October 2016 (MAE, 2016). The new tensions are related to a circumscription of Belgium's consent to sign / ratify the CETA, which states that Belgium "will seek the opinion of the Court of Justice of the European Union on the compatibility of the CETA arbitration tribunal mechanism for the settlement of disputes between states and companies within European treaties ". In response, Belgian Prime Minister Charles Michel said on 24 November 2016 before the Belgian Parliament that he would assess "at the right time (...) whether such a request is needed".

"It will create a new crisis in Europe, and that is not our goal, but the federal government and Prime Minister Michel ignite the wicker," Paul Magnette said, accusing the Belgian chief of office of "abusing the Walloon patience" and threatening to "Activate the clause allowing Wallonia to suspend the CETA" if it does not receive clarification "as soon as possible" on compliance with the commitments made in the context of unblocking the signing of the treaty.

On December 5, 2016, Wallonia made public the Namur Declaration proposing the reform of international treaties negotiations based on three major principles: 1. respect for democratic procedures; 2. compliance with European legislation in the social, economic and environmental domains, and 3. defense of the public interest in the dispute settlement mechanism between states and companies. The document was signed by 40 representatives of the Wallonia Academy, including its President Paul Magnette, as Professor in the

Université Libre de Bruxelles, and before being published was presented to the President of the European Commission (COM), Jean Claude Juncker. The signatories say that the revision of the basic principles of EU international treaty negotiations is imperative because of the concern expressed by an increasing percentage of European citizens accusing private interests of having priority in negotiations to the detriment of the public interest. The document proposes, in this regard, the launch of public analyses and surveys before the negotiation mandate is established, as well as the increase of the transparency level, by publishing the interim results of the negotiations. The Namur Declaration also emphasizes the importance of national competences in mandating and negotiating, especially in mixed agreements such as CETA or TTIP. In this regard Wallonia's proposals aim at prior debates in national and regional parliaments with similar competences.

6. Green light for CETA

On 23 January 2017, the European Parliament's Committee on International Trade approved the Comprehensive Economic and Trade Agreement between the European Union and Canada (CETA). The plenary of the EU legislative body voted on the agreement in mid-February 2017 (See the site <http://www.parlamentor.ro/youth-parlamentor-what-s-up/comisia-de-comert-international-a-parlamentului-european-aproba-acordul-dintre-ue-si-canada-6504>): the members of this committee voted in favor of the text, with 25 votes in favor, 15 against and one abstention, according to a press release from the European Parliament.

On 15 February 2017, the European Parliament endorsed the European Union-Canada Comprehensive Economic and Trade Agreement (CETA), with 408 votes in favor, 33 abstentions and 254 votes against. Although the EP voted in favor of the CETA, the agreement still needs the approval of the Parliaments of the 28 EU Member States and Autonomous Regions of Belgium, which could take years.

The Netherlands and Bulgaria have already announced that they could block the approval of the trade treaty if they call for a national referendum to be convened (Stan, 2017). CETA will eliminate 99% of customs duties on EU-Canada goods exchange. European Trade Commissioner Cecilia Malmstrom pleaded for MEPs' approval of the CETA, considering this agreement "more important than ever" in front of the protectionism promoted by Donald Trump. The European Commissioner for Trade considers CETA to be the "most progressive trade agreement ever concluded in history". Negotiated for seven years, the CETA was signed in October 2016 by the EU and Canada after several days of uncertainty due to the opposition of the regional Wallonia's Parliament in Belgium.

The European Parliament's vote on the EU-Canada Trade Agreement (CETA) is also a reaction to Donald Trump's protectionist policies, says Manfred Weber, chairman of the European People's Party (EPP) in the European Parliament: "Instead of protectionism, we want partnership. Instead of fear and lack of trust in each other, we want openness and even stronger ties with some of the closest allies we have in the world. Instead of letting globalization happen without us, we want to set it up with our high standards. CETA represents a fair trade agreement and a model for future cooperation based on values and standards. Those who oppose are also against our prosperity."

7. Position of Bulgaria

In mid-March 2017, Bulgarian President Rumen Radev said he was never and will never agree with the EU-Canada Free Trade CETA (Mina, 2017). Radev underlined: "As a Bulgarian president and guardian of the Constitution, I will refer the Constitutional Court to this file because the CETA requires the amendment of the fundamental law, and the Constitutional Court will have to rule on its legal compliance. From now on, the CETA is in the hands of the Bulgarian Parliament, which will vote on its ratification. "According to him, Bulgaria has a considerable contribution to the future of Europe and will insist that cohesion policy has a place in strategic documents and be reflected in the EU's multiannual financial framework.

8. Romania's position

In addition to allowing the elimination of Canadian visas for Romanian citizens, the CETA Agreement also presents other opportunities for Romania, as Siegfried Muresan explains: "The trade agreement between the European Union and Canada (CETA) is a good agreement for the European Union because it provides, among others, the elimination of 98% of customs duties affecting trade between the EU and Canada, which Romania will also enjoy implicitly."

The CETA agreement has the following advantages for Romania: a) offers the possibility for Romanian citizens to travel without visas to Canada; b) involves the elimination and reduction of duties for many

categories of goods and services that Romania exports in large quantities to Canada; c) improves and secures the access of Romanian companies to the Canadian services market, the third largest non-EU market for Romania's exports of services; d) allows SMEs in Romania to better compete with large international companies, especially in the area of digital commerce; e) facilitates the investments of Canadian companies in Romania; f) facilitates the free movement of labor and the mutual recognition of qualifications.

Romanian exports to Canada reached 117.32 million \$ in 2016, up 41% from 2015 and imports to 81 million \$, up 20.4%. In the first seven months of 2017, exports to Canada reached 152.4 million \$, up 180% over the same period in 2016, and imports amounted to 62.8 million \$, up 55%. On August 31, 2017, 1,923 Romanian-Canadian joint ventures were registered in Romania and the volume of investments amounted to 136.6 million \$, with Canada ranked 29th among foreign investors in Romania. Around 42,000 jobs now depend directly on the trade activity between our country and Canada.

9. Conclusions

On September 21, 2017, the Comprehensive Economic and Trade Agreement between Canada and the European Union (CETA) entered into force, creating new opportunities for both the EU and Canada. In this context, the customs duties between Canada and the EU member states have been eliminated at a rate of 98%. The agreement creates new and far-reaching opportunities for both European countries and Canada and opens new markets for exporters, generates quality jobs and strengthens the existing relationship between Canada's economy and the economies of the EU.

The estimated effects of the agreement are represented by 23% annual growth in EU exports to Canada and by 11.6 billion euro per year increase in EU GDP. In this context, the CETA Agreement brings significant benefits to the business environment of the signatory countries, for Canada's processed agricultural products and dairy products, for example. The benefits for the EU GDP may be higher than the estimated 11.6 billion euro per year. In addition to the removal of export duties, CETA will allow mutual recognition of professional qualifications, thus facilitating access for EU specialists to the Canadian labor market.

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EU Funding for Research and Innovation Actions in Horizon 2020

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Abstract: *The countries from Central and Eastern Europe (CEE) joined the EU after 2004, thus becoming the “new” EU member states. For over thirteen years they participate as full members in European Union (EU) framework programmes for funding research and innovation, including the current Horizon 2020 (2014-2020). Although their participation in the EU programmes for research and innovation is considered not different from the “old” EU 15 member states, there are however differences in terms of number of successful projects winning European competitions and of EU funding attracted for R&D activities. During the last years, however, there became apparent differences within the group of the CEE member states, some of these countries becoming indeed research-intensive.*

The present paper analyzes the participation of the EU CEE member states in Horizon 2020 from the perspective of EU and national funding for research, development and innovation activities, and European research projects won in Horizon 2020 competitions, with the aim of establishing which ones are the most active and successful in research and innovation nationally and at European level.

Keywords: *EU budget, EU funding, Horizon 2020, CEE member states*

JEL Classification: *F02, F36, F68*

1. Introduction

Horizon 2020 is the European Union (EU) framework for research and innovation for 2014-2020, with 80 billion Euro available over the 7 years (Horizon 2020, 2017). The EU framework programme for research and innovation focuses on three main pillars, namely excellent science, industrial leadership and tackling societal challenges, and is complemented by the EU nuclear programme, Euratom. The goal of Horizon 2020 is to boost EU competitiveness for economic growth and jobs creation, thus contributing to the achievement of the Europe 2020 strategy (Europe 2020 Strategy, 2017). For this purpose, Horizon 2020 aims to produce world-class science, remove barriers to innovation and make it easier for the public and private sectors to work together in delivering innovation.

EU member states (EU MS) participate in Horizon 2020 through competitions of research and innovation projects, opened usually twice per year. The competitions for EU funding are fierce given the diminishing national budgets for research. Only the best European research projects, including the best research organizations and researchers within trans-national consortia, are selected for funding in Horizon 2020.

The funding for research and innovation projects in Horizon 2020 comes from the multiannual EU budget, formed through the national contributions of all EU 28 member states. The current EU financial framework, as well as the programming period for Horizon 2020, is 2014-2020.

The present paper analyzes the participation of the 13 Central and Eastern European (CEE) member states in Horizon 2020 from the perspective of EU and national funding for research, development (R&D) and innovation activities, and European research projects these countries won in Horizon 2020 competitions. The following research questions are analyzed: **What is the total level of funding for research and development (R&D) activities in the CEE member states (both national and EU allocated funding)? How competitive CEE countries are in winning research and innovation European projects and securing EU funding?**

2. Data and data collection

The quantitative research methodology used data collected from literature and document review and databases, which were then analyzed according to the research questions. The following sources were used for

the analyses: EU legislative documents (EUR-Lex (EU law, 2017)), documents and publications of the European Commission - Directorate General for Research and Innovation (DG R&I, 2017), CORDIS portal (CORDIS, 2017), EU Open Data Portal (EU-ODP, 2017), EUROSTAT databases (EUROSTAT, 2017), EU budget database (expenditure and revenue) (EU Budget, 2017).

The data were collected and interpreted for the CEE member states for the period of time 2014-June 2017 (the latest update of CORDIS is June 2017). For financial information, the latest data available (Eurostat and EU Budget) is 2015.

3. EU and national funding for research and development (R&D) activities

The data collected for EU and national funding for research and development and innovation activities over the period 2014-2015 allowed for the comparative analysis of the CEE countries from this perspective, answering the research question **“What is the total level of funding for research and development (R&D) activities in CEE member states (both national and EU allocated funding)?”** The research analysis developed in the paper provided information as to **what CEE countries are the most research-intensive over 2014-2015** from the perspective of total investment in R&D activities.

The structure of the EU budget for 2014-2020 is presented in Box 1. The main budget headings, i.e. Smart and inclusive growth, Sustainable growth, Security and citizenship, Global Europe, are in full accordance with the main sections of the Europe 2020 strategy, thus effectively contributing to achieving its objectives. The framework programme Horizon 2020 (including the Euratom) is to be found under the first heading („Smart and inclusive growth”), sub-heading „Competitiveness for growth and jobs”.

The EU budget is formed from national contribution of its MS¹. There are three main types of sources:

- **Traditional own resources of the member states:** consist mainly of customs duties on imports from outside the EU and sugar levies. EU Member States keep 20 % of the amounts as collection costs.

- **Member states’ own resources based on value added tax (VAT):** a uniform rate of 0.3 % is levied on the harmonised VAT base of each member state.

- **Member states’ own resources based on GNI:** each member state transfers a standard percentage of its gross national income (GNI) to the EU. Although designed simply to cover the balance of total expenditure not covered by the other own resources, this system has become the largest source of revenue of the EU budget.

The total contribution of the CEE countries to the EU budget in 2014 and 2015 was 22 464 million Euro (EU Budget, 2017). The biggest contributors (as percentage of total CEE contribution to EU budget 2014-2015) were Poland (36.46%), Czech Republic (13.57%) and Romania (12.93%). Hungary contributed with 9.21%, Slovakia with 6.32% and Bulgaria with 4.2%. All other CEE member states contributed with less than 4% (Author’s original calculations based on data collected and analyzed from (EU Budget, 2017). In general, the CEE countries’ contribution to the EU budget in 2014 and 2015 was around 0.95% of their GDP. The biggest contributors over the two years, with more than 1% of GDP², are Bulgaria, Estonia, Lithuania, Slovenia (Author’s original calculation based on data collected from (EU Budget, 2017) and (EUROSTAT, 2017).

The countries that were allocated most of the total EU budget (on all headings) in 2014 and 2015 (as percentage of total EU payments to CEE member states) were Poland (35.23%), Romania (14.28%), Hungary (14.01%) and Czech Republic (13.1%). If to look at how much countries received from the EU budget in 2014 - 2015 compared to their contribution over the same period (considered as difference between EU budget payments and EU budget commitments, in million Euro) (EU Budget-Policy, 2017), the highest payments were

EU Budget 2014-2020 - Headings

1. Smart and inclusive growth
 - a) Competitiveness for growth and jobs
 - b) Economic, social and territorial cohesion
2. Sustainable growth
3. Security and citizenship
4. Global Europe
5. Administrative expenditure (for all EU institutions)
- Special instruments

Box 1. EU budget components 2014-2020

Source: (EU Budget, 2017)

¹ On 26 May 2014, the EU Council adopted a legislative package, including a new own resources decision, introducing some changes to the own resources system for the period 2014-20. The new own resources rules apply, following the entry into force of this decision on 1 October 2016, retroactively as of 1 January 2014 (EU Council Decision 335/2014, 2014)

² Eurostat, GDP at market prices (million Euro) (GDP-MEURO, 2017)

received by Poland followed by Hungary, Romania and Czech Republic (Author's original calculations based on data collected and analyzed from (EU Budget, 2017)).

The EU budget allocates payments for Horizon 2020 (including Euratom) as one of the sub-heading inside heading 1a. Competitiveness for growth and jobs. The allocations for the CEE member states for Horizon 2020 in 2014-2015 are presented in Table 1, together with the national expenditure on research and development activities across all sectors of economy (GERD) over the same period of time.

Table 1. Comparison between the EU allocations for R&D in Horizon 2020 and national expenditure on R&D over 2014-2015 (million Euro)

CEE member states ³	EU allocations from the EU budget for Horizon 2020 and Euratom 2014-2015 (cumulative)	National expenditure on R&D (GERD) 2014-2015 (cumulative)
Bulgaria	16.5	773.1
Croatia	20.3	714.7
Cyprus	36.1	164.5
Czech Republic	94.2	6 340.9
Estonia	31.9	589.5
Hungary	237.2	2 939.8
Latvia	11.2	315.1
Lithuania	11.6	763.8
Malta	5.9	128.1
Poland	92.7	8 180.5
Romania	33.8	1 357.3
Slovakia	15.0	1 596.9
Slovenia	51.1	1 743.3

Source: Author's original calculation based on data collected from (EU Budget, 2017) and (GERD, 2017)

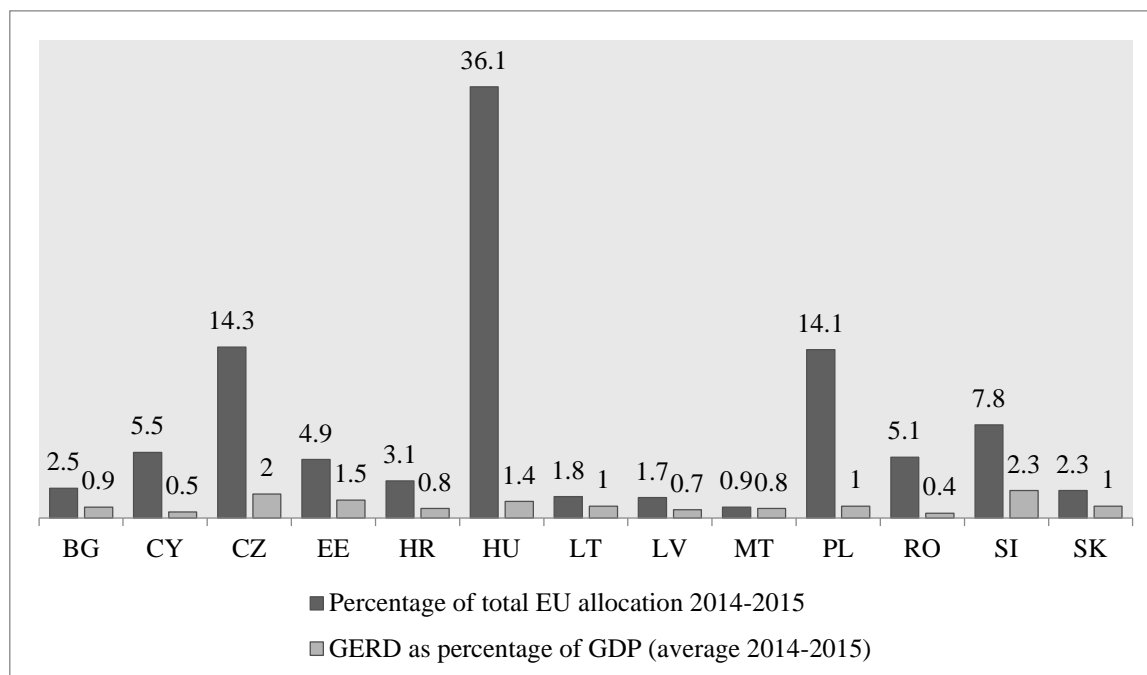
It should be noted that the highest EU allocation for research and innovation activities in Horizon 2020 (including Euratom) for 2014-2015 (cumulative) is for Hungary (36.1% of total EU allocations for CEE member states in 2014-2015 for R&D). Czech Republic and Poland have also allocated high budgets for R&D projects (about 14% each). The rest of the CEE countries have low allocations from the EU budget, most of them at 5% and below (Figure 1). At the same time, it is remarkable the national effort for R&D expenditure of Slovenia and Czech Republic (2.3% and 2% of GDP on average over 2014-2015) (Figure 1). Coupled with the high EU allocations for research and innovation activities in Horizon 2020 (incl. Euratom) they received in 2014 and 2015, the total expenditure for R&D of these two countries is very important (Figure 2).

Analyzing the data presented in Figures 1 and 2, it can be seen that the CEE member states most interested in advancing their research and innovation, considered as a long-term strategic instrument for economic growth, are Poland, Czech Republic and Slovenia. These three countries from Central and Eastern Europe invest a lot on R&D from their own national budgets and, on top of this, also receive significant allocations from the EU budget.

The outliers in the framework of total expenditure on R&D (EU and national funding) for CEE countries are Estonia and Hungary. In 2014-2015, Estonia invested significant national budget on research and development (1.5% of GDP on average over 2014-2015) but its allocated share of EU budget for R&D is relatively low compared with other CEE member states (only 4.9%), thus the overall funding for research activities is not very high. On the other hand, Hungary invested similar percentage of GDP as Estonia (i.e. 1% on average in 2014-2015) but it received the highest EU allocation from all CEE countries (i.e. 36.1% over 2014-2015), thus effectively placing Hungary in the top research-intensive CEE countries (Hungary ranks third position after Poland and Czech Republic, whilst Estonia is at the 10th position out of a total 13).

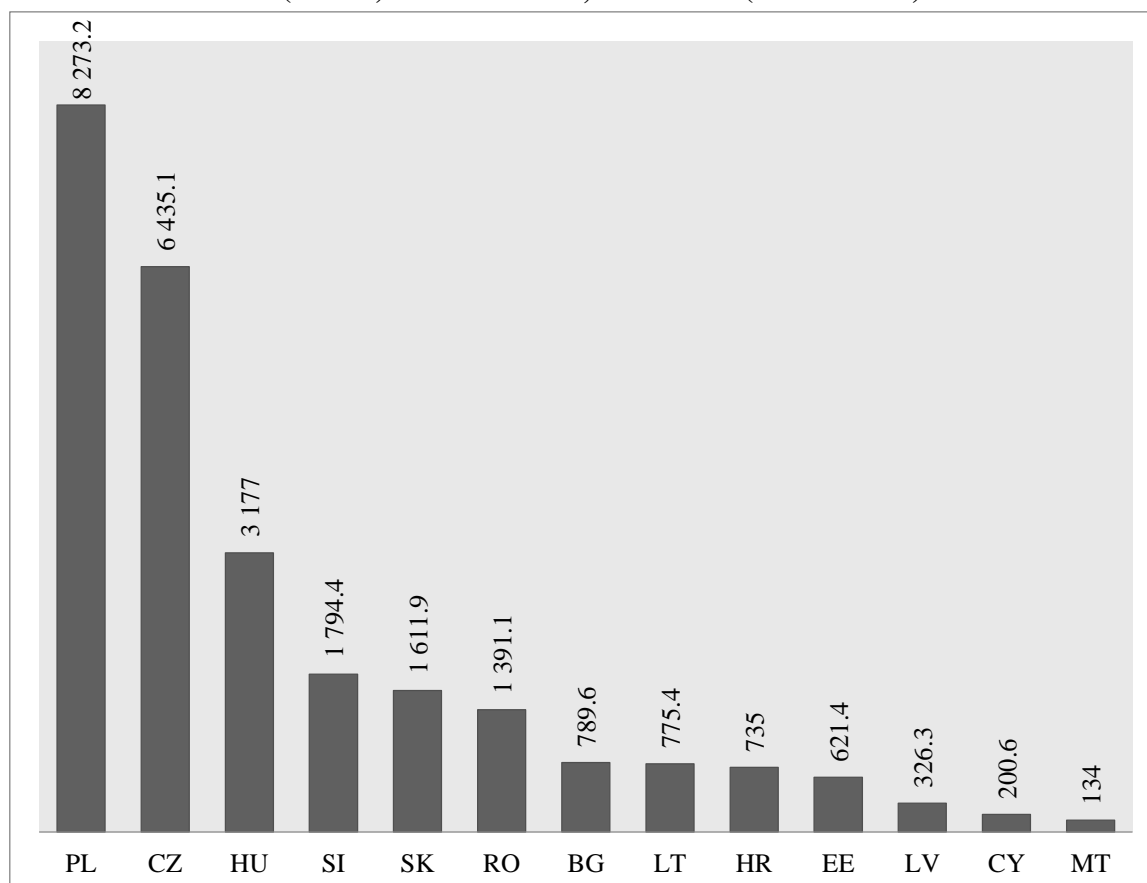
³ The CEE member states are: Bulgaria (BG); Croatia (HR); Cyprus (CY); Czech Republic (CZ); Estonia (EE); Hungary (HU); Latvia (LV); Lithuania (LT); Malta (MT); Poland (PL); Romania (RO); Slovenia (SI); Slovakia (SK)

Figure 1. Comparison between the EU allocations for R&D in Horizon 2020 (as percentage of total EU allocation for CEE member states in 2014-2015, cumulative) and national expenditure on R&D over 2014-2015 (GERD as percentage of GDP)



Source: Author's original calculation based on data collected from (EU Budget, 2017) and (EUROSTAT, 2017)

Figure 2. Total expenditure on R&D from EU allocations in Horizon 2020 and from national budget (GERD) over 2014-2015, cumulative (million Euro)



Source: Author's original calculation based on data collected from (EU Budget, 2017) and (EUROSTAT, 2017)

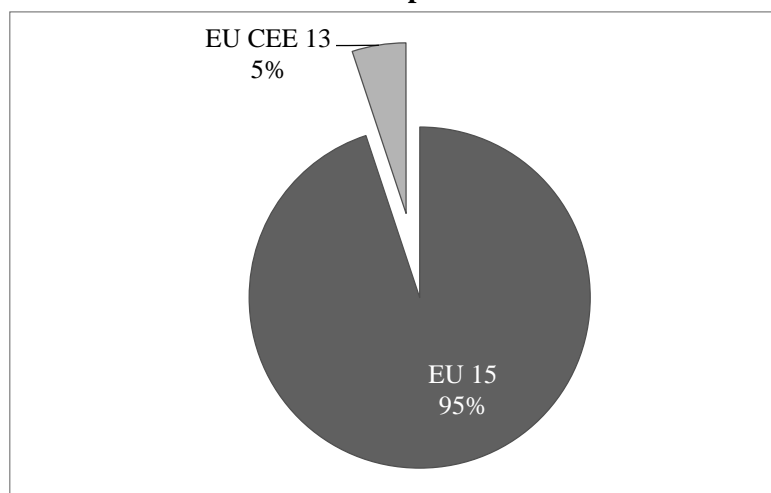
Over the period 2014-2015, Romania had the lowest national budget allocated for R&D from all CEE member states (0.4% average) and, with modest EU allocation for Horizon 2020 activities (i.e. 5.1%), it holds the middle position (6th place) among the CEE countries in terms of funding for research and innovation.

4. The EU funding attracted through successful research and innovation European projects 2014 - June 2017⁴

The analyses of the data collected from the CORDIS database and the EU Open Data Portal regarding the research and innovation European projects that were successful in Horizon 2020 over 2014 - June 2017 allowed for the assessment of the CEE member states' performance, thus answering to the research question **“How competitive CEE countries are in winning research and innovation European projects and securing EU funding?”**. At the same time, the analysis provided information as **to which CEE countries are the most successful in the Horizon 2020 competitions** for research and innovation projects.

As mentioned in the previous section, the EU funding allocated for research and innovation activities in the programme Horizon 2020 (including Euratom) is distributed through competitions of European (mostly trans-national) projects. Winning such European projects, thus securing the EU funding, is very difficult for many reasons⁵, especially for the “new” member states from Central and Eastern Europe. That is why, the overall performance of CEE member states in the Horizon 2020 competitions for research and innovation projects over the period 2014 - June 2017 is significantly lower than for the “old” ones. For the period 2014-June 2017, the CEE countries managed to secure 1.1 billion Euro from successful research and innovation projects in Horizon 2020, which represents however only 5.1% of the total EU funding attracted by the 28 EU member states (Figure 3).

Figure 3. EU funding attracted by the CEE MS through successful research and innovation European projects in 2014-June 2017 as percentage of the total EU funding attracted by the EU 15 MS over the same period



Source: Author's original calculation based on data collected from (CORDIS, 2017) and (EU-ODP, 2017)

The most active and successful CEE countries in Horizon 2020 in 2014-June 2017 were Poland (894 participations in successful research and innovation European projects⁶), Czech Republic (564 participations), Hungary and Romania (with similar number of successful participations, i.e. 518 and 516) and Slovenia (481 participations) (Figure 4). In terms of unique successful European projects in Horizon 2020 over 2014 - June

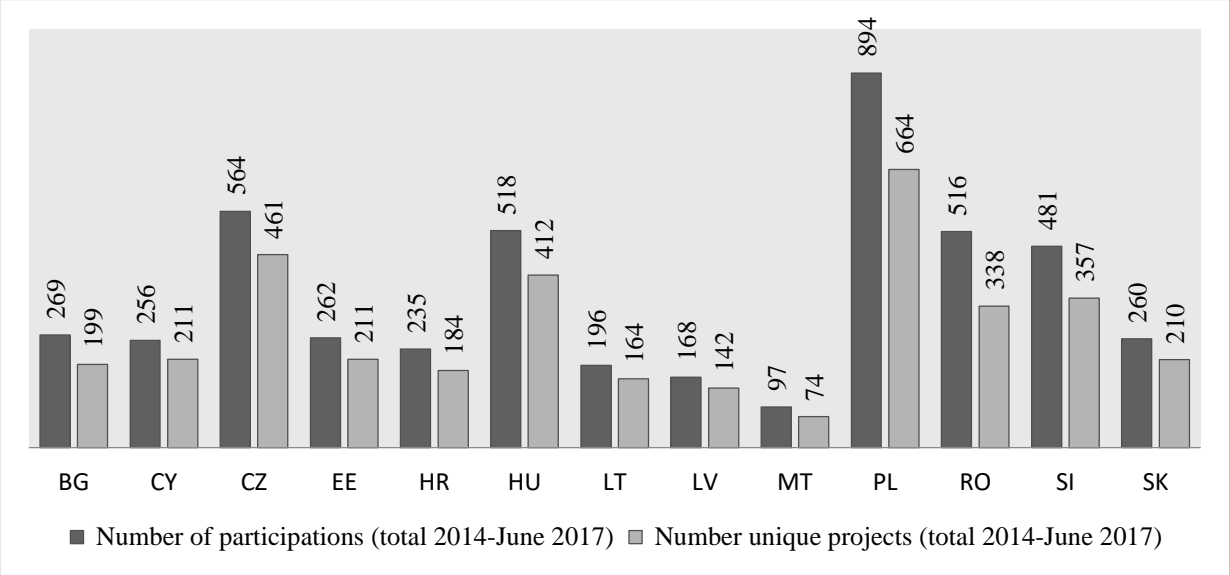
⁴ June 2017 is the latest update of the European projects database EU Open Data Portal

⁵ Among these reasons we can cite insufficient visibility and recognition of research / researchers from CEE (e.g. not enough ISI or other high level papers); insufficient and/or inadequate research infrastructure; insufficient experience (i.e. credibility) in managing European grants.

⁶ “Participation” means involvement in more than unique projects, for example a country can have 10 unique projects but have 15 participations in those 10 projects.

2017, the same countries are in top positions: Poland, Czech Republic, Hungary, Slovenia and Romania (Figure 4).

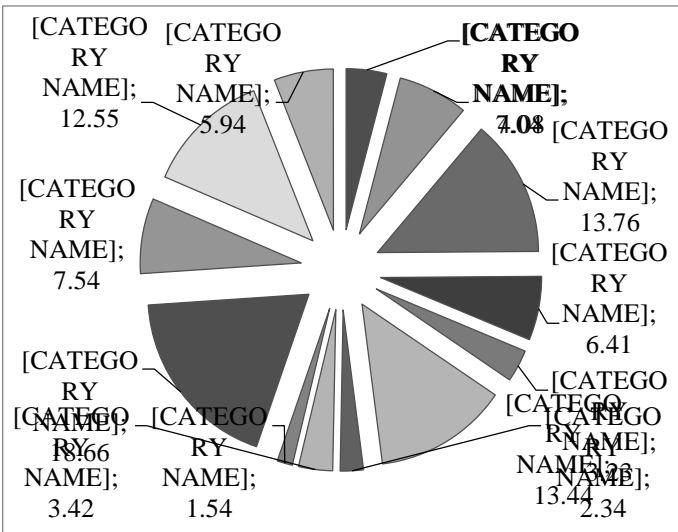
Figure 4. Performance of CEE MS in attracting EU funding through successful research and innovation European projects in Horizon 2020 (incl. Euratom) in 2014 - June 2017



Source: Author’s original calculation based on data collected from (CORDIS, 2017) and (EU-ODP, 2017)

The EU funding attracted through the successful participation in Horizon 2020 competitions in 2014 - June 2017 was evidently the highest for the same CEE member states, i.e. Poland (18.66% of total EU funding attracted by CEE MS in Horizon 2020 in 2014-June 2017), Czech Republic and Hungary (with 13.76% and 13.44%, respectively) and Slovenia (12.55%). Although with a high number of successful European research projects, Romania and Slovakia attracted only 7.5% and 6% of the total EU funding attracted by CEE countries in Horizon 2020 in 2014-June 2017 (Figure 5).

Figure 5. EU funding attracted by the CEE MS through successful research and innovation European projects in 2014-June 2017 as percentage of the total EU funding attracted by all CEE MS over the same period



Source: Author’s original calculation based on data collected from (CORDIS, 2017) and (EU-ODP, 2017)

Possible explanations for this fact are lower amounts for the EU funding requested/received by Romania and Slovakia in the European research projects they participate in and/or their participation in

European funding instruments (projects) that do not receive significant EU grants (for example, Coordination and Support Actions⁷).

5. Conclusions

The research carried out in the paper analyzed the performance of the CEE member states in research and development activities over the period 2014 - 2015 (and in some cases until June 2017) from the perspective of the national and EU funding allocated and attracted through European projects that were successful in Horizon 2020.

The following conclusions can be drawn:

- The CEE countries with high national budgets for R&D (GERD, as percentage of the GDP, averaged over 2014 and 2015) were Slovenia (2.3%), Czech Republic (2%), Estonia (1.5%) and Hungary (1.4%). Lithuania, Poland and Slovakia each allocated 1% of their GDP to research and innovation activities. With 0.4%, Romania had the lowest national budget for R&D of all CEE countries (and European Union).
- The CEE countries that had the highest allocation of funding for R&D from the EU budget in Horizon 2020 were Hungary (36.1% of total EU budgetary allocations for CEE MS in 2014-2015 for R&D), Czech Republic (14.3%), Poland (14.1%) and Slovenia (7.8%).
- The most successful CEE countries in terms of total number of unique research and innovation European projects over 2014 - June 2017 in Horizon 2020 are Poland, Czech Republic, Hungary, Slovenia and Romania.
- The CEE member states that were most interested in advancing their research and innovation, seen as a long-term strategic instrument for economic growth, are **Poland, Czech Republic, Hungary and Slovenia**. These countries invest a lot on R&D from their own national budgets and, on top of this, receive also significant allocations from the EU budget. These countries can already be considered as research-intensive from the perspectives of both total funding allocated to R&D (national and from the EU budget) and the number of successful European research projects.

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⁷ The main types of projects (funding instruments) in Horizon 2020 are Research and Innovation Action; Innovation Action; Coordinated and Support Action; ERA-NET; European Research Council - ERC; Marie Skłodowska-Curie Actions (General Annexes, 2017)

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Governance of Renewable Energies in the EU

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Abstract: *For European Union the promotion of energy from renewable sources is an essential part of its energy policy, which contributes largely to the implementation of the Strategic framework of Energy Union. The new regulatory framework after 2020, which was proposed by the European Commission as a part of the "Clean Energy for All Europeans" package is based on the experience gained under the existing Renewable Energy Directive. The new regulations package aims to further strengthen the renewable energy resources policy and to maximise the use of these resources in buildings, transport and industrial sectors. The article presents the governance of renewable energies in the European Union, with a focus on 2009/28/EC Directive and its revision. Also, for each EU Member State it is analyzed the share of energy from renewable sources in the final energy consumption. In the final part of the article, the regulation of the European Parliament and the Council on the governance of the Energy Union and the progress report in the area of renewable energies are being exhibited.*

Keywords: *renewable energy sources, energy efficiency, policies, greenhouse gases emissions.*

JEL classification: *Q20, Q28, Q42, Q47*

1. Considerations regarding the current legislative framework

1.1 Introduction

The objective of the Renewable Energy Directive (Directive 2009/28/EC) is to achieve a gross final consumption of 20% from renewable sources in the EU by 2020, and for this objective there have been established compulsory national targets for each Member State, which had to be achieved by the end of the year 2020, while additional intermediate targets were to be met along the way. The Directive provided the task for the Member States to adopt mandatory global national targets consistent with a 20% renewable energy target in the EU's gross final consumption in 2020. The gross final energy consumption from renewable sources expresses the total share of energy actually consumed by each Member State in different sectors, for example: heating/cooling, electricity, and biofuels/bioliquids.

In addition to the national targets, each Member State had to elaborate a National Action Plan on Renewable Energy, which shows the way in which national compulsory targets are to be achieved. This includes the presentation of the share of renewable energy sources from different sectors (e.g. transport, electricity and heating/cooling), as well as establishing the targets for each sector. National general targets have been calculated and listed for each Member State in Annex I to the Directive, together with an indicative trajectory in relation to which each Member State must measure its progress in different periods of time. The Renewable Energy Directive does not recognize the different starting points and individual potential of the EU Member States, so the Directive allocates different targets for renewable energy for the Member States. In addition, the action plans of the Member States allow a certain degree of flexibility in selecting approaches and areas of interest to facilitate the valorisation and development of the strengths.

According to Table no. 1 the largest share of renewable energy sources was recorded in 2015 in Sweden and the lowest in Luxembourg, Malta and the Netherlands. It is noticed that starting with the year 2004, the share of renewable sources in the gross final consumption of energy has increased significantly in 2015 in all Member States (22 of the 28 Member States). With more than half (53.9%) of the energy being produced from renewable sources, Sweden recorded in 2015 the highest share of renewable energy in total energy consumption, followed by Finland (39.3%), Latvia (37.6%), Austria (33.0%) and Denmark (30.8%). At the opposite end, the lowest shares were recorded in Luxembourg and Malta (both 5.0%), Holland (5.8%), Belgium (7.9%) and the United Kingdom (8.2%).

Table no. 1: Share of energy from renewable sources in final energy consumption for the period 2004-2015 (%)

Country	2004	2010	2014	2015	2020 Objective
Belgium	1.9	5.7	8	7.9	13
Bulgaria	9.4	14.1	18	18.2	16
Czech Rep.	6.8	10.5	15.1	15.1	13
Denmark	14.9	22.1	29.3	30.8	30
Germany	5.8	10.5	13.8	14.6	18
Estonia	18.4	24.6	26.3	28.6	25
Ireland	2.4	5.6	8.7	9.2	16
Greece	6.9	9.8	15.3	15.4	18
Spain	8.3	13.8	16.1	16.2	20
France	9.4	12.5	14.7	15.2	23
Croatia	23.5	25.1	27.9	29	20
Italy	6.3	13	17.1	17.5	17
Cyprus	3.1	6	8.9	9.4	13
Latvia	32.8	30.4	38.7	37.6	40
Lithuania	17.2	19.6	23.6	25.8	23
Luxembourg	0.9	2.9	4.5	5	11
Hungary	4.4	12.8	14.6	14.5	13
Malta	0.1	1	4.7	5	10
Holland	2.1	3.9	5.5	5.8	14
Austria	22.6	30.4	32.8	33	34
Poland	6.9	9.3	11.5	11.8	15
Portugal	19.2	24.2	27	28	31
Romania	16.3	23.4	24.8	24.8	24
Slovenia	16.1	20.4	21.5	22	25
Slovakia	6.4	9.1	11.7	12.9	14
Finland	29.2	32.4	38.7	39.3	38
Sweden	38.7	47.2	52.5	53.9	49
United Kingdom	1.1	3.7	7.1	8.2	15

Source: Eurostat, 2017

Each EU Member State has its own objective for the year 2020. National targets take into account the different starting points of the Member States, the potential of renewable energy and the economic performance. Eleven Member States have already reached the level of the national targets necessary to be achieved by 2020: Bulgaria, the Czech Republic, Denmark, Estonia, Croatia, Italy, Lithuania, Hungary, Romania, Finland and Sweden. In addition, Austria and Slovakia are at about 1 percentage point towards the objectives for 2020. At the opposite end, Holland (8.2 percentage points for achievement of the national objective), France (7.8 percentage points), Ireland and the United Kingdom (both 6.8 percentage points) and Luxembourg (6.0 percentage points) are the farthest from reaching the established targets.

1.2 Mechanisms supporting the use of energy from renewable sources

In addition to the compulsory targets for renewable energy and the established trajectories, the directive contained important mechanisms and measures to be implemented at both national and European level, in order to create favourable conditions or eliminate barriers to an increased energy share from renewable sources

(According to European regulation (Directive 2009/28/EC). Member States would introduce effective measures to ensure that the share of energy from renewable sources is equal to or greater than that indicated in the indicative trajectory set out in part B of Annex I of the Directive?. Such requirement demonstrates the obligation for the Member States to ensure favourable conditions for increasing the share of renewable energy by implementing the measures and mechanisms necessary for the achievement of intermediate targets. The action plans and the biannual reports on their implementation may be regarded as key instruments of the governance of renewable resources. Member States shall ensure that the final energy consumption estimated for 2020, together with a breakdown of the estimated share and the targets for the national sectors (electricity, transport, heating/cooling), including the trajectory and the indicative conditions for evaluation, should provide a detailed roadmap on how each Member State would attain the 2020 target of renewable energy sources. The action plans also require to Member States to indicate the measures taken to achieve the targets, which include policies, measures and mechanisms to be implemented. The action plans, together with the reports on their implementation, serve as a central mechanism or a reference point, from which their compliance and progress can be pursued, and which allows corrective actions. The European Commission has drafted a template and a guide to action plans, in order to ensure the harmonisation of their implementation in the 28 Member States, thereby facilitating the monitoring and reporting process.

Member States were obliged to formally present these national action plans by June 2010, and from 2011 once every two years, Member States must submit progress reports for their respective achievements on the promotion and use of renewable energy in accordance with the objectives and target requirements outlined in the action plans. At the same time Member States must provide reports on the implementation of other mechanisms, such as the abolition of administrative barriers to renewable energy use. Therefore, the plans, including reporting on their implementation, must serve as an important central platform, as they guide and monitor the implementation at national level of other mechanisms and measures (including the coordination between Member States).

Mechanisms aimed at flexibility and promoting intra-European coordination are:

1. Statistical transfers
2. Joint projects
3. Administrative procedures, regulations and codes
4. Guarantees of Origin
5. Network access and operation
6. Transparency Platform

The abovementioned mechanisms, including the action plan and the related reporting form, are an essential part of the directive, the simulation of their future implementation was important if the Directive wouldn't have been revised and extended for application after the year 2020. The successful pursuit of these different mechanisms depended on their implementation through the action plans and reporting their implementation by the Member States. The plans were to be carried out only until the end of 2020 and the bi-annual reporting by the Member States on the implementation of the Directive and on the action plans implementation will end in 2021. If the plans do not continue after 2020 it may be possible for the Member States not to comply with the targets to be achieved by 2020.

A continuation of the plans would therefore be necessary in order to cement the Community acquis in the EU renewable Energy Directive. Even in the absence of compulsory national targets after 2020, long-term planning is necessary to ensure the efficient development of renewable energy sources, in particular to reduce the uncertainties of policy in the field and their impact on the financing of this field. Maintaining the action plans in a given consolidated form with national energy efficiency action plans could be considered. A second point of interest is the disappearance of compulsory biannual reporting after 2021. The successful implementation of the mechanisms in the Directive depends, indirectly, on its reporting by the Member States. Without access to these reports, the European Commission could no longer refer to their possible non-compliance/implementation by the Member States.

1.3 Compliance and control of the implementation

The mechanisms mentioned in the Directive are important tools to achieve the targets set for 2020, creating obligations for the Member States and facilitating the development of renewable energy sources through policies and measures that remove barriers and promote cooperation. Action plans serve as a roadmap to national targets to emphasize national policies and measures necessary to achieve the targets. Progress

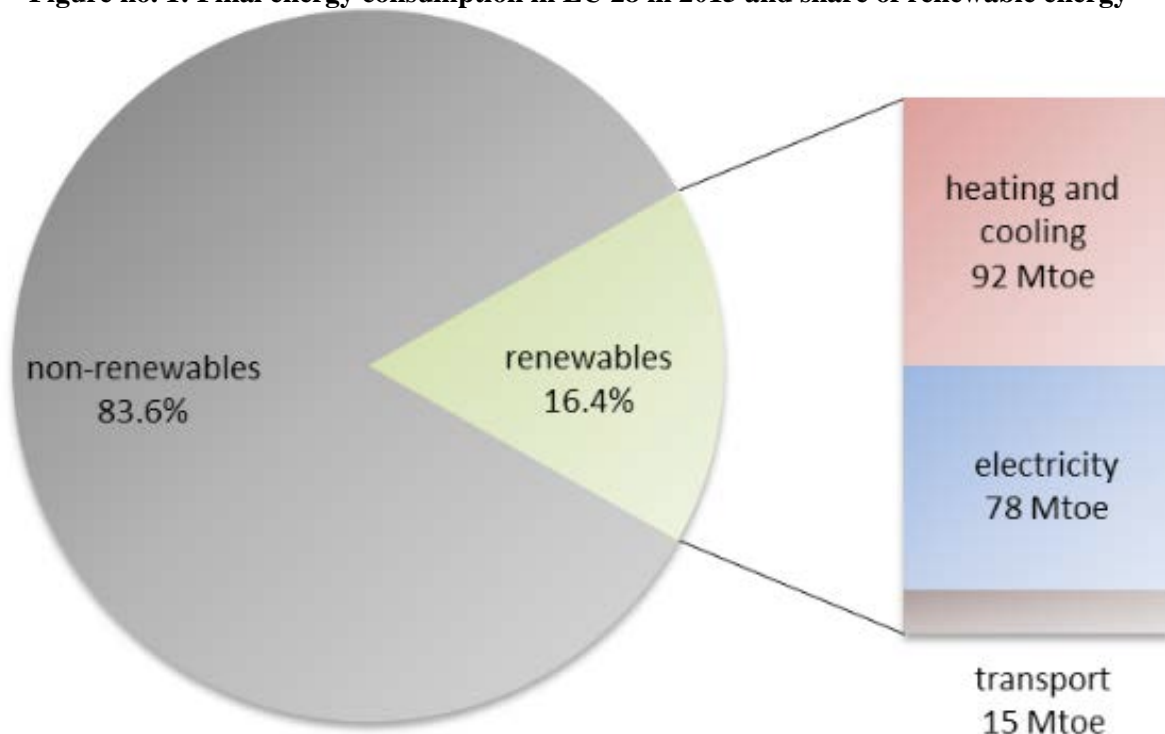
reports were intended to indicate which Member States are diverting from the established trajectory and to highlight failure in implementing measures.

The Directive did not introduce a strict application or a penalty mechanism that could be exercised directly on the Member States, which could affect the achievement of intermediate and compulsory targets for the year 2020. Therefore, there were limited options for the European Commission to oblige Member States to implement corrective or aid measures.

The conformity procedure stipulates that Member States which are not in a position to fulfil the intermediate objectives relating to their trajectories for renewable energy resources must submit a modified action plan. This new plan must be analyzed by the European Commission that may provide further recommendations for the necessary corrections, while the Member States are not obliged to follow these recommendations. The continued failure by Member States to comply with the obligations of the Directive could lead to infringement proceedings, which begin with the issuing of a reasoned opinion by the European Commission, followed by a referral to the Member State addressed to the European Court of justice (CEJ) and may culminate with the establishment of a lump sum or a periodic penalty payment, but due to the duration of the infringement proceedings, they are not the most effective way of inducing the change of national policy in the short term.

Despite delays in the transposition and implementation of the Directive, the EU Member States have seen significant progresses in the area of renewable energy, as the Commission's assessments have shown. However, the slow implementation of the Directive's mechanisms to facilitate increased use of renewable energy is a serious concern. The European Commission has noticed a slower pace than has been foreseen in specific areas, such as administrative procedures, improved network access and more favourable national support schemes. In general, progress reports after 2011 indicate that more effort needs to be made, particularly in promoting the measures and mechanisms necessary for the successful development of renewable energy and in order to strengthen the achievement of the EU objective for the year 2020. The 2017 report shows that the EU as a whole has reached a 16% share of renewable energy in 2014 and a quota of 16.4% estimated for 2015 (see Figure no. 1.). The vast majority of EU countries are on the verge of achieving their binding targets for renewable energy for the year 2020.

Figure no. 1: Final energy consumption in EU 28 in 2015 and share of renewable energy



Source: Öko-Institut (European Commission, Renewable Energy Progress Report, COM(2017) 57 final).

2 Revision of Directive 2009/28/EC

In November 2016 the European Commission adopted a revision of Renewable Energy Directive. The provisions are adapting the framework for renewable energy development to the 2030 perspective, provide certainty and predictability to investors and address the potential of renewable energy in a number of sectors. The proposal identifies six key areas for action:

- Creating an enabling framework for further deployment of renewable in the Electricity Sector;
- Prioritizing renewable in the Heating and Cooling Sector;
- Decarbonising and diversifying the Transport Sector;
- Empowering and informing consumers;
- Strengthening the EU sustainability criteria for bioenergy;
- Making sure the EU level binding target is achieved on time and in a cost effective way.

3. The role of renewable energies in the transition strategy to a clean energy

The preparation of the revision of Renewable Energy Directive has been carried out in close coordination and complementary to other related initiatives of the Commission. This includes proposals on market design and the governance of the Energy Union, but also the revision of energy efficiency directives and the energy performance of buildings, the Emissions Trading System (ETS) and the regulation on the sharing effort, the LULUCF regulation and the bioenergy sustainability policy. These legislative acts complement each other with the revised Directive and will help the EU reaching, collectively and with effective costs, a share of at least 27% of renewables in final energy consumption by 2030, in order to achieve the EU's political priority to become the world's number one in renewable energies.

The market design initiative will facilitate the development of an adequate electricity market for renewable energies, where short-term markets are fully developed and integrated, and flexibility plays a key role in increasing the market value of renewable energies. This improved design of the electricity market, together with the strengthening of ETS, will be an essential foundation of framework 2030 for energy and will ensure that renewable energy-based generators can get a greater share of their revenue on energy markets. The revision of the Renewable Energy Directive will be based on this approach and will supplement it by introducing the various measures aimed at attracting the necessary cost effective and timely investments.

The governance of the Energy Union involves the integrated national energy and climate plans, which set out national contributions to the EU-wide binding target for RES. The governance of the Energy Union provides a cooperation between the Commission and the Member States to ensure ambitious and reliable national plans, including in the field of renewable energy, and also proposes different options for concrete measures aimed at reducing potential gap in the area of renewable energies in the EU. At the same time, the governance regulation simplifies and integrates the existing planning, reporting and monitoring obligations of the energy acquis, including that for renewable energy after 2020.

The Energy Efficiency Directive and the Energy Performance Directive for buildings aim both to facilitate the achievement of the energy efficiency target and to increase the energy performance of buildings. The provisions of the heating/cooling section are consistent and they complement the measures in both directives, in particular by addressing existing buildings, the tertiary sector and industry, and by including specific requirements for renewable energies.

The EU Emissions Trading Scheme (ETS) will be reformed for the period after 2020. Existing legislation includes the Market Stability Reserve to address the current surplus of quotas and to improve resistance to major ETS shocks by adjusting the quota offer to be auctioned. The consolidated Emissions Trading System (ETS) will play an increasingly important role in boosting investment in low-carbon technologies, including renewable resources, and will ensure that synergies between renewable energies and climate policies to be better exploited. In addition, *the Effort Sharing Regulation* makes proposals for the establishment of mandatory national targets to reduce greenhouse gas emissions for non-ETS and land use sectors, change of use of Land and Forestry (LULUCF). *The LULUCF Regulation* aims to integrate carbon and forestry credits and flows from agriculture and energy into the EU's energy and climate objectives for 2030. Reinforced, EU sustainability criteria will provide additional insurance that the bio energy used in the EU continues to contribute to climate change mitigation, while minimising the risk of unintended impacts on biodiversity caused by biomass.

4. Council Regulation on the Governance of the Energy Union

On 24 October 2014, the European Council agreed on the Energy and Climate Framework for 2030, on the basis of the European Commission's proposals, in its conclusions it is required to develop reliable and transparent governance in the field of energy. The European Council argued that energy governance should be based on existing structural elements, such as national climate change programmes and national plans for renewable energy and for energy efficiency, as well as on the need to rationalise and ensure the convergence of separate planning directions at Member States level.

The Energy Union Strategy launched on 25 February 2015 expanded the scope of energy governance beyond the established energy and climate Framework for 2030, at all five dimensions of the Energy Union: a) energy security, based on solidarity and trust; b) internal energy market; c) moderating demand or energy efficiency; **d) decarbonisation, including the development of energy from renewable sources**; e) research, innovation and competitiveness. The analysis of the situation of the Energy Union released on 18 November 2015 and the Commission guidelines for Member States on national energy and climate plans, annexed thereto, provided additional details and specified that governance should be anchored in Community and national legislation.

The conclusions of the Energy Council of 26 November 2015 acknowledged that governance would be an essential tool for the effective and efficient construction of the Energy Union and therefore between the Commission and the Member States there are periodic discussions in the technical working group on national energy and climate plans. On 15 December 2015 the European Parliament's resolution "Towards a European Energy Union" requested that the governance of the Energy Union would be ambitious, reliable, transparent and democratic while ensuring the achievement of the 2030 climate and energy objectives.

On this basis, the proposal for a regulation of the governance of the Energy Union aimed at establishing a regulatory framework in this area, with two main pillars: a) rationalisation and integration of existing planning, reporting and energy and climate monitoring, in order to reflect the principles of better regulation; b) defining a robust political process between the Member States and the European Commission, with the close involvement of other EU institutions, in order to achieve the objectives of the Energy Union, in particular its objectives for 2030 on energy and climate.

On 30 November 2016 the European Commission proposed in a Communication a new regulation on the governance of the Energy Union as a component of the "Clean Energy For All Europeans" package. The purpose of this regulation was to integrate and simplify the planning, reporting and monitoring of the obligations of the Member States and the European Commission, to facilitate the monitoring of overall progress and addressing weaknesses in the implementation, in particular the objectives of the Energy Union, EU targets for renewable energies, energy efficiency and greenhouse gas emissions set out in the climate and energy framework for 2030. Apart from national plans on energy and climate change and progress reports, the Commission's reform includes measures for public and regional consultation, the establishment of national and European registers and stocks on greenhouse gas emissions, as means of assessing the progress achieved in fulfilling the objectives of the Paris Agreement. A number of additional measures are also being taken into account, which the Commission may take to ensure that the EU's targets for renewable energies and energy efficiency are met.

In the Second Assessment Report on the state of the Energy Union published on 1 February 2017, the European Commission brings into question the issues of a system of governance for the Energy Union with the major contribution of the integrated national plans on energy and climate of the Member States, the draft of which was to be drawn up by 1 January 2018.

On 5 October 2016 the European Union ratified the Paris Agreement, which entered into force on 4 November 2016. The proposal of the regulation on the governance of the Energy Union which contributes to the implementation of the Paris Agreement, including the review at every five years, ensures that the monitoring, reporting and verification requirements under the UNFCCC and the Paris Agreement are harmoniously integrated into the governance of the Energy Union. The proposal for a regulation was prepared in parallel with the revisions made by the Commission on the Energy Efficiency Directive, the Energy Performance Directive of Buildings, the Renewable Energy Directive, as well as the various legislative acts contained in the market organisation initiative, with the aim of ensuring full coherence between these initiatives. Coherence with other EU legislation in the fields of climate and energy has also been ensured.

The proposal fully integrates the Regulation on the Climate Monitoring Mechanism (CMM), in order to ensure integration between the energy and climate domain. This initiative is also linked to other sectoral policy areas such as transport, the environment, industry, economy, research and competition, but it should be noted that in terms of rationalising and integrating of planning and reporting it focuses on energy and climate areas,

while incorporating some specific reporting and planning lines in other areas, obviously to ensure a manageable process focused on the main objectives of the Energy Union. The proposal respects the principles of subsidiarity and proportionality applicable to multilevel governance in the EU. The proposal presents the results of ex-post evaluations, consultations with stakeholders and impact assessments, as well as budgetary implications.

5. Progress report in the field of renewable energies

This report provides a comprehensive overview of the development of renewable energy in the EU in line with the requirements set out in the Renewable Energy Directive. It includes an assessment of administrative barriers, as well as the sustainability of biofuels. Overall progress is assessed compared to the trajectories set out in Annex I to the Renewable Energy Directive, while sectoral and technology-specific assessments are carried out compared to the trajectories of national plans of the Member States, on renewable energy sources.

The projections for 2020 are based on the PRIMES Ref2016 scenario. This scenario assumes that the EU as a whole and most Member States will take sufficient measures by 2020 to reach their targets. Member States which currently do not have favourable projections to achieve national binding targets for 2020 will be able to use the cooperation mechanisms. At the 2015 level states such as: Austria, Denmark, Estonia, Latvia, Finland, Sweden, Romania, Portugal, Croatia exceeded the threshold of 20%, while Germany, France, Britain had shares below 15%.

6. Conclusions

Promoting energy from renewable sources is an essential part of the EU's energy policy, as recognised in the Article 194 of TFEU, and contributes largely to the implementation of the Energy Union framework strategy. The new regulatory framework for the period after 2020 proposed by the Commission as part of the "Clean Energy for All Europeans" package of November 2016 is based on experience gained under the existing Renewable Energy Directive. It aims to further Europeanization the policy of renewable energy resources and maximise their use in buildings, transport and industrial sectors. The Commission has proposed reinforced provisions to establish the right conditions for investment, including the progressive cross-border opening of support, the principle of non-retroactivity, accelerated administrative procedures, and empowering consumers. Electricity, transport and heating/cooling are the sectors concerned with a number of concrete measures, while it is proposed the use of national targets for 2020 as a basis for further progress of Member States after 2020. In the field of bioenergy the Commission has proposed strengthening the EU's sustainability framework by extending it to also cover biomass and biogas used for heat and energy in large energy installations.

With a 16% share in the final energy consumption in 2014, the EU and the vast majority of Member States are on the right track with regard to the development of renewable energy. However, for 2015 show that Member States will have to continue their efforts to achieve their compulsory targets for the year 2020, as the trajectory becomes steeper. This is especially true for France, Luxembourg and Holland, which had to substantially increase their quotas in order to keep on track with their respective trajectories. From another perspective, the forecasts show that the EU as a whole would reach the 20% target by 2020. However, some Member States, such as Ireland, Luxembourg, Holland and the United Kingdom, should strengthen their cooperation with other Member States by using cooperation mechanisms such as statistical transfers to achieve timely mandatory national targets.

Representing around half of the final energy consumption at EU level, heating/cooling remains the largest consumer sector from the energy point of view. It is also the biggest contributor to the target for renewable energy, with half of renewable energy consumption, even if the growth rate was slower than in the electricity sector. In 2015, about 18.1% of the EU's heating and cooling needs were ensured by renewables, with biomass bringing its greatest contribution. The electricity sector has recorded the fastest increase in the share of renewable resources, which currently reaches 28.3% of total electricity production.

In 2015, the largest contributor to electricity from renewable sources remained hydroelectric power. The strongest performer in terms of increasing production is the wind energy on land. The development of photovoltaic solar panels/cells was uneven, with a peak of growth in 2011 and 2012, but with lower rates of growth every year since then. Together, renewables account for 12% of the EU's gross electricity production. Transport is the sector that continues to show the slowest increase in the share of renewables, with 0.5 percentage points on average per year between 2005 and 2014 and a marked slowdown after 2011, the

proportion of energy from renewable sources was 5.9% in 2014 (and estimated at only 6.0% in 2015) from a sector-specific target of 10% for 2020. This slow progress is due to various difficulties, including regulatory uncertainty and a delayed penetration of advanced biofuels.

With regard to administrative barriers, Member States have made progress on their elimination, but this progress has not been uniform in the EU, and there are still many possibilities for improvement, especially for the automatic granting of the permit by the deadline of the administrative procedure and the establishment of a single guide.

With regard to the sustainability of biofuels, the majority of those consumed in the EU were produced within the EU from internal raw materials. No significant direct negative effects on biodiversity, soil and water, food security or developing countries have been identified. However, it remains the risks of changing land use, and modelling analysis identified the risks of indirect change in land use (ILAC) resulting from food-based biofuels. That is why, with the adoption of the ILAC Directive, the EU has limited the contribution of these biofuels to the target of 10% renewable energy in transports. In addition, the Commission has recently made proposals to gradually reduce the share of biofuels on the basis of foodstuffs after 2020, through progressive replacement with advanced biofuels and electricity based on renewable resources.

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Rural Development Plans – an Instrument for Achieving the Sustainability Goal in EU Member States

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Abstract: Rural Development Plans (RDPs) are an instrument that Member States may use to target various development goals in rural areas, by means of a series of specific measures. Compared to the Direct Payment instrument, RDPs offer significantly increased flexibility because Member States are able to design the financial envelope in accordance with their national specificity while complying with the principles imposed by the latest Common Agricultural Policy (CAP) reform. By using a comparative analysis based on national data as well as on the statistics provided by DG Agriculture & Rural Development, our paper will examine how RDPs have effectively contributed to the support of sustainable development in the EU rural areas.

Key-Words: European Agriculture, Common Agricultural Policy (CAP), Rural Development Plans (RDPs)

JEL Classification: Q, R, R38, R39

1. Introduction: an overview on the financing of rural development in the EU

According to certain analyses from the literature in the field, the introduction of Pillar II of the Common Agricultural Policy (CAP) through the 2009 reform represented a crucial turning point in the financing of sustainable rural development, in particular through the agri-environment measures included in the Rural Development Plans (RDPs) of Member States (DG Agriculture & Rural Development, 2009). In the current 2014-2020 financing framework, RDPs are an instrument for which significant funds are allocated under the umbrella of the second Pillar of CAP for supporting local and regional economic development (Eposti, 2008). According to the latest EU statistics (DG Agriculture & Rural Development, 2017), considerable amounts were allocated for RDPs in 2016 in the EU, although they are lower compared to the financial allocations for direct payments (see Table 1).

According to the same statistics, in EU-27, rural development measures account for 24.3% of the total financing granted in the period 2009-2016 from the CAP funds (compared to 69.4% for direct payments and 6.3% for market measures).

Table 1: Financing the EU's rural areas under CAP

Objectives	2016 (thousand EUR)	Period 2009-2016 (%)
Direct aid decoupled from production	35 204 091	62.2
Other direct aid	5 384 678	6.8
Additional amounts in the form of aid	6.0	0.1
Refunds from direct aid. in accordance with financial discipline	395 357	0.3
Direct payments	40 984 131	69.4

Objectives	2016 (thousand EUR)	Period 2009-2016 (%)
Cereals	0	0
Rice	0	0
Food schemes	1.0	0.5
Sugar	4.0	0
Olive oil	46.0	0.1
Fibre plants	6 134	0
Fruit and vegetables	1 172 724	1.8
Wine	1 072 131	1.9
Promotion measures	81 068	0.1
Other plant/crop measures	242 008	0.5
Milk and dairy products	406 578	0.3
Beef and veal	30 206	0
Lamb, mutton and goat meat	1 837	0.2
Pork, poultry and eggs	140 602	0.8
Market measures	3 154 276	6.3
Rural development	18 699 599	24.3
TOTAL	62 788 007	100

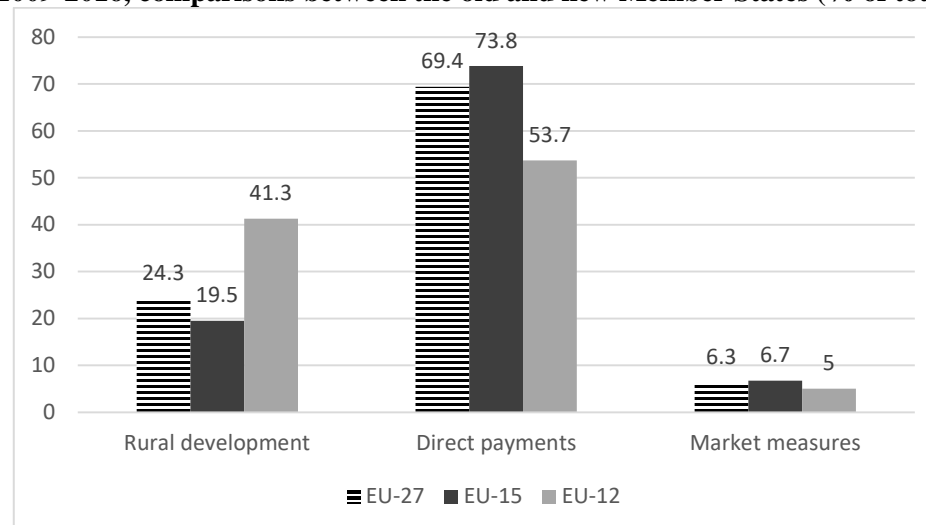
Source: Authors' processing based on DG Agriculture & Rural Development data (2017).

One can see from the analyses of expenses allocated in 2016 at EU level that, three years from the latest CAP reform, the reduction of market measures is visible, and Member States shifted towards direct payments as a more adequate instrument for supporting farmers (Sorrentino and Henke, 2016). Decoupling financing from production also generated another effect: the share of measures supporting sustainability grew through the mandatory introduction of direct “green” payments for ecological agricultural practices (they must account for at least 30% of the total financing by means of direct payments at Member State level).

Although at the level of EU-27 direct payments are predominant as a way of financing the rural areas, in the new Member States, as it can be seen in the Graph 1, RDPs remain important as a support instrument for rural areas, in particular as a means of financing that enable the support for specific objectives (the reduction of poverty and (of) development gaps in rural areas, investments in infrastructure, human resources and programmes for employment).

It must be mentioned that the total funds allocated to rural development is considerably higher in the new Member States (EU-12), namely 41.3% of the total CAP financing, compared to 19.5% in the old Member States (EU-15) (see Graph 1).

Graph 1: Distribution of expenses for the financing of the rural area in the period 2009-2016, comparisons between the old and new Member States (% of total)



Sources: Authors' processing based on the DG Agriculture & Rural Development data (2017).

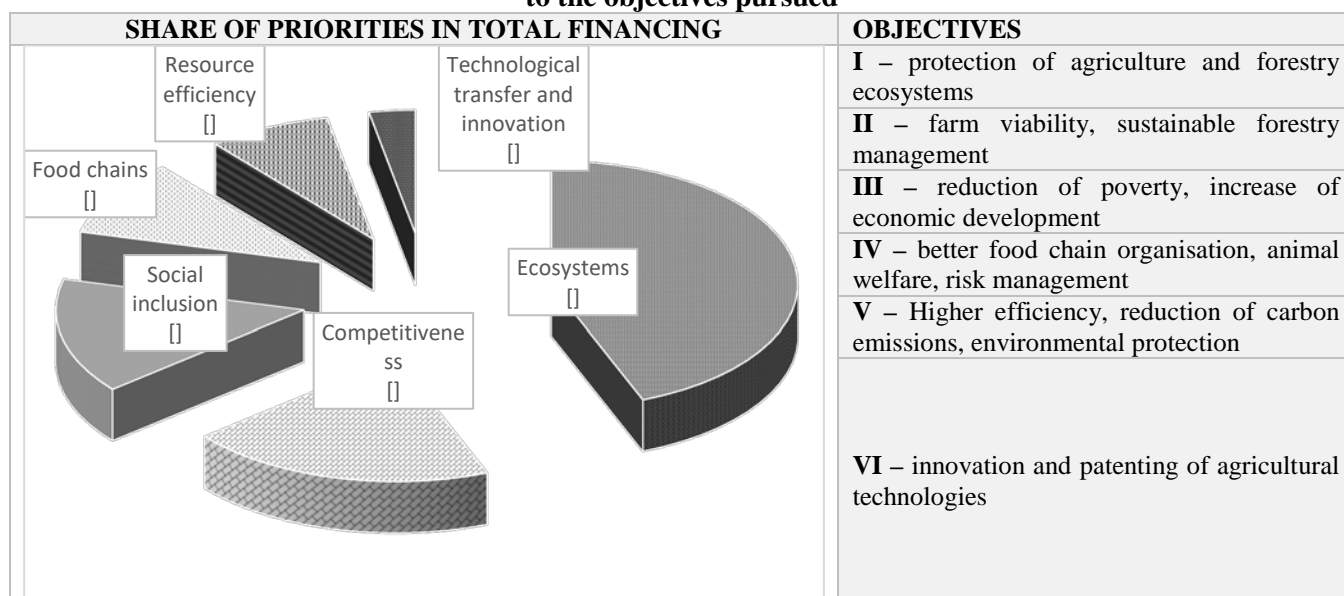
2. Sustainability objectives in the rural development programmes

A series of sustainable development objectives have been agreed at the Member State level for the period 2014-2020. According to the latest European Commission report (EU, 2017) on Member States RDPs, 118 rural development programmes are in progress at EU level, and their total financing amounts to 161 billion EUR of which a considerable part is provided by the EAFDR (European Agricultural Fund for Rural Development), namely 99.6 billion EUR. Moreover, according to European Commission estimations, around 4 billion EUR will be transferred from CAP Pillar I to CAP Pillar II by 2019 through the CAP Flexibility Mechanism.

If we analyse the objectives for which funds are allocated for all RDPs, we can see that a significant part of the financing is directed towards sustainable development objectives (such as, for example, ecosystem protection) (see Figure 1), followed in the hierarchy of Member States' priorities by competitiveness and social inclusion. Certain studies show that ecosystem protection should be a priority for the funding granted under the Common Agricultural Policy, in the context in which agricultural activity on the whole may impact on the environment and, according to EU authorities, only 17% of the EU natural habitats and 11% of ecosystems are considered to be in a favourable state, while 45% of EU soils have quality problems (ENRD, 2017).

According to the study referred to, these challenges should be remedied, and the positive contribution of agriculture and forestry to the environment should be consolidated (ENRD, 2017).

Figure 1: Share of funds allocated in the total rural development financing at EU level according to the objectives pursued



Sources: Authors' processing based on DG Agriculture & Rural Development data (2017).

3. Comparative analysis of rural development plans in EU Member States

According to the DG Agriculture & Rural Development data, in 2016, Member States with the highest allocation of funding for RDPs were France, Italy and Germany (see Table 1), but it can be seen that in these countries funds allocated for rural development rank second in the total rural area financing (first being direct payments for farmers). It should be noted that Romania ranks high in the EU hierarchy in terms of total allocation of funds for rural development, the total financing for 2016 exceeding the allocation for direct payments (see Table 2).

Table 2: Financial allocations under CAP in Member States in 2016 (thousand EUR)

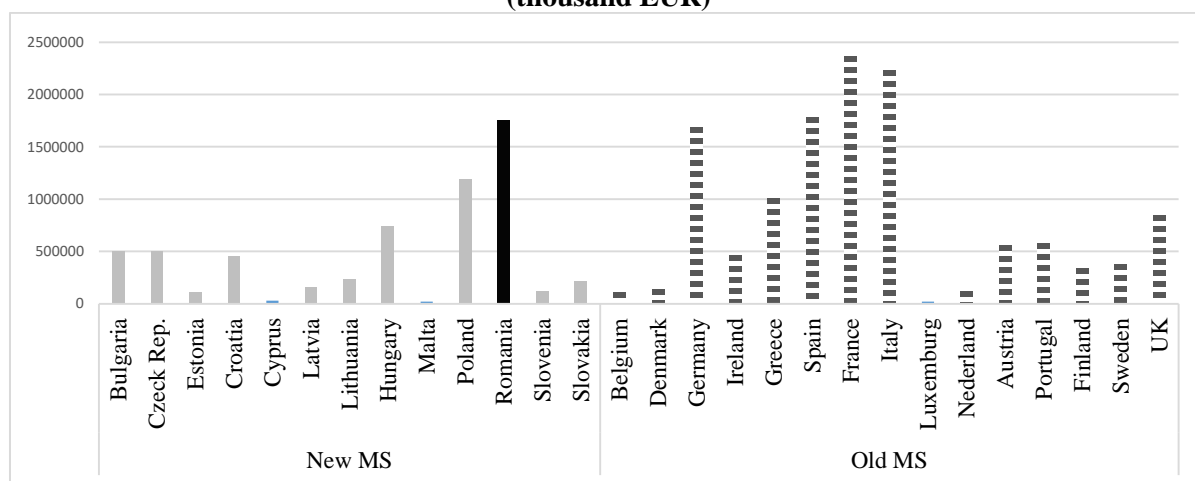
Member States	Direct payments	Market measures	Rural development	TOTAL
Belgium	522 629	77 389	109 822	709 840
Bulgaria	705 306	37 580	505 020	1 247 906
Czech Republic	834 009	27 735	503 131	1 364 874

Member States	Direct payments	Market measures	Rural development	TOTAL
Denmark	852 261	23 077	136 398	1 011 736
Germany	4 875 097	186 485	1 685 574	6 747 156
Estonia	112 836	9 543	111 192	233 571
Ireland	1 208 736	23 053	469 724	1 701 514
Greece	2 072 079	80 040	1 007 737	3 159 856
Spain	5 045 364	604 886	1 780 403	7 430 654
France	7 093 197	598 187	2 363 568	10 054 952
Croatia	179 741	10 307	448 426	638 474
Italy	3 833 812	661 592	2 231 600	6 727 003
Cyprus	49 789	8 254	28 345	86 388
Latvia	177 864	11 811	153 066	342 742
Lithuania	409 895	30 477	230 432	670 803
Luxembourg	33 245	1 104	21 432	55 781
Hungary	1 266 105	55 250	737 100	2 058 455
Malta	5 038	493	20 879	26 409
The Netherlands	725 516	87 894	118 497	931 907
Austria	686 378	35 319	560 883	1 282 580
Poland	3 339 890	263 330	1 193 429	4 796 649
Portugal	645 911	110 961	578 914	1 335 786
Romania	1 521 315	47 074	1 751 613	3 320 002
Slovenia	137 619	8 656	119 342	265 617
Slovakia	425 429	10 417	215 603	651 449
Finland	522 195	16 301	338 456	876 952
Sweden	666 609	22 343	378 153	1 067 105
United Kingdom	3 036 266	86 240	850 859	3 973 366
UE-28	40 984 131	3 154 276	18 649 599	62 788 007

Source: Authors' processing based on DG Agriculture & Rural Development data (2017).

When analysing allocations for rural development in the new Member States compared to the old Member States, it can be seen that in 2016, Romania allocated the highest funding for rural development among new Member States (see Graph 2).

Graph 2: Financial allocations for rural developments in the new and old Member States in 2016 (thousand EUR)



Source: Authors' processing based on DG Agriculture & Rural Development data (2017).

3.1. Comparative analysis of rural development financing priorities in France and Romania

As we stated above, in 2016, among all Member States, France allocated the highest amount of funding for rural development, and Romania ranks first in the hierarchy of new Member States, therefore we propose below a comparative analysis of RDP priorities in these two Member States and of the way in which the

financed objectives contributed to the stimulation of sustainable development in the rural areas of these two states.

According to EU data (DG Agriculture & Rural Development, 2016), the most recent RDP in France was adopted in February 2015 – RPN (Le programme spécifique du réseau rural national), totalling a budget of 23 billion EUR, with the declared purpose of increasing the quality of life in rural areas, reducing development gaps and poverty and increasing economic development in these areas. This programme finances a series of specific measures, among which: fostering innovation in the agricultural sector, promoting cross-border investments in the rural area, implementing various projects under the LEADER financing axis through LAGs (local action groups), increasing social inclusion and employment in rural areas.

The Romanian National Rural Development Programme (Ministry of Agriculture and Rural Development, 2017) was adopted on 26 May 2015 and provides a total financing of 9.5 billion EUR, of which 8.1 billion EUR from the EU budget, including the 112.3 billion EUR transferred under CAP from the funds allocated to direct payments, and 1.34 billion EUR national co-financing.

The measures financed by Romania's RDP focus on three strategic objectives: promoting competitiveness and the restructuring of the agricultural sector, agricultural practices that protect the environment and may contribute indirectly to combatting climate change, but also the stimulation of jobs and the improvement of the quality of life in the rural area. Under the first objective – increasing the competitiveness of the agricultural sectors – funds were allocated for the modernisation of 3,400 farms, for the establishment of another 30,000 small farms, but also for supporting 9,000 young farmers.

Within the priority related to the restoration, preservation and growth of agriculture and forestry ecosystems, financing was allocated for over 1.3 million hectares, representing over 10% of the arable land, but also for 800,000 hectares of forest where programs were implemented for the preservation of biodiversity and for promoting environmentally-friendly agricultural practices.

3.2. Evaluation of the way in which sustainable development objectives were financed under Member States' RDPs

According to the latest ex-ante evaluation of RDPs financed for the period 2014-2020 by the Member States (European Commission, 2015), the impact of RDPs on environmental protection may be considered positive, the programmes reviewed showing positive effects on the following objectives related to sustainable development: environment and health, air quality, water resources, soils, habitat diversity, protected natural areas, waste recycling and management.

The European Commission evaluation also shows that Member States' RDPS also finance a series of measures the purpose of which is to lower the adverse effects of agriculture on the environment. Such measures have included: the promotion of the sustainable use of agricultural land (M10 – agri-environment measures financed under CAP), feasibility studies on integrated production, studies on the balanced development of habitats, as well as programmes for the development and use of renewable energy in rural areas.

The purpose of a series of measures financed under RDPs was sustainable economic growth, in particular through agri-environment payments, but also through financing for organic farms (such measures were implemented in Austria, Spain – Cataluña region, France –Pays de la Loire, Ireland, Italy –Bolzano region and in Germany – Hessen region). Another series of RDP measures targeted the forestry sector (in Italy and France), and projects were financed in Ireland for the reduction of greenhouse gases through the introduction of new technologies, but also for investments in environmentally-friendly storage. In the Italian region of Liguria, a project financed under the national RDP aimed at increasing the use of renewable energy, and in Germany (Bayern region), a project was implemented for the increase of biodiversity and the preservation of the soil and of water resources. Also in Germany, the Holstein region received financing for a trans-national cooperation project in the field of climate change, while in France, the Franche-Comté region implemented a project for the preservation of forest soils.

As it can be seen above, the objectives financed under Member States RDPs were diverse, but in order to assess to what extent they focused on sustainable development, we aggregated all the measures proposed for financing for a comparative analysis (see Table 3).

Table 3: RDP financing priorities in Member States within the EAFRD financial allocations (million EUR)

Member State	Increase of farm viability	Promotion of food chain organisation	Ecosystems	Promotion of resource efficiency	Promotion of social inclusion	Technical assistance	TOTAL
Austria	425.4	232.3	2557.3	121.6	486.8	114.2	3937.6
Belgium	238.2	17.1	220.2	98.0	64.2	10.1	647.8
Bulgaria	320.7	232.9	741.5	334.7	699.5	37.5	2366.7
Cyprus	18.2	7.8	63.6	7.7	22.5	12.4	132.2
Czech Republic	414.1	180.1	1489.5	18.2	173.5	37.5	2305.7
Germany	1271.6	486.3	4564.9	437.4	2408.8	214.8	9383.8
Denmark	83.3	0	427.4	49.7	43.9	25.2	629.4
Estonia	245.3	92.1	287.0	20.5	150.4	28.1	823.3
Spain	1925.6	1067.2	2706	1032.9	1158.3	184.4	8072.4
Finland	149.9	235.7	1600.8	43.1	321.1	29.9	2380.4
France	2128.2	1034.5	6349.3	528.3	1174.4	169.3	1138.9
Greece	938.8	402.3	1233.6	807.1	762.5	79.7	4224.0
Croatia	600.6	237.6	561.1	170.5	401.4	55.0	2026.2
Hungary	609.1	660.3	954.0	488.9	633.6	84.8	3430.7
Ireland	161.6	29.7	1590.4	243.9	157.0	8.1	2190.6
Italy	2371.5	2020.7	3432.2	1057.4	1246.3	316.4	10444.4
Lithuania	517.4	139.0	431.2	144.2	247.2	134.1	1613.1
Luxembourg	29.8	0	62.01	1.1	6.7	0.9	100.6
Latvia	335.5	55.8	413.2	51.1	106.7	59.5	1075.6
Malta	13.3	11.9	40.7	17.6	10.0	3.9	97.3
The Netherlands	172.9	14.7	357.9	0	40.1	21.7	607.3
Poland	2847.4	1056	2647.3	191.5	1367.3	488.9	8598.3
Portugal	1483.4	99.3	1148.4	828.0	412.1	86.6	4057.8
Romania	1629.3	846.2	2392.2	874.9	2207.1	178.4	8128.0
Sweden	145.6	76.8	1064.3	31.2	382.3	63.4	1763.6
Slovenia	171.3	76.8	432.1	0	128.7	28.9	837.9
Slovakia	278.2	296.6	677.3	14.3	234.1	59.3	1559.7
United Kingdom	453.4	97.3	3801.2	241.4	539.2	67.2	5199.7
TOTAL	19979.2	9706.8	42239.3	7855.0	15639.5	2598.0	98017.8

Source: Authors' processing based on DG Agriculture & Rural Development data (2017).

Note: EAFRD (European Fund for Agriculture and Rural Development) is not granted for transfer of knowledge, agriculture, forestry and rural areas innovation, this priority being granted separate financing.

As regards to financial allocation for the development of ecosystems (an important component of sustainable growth) it can be seen that France and Germany allocated the highest share of all Member States, and in those countries this component ranks first in RDP financing at EU level. Each of these priorities is financed by a series of measures implemented by the Member States under their RDPs.

It can be seen from the comparative analysis of RDPs in Member States that *investment measures are extremely important elements in all rural development plans of Member States*. Investment measures are the following: M04 (investment into physical assets), M06 (farm and business development in the rural area), M07 (basic services and village renewal in rural areas), M16 (cooperation) and M19 (local development through the LEADER programme). In total, investment measures account for 60% of the financing granted for rural development in states such as Malta, Bulgaria and Belgium and 50% for Hungary, Romania, Poland, Greece, Lithuania, Spain, Estonia, the Netherlands, Latvia and Italy. This significant share in the rural development programmes is due to the intense use of M04 – investments in physical assets by the majority of Member States. For all RDPs analysed, M04 proved to be the investment measure of choice on a large scale, and in certain Member States (the Netherlands and Belgium) it was allocated 40% of the budget. Moreover, there is an

obvious favourable trend for this measure in the new Member States (Lithuania – 32.7%, Latvia – 32.1%, Bulgaria 28.2%, Hungary – 28%, Slovakia – 25.9%, Romania – 25.3%, Poland – 24.7%). The “champion” in the financing of this measure under RDP is Malta (66.9%).

In its turn, M04 is divided into a series of sub-measure. Sub-measure 4.1. granted support for investment in agricultural crops (for which financing was granted in Austria, Belgium – Flanders region, the Czech Republic, France – Aquitaine region, Hungary, Lithuania, Latvia, Portugal – Azores region, Sweden, Romania and the United Kingdom). Under sub-measure 4.2, financing was granted for investments in the processing/marketing and development of agricultural products in Austria, Belgium – the Flanders region, Bulgaria, the Czech Republic, France – the Aquitaine region, Croatia, Lithuania, Latvia, Portugal – the Azores region, Sweden, Romania and United Kingdom). Under sub-measure 4.3, infrastructure investments related to the development of agriculture and forestry were financed in Austria, the Czech Republic, Spain, Croatia, Lithuania, Latvia, Poland, Portugal – the Azores region, Sweden, Romania and the United Kingdom. Under sub-measure 4.4, support for agri-environment measures and climate change objectives was financed in Austria, Belgium – Flanders, Bulgaria, France – Mayotte region, Croatia, Lithuania, Sweden and the United Kingdom.

Many of the financial allocations of Member States concerned the M05 measure – investments for the restoration of the agricultural land and of the production affected by natural disasters, but also for preventive measures. Another measure that is frequently encountered in Member States’ RDPs was M06 – support for farms and business development. Under this measure, support was granted to young farmers and start-ups in the rural area (the Czech Republic, Croatia, Ireland, Poland and the United Kingdom) through sub-measure 6.1, support for non-agricultural start-ups in rural areas (the Czech Republic, Croatia, Poland, Romania, United Kingdom) through sub-measure 6.2, support for small farms (Croatia and Poland) through sub-measure 6.3.

In all Member States, the specific objectives of all different measures are quite general, but they are in principle in line with the CAP rural development objectives. For example, as regards M04, the planned interventions and selected operations aim at enabling the improvement of the overall economic performance and environmental sustainability of agricultural holdings. Also, programmes are financed to facilitate the more efficient processing, marketing and development of agricultural products, to create a better infrastructure for the development, modernisation or adaptation of agriculture and forestry, including with regard to the access to agricultural and forestry land. The focus of other financing measures is the consolidation and improvement of the land, as well as the supply and saving of energy and water, but they also support non-productive investments related to the achievement of the agri-environment and climate goals, such as the preservation of biodiversity and the protection of systems with high natural value, such as Natura 2000.

Indicative examples from the cases reviewed are presented below: investments in slurry treatment systems and equipment for improving the management of manure, thus contributing to the reduction of agricultural emissions of greenhouse gases and ammonia (Sweden); long-term competitiveness of farms in Aquitaine and support for investments targeting improved compliance with environmental requirements (France), the balanced management of water resources for maintaining qualitative, diversified and competitive agriculture, the consolidation of the management and use of ageing forests, the improvement of the overall productivity of the forestry industry through optimised logistics (France – Aquitaine). In Romania, support was granted for investments in the modernisation of irrigation systems for ensuring efficient water use; for increasing the accessibility of forests and agricultural land.

The objectives of measure M05 are more specific and similar among RDPs and concern the protection of farms against catastrophic events (natural disasters) and the financing of reconstruction. Under this measure, specific financing was granted for supporting farms against potential catastrophic events caused by climate change and for the restoration of production capacity affected by such events (Poland), but also for investments that restore the agricultural production potential affected by natural disasters, unfavourable weather events and catastrophic events (France – Mayotte).

The main objectives of measure M06 relate to the development and establishment of business activities that are complementary to agriculture in rural areas, as it is generally accepted that this would stimulate the sustainable development of rural areas. In Poland, for example, the focus seems to be on the promotion of innovating farms managed by young farmers. In the United Kingdom, financing was granted for the development and establishment of microenterprises and for the diversification of agricultural holdings, if such

investments are beneficial for rural economy or may contribute to the development of non-agricultural activities, in particular to the establishment and expansion of rural enterprises through the development of new technologies and production lines and processes. In Poland, funded projects sought to attract young workforce in agriculture, capable to promote innovative agriculture, but also projects for job creation outside the rural areas, as alternatives for farmers leaving the agricultural sector. In Croatia, projects were financed for the improvement of the economic activity in rural areas, for maintain and creating new jobs and increasing the revenue of business entities. The purpose of such projects is to encourage the diversification of the economic activity, which will attract new workers who will live and work in the rural areas.

Measure M07, in all Member States RDPs, aims mainly at improving living standards in the rural areas. This objective may translate into ensuring access to basic services, infrastructure development (including ITC) and the provision of education. In the United Kingdom for example, this measure provided funding to projects for increasing access to services and the development of infrastructures, such as ITC access and the development of community buildings, public spaces and cultural, tourist and heritage facilities, including the renovation and maintenance of historical farm buildings. Also benefitting from financing were projects for the support of broadband internet infrastructure, including for its extension, and the provision of public access to e-government.

In Austria, projects were financed for creating the prerequisites for promoting socio-economic growth and reducing the negative trend of depopulation in rural areas, for stimulating investments in local infrastructure which would contribute to the reduction of environmental pollution and to the preservation of the rural landscape. Also, financing was granted for increasing the attractiveness of rural regions as spaces for economic activity, life and leisure, in good natural conditions, for the development of the local infrastructure, of social services, for creating innovative all-year tourist facilities and using renewable energy in order to improve energy efficiency.

The main objective of measure M16 in all Member States is the promotion of cooperation among the various actors in the rural areas in order to implement innovative projects. Under M16, in Belgium – Flanders, financing was granted in the field of human resources in order to increase the competitiveness of primary producers and develop short supply chains and local markets. In the United Kingdom, projects were financed for promoting a series of cooperation activities encouraging farmers and forest owners, private enterprises and public bodies or supply chain participants to collaborate for developing their investment priorities and to overcome the disadvantages of fragmentation. Financing in Bulgaria included projects for horizontal and vertical cooperation in agriculture seeking to foster integrated food chains, for increasing quality and safety in the agri-food sector, and also for improving soil management and the development of models of interactive innovation for cooperation.

Under measure M19 (LEADER), Member States financed initiatives resulting from a local approach of rural communities, to the extent that this is in line with the regional and national development imperatives. These local objectives may be specific for each field, but they may also contribute to the objective of each Local Development Strategy (LDS), as well as to the approach of social inclusion, poverty reduction and the economic development of the rural areas.

Because LEADER programmes are supported by an LDS specific for sub-regional fields, the objectives approached by each Member State are different. LEADER financing covered investment programmes for the improvement of farm competitiveness and economic performance, for reducing the negative impact of market fluctuations and ensuring environmental compliance; investments in production technologies and constructions for processing agricultural products; infrastructure support – the reconstruction and retrofitting of drainage systems for agricultural and forestry land, production sites, the construction, reconstruction and redevelopment of access roads (in Latvia). In Lithuania, LEADER programmes financed investments in agricultural holdings, support for investments in the processing, marketing and development of agricultural products, support for land consolidation, support for the management of agricultural waters. In Romania, through LEADER, investments were made in the modernisation of plant and animal farms, new storage, conditioning and packaging facilities, as well as for increasing the added value of products in conditions of compliance with the environmental and veterinary regulations, and for the development of renewable energy resources.

Spain subsidised investments in the modernisation of the existing irrigation infrastructure that did not comply with the conditions that have to be declared to be of general interest and which affect two or more

regions, investments in public irrigation infrastructures owned or which are expected to be owned by private legal entities, as well as in existing private irrigation installations on parcels.

4. Conclusions

As shown by the list of specific measures financed, RDPs proved to be a useful instrument in supporting the various sustainable rural development priorities, but it can be seen from a comparative analysis of the measures financed by each Member State that progress is required in terms of their coherence. Certain analyses (Diakosavvas, 2006) show that the internal coherence of RDPs should be improved through a better presentation of the adequacy of financial support forms chose, with specific objectives and actions, as well as of the connections between the planned actions and the expected results. This can be done, for example, through a better delineation of the areas of intervention and of the beneficiaries, taking into account the complementarity and synergies with CAP Pillar I, which should be improved through the establishment of financing coordination bodies and using common information management systems.

It can be stated in conclusion that the quantitative evaluation of the planned rural development measures promoting sustainable development in the Member States indicates a positive result. As such, the environmental and economic aspects of sustainable development are predominant in the rural development programmes, while social aspects receive less focus. The main deficiencies identified are related to the need for better coherence with the CAP Pillar I and the persistence of high bureaucracy.

RDPs could contribute even more to the sustainable development objective by focusing on the social aspects of sustainability, such as gender equality and the prevention of discrimination, and by involving the relevant stakeholders in the design of the financial envelope of each Member State.

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Urbanization Trends and their Link to Growth and Development

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Abstract: *Increasing the share of the urban population (urbanization process) is one of the global trends and represents also the topic of many prospective studies. Although it has been often proved to be a driver of economic growth, due to its associated positive externalities, urbanization should be assessed in the wider context of human development, including using indicators related to the quality of living. Improving the living conditions in the expanding urban areas would be very expensive. Thus, it would be unrealistically to expect positive impacts of urbanization on the development all over the world. In Romania, 55% of the population lives in the urban area, according to current statistics, while the World Bank agglomeration index indicates a degree of urbanization of 65%. Regardless which of these two values we consider, the housing conditions, such as the existence of sanitary facilities inside the dwelling, maintain Romania as an "outlier" in the European landscape.*

Keywords: *urbanization, economic development, demographic trends*

JEL classification: *O18, O40, J11*

1. Urbanization megatrend

Urbanization, namely the increase of the urban population share from the total, is one of the global megatrends¹ and a topic for a number of prospective studies carried out by a wide range of institutions, such as United Nations Organization and OECD, consultancy companies², public institutions³ or think tanks⁴.

Nowadays, more than half of the world's population live in urban areas and their share is expected to increase up to two thirds by 2050 (United Nations, 2014). The biggest growth rates for the population living in urban centers are expected to be registered in Asia, Africa and South America, which is determined by two major factors: (i) the increase in total population, and (ii) the trend in moving to urban areas.

1.1 Urbanization dynamics in various regions of the world

At global level, there is a heterogeneous picture for the share of population living in urban centers, as well as for the dynamics of this indicator.

In **Europe** (Figure 1a), the most urban countries are: Belgium (98%), Iceland (94%), Luxembourg (90%), Denmark (88%), Sweden (86%), Finland (84%), UK (83%), Norway (81%), France and Spain (80% each). Over the 1960-2016 period, the most dynamic increases in urban population were recorded in predominantly rural countries. Belarus has experienced the most spectacular change (from 32% to 77%), while slowest urbanization could be noticed in Germany and UK (each + 5 pp). The share of people living in urban areas has doubled in all countries of the former Yugoslavia and in Bulgaria, while the increase was by around 50% in almost all the other countries. In Romania, the urbanization rate has increased over the 1960-2016 period by 21 percentage points (from 34% to 55%).

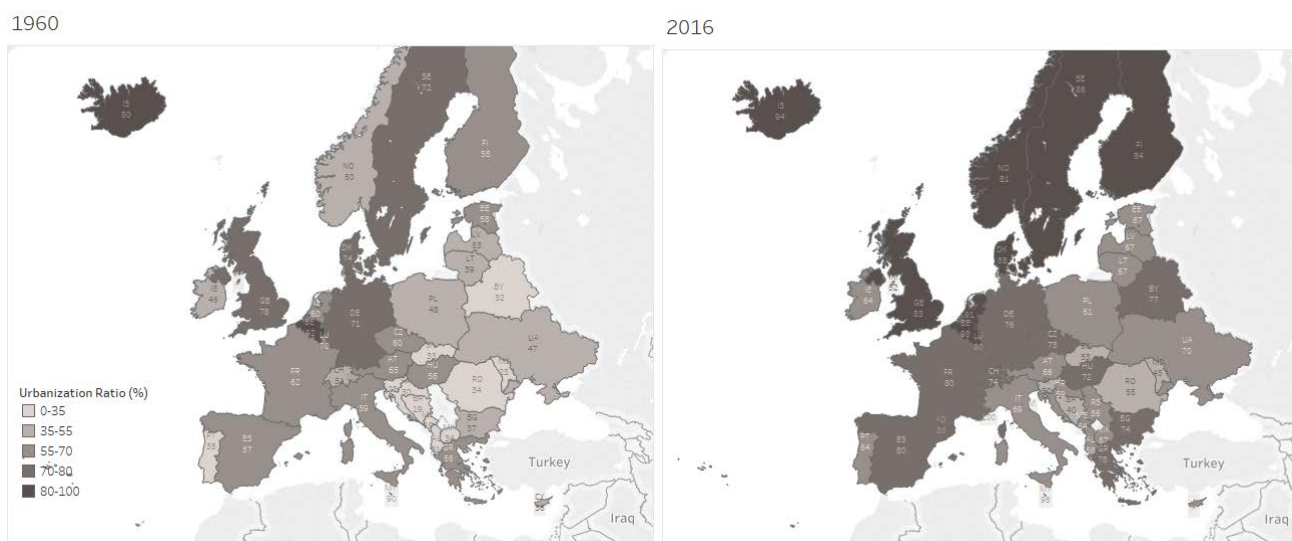
¹ A megatrend is a large, social, economic, political, environmental or technological change that influence a wide range of activities, processes and perceptions, both in government and in society, possibly for decades.

² Pricewaterhousecoopers – pwc.com, Ernst&Young – ey.com, KPMG – kpmg.com, CSIRO- csiro.au etc

³ European Environment Agency, National Intelligence Council etc.

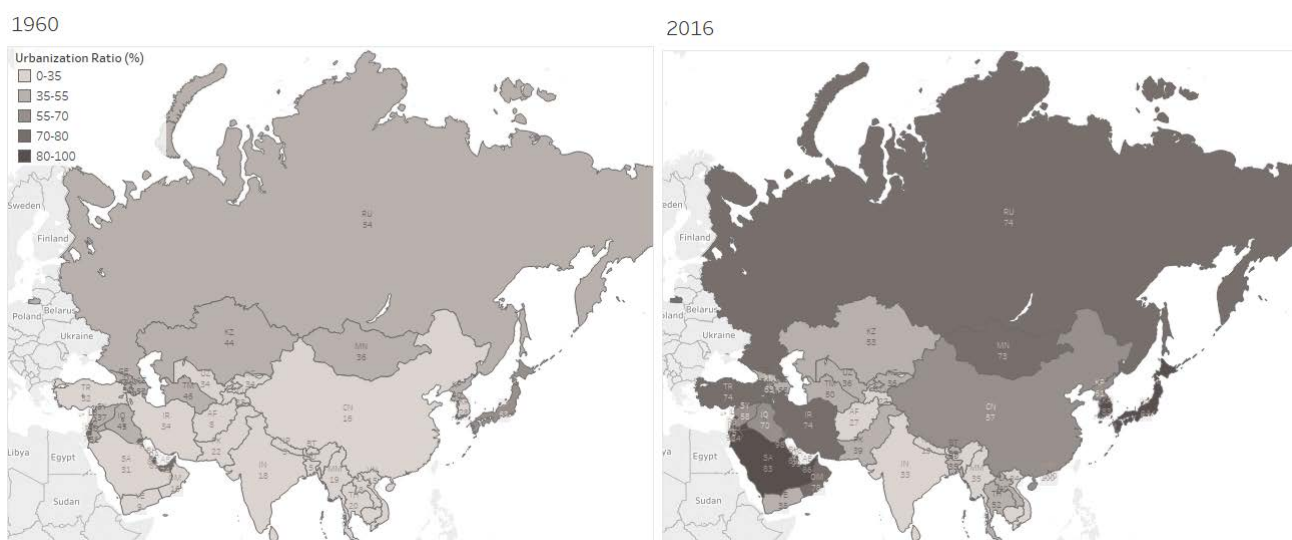
⁴ World Economic Forum, Chatham House, Megatrendswatch etc.

Figure 1a: Urbanization rates 1960-2016 in Europe



Source : own representation in *Tableau Public*, using World Bank database

Figure 1b: Urbanization rates 1960-2016 in Asia



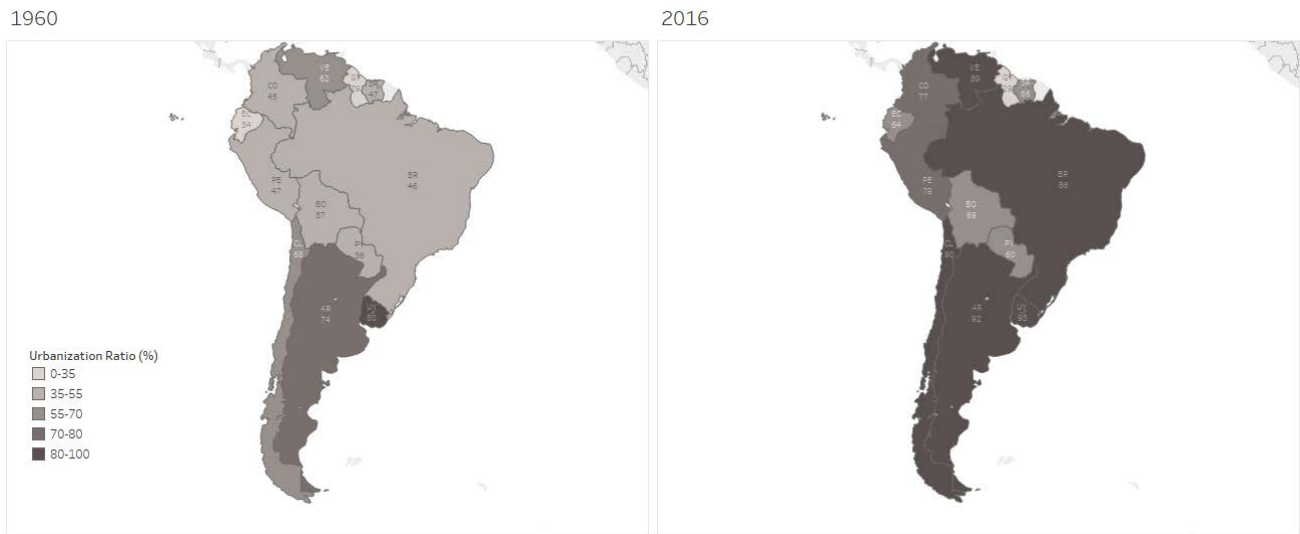
Source: own representation in *Tableau Public*, using World Bank database

In Asia (Figure 1b), the urbanization was more dynamic than in Europe. For the majority of countries, the share of the urban population has increased more than twice. Compared to 1960, notable increases in urbanization rates occurred in Saudi Arabia (from 31% to 83%), China (from 16% to 57%), Turkey (from 32% to 74%), Iran 34% to 74%), Mongolia (from 36% to 73%). The most urbanized countries in Asia are Qatar (99%), Kuwait (98%), Japan (94%) and Israel (92%).

In South America (Figure 1c) one can notice a deep urbanization trend, quite a number of countries having around 90% people living in urban centers: Uruguay (95%), Argentina (92%), Chile (90%), Venezuela (89%) and Brazil (86%). Guyana is the only one country keeping the same urbanization rate since 1960.

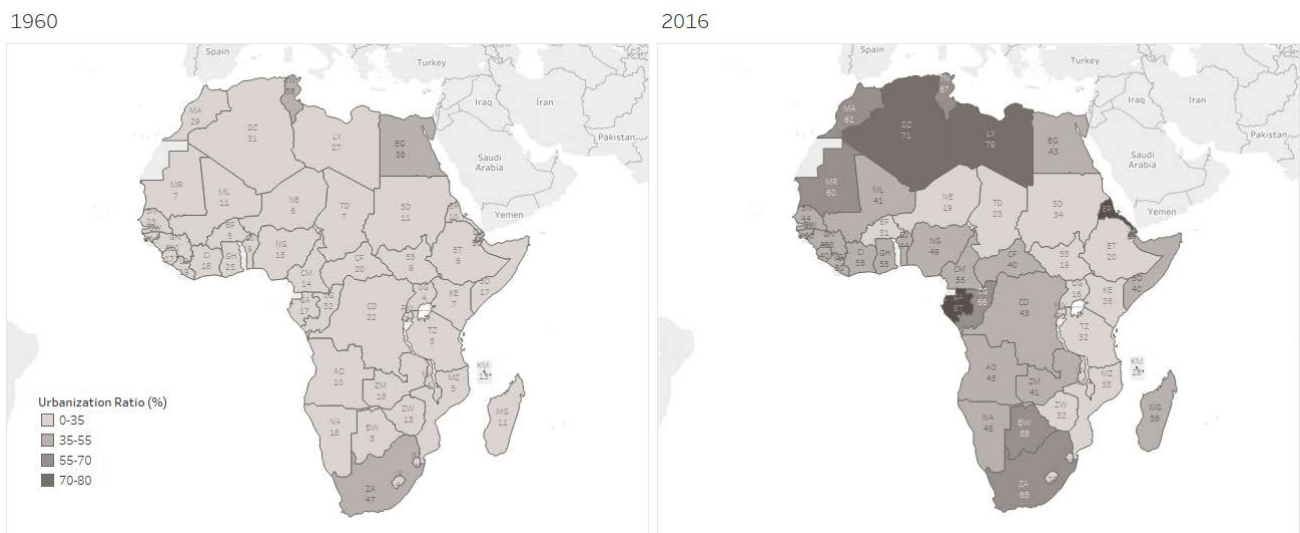
Over the last decades, the **African countries** that were almost entirely rural experienced an urbanization boom (Figure 1d), the share of urban population increasing several times: in Botswana almost 20 times (from 3% to 58%), in Mauritania 10 times (from 7% to 70%), in Gabon more than five times (from 17% to 87%) and in Mali almost 4 times (from 11% to 41%). Compared to 1960, the share of population living in urban areas has grown more than twice in countries that were relatively less rural at that time: Libya (from 27% to 79%), Algeria (31% to 71%), Nigeria (from 15% to 49%), Morocco (from 29% to 61%).

Figure 1c: Urbanization rates 1960-2016 in South America



Source: own representation in *Tableau Public*, using World Bank database

Figure 1d: Urbanization rates 1960-2016 in Africa



Source: own representation in *Tableau Public*, using World Bank database

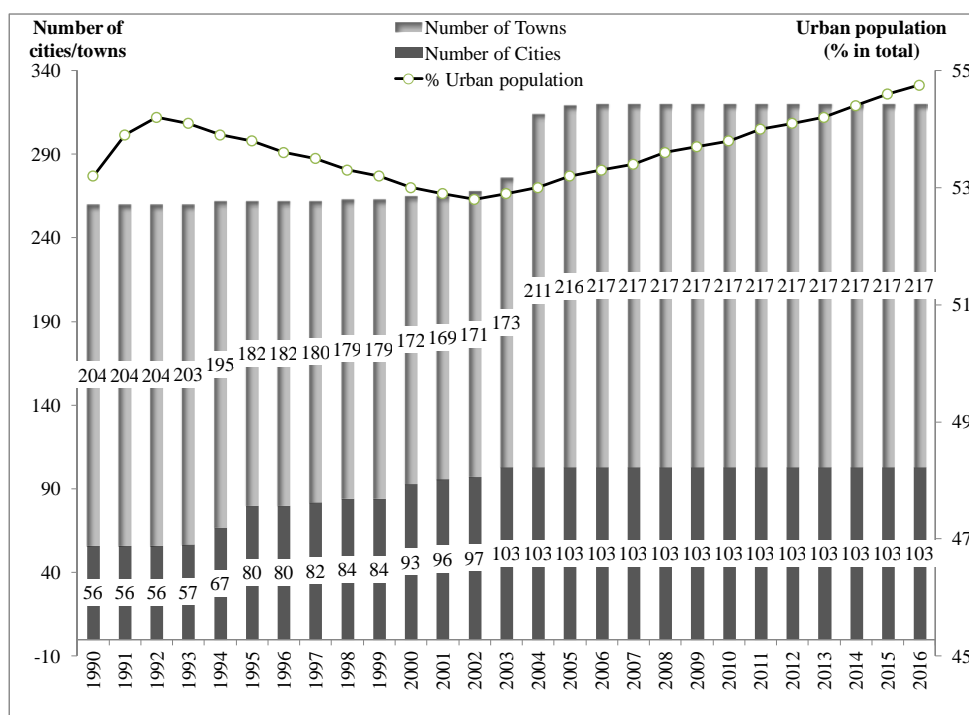
1.2. Is the degree of urbanization in Romania high or low?

Current statistics show that Romania has a low urbanization rate (55%) compared to the other EU Member States. The status of one of the least urbanized countries in Europe can be attributed, at least partially, to how the urban areas are defined. The Law 100/2007 specifies a set of measurable criteria to define the urban areas (e.g. the percentage of the population engaged in non-agricultural activities or the percentage of streets with sewerage networks). However, in practice, the assignment to a specific administrative unit type⁵ is not very coherent, ignoring the correlation of these criteria with economic, demographic and housing developments, but rather following some political interests. By coincidence or not, the number of cities and towns changed along three parliamentary mandates as following: firstly, a number of towns became cities (their number jumped by 40% before 1996⁶, by another 10% in 2000 and increased by 10% until 2004); secondly, the number of towns increased in turn by 24% over 2001-2004 period due to the conversion of some former villages to town status.

⁵ In Romania there are three main types of administrative-territorial units: cities and towns (urban) and communes (rural). In total, Romania has 3228 administrative units.

⁶ the increase has taken place over just two years: 1994 and 1995.

Graph 1: Number of urban administrative units and the urbanization rate in Romania



Source: own representation, based on INSSE data (administrative units) and World Bank (% urban population)

If comparing with the picture from the early '90s, nowadays the number of cities has grown by 84%, and the number of towns has also increased (by 6%), but the urbanization rate is almost at the same level (Graph 1). The lack of correlation between the increasing number of urban administrative units⁷ and the share of the population living in urban areas reveal that the current definition of urban areas has some limits. The World Bank suggests that the urbanization level is, in fact, higher by about 10 percent compared to official data – i.e. 65 percent if calculated for functional urban areas, in which case the urbanization rate being called the agglomeration index. The strongest argument to use the concept of functional areas is given by the demographic developments: while Romania's population registered a downward trend, contracted by about 4 million people after the fall of the communist regime, the number of inhabitants in the suburbs had an upward trend. The latter explains also why the highest values of the Index of Territorial Development (IDT)⁸ are usually registered in the small towns close the major urban centers. Over the last years, they benefited from the phenomenon of the development of suburbs, which attracted a large number of investors, including real estate. Thus, in suburbs or small towns close to the big urban centers, the population growth was generally above that of the cities. It's worth mentioning that very high values of the territorial development index are recorded in the resort towns on the Prahova Valley (Sinaia, Predeal, Bușteni, Azuga), where due to a significant number of secondary dwellings and hotel and catering units, there was a gradual increase of the incomes to the local budget, as well as of the employment rate.

The smallest values of IDT are exhibited in small and very small towns having less than 10,000 inhabitants, which show the features of rural settlements with a high share of subsistence farming with obsolete housing and poor transport, technical and public infrastructure. Referring to small towns, (MDRAP, 2016) recognizes that „many of these urban settlements do not meet the criteria for third-class cities, according to the National Territory Planning Plan, Section IV - Settlement Network.”

Therefore, one can conclude that economies of scale matter in Romania, but the current classification of urban administrative units is not relevant for judging the level of urbanization rate.

⁷ the the most illustrative is the 1992-2003 period, in which the number of cities has increased, while urbanisation rate has decreased

⁸ IDT is an index calculated by the Ministry of Regional Development and Public Administration (MDRAP, 2016)

2. Is urbanization a driver of growth and development?

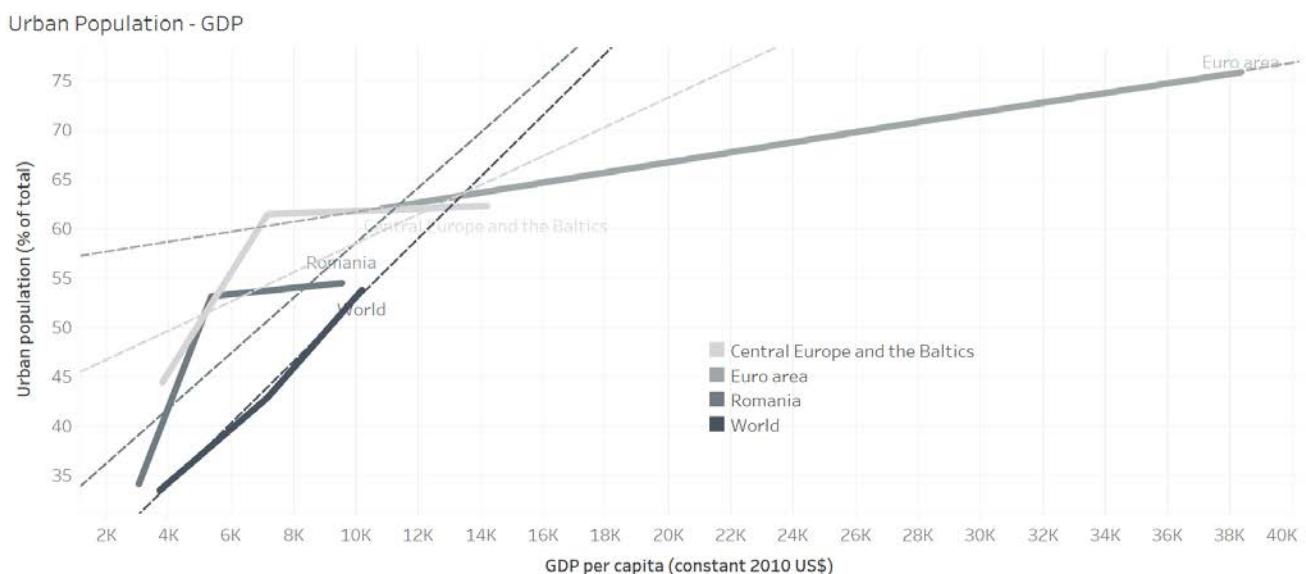
Urbanization is known to drive economic growth (due to economies of scale) and development (better living conditions). The attractiveness of urban areas for citizens is given by job opportunities and high wages, access to education and to socio-cultural activities. Companies prefer urban or peri-urban areas because there they can create powerful logistics chains, enjoy larger markets for their products or services and also more easily find people fit for employment.

2.1 Urbanization and economic growth

Economic growth in urban agglomerations is stimulated by their attractiveness for production factors (people and capital), not only due to many economies of scale but also to positive externalities. Nevertheless, the economies of scale contribute to increased benefits when promoting the growth of urbanization and concentration of resources only to the point where the negative externalities of agglomeration exceed the positive ones.

The trend lines for various groups of countries demonstrate that there is a linear correlation between the dynamics of the urbanization degree and the GDP per capita growth, but for Romania as well as for the whole communist bloc countries, there is a clear shift in 1990 (Graph 2). If in the communist regime the accelerated urbanization led only to a modest increase in GDP per capita after 1990, the economic growth has been much more accelerated, although it has not been triggered by a proportional increase in urbanization. World Bank (2013) reveals also that increasing the economic mass of urban areas has been a driver of growth in Eastern Europe, at least in the early stages of development. Nevertheless, compared with other CEE countries, Romania remained at modest levels for both urbanization and GDP per capita.

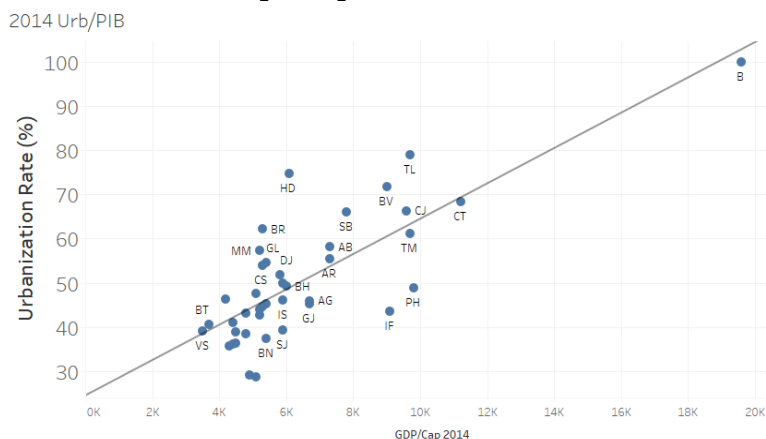
Graph 2: The correlation between the degree of urbanization and the economic growth



Source: own representation in *Tableau Public*, using the World Development Indicators

Since the level of development of a country is associated with a high degree of urbanization, the same principle could be applied at regional level. There are counties such as Hunedoara, Brăila, Maramureș, Galați and Caraș, which, registered a low level of development (GDP per capita), despite a relatively high degree of urbanization (Graph 3).

Graph 3: Correlation between GDP per capita and Urbanization rate for counties in Romania



Source: own representation in *Tableau Public*. GDP per capita data is from Eurostat (*nama_10r_3gdp*) and urbanization rates have been calculated using the population data from INSSE (*POP106A*)

Nevertheless, urbanization is not always a driver for development: the rise of the urban population by 1.6 billion inhabitants in the last decade did not necessarily translate in progress for all countries, since many people are living in slums, with poor access to medical, education and security services (UNDP, 2014). Therefore, urbanization should be considered and assessed in a broader context of human development, by paying attention to other relevant indicators, such as the living conditions.

The development models in many regions of the world are indicating that urbanization is not associated necessarily with increasing living conditions, and the simple fact of belonging to an urban environment does not bring a higher quality of life. Moreover, precarious living conditions are not only associated with lower levels of health and wellbeing, but also generate a vicious circle that increases the risk of poverty and social exclusion.

2.2 Does the living conditions reflect the urbanization rate developments?

The *severe housing deprivation rate*⁹, one of the indicators included in the Survey of Income and Living Conditions in the European Union (SILC), confirms that, over the last decade, a certain progress has been made in terms of housing conditions for most of the member countries, as well as at the EU level as a whole (Eurofound, 2016).

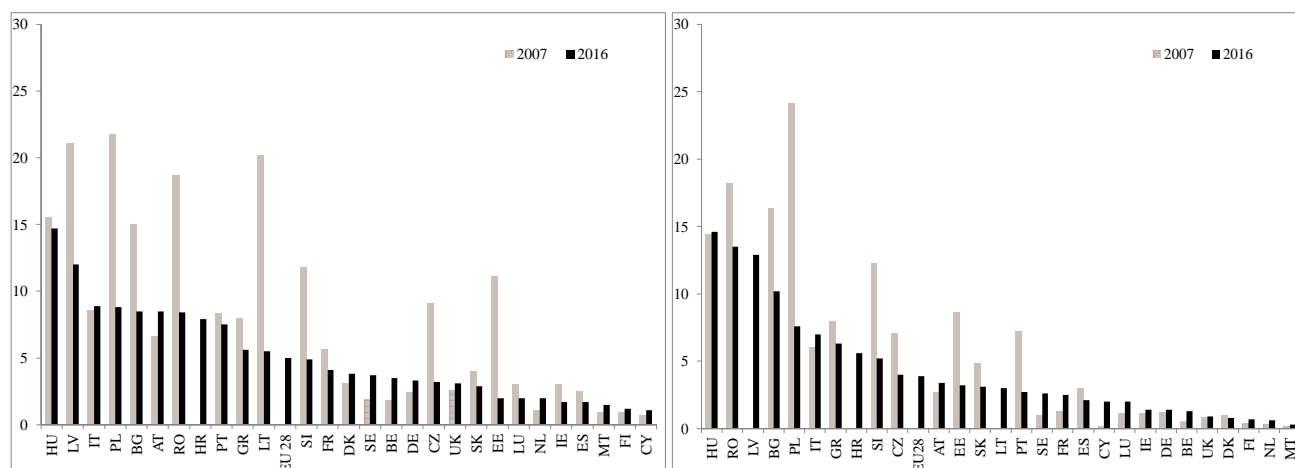
In the urban areas, severe housing deprivation still accounts for a large share of the population in most Central and Eastern European countries (CEECs), despite the amelioration of urban living conditions in these countries after joining the EU (Graph 4a and Graph 4b). It is very interesting to notice that, over the 2007-2016 period, for all the CEECs, except for Hungary, the indicator has considerably improved (i.e. its value declined), while **for advanced EU countries the situation has been getting worse**, although at a small pace. This trend suggests that urbanization is not a guarantee for ensuring better living conditions.

⁹ The severe housing deprivation rate is defined as the percentage of population living in the dwelling which is considered as overcrowded, while also exhibiting at least one of the housing deprivation measure (leaking roof, no bath/shower and no indoor toilet, or a dwelling considered too dark)

Graph 4: Severe housing deprivation rate of population living in cities and towns (%)

a. Cities

b. Towns



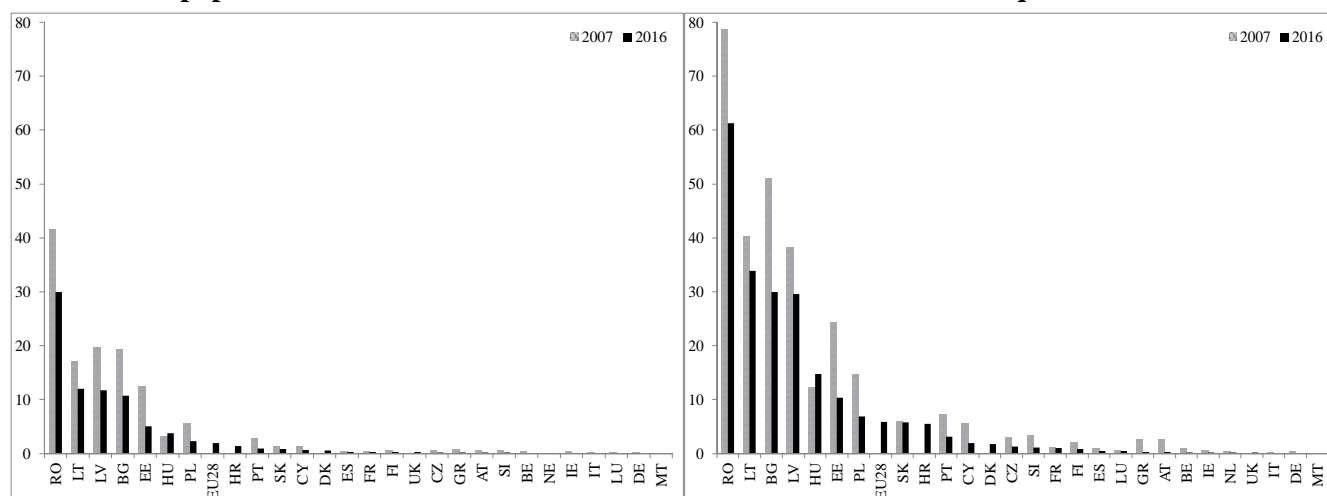
Source: own representation, based on EUROSTAT SILC indicator *ilc_mdho06d*

The lack of indoor sanitary facilities continues to affect only a few countries of Eastern Europe, from which only Romania to a considerable extent: 30% of total population, compared to 41.1% in 2007 lack indoor sanitary facilities (Graph 5a). If we only consider the population-at-risk-of-poverty (people having below 60% of median equivalised income), the picture is even darker for Romania: 61% of them still do not have indoor sanitary facilities, although it could be considered a big progress compared to 79% in 2007 (Graph 5b).

Graph 5: Total population having neither a bath, nor a shower, nor indoor flushing toilet in their household (%)

a. Total population

b. Below 60% of median equivalised income



Source: own representation, based on EU-SILC survey [*ilc_mdho05*]

2.3. Costs for improving living conditions

The main indicators of housing conditions show that, despite some progress, a heterogeneous situation is maintained among EU countries. (Eurofound, 2016) presents the most recent assessment of housing conditions at EU level, as well as an estimate of the costs in two extreme scenarios: (i) doing nothing and (ii) completely solving the problem of housing inadequacy. According to this report, the total annual EU-wide cost of not addressing the problem of inadequate housing is almost € 194 billion and a budget would be needed to eliminate housing inadequacies at EU level or at least to improve them to an acceptable level of approximately €295 billion. Assuming that all necessary improvements can be made at once, the related costs borne by EU economies and companies would be reimbursed within 18 months, through savings on healthcare and social gains, so 2/3 of the investment to be recovered in the first year. If all the necessary work were done, the savings

that would be made would be huge. Estimates of Eurofound (2016) suggest that only savings for healthcare provision would amount to €9 billion in the first year, and will increase for the coming years.

For Romania, neglecting housing policy could create serious problems in the future. In the absence of coherent and sustainable measures in this area, in the long run, we will have more and more unsafe and deficient housing. A special challenge is the buildings with a high seismic risk and, in general, the degradation of collective housing areas in cities, due to the aging and lack of maintenance of the housing stock.

3. Conclusion

Urbanization is one of the megatrends and in the future the most dynamic regions in this respect will continue to be Asia, Africa and South America.

According to theoretical expectations, the increase in urban population represents a driver for economic growth and development. Empirical evidence leads to the conclusion that, indeed, urbanization accompanies growth and development with only few exceptions in other areas than the European space.

The development models in many regions of the world are indicating that urbanization is not associated necessarily with increasing living conditions, and the simple fact of belonging to an urban environment does not bring a higher quality of life.

Improving the living conditions is very expensive. If for Europe the estimated amount is huge, for other regions where urbanization is faster, the costs are even higher and certainly not sustainable, therefore a positive impact of urbanization, especially on the development level of those countries, is not at all obvious.

In Romania, the urban network is characterized by only a few cities with more than 100,000 inhabitants, which do not have the power to secure that critical mass necessary for the functioning of economies of scale, specific to urban areas. Therefore, in order to make a more consistent contribution to economic growth, urbanization policy needs to focus rather on functional economic areas rather than just territorial-administrative decoupling that designates urban-administrative territorial units (cities and towns). Last but not least, Romania must make efforts to improve the quality of living, at least for having more sanitary facilities inside the home, and thus close the gap with the other countries within the European Union.

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Recent Evolutions of the Tourism and Hospitality Industry FDI

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Abstract: *The tourism industry has recorded one of the most remarkable increases over the past decade, reaching an impressive ten percent of the world GDP in 2015. In this context, and taking into account people's desire to spend their holidays away from home in famous tourist spots, it is evident this industry becomes an attractive alternative for investors. Whether it is airlines or hotel chains, foreign investments in this sector are increasingly and more visible, although at this point is not at its real potential. This article presents the main destinations according to the stocks of direct foreign investments in tourism, highlighting the most important players according to their sales, profits, assets and market value.*

Keywords: *foreign direct investment, FDI stocks, FDI in tourism, tourism market, tourism investment*

JEL Code: *D25, F21, L83*

1. Introduction

The dynamic noted in the tourism sector in recent decades has turned travel industry into a key element of development? in many countries, representing an important driver of growth (Bulin, 2017). According to the World Tourism Organization (UNWTO, 2016), the business volume in this field came to exceed oil exports, food or cars, reaching the level of 1500 billion dollars in 2015. In the same year, tourism activities generated 10% of world GDP, with a high level of impact on the labour market, with one of eleven employees involved in this sector (UNWTO, 2016).

Tourism is a complex concept that implies a wide range of entities. This means that the transformation of a location with tourist potential into an attractive tourist destination, frequented by domestic and international tourists, requires major changes in infrastructure. A flow of tourists in a location with poor management can have devastating effects, resulting in the increase in pollution to alarming rates, overloading public transport, damaging tourist attractions and even creating a conflicting situation between locals and visitors (Page, 2014).

Sustainable development of areas with touristic interest are requiring significant investments that covers activities such as public transportation, destination marketing, waste management and logistics. However, significant investment involves a high level of capital that local authorities often lack. Infrastructure and access to global distribution system are essential, and because of the local financial issues (United Nations, 2007), FDI is preferred most often (United Nations Environment Programme, 2011). The purpose of these investments is, of course, the gain of significant benefits for all parties involved. The advantages brought by tourism lead to an intense competition between countries as well as between tourist destinations. A study released by Oxford Economics for the World Council of Tourism (WTTC) showed that 86% of the CEOs in tourism that were included in research said that there is a direct link between FDI and the development of

domestic tourism, taking into account all the implications associated with this, including the creation of new jobs. However, tourism potential and attraction uniqueness are not the main arguments for investors, since they are primarily interested in the features there are in an area. The development of air transport is an important factor when deciding to invest (WTTC, 2012).

For a tourism company, the decision of investing in another country is necessary to coincide with the "OLI" rule (ownership, location and internalisation rights). Thus, the company must be able to have certain property advantages, allowing it to compete with other domestic competitors. This is done with the purpose of having a developed internal market, access to cheap labour, a rich cultural heritage, an attractive climate, and also to be able to directly control the activity of the host country (UNCTAD, 2010).

2 FDI in tourism

FDI also involves risks for all parties involved, so a trust-based analysis of the target is essential. A.T. Kearney (2016), an important player in the global management consultancy market, with an experience dating back to 1926, draws an annual ranking of countries according to the „*Confidence Index*” regarding Foreign Direct Investment, using a scale of 0 to 2.5 (Table 1). The main factors included in this hierarchy of countries are the size of the internal market, wage level, legislative transparency and low levels of corruption, national security or technological innovation (A. T. Kearney, 2016).

**Table No. 1. The top five countries according to A.T. Kearney
"Trust Index" in FDI**

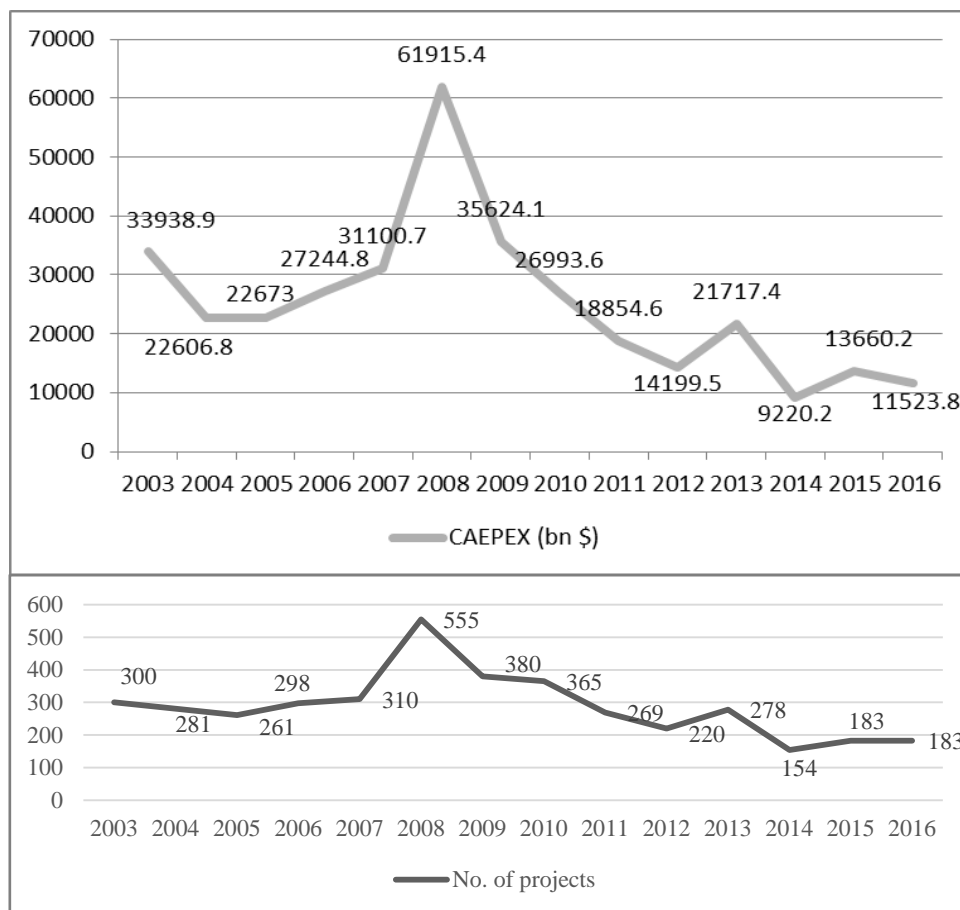
Country	2014	2015	2016	Score (2016)
USA	1	1	1	2.02
China	2	2	2	1.82
Canada	3	4	3	1.8
Germany	6	5	4	1.75
UK	4	3	5	1.73

Source: The 2016 A. T. Kearney Foreign Direct Investment Confidence Index

The analysis of the dynamics for the first five countries according to the "Confidence Index" in 2014, 2015 and 2016 shows that the first two positions of the ranking remained unchanged during this period, being occupied by the USA and China. Next was Canada, which had a slightly oscillating trend, dropping from 3rd place in 2014 to 4th in 2015 and returning to the 3rd place in 2016. Germany and Great Britain were the first European countries that appeared in this ranking. Germany has strengthened its position by climbing one seat each year to the fourth position in 2016, and the United Kingdom dropped from 3rd place in 2014 to 5th in 2016. Regarding the tourism sector, the FDI level worldwide is represented by the following numbers, according to data provided by FDI Markets (2016): 320 projects owned by 172 companies, amounting 23,713 million dollars and generating a total of 51062 jobs. UNCTAD statistics show the level and evolution of cross-border mergers and acquisition volumes. They also show the fields of activity in greenfield projects (Aluculesei & Bulin, 2016).

According to the latest data provided by FDI markets (Shehadi, 2017), in 2016 the volume of foreign direct investment in the global tourist industry amounted to more than 11.5 million dollars in 183 greenfield projects, and the total for the 2003-2016 period is estimated at a total volume of over 352 billion dollars. Regarding the evolution of greenfield investments in tourism, for the 2003-2016 period, they have alternated with increases and decreases in absolute value (CAPEX, million dollars) and in numbers of new projects. Thus, the maximum for the analysed period was reached in 2008 - 555 projects totalling almost 62 billion dollars, and the minimum in 2014 - 154 projects amounted to less than 10 billion dollars.

Fig no. 1. Greenfield FDI in hotels and tourism, 2003-2016 – CAPEX (bn. \$), number of projects (no.)



Source: authors, based on FDI markets data (Shehadi, 2017)

United States of America were the most important source of money for this projects (83 billion dollars), followed by Hong Kong, United Kingdom, Spain, France, United Arab Emirates at a significant distance from the USA with an investment ranging between 28 and 30 billion dollars (Bulin, 2017).

Regarding the destinations for foreign direct investments, we remark countries with a spectacular evolution in tourism for the recent years, like Macao, the country that leads the rankings (8.7 billion dollars) -, Thailand (6.6 billion dollars), but also Morocco, Germany (the only European country in the top) or Qatar (Bulin, 2017).

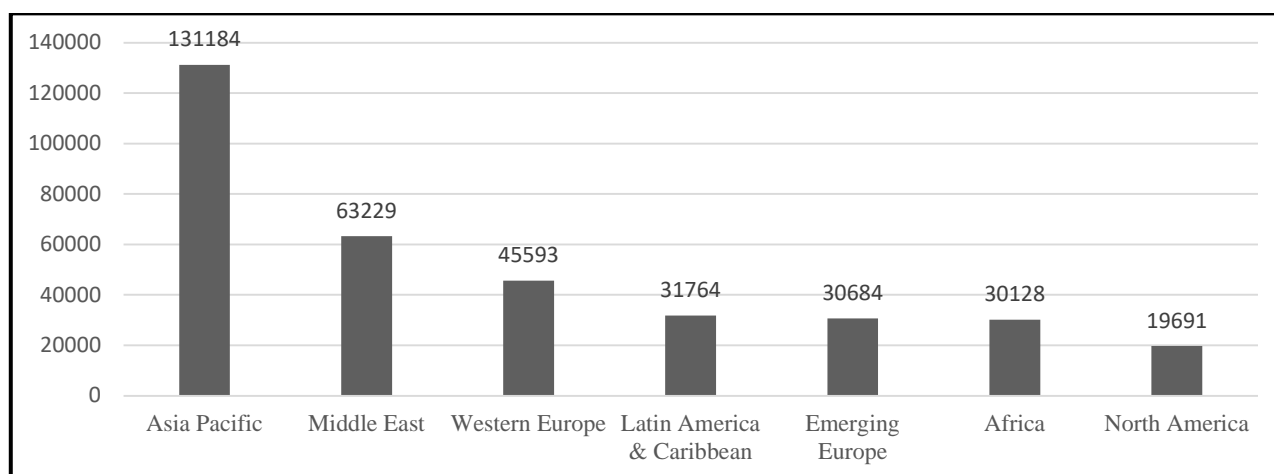
Table no 2. Top 10 Sources and Destination Countries - Greenfield FDI in hotels and tourism, 2003-2016

#	Source country	CAPEX (bn. \$)	#	Destination country	CAPEX (bn. \$)
1	USA	83896	1	Macao	8687
2	UK	29514	2	Morocco	8344
3	Hong Kong	28990	3	Germany	8232
4	Spain	28960	4	Qatar	7672
5	France	27519	5	Vietnam	6941
6	UAE	25433	6	Philippines	6688
7	Singapore	13303	7	Thailand	6618
8	Canada	13115	8	Bahrain	5833
9	Belgium	9964	9	Dominican Republic	5815
10	Switzerland	8856	10	Canada	5377

Source: authors, based on FDI markets data (Shehadi, 2017)

For the 2003-2013 period, Asia has proven to be the most attractive region for foreign investors in the tourism sector, which attracted nearly 40% of the total FDI (131 billion dollars).

Fig. no. 2. Tourism investment by region – Greenfield FDI in hotels and tourism, 2003-2016 (bn. \$)



Source: authors, based on FDI markets data (Shehadi, 2017)

3 Transnational companies: expression of corporatism in the tourism industry

In their expansion, tourism corporations use a wide variety of strategies for development and diversification. In the tourism industry, the most common options for entering foreign markets are represented by direct purchases, mergers, takeovers, joint ventures, management contracts or franchising contracts.

Forbes magazine publishes every year, since 2003, a list of the world's most powerful companies - Forbes Global 2000. The company's position in Forbes hierarchy is given by a coefficient calculated by four equal in terms indicators: company sales, registered profits, total assets and market value.

According to Forbes, in the tourism industry, including here the operators for large hotels chains and other accommodation services (e.g. cruise ships), excluding those for food, the ranking is led by Carnival, a known American luxury cruise operator (Table 3). It worth mention that Carnival is in the first position for three indicators (sales, assets, market value), while the Asian company Genting Hong Kong it is on the first position for the profit indicator - for example, last year reported a profit of 2.1 billion dollars.

Table no. 3. The top 10 corporations in the hospitality industry, 2015

#	#global	Company	Country	Sales	Profit	Assets	Market value
1	311	Carnival	USA	\$15.8 B	\$1.9 B	\$38.4 B	\$37.8 B
2	476	Hilton Worldwide Holdings	USA	\$11.3 B	\$1.4 B	\$25.7 B	\$21.4 B
3	724	Royal Caribbean Cruises	USA	\$8.3 B	\$666 M	\$20.9 B	\$15.9 B
4	777	Marriott International	USA	\$14.5 B	\$859 M	\$6.1 B	\$16.9 B
5	1164	Shenzhen Overseas	China	\$4.1 B	\$715 M	\$16.2 B	\$8.6 B
6	1185	Oriental Land	Japan	\$3.9 B	\$616 M	\$6.5 B	\$25.7 B
7	1214	Starwood Hotels	USA	\$5.8 B	\$489 M	\$8.3 B	\$13.4 B
8	1252	Wyndham Worldwide	USA	\$5.5 B	\$611 M	\$10.2 B	\$8.5 B
9	1287	InterContinental Hotels	United Kingdom	\$1.8 B	\$1.2 M	\$3.8 B	\$9.5 B
10	1588	Accor	France	\$6.2 B	\$230 M	\$9.7 B	\$10.8 B

Source: table made by the authors based on data provided by Forbes Global 2000, 2016

Analysing the rankings, we find the following:

- The global hierarchy is dominated by companies headquartered in the United States - the first 4 positions being occupied by them: Carnival, Hilton Worldwide Holdings (which operates brands like Hilton), Royal Caribbean Cruises (cruises operators and they are associated with TUI - German tour operator, in a joint venture company); Marriott International (which operates hotel chains like JW Marriott or The Ritz-Carlton). Moreover, 6 out of 10 top companies are American, Starwood Hotels and Wyndham Worldwide being on 7th respectively 8th position.

- Although the largest companies in the world are Chinese, only Shenzhen Overseas tourism has made its way among industry giants;
- Despite the fact that Europe is the most important international tourist destination, the only European companies in the top 10 are InterContinental Hotels – United Kingdom and Accor - France;
- The worldwide positions of companies from tourism industry are not remarkable, for example, Carnival is only on 311th in the top transnational companies.

It should be noted that Forbes ' rankings do not include in the analysis the most important event of the year 2015 in the hospitality industry: the acquisition of Starwood Hotels & Resorts Worldwide by Marriott International, a transaction estimated at 12.2 billion dollars. Thus, we note the creation of the world's largest hotel company, with over 5,000 hotels in more than 100 countries, and a total of more than 1 million rooms available, offered thru 39 brands – 11 of Starwood and 19 of Marriott (Table 4). This transaction leads to the appearance of a new undisputed leader worldwide in the hospitality industry. In the top 10 hotel chains we can find another newly formed group - Jin Jiang International / Plateno Hotels Group (both Chinese companies), ranked on 5th position. The latest transactions confirm the strong pace that characterises the tourism industry in general and the hotel industry in particular.

Table no. 4. Major hotel groups, 2015-2016 (available capacity)

#	Company	Available capacity	
		Numbers of hotels	Rooms
1	Marriott International / Starwood Hotels / Resort Worldwide	5456	1071096
2	Hilton Worldwide Holdings	4480	737922
3	Intercontinental Hotels Group	4963	726876
4	Wyndham Hotel Group	7760	671900
5	Jin Jiang International / Plateno Hotels Group	6000	640000
6	Choice Hotel International	6379	504357
7	Accor Hotels	3815	500366
8	Best Western Hotels & Resorts	3903	303768
9	Homeinns Hotel Group	2787	311608
10	Carlson Rezidor Group	1092	172234

Source: <http://www.hotelnewsnow.com/Articles/28560/The-10-largest-hotel-companies-by-room-count>

Food services sector constitutes another component of the tourism industry, which is reinforced by the dominant presence of large transnational companies in this sector of activity. Thus, according to Forbes hierarchy, among the world top 2,000 companies from all sectors of activities we find eight of the major food service providers (Table 5).

Table no. 5. Top worldwide corporation hierarchy in the food service sector for 2015

#	#Global	Company	Country	Sales	Profit	Assets	Market value
1	189	McDonald's	USA	\$25.4 B	\$4.8 B	\$37.9 B	\$110.1 B
2	389	Starbucks	USA	\$20.2 B	\$2.5 B	\$12.9 B	\$85.3 B
3	467	Compass Group	United Kingdom	\$27.2 B	\$1.3 B	\$13.3 B	\$28.9 B
4	649	Yum Brands	USA	\$13.1 B	\$1.3 B	\$8.2 B	\$33.1 B
5	1197	Restaurant Brands International	Canada	\$4.1 B	\$513 M	\$18.4 B	\$9.2 B
6	1370	Chipotle Mexican Grill	USA	\$4.5 B	\$476 M	\$2.7 B	\$13.1 B
7	1413	Whitbread	United Kingdom	\$4.3 B	\$586 M	\$6.3 B	\$10.2 B
8	1509	Darden Restaurants	USA	\$7 B	\$341 M	\$4.5 B	\$8 B

Source: http://www.forbes.com/global2000/list/#header:position_industry:Restaurants

We notice the achievements of the American giant McDonald's, ranked on the 189 position worldwide, which has better financial results than the companies from the hospitality industry. On the second place, we find the coffee chain Starbucks, which has almost 25,000 locations and 250,000 employees worldwide. The podium is completed by Compass Group from the UK, a catering company which offers catering services to the private and public sector (schools, hospitals, other institutions). McDonald's leads the ranking for three of the four indicators, while Compass Group registered the biggest sales last year. As for the hotel industry the, the hierarchy for food services industries is dominated by US companies, along with other companies from United Kingdom and Canada: Yum Brands, which owns, among others, the fast food chain KFC, Chipotle Mexican Grill, a fast-food chain which serve Mexican food with locations in the UK, Canada, Germany or France, and respectively Darden Restaurants, a multi-branded food service operator.

4, Conclusion

Although global FDI in the tourism industry is not spectacular (320 projects, 172 companies involved, about 23 billion dollars and 51 thousand jobs), one can note the expansion of destinations. In the European Union, which is the most important international tourist destination, the number of FDI "greenfield" investment projects and the volume of stocks or cross-border transactions do not attract attention by volume or weight. Taking into account the favourable evolution in international tourism (sustained rates of growth in tourist arrivals in recent years, including overcoming the barrier of one billion international tourists in 2013), we believe that there is an important untapped potential for major global economic players. In support of our statement are the financial results and the dynamics of the hotel sector, dominated by the big international chains.

The limits of our research are the low availability of statistical data, their complexity and the existence of some inconsistencies. As there is a causal relationship between the development of tourism and the evolution of air transportation, a possible future direction of this research is the analysis of this sector of activity about the tourism industry.

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Bitcoin – A Brief Analysis of the Advantages and Disadvantages

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Abstract: *Along the history, people organised in communities needed payment means in order to exchange goods or deliver services. From beads and feathers to metal and paper money they have always improved the way transactions were made. The invention of the Internet opened new doors in the field of payments, through the quick access to information and the emergence of significant international online communities. The members of these communities became aware of the importance of decentralising the way they acquire goods or services, thus eliminating the middlemen. Cryptocurrencies represent the response of these communities to the old centralised means of payment, controlled by the bankers, politicians and interest groups. Our paper aims to analyse the cryptocurrency phenomenon revealing some of its advantages and disadvantages, to increase the awareness on the topic. We based our research on the existing literature, the relevant international databases, the official positions of the financial and regulatory institutions on the analysed matter.*

Key-Words: *Bitcoin, Nakamoto, cryptocurrency, altcoins, blockchain, ethereum, security.*

JEL Classification: *G, G1, G23*

1. Introduction

The first attempts to use cryptography to build digital currencies date back in the late 1980s. The Internet was the environment that facilitated the creation of significant online communities of people driven by common interests that needed a safe payment system for their online transactions. To this end, Wei Dai (1998) proposed for the first time a cryptocurrency under the name of B-money. Wei Dai based his initiative on the fact that in a community the members exchange ideas and even goods and services. An efficient cooperation among them requires a medium of exchange (money) and a way to enforce contracts. To address these issues Wei Dai considered two protocols. One of them was similar to the Bitcoin protocol, based on an undetectable network of individuals identified by a digital pseudonym.

In 2008, Satoshi Nakamoto was claiming there was a need for a purely peer-to-peer version of electronic cash that would bypass the financial institutions. He mentioned the financial institutions as third parties in commercial transactions were necessary due to the trust issues between buyers and sellers and the cost of this "trust" was high because they were not irreversible and involved mediation costs that made the services even more expensive. Nakamoto proposed an electronic payment system based on cryptographic proof (blockchain) instead of trust (Nakamoto, 2008). Just one year later, the Bitcoin network became functional, now is the most traded cryptocurrency in the world (Table 1).

The primary driver for the emergence of cryptocurrencies according to Vigna and Casey (2016) is the current bias towards decentralised models "that bypass middlemen gatekeepers". People embrace these models realising the possibility to avoid intermediaries when searching for goods or services. On the other hand, young people see Bitcoin as a means to invest or save money. For them, it makes more sense to acquire these new currencies than to invest in gold, or bonds or any other liquid assets.

Golumbia (2016) shares a similar opinion, predicting though that even the middlemen banks, will end up adopting the Blockchain technology to reduce their costs. Already a consortium of large European banks employed IBM to create a new trade finance platform based on Blockchain technology. Visa started the first pilot phase of its blockchain platform for business-to-business payment services that will also eliminate the go-between banks and cut the costs of transactions.

Today, hundreds of virtual currencies are widely clones of the famous Bitcoin, differing by issuance scheme, block time or supply. They are all known under the name of altcoins.

According to Hileman and Rauch (2017) from the Cambridge Centre for Alternative Finance, in 2016 there were around 10 million people around the world that owned Bitcoin. The report also reveals there is a growing number of merchants worldwide that accept virtual money as a means of payment. Still, people do not use cryptocurrencies for their daily purchases due to the price volatility and the fact that the economy is not yet cryptocurrency-based.

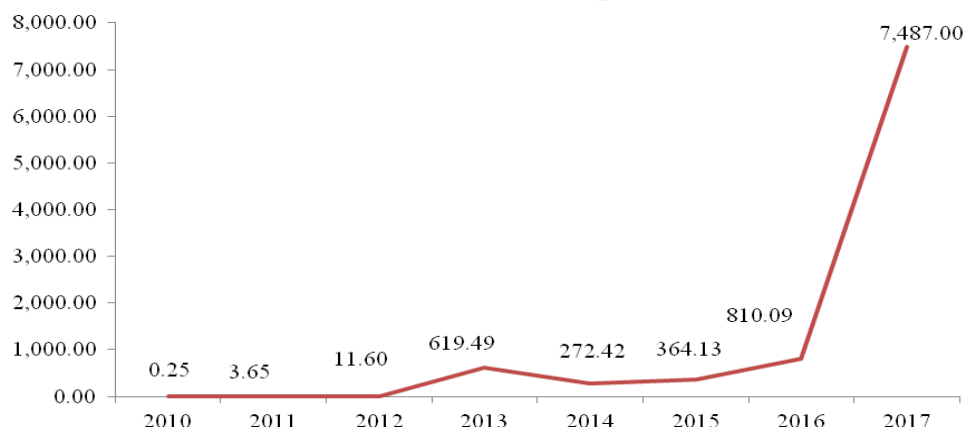
Table 1. Cryptocurrencies Market Capitalizations on the 16th of November 2017

Rank	Name	Market cap (\$)	Price (\$)	Circulation supply	Volume (24h) (\$)	% change in 7 days
1	Bitcoin	124,915,866,558.00	7,487.76	16,682,675.00	4,157,970,000.00	3.78%
2	Ethereum	31,718,817,624.00	331.23	95,761,281.00	696,121,000.00	3.42%
3	Bitcoin Cash	18,052,542,573.00	1,074.23	16,805,100.00	1,963,800,000.00	70.87%
4	Ripple	8,238,610,568.00	0.21	38,622,892,459.00	122,815,000.00	-2.36%
5	Litecoin	3,428,420,697.00	63.67	53,850,357.00	169,528,000.00	0.86%
6	Dash	3,236,113,295.00	420.72	7,691,919.00	94,258,500.00	28.64%
7	IOTA	2,243,039,245.00	0.81	2,779,530,283.00	105,177,000.00	43.35%
8	Monero	1,904,116,137.00	123.97	15,359,615.00	64,204,600.00	6.90%
9	NEO	1,892,371,000.00	29.11	65,000,000.00	40,880,000.00	-9.74%

Source: Coinmarketcap.com, 2017

Currently, there are 1,281 traded altcoins at a market capitalization of \$ \$216,996,366,219. Bitcoin has a share of 58 %. The table 1 reveals that the value of Bitcoin transactions exceeded \$4.1 billion daily, followed by Ethereum (\$0.7 billion daily) and Bitcoin Cash (\$1.9 billion daily). At the time of the analysis, AlphaCoin registered the highest price increase in the past seven days (2,137.46%) while ZCash Gold recorded the lowest drop (-59,11%).

Figure 1. Average USD market price across significant Bitcoin exchanges (USD) at the end of the year and the latest market price for 2017 (16.11.2017)



Source: <https://blockchain.info/charts/market-price>

Figure 1 reveals a considerable volatility of Bitcoin over an eight years span, but the return proved to be significant for the investors in the long run. In comparison to the end of the last year, on the 16th of November 2017, Bitcoin increased by 823%.

This trend is emphasised by Osterrieder et al. (2017) who proved that the annualised volatility of Bitcoin and other cryptocurrencies is substantially more significant than any of the standard financial asset, such as currencies, equities or commodities, with annual fluctuations reaching levels beyond 100%. According to their calculations, one can expect a loss of more than 10% once every 20 days. Still, in their opinion, the investment in Bitcoin is safer, in general, compared with other altcoins.

At the beginning of the year, Bovaird (2017) inquired some experts for their prognosis of bitcoin's price movements in the year ahead. The most optimistic forecasted that the price of Bitcoin would reach between \$2000 and \$3000 by the end of the year, while the pessimist one predicted a year-end price of \$1400. The reality proved them wrong, the current price of Bitcoin exceeded \$7000.

Table 2. World's Top 10 Bitcoin-friendly/ unfriendly countries

Rank	Friendly countries	Official position	Unfriendly states	Reasons
1	Estonia	Estonia does not regulate the use of cryptocurrencies. The government is considering to use the blockchain technology for healthcare, banking services and other suitable public areas.	Nigeria	As of January 2017, Nigeria banned all transaction in bitcoin and other virtual currencies.
2	The United States	According to the U.S. Treasury, bitcoin is a convertible decentralised virtual currency (Forexsq, 2017).	Bolivia	According to the Central Bank, it is illegal to use any currency that was not issued, controlled and regulated by a country or any authorised entity (Yahoo News, 2014).
3	Denmark	Danish Central Bank declared that Bitcoin is not a currency, stating that it will not regulate its use in the country. Danish Financial Supervisory Authority suggests that Bitcoin is an electronic service and the earnings from its use would, therefore, be taxable. Denmark aims to digitalise its currency 100%.	China	Bitcoin is not allowed in the banking system. The citizens are permitted to mine and do transactions in cryptocurrencies (Forexsq, 2017). China is planning to create and use its cryptocurrency, as per the announcement from January 2017 by the officials of the People's Republic of China. The analysts from Bitcoinbans consider that all other cryptocurrencies will be banned when the Chinese cryptocurrency will be released (Bitcoinbans, 2017).
4	Sweden	The Swedish Financial Supervisory Authority (Finansinspektionen) declared Bitcoin and other cryptocurrencies as a means of payment. (Wikipedia, 2017).	Ecuador	Ecuador banned altcoins in 2014. The government declared an intent to issue a state-backed cryptocurrency.
5	South Korea	For the time being, Korea does not have regulations on cryptocurrencies (Wikipedia, 2017), though some analysts from the Bank of Korea suggested in 2013, that Bitcoin should be subject to regulations in the future (Library of Congress, 2014).	Iceland	The local currency cannot leave the country. As a consequence, buying Bitcoin may breach this rule (Cryptocoins News, 2015).
6	The Netherlands	The state does not regulate the use of cryptocurrencies, but the technology behind it (Blockchain) is under assessment and if proved proper to be implemented in the local banking to cut costs (Scott, 2016).	India	Banks do not service Bitcoin businesses.

Rank	Friendly countries	Official position	Unfriendly states	Reasons
7	Finland	Bitcoin is a financial service, VAT free (Scott, 2016).	The Russian Federation	The ruble is the exclusive means of payment in the Russian Federation. Central Bank considers transactions in Bitcoin as "dubious activities" connected to organised crime (money laundering, terrorism financing) It recommends that Russian citizens and companies should not transact cryptocurrencies (Library of Congress, 2014). In 2015, the government proposed steep fines on the use or creation of digital currencies. Still, the Russian government is reportedly looking to recognise Bitcoin as a kind of financial instrument in 2018.
8	Canada	Virtual currencies, including Bitcoin, are treated as "money service businesses" (Scott, 2016).	Thailand	Bitcoin is illegal as from the 29 th of July 2013 (Smart, 2015). It is forbidden to buy, sell or use Bitcoins to purchase goods or services inside or outside the country (Bitcoin bans, 2017).
9	UK	Bitcoin is currently unregulated and treated as foreign currency (private money). The Bank of England is analysing the possibility to implement Bitcoin technologies to improve its monetary system.	Vietnam	Vietnam banned the bitcoin in February 2014. The Central Bank considers bitcoin transactions highly anonymous. "Bitcoin can become a tool for crimes like money laundering, drug trafficking, tax evasion, illegal payment" (Smart, 2015).
10	Australia	Australian citizens are allowed to use Bitcoin freely as any other currency (Scott, 2016)	Colombia	Bitcoin is illegal in Colombia as of the end of 2016.

Author's compilation of existing literature.

In table 2 we centralised some approaches of the countries towards the altcoins. On the one hand, some of the developed countries try to become pioneers in promoting the Blockchain technologies and their advantages to modernise the financial system and not only. On the other hand, there are countries reluctant to implement this new technology or even allow their citizens or companies to use it as a means of payment. An important aspect, worth being emphasised is that some countries consider implementing their cryptocurrencies for various reasons, the control being one that comes to mind. So, our analysis already identified two groups of countries, one of the countries favourable to altcoins and one of the nations against cryptocurrencies.

2. Advantages

2.1. Personal data protection.

In this regard, according to Franco (2014), there is a low risk for the Bitcoin users in case of a retailer or a partner in a transaction is subject to a cyber attack and loses traditional financial or personal data of the customers or its own. Bitcoin users are at risk only if the hackers get access to their private keys.

The average cost of a data breach reached \$4 million in 2016. That year, the US and Germany registered the highest average cost per capita \$221 and \$213 respectively. The costs are different from one industry to another. The average global cost of a lost or stolen record was \$158. Healthcare and education organisations recorded higher costs (\$355 and \$246). At the other end of the ranking, transportation (\$129), research (\$112) and public sector (\$80) had the lowest average costs for a lost or stolen record. In most cases, data breaches were caused by hackers and insiders. Malicious or criminal attacks caused 48% of all violations, and the average cost per record to resolve such an attack was \$170 (Ponemon Institute, 2016).

In 2007, Wonga, a short-term loan company, has suffered a significant data breach. Private information of around 245,000 customers could have been compromised, including bank account numbers, full names, email addresses, home addresses, phone numbers, and the last four digits of debit card numbers” (Dunn, 2017).

2.2. Lower transaction fees

Bitcoin’s transaction fees are lower than credit cards’. Hayes (2016) shows that transacting \$100 of value with a credit card would cost \$3.37. A bitcoin transaction of similar value would cost at most around \$0.61 - making credit cards a little more than 5.5 times more costly for that operation. In this regard, Vigna and Casey (2016) consider that governments might be interested in supporting the adoption of cryptocurrencies to reduce procurement costs or bring greater transparency to governance. We already mentioned that some countries (Denmark, China, United Kingdom, Estonia) consider implementing Blockchain technology to better their banking systems and administration.

The business that accepts payments in bitcoins saves on credit card fees. These fees can range up to 5%, for each approved payment. The cost of transactions in Bitcoins is lower, reflecting the amount of data sent (Blystone, 2015).

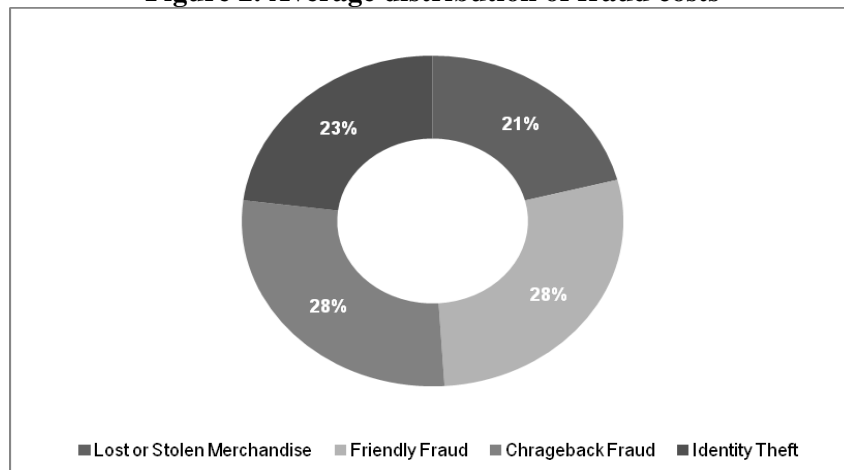
The Bitcoin transaction fee critics argue that the cost of transactions in bitcoins would be higher if they include theft protection and compliance/regulatory costs (Franco, 2014).

2.3. The speed of the transfer protects the merchants from chargeback fraud¹.

A Bitcoin payment is confirmed in 10 to maximum 30 minutes, while a bank might need several days to settle (Seaman, 2014). In this case, the merchants have time to check the transaction before they deliver the goods or services. Another advantage is the fact that altcoin transactions are irreversible unless the seller agrees to that with the customers, as a consequence, the risk of charge-back fraud is negligible.

The Lexis Nexis True Cost of Fraud Report 2016, reveals that in 2016 every dollar of fraud cost the merchants 2.40 dollars as compared 2.23 dollars in 2015, according to the Fraud Multiplier tool. The volume of successful fraudulent transactions rose to 206 in 2015, from 156 in the previous year. The ratio of fraud in the revenues of merchants increased to 1.47 percent from 1.32 percent (LexisNexis, 2016).

Figure 2. Average distribution of fraud costs



Source: Chargeback.com

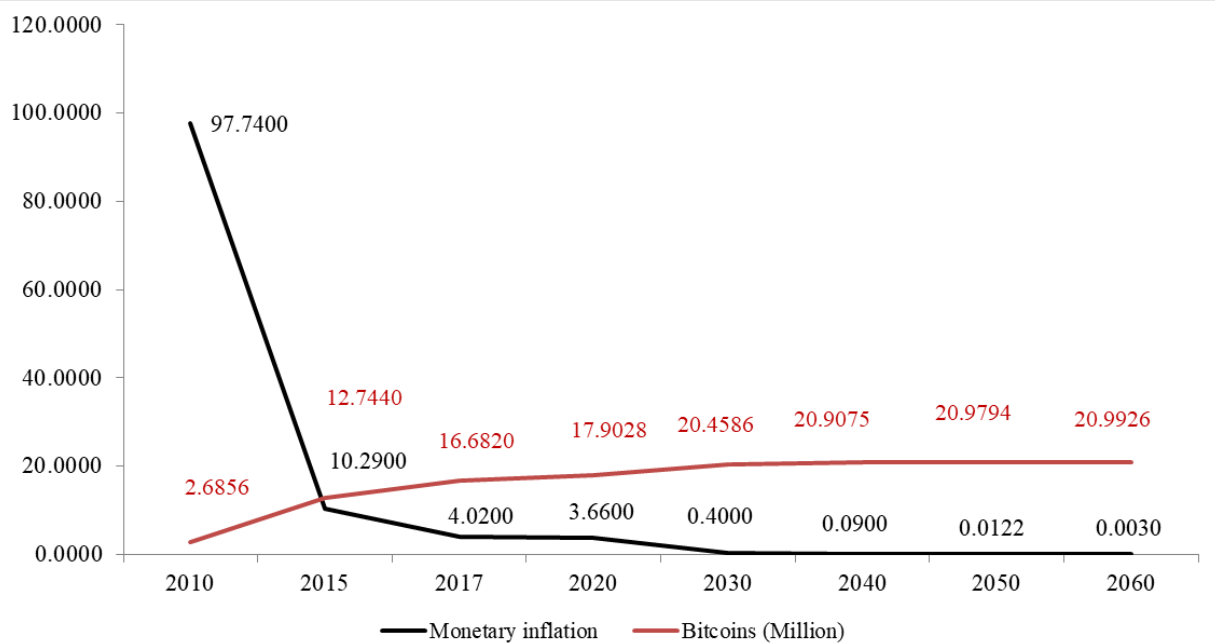
¹ Chargeback fraud, also known as friendly fraud, occurs when a consumer makes an online shopping purchase with their own credit card, and then requests a chargeback from the issuing bank after receiving the purchased goods or services. Once approved, the chargeback cancels the financial transaction, and the consumer receives a refund of the money they spent. When a chargeback occurs, the merchant is accountable, regardless of whatever measures they took to verify the transaction (https://en.wikipedia.org/wiki/Chargeback_fraud#cite_ref-mt_1-0)

In 2016, e-commerce industry suffered an estimated revenue loss of \$6.7 billion due to chargebacks, out of which 71%, \$4.8 billion respectively was due to friendly/chargeback fraud (Shukairy, 2016).

2.4. Bitcoin is immune to inflation

Young (2016) argues that the monetary inflation rate of Bitcoin would decrease at a fixed rate over the time as the number of Bitcoins in circulation continues to rise at a fixed rate until it reaches its maximum limit of 21 million Bitcoins. According to Figure 3, its monetary inflation rate decreased from around 90% and 2,916 million BTC in 2010 to 4.02% in 2017. By 2062, when it is supposed to reach the limit of 21 million BTC, the monetary inflation is expected to reach 0.0015%.

Figure 3. Bitcoin Monetary Inflation between 2010 and 2060



Source: <https://plot.ly/~BashCo/5.embed>

3. Disadvantages

3.1. Lack of solid anonymity

Reid and Harrigan (2013) argue that Bitcoin transactions, including cryptocurrency's centralised services such as exchanges and wallet services, are not entirely anonymous. The same opinion share Fanti and Viswanath (2017) who argue that current flooding protocols used in the Bitcoin network do not sufficiently protect user anonymity. Since there is no information about the user in the public key of the cryptocurrency, Bitcoin enjoy a better degree of privacy than in other traditional digital transfer services. Still, staying completely anonymous it is challenging if one takes into consideration the statistical techniques and pattern analysis that can profile and reveal up to 60% of the Bitcoin users (Tsukerman, 2015).

A survey performed by Fabian et al. (2016) revealed that seven out of ten people consider that Bitcoin has a reasonable level of anonymity (medium to high), while the associated risks are medium or low. However, almost every 5th user has already considered abandoning Bitcoin due to anonymity concerns.

3.2. Like other currencies, Bitcoin could be prone to scams

The private key gives the owner access to the bitcoin wallet. If that key is lost or stolen, the owner cannot access the money anymore. To steal the key, a perpetrator needs direct access to the folder that contains it.

A study conducted at the Southern Methodist University from Dallas (SMU, 2015) shows that fraudulent schemes have scammed over 10 million dollars in Bitcoin deposits from unsuspecting cyber customers between 2011 and 2014.

The main scams were:

- a) High-yield investment programs (online Ponzi schemes that promise high-interest rates on deposits);

- b) Mining investment scams (taking orders and money from customers but never delivering any mining equipment);
- c) Victims were convinced to make Bitcoin deposits into “scam wallets” that offer greater transaction anonymity (if the deposit rises above a threshold, scammers move the money into their wallet);
- d) Exchange scams (offering better exchange rate than competitors, but customers never get Bitcoin or cash after making payment).

3.3 A new, better cryptocurrency

As we have shown in table 1, on the 16th of November 2017, there were 1,281 traded altcoins at a market capitalisation of \$ 216,996,366,219. Just a few months back (end of April 2007), there were 816 traded cryptocurrencies, totalling a market capitalisation of \$35,740,655,054. Out of the total market capitalisation of the Cryptocurrencies, Bitcoin has a share of 60.36 percent at the end of April and 58% in mid-November 2017. That points out that the share of bitcoin is decreasing. Moreover, this is only due to new altcoins that entered the market. If big players like Visa, Mastercard, and significant banks join in, the picture could look different. Vigna and Casey (2016) share this belief that a well-renowned company might implement a better payment system benefiting from a wide range of clients established distribution networks and better mobile technology. Still, Hayes (2017) considers that in 2017, the focus on Bitcoin as the dominant digital currency will increase despite the competition, and its technological improvements since its next competitors have a way lower market capitalisation (Table 1).

3.4. Trust

Adopting altcoins and trusting them with one savings or earnings could be a difficult choice for people, especially the older generations which are accustomed to classic money (coins, notes, cards). Since the cryptocurrency phenomenon is relatively new, one can understand the reluctance of people or businesses to jump into the unknown. For the general public, the complicated algorithms and the idea of a virtual wallet might be frightening.

A survey conducted by Harris Interactive in the US in 2014 found that 48% of American adults are aware of Bitcoin, but only 13% would choose it as an investment over gold (WebWire.com, 2017).

Table 3. Support for Bitcoin increases with Income and Education, Declines with Age, Men slightly More Supportive

	Allowed (%)	Not Allowed (%)	Don't know (%)
All	38	47	14
Male	43	46	10
Female	34	47	17
High School	31	50	17
Some College	40	47	11
College+	47	41	11
<\$75,000	36	49	14
\$75,000-\$110,000	41	37	17
\$110,000+	55	39	5
18-34	56	37	7
35-54	39	47	13
55+	25	54	19

Source: Ekins, 2014

Table 3 shows that the most significant support for Bitcoin (56%) comes from the Americans aged 18-34, followed by the Americans with yearly incomes over \$110,000 and at least college educated ones (47%). As a conclusion, the more highly educated, young and wealthy, the more open to experimenting disruptive technologies, benefitting from the window of opportunity.

6. Conclusions

As we emphasised, the phenomenon of cryptocurrencies is developing at a high rate. Bitcoin is for the time being the king of virtual money regarding market capitalisation, and daily transactions.

The developed countries are more open to adopting cryptocurrencies than developing countries. In such developed countries Bitcoin is regarded as private money, money service businesses, financial service, means of payment, electronic service, decentralised virtual currency and so on. Some developing countries consider bitcoin, and other cryptocurrencies illegal because they are not issued and controlled by a government and can be involved in “dubious activities” such as money laundering, terrorism financing, human and drug trafficking, tax evasion, illegal payments. There are several countries (Ecuador, China), that consider implementing their cryptocurrencies.

Bitcoin has several advantages that can help its development in the following years. Personal data protection of the users is better ensured. In case a retailer is compromised by a security breach, customers` data are still safe. The transaction costs are over five times lower than the ones made by credit card.

On the merchants` side, it offers more protection in case of charge-back fraud, the transactions being confirmed in 10 to 30 min, giving the seller time to receive the money before delivering the ordered goods. The monetary inflation of Bitcoin will decrease in time until it reaches the limit of 21 million mined bitcoins.

On the downside, we identified that the anonymity of the transactions in bitcoins could not be 100% ensured. Keeping safe the private key to the wallet might also prove to be a problem in the case of computers connected to the Internet, or if an attacker has physical access to one`s storage device. As we showed, some scams are being operated by criminals against bitcoin owners (Ponzi schemes, mining devices never delivered, buffer wallets and exchange scams).

No system is perfect, but the dynamic of the cryptocurrencies phenomenon, the intentions of some developed states and large private companies to adopt blockchain to improve the financial and administration systems indicate that there are other opportunities to be explored in the future.

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China' Image: A Theoretical and Practical Framework

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Abstract: *The present paper has three main research objectives. First, we define a country's image through its principal dimensions, channels of communication (including the Public Diplomacy) and impact on the international relations framework. Second, we underline the specific determinants of China's image worldwide. The literature review emphasizes this country's distinctive "assets and liabilities", taking into account the role played by the political system in the Chinese economy, external factors, associated with the generally accepted norms and values, the geographical distance that hinders the direct contact and mutual understanding. Third, on the basis of recent studies, we analyze how China is perceived in different regions/countries and demonstrate that the economic rationale of international relations is stronger than that induced by a partner country's image.*

Keywords: *Country image, China, Public Diplomacy, International Relations*

JEL Classification: *H00, F50, O52, O53, Z00*

1. Introduction

In this paper,¹ our first objective is to focus on the conceptualization of a country's image (CI), taking into account all its four dimensions (functional, normative, aesthetic and sympathetic) as incorporated in the 4D model (Buhmann, Ingenhoff, 2015, Buhmann, 2016). This conceptual framework enables us to understand what effects a CI has on a stakeholder's behaviour/attitude and through which channels this behaviour can be influenced. Second, we argue that the way China is explained to the world but also the objectives followed by other competitors on the global stage are as relevant as China's own "assets and liabilities" in profiling its image (d'Hooghe, 2005, 2007, 2013, Zhang, 2015, Ross, 2013). Third, we underline that a strong leadership exerted by China in world affairs remains largely undesirable among the American and European publics (GMF *et al.*, 2014). The overall opinion on China remains negative, in spite of the positive views in some regions of the world (Gallup, 2016, BBC, 2014).

These three research objectives are interrelated. We start our investigation with the general framework of a country image from the theoretical perspective, continue with the particular case of China and its image and exemplify the way China is really perceived in different regions and countries of the world. Our argumentation is deeply anchored in the International Relations and Public Diplomacy theories and is largely based on the literature review and relevant case studies. Our analysis is structured around three major sections, followed by the main conclusions of our research.

2. Literature review

States, non-state actors and organizations are in search of competitive advantages "in terms of attention and visibility" and also comprehension and acceptance. Their ultimate goal is "to gain and preserve a favourable image" (Dolea, 2016, p. 276).

A **country image** can be defined as *the perception of a country among its foreign publics* (the "other" of the international relations theory) (Buhmann, 2016, p. 39). It can also be understood as the aggregate *descriptive, inferential and informational beliefs one has about a particular country* (Martin, Eroglu, 1993, p. 193). The second definition refers to the cognitive process, while the first one may include besides the cognitive element an affective dimension.

¹ Based on findings of: Oehler-Şincai, I. M. (coordinator) (2017). *Romania, at the junction between the Chinese initiatives BRI and 16+1*, Institute for World Economy, Romanian Academy, November.

The country image is the mirror of the **country identity** (the “self” from the dichotomy “self-other” in the ubiquitous international relations theory), which *is conceptualized as the domestic self-perception among a country’s domestic public* (Buhmann, 2016, p. 39). In practice, the country image is not always the same as the country identity, as demonstrated by the Chinese case study.

These concepts are essential both in theory and practice, as they make the difference between attitudes, varying from tolerance, recognition, appreciation, esteem, as opposed to intolerance, disapproval, antagonism and hostility. Attitudes influence “the success of a country’s business, trade, tourism and diplomatic relations because it affects the behaviour of central stakeholders abroad” (Buhmann, Ingenhoff, 2015, p. 62).

A country’s political influence worldwide depends not only on assets such as resources, economic performance, military capacity, leadership and quality of government but also on its image and how attractive the country is for consumers, investors, tourists, professors, experts and students. All these different perceptions combined generate the country image.

Attributes such as *labour market, education system, standard of living, social security, environment protection, business environment, quality of institutions, technological progress, foreign policy, military capacity, tourist attractions, history, culture, values and norms, society as a whole, quality of goods and services produced in that country*, all these or a part of them represent elements analyzed, deliberately or not, by the public in order to acquire an overall opinion towards a country. It is noteworthy to mention that for each segment of the large public there are different **communication channels** influencing the attitudes of that public towards a given country (e.g. *mass media, reports, official statements, studies, academic research, Public Diplomacy, friends, acquaintances and colleagues, own experience forged through the direct contact with: goods and services of that country, people, institutions, culture etc.*).

At present, in the field of International Relations, “country images are studied mostly with regard to the concept of Public Diplomacy, i.e. the strategic communication of a nation-state aimed at enhancing the country’s reputation among foreign publics” (Buhmann, 2016, p. 33).

William James McGuire, a pioneer in the “art of persuasion and how to resist it” (Pearce, 2008) developed almost 50 years ago the Yale attitude change approach (McGuire, 1968). His model of the persuasion process includes six steps: Presentation; Attention; Comprehension; Yielding (or Acceptance); Retention and Behaviour. In this schema, not only the consecutive steps are important, but also the quality and consistency of the messages and how prepared is the public to accept the messages and disperse them. The target groups can be evaluated from the standpoints of: level of training, education, culture, intelligence, leisure, financial resources, environment and networks.

The recent literature (Buhmann, Ingenhoff, 2015, Buhmann, 2016) identifies four complex dimensions of the CI, namely **functional, normative, aesthetic and emotional**. This is coined as the 4D model of a country image which is based on concepts from three distinct theories: reputation management (Eisenegger and Imhof, 2008; Ingenhoff and Sommer, 2007), national identity theory (Smith, 1987), and attitude theory (Ajzen and Fishbein, 1980).

From the multitude of channels used by global actors to forge/sustain/change a country image, at present the Public Diplomacy (PD) is the most relevant in terms of persuasion potential.

In the literature of the post-Cold War era, PD is defined as a cumulus of components starting from the core elements: listening; advocacy; cultural diplomacy; international exchanges; international broadcasting; and continuing with nation branding; diaspora relations; foreign aid; international relations; business diplomacy (Cowan and Cull, 2008, Cull, 2009, Gilboa, 2012).

Gilboa (2012) defines PD as *one of the most multidisciplinary areas in modern scholarship and a communication process states, non-states actors and organizations employ in order to influence the policies of a foreign government by influencing its citizens*. In his opinion, PD enables the presentation of *a nation’s ideas, ideals, institutions, culture, national goals and policies*. He underlines that in the 2000s, it has been coined the term of New Public Diplomacy (NPD),² synonym with PD 2.0 or digital diplomacy according to d’Hooghe, (2015), in order to differentiate this concept from those of the Cold War era and to adjust its mechanisms to the Information Age.

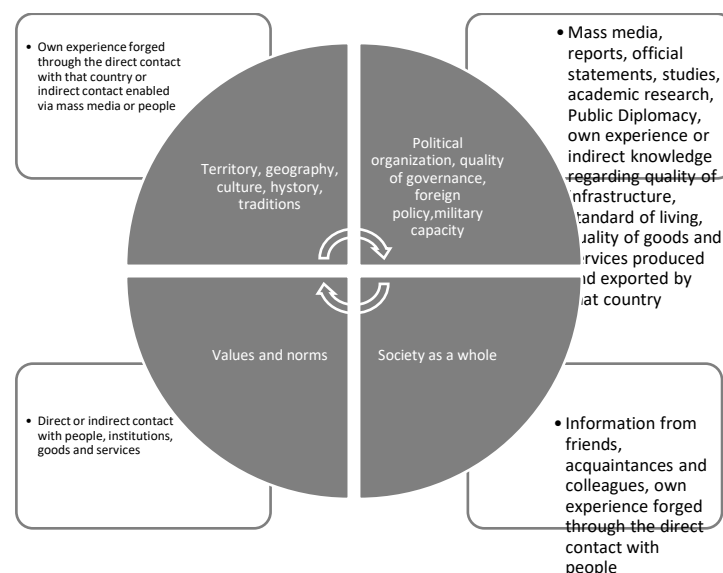
² NPD is a component of *smart power*. This hybrid form of power is an American “product” designed in 2006 for the special purpose of improving US’ image in the world. Smart power is the “skilful combination of hard and soft power” and has five critical areas of action (CSIS, 2007): (1) alliances, partnerships and institutions; (2) global development; (3) new public diplomacy; (4) economic integration; (5) technology and innovation.

Even if the literature on the topic of country image is still dominated by marketing studies (from the standpoints of: country of origin, tourist destination image, national brand and national branding), the attractiveness of the research topic structured around the country image from the perspective of PD (or NPD) has sharply increased since 2000s.

3. Specific determinants of China's image worldwide

For each public (according to its expertise and experience, age category, presence of absence of direct contact with the country analyzed, pre-existent negative or positive attitude towards that country) there are specific communication channels which influence the perception process. **Figure 1** synthesizes in a matrix the main attributes of a country and several possible channels of communication. In the specific case of China, some attributes such as territory, geography, culture and traditions are associated with a positive connotation. History generates both positive and negative attitudes, depending on the standpoint of the partner country (see for instance the Sino-Japanese relations). At the same time, attributes such as economic performance/results and their impact on society, foreign policy, the quality of governance are a double-edged sword.

Figure 1: Schematic representation of a country attributes (sections of the circle) and possible channels of communication that might influence the attitudes towards a given country



Source: Own representation.

China possesses “liabilities” (sources of negative perceptions) and “assets” (sources of strength) (d’Hooghe, 2007, pp. 13-16) that confer individual characteristics to its image. Among the liabilities there are sensitive issues in relationship with other countries, both developed (US, EU countries, Japan, South Korea) and emerging/developing (for instance India). Either old (human rights, Tibet, Taiwan, environmental pollution, unfair competition, low-quality goods and services) or new (territorial disputes), the sensitive issues are mostly concentrated in the normative but also functional dimension of the 4D model of a country image. In antithesis, culture, history, traditions, Confucian values, tourist attractions, economic and social progress are among its strengths. Referring to the 4D model of a country image, these are mostly concentrated in the aesthetic dimension of the country image, but also the functional dimension and marginally to the normative dimension (Confucian values). However, the lack of real understanding of China may incur, due to the large geographical distances to other partners (for instance, EU countries) or the historical background (in relationship with Japan).

In order to stress China's assets and temperate its liabilities, the Chinese PD is a predilected tool employed by its leaders. Nonetheless the efficiency of the Chinese PD in terms of CI is often diminished by other competitors' objectives on the global arena.

Each stage of the Yale persuasion approach (Presentation; Attention; Comprehension; Acceptance; Retention and Behaviour) is taken into account by the Chinese Public Diplomacy. China ranks first in the world for resources spent on PD as this is considered as one of the relevant channels leading to: *acceptance of its*

economic and political rise; recognition of its values and policies; rising government's legitimacy; consolidation of the right to speak and co-exist with the liberal international world order (d'Hooghe, 2013).

The Chinese Public Diplomacy is meant to “explain China to the world” (Edney, 2014), by specific means (politic, economic, cultural and social channels) and with distinct goals, such as clarifying delicate or sensitive issues to the national and international publics from the Chinese standpoint. This was dubbed as “Chinese charm offensive” by Joshua Kurlantzick in 2007. However, the literature (Cao, 2011) underscores that although the “Chinese intellectuals have constructed a discursive package of a traditional value-based soft power”, *until now it has not been provided a soft power in every sense of the word, but a merely soft power potential*. This is mainly due to the fact that China's image is only a pale reflection of its real identity.

In the literature it is underscored that the efficiency of the Chinese PD in terms of CI seems unable to reach its full potential. The “China Threat” debate reignited in the United States and spread to other countries of the world, not only developed but also developing (d'Hooghe, 2005, p. 90). In reply, the “peaceful rise of China” strategy (since 2003) and “harmonious world” theory (since 2005) were meant to dissipate fears and *present China as a reliable, trustworthy and responsible partner in search of peace and prosperity not only for itself, but for its neighbours and the whole world as well*. As those strategies seemed to bear fruit, the United States adopted a series of counter-strategies. One of them, the so-called “US pivot to Asia-Pacific” since 2011, has been equivalent with countering the rise of China and counterbalancing the existent regional alliances, as well as redefining norms and rules in the Asia-Pacific (having in mind the territorial disputes between China and Brunei, Malaysia, the Philippines, Taiwan and Vietnam over a series of islands in the South China Sea). Regional tensions have become more pronounced after the US intervened in the conflict by supporting multilateral dispute settlement through negotiations and, consequently, China's image deteriorated. Similarly, as part of the same strategy, United States found a good ground to alter the Sino-Indian relationship, as India has its own ambitions to become an economic and military power (Oehler-Şincai, 2016). Therefore China should find other instruments or tune the actual ones in order to improve its image regionally and globally.

4. How is China perceived worldwide?

At present there are no multi-year surveys regarding China's image in most significant countries of the world. Among the existent analyses the most relevant are those made by: Gallup (2016), Pew Research Centre (2016), GMF *et al.* (2014) and BBC (2014). The scrutiny of the mentioned works reveals the following conclusions.

In spite of the endeavours to “present”, “explain” and “promote” China abroad, a strong leadership exerted by China in world affairs remains largely undesirable among some publics, especially American and European. In 2014, the “Transatlantic Trends” study highlighted that only 38% of the US and 28% of the EU respondents³ described strong Chinese leadership as desirable (GMF *et al.*, 2014). The overall opinion on China remains negative, in spite of the positive views in some regions of the world (Gallup, 2016, BBC, 2014). China is most favourable perceived in African and Latin American countries. In Asia, opinions are divided: China's perception varies from highly positive in Pakistan; comfortably positive in Indonesia; negative in India (due also to the relationship with Pakistan) and South Korea; extremely negative in Japan. In the US and EU dominate the negative perceptions on China.

In a study on EU member states attitudes towards China, Fox and Godement (2009, p. 6) included Romania in the large group of *Accommodating Mercantilists*.⁴ The main common characteristic of the countries in that group was related to the assumption that *good political relations with China will lead to commercial benefit and economic considerations must dominate the relationship with China*. This group is opposed to the Assertive Industrialists (Czech Republic, Germany and Poland), “ready to pressure China with sector-specific demands” and impose a particular conduct on both political and economic issues. It is also different from the Ideological Free-Traders (Denmark, Netherlands, Sweden and United Kingdom) and European Followers (Austria, the Baltic States, Belgium, Ireland and Luxembourg) which do not consider the relationship with China as central to their foreign policy. It is worth mentioning that Germany is the EU country with the most unfavourable rating of China (BBC, 2014). However this does not prevent it to have a strong economic relationship with China, which underlines that *the economic rationale of international relations is stronger than that induced by a partner country's image*.

³ From ten countries: France, Germany, Greece, Italy, the Netherlands, Poland, Portugal, Spain, Sweden, and the United Kingdom.

⁴ Bulgaria, Cyprus, Finland, Greece, Hungary, Italy, Malta, Portugal, Romania, Slovakia, Slovenia and Spain.

Until now, there are no studies focused on Romania's perception on China. One recent study (Oehler-Şincai, 2017) presents a Romanian view on China's image in Central and Eastern Europe. Even if China intensified its efforts to cooperate more intensely with those countries and offered new frameworks such as *Belt and Road* initiative (BRI) and the *16+1* platform⁵, its image in most EU countries of the region remained unfavourable. Interviews with sinologists, journalists and ministerial experts undertaken by the author during July-August 2016 in Bucharest⁶ revealed the following results. China's image appeared as rather unfavourable. Moreover, China was considered as *not visible enough* in Romania. Even initiatives such as *BRI* and *16+1* are not clearly understood by the public at large.

Why is China negatively perceived in major economies and even in countries of Central and Eastern Europe? There is a wide range of explanations for this status quo. *First*, Chinese large scale initiatives are often associated with propaganda, reducing considerably the message credibility. It should be underscored that in Central and Eastern European countries, the region's communist past continues to be a barrier in the relationship with China. In most countries of this region, including Romania, the national interest is strongly related to the opportunities offered by the European Union funds and market and the North Atlantic Security Treaty. Political leaders as well as the public at large consider that the opportunities offered by China are incomparably lower than those already provided by other European developed partners and the United States. *Second*, in the foreign mass media, China's assets are often minimized, while its liabilities are emphasized, which creates a disproportion between the assets and liabilities in favour of the latter. *Third*, activities of Confucius Institutes and China Radio International seem that are not able to reach a large audience, despite the costs attached. Learning Chinese language is a long term process and without continuity and hard work, no progress is possible. *Fourth*, the sensitive issues in bilateral relations are not only politicized, but also intensely brought into the international mass media. *Fifth*, although China has already strong brands (own or acquired through mergers and acquisitions), most of them are not widely known, accepted and appreciated as Chinese ones in Occident. These are only several reasons why China is not enough understood and even misunderstood.

5. Conclusions

Generally, a country image is determined by the following categories of factors: (1) its specific "assets and liabilities"; (2) how the country *explains itself to the world*; (3) how other players of the global stage *explain that country to the world*, according to their specific objectives; (4) the capacity and will of the public to understand that country, as well as the access to objective information.

Our research emphasized that China's image is multi-dimensional and associated with tangible and intangible assets. There are differences between the image communicated by the national authorities and that perceived by target groups and consequently between China's image and its identity. The way "China is explained to the world" is as relevant as its "assets and liabilities" themselves in outlining China's image. Besides, the public with a stronger knowledge of China from objective sources (including direct experience in that country) tends to have a positive perception on China.

Taking into account the **4D model** and each of the four complex dimensions of the CI, namely *functional, normative, aesthetic and emotional*, our investigation focused on China unveiled several relevant findings. Sensitive issues and sources of negative perceptions are mostly concentrated in the normative dimension (specific beliefs regarding the integrity of a country, its norms and values) and functional one (specific beliefs regarding the competences and competitiveness of a country, its political and economic effectiveness and performance, technological progress, social desirability). Such negative connotations are often highlighted by partners (especially developed ones, belonging to the classical triad United States-European Union-Japan but also emerging/developing countries like India). Nevertheless, China is in possession of many **communication channels** influencing the attitudes of foreign publics: mass media, reports, official statements, studies, academic research, Public Diplomacy, direct bridges made of people with a rich and positive experience forged through the direct contact with Chinese goods and services people, institutions, culture etc. These demonstrate that China possesses also incontestable assets that counterbalance its negative perception among its foreign publics. According to the 4D model, these are concentrated in the aesthetic dimension of the country image (beauty in terms of cultural and scenic place), but also the functional dimension

⁵ Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, plus China.

⁶ The respondents had to give an opinion on how they consider the Romanian public and authorities perceived China. In most cases, the own opinion of experts with strong knowledge and direct experience of China was positive.

(economic and social progress) and the normative dimension (Confucian values). These are often distorted by communication channels in partner countries, which are not always objective and generate a negative perception among its publics. Moreover, the geographical distance hinders the real contact and understanding of real China.

Even if at present there are no multi-year surveys regarding China's image in most significant countries of the world, our analysis suggests that each group of partner countries should be addressed individually by China. One example in this regard is given by the group of 16 countries of Central and Eastern Europe that form together with China the platform 16+1. The communist past of these European countries is not an advantage for China, but rather a barrier. This obstacle can be surpassed by mutual understanding, which forges trust, a prerequisite for cooperation and mutual benefit.

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Romania's European Moment: Reflections on the Common Future

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Abstract: *Recently, the European Commission has drawn up a series of strategic documents regarding EU's future. What all those scenarios have in common is the highlighted need for reform in different key domains, while opening new possibilities for further cooperation among EU Member States. Our paper explores the main strategic approach that Romania must embrace for achieving its full potential as a European Member State, while pursuing its own objectives in terms of economic development. It is our opinion that as a full-fledged member of the EU Romania has to emphasize its position regarding the future of European Union. The present economic and political framework offers a narrow window of opportunity for Romania in terms of establishing its future, which in our opinion is closely linked with the one of a more powerful and democratic Union. Our analysis is based on a scenario approach related to the Romania's future in the "European common house". In our view the best way for Romania approach this future is to adopt a strategy of cooperation that allows a rapid catching up with other advanced European economies under the principle "to do less together but more efficient" (scenario 4), while pursuing its ultimate objective: "do more together" (scenario 5). In order to actively contribute to building a stronger Europe able to face multiple challenges, both internal and external, Romania must reposition itself in a such a way that will allow it to be closer to the decision making process of the Union, while targeting its major future objective: to become a member of the Eurozone. This article is arguing that acquiring the status of Eurozone member will be beneficial for Romania, although in our final remarks we are highlighting both the advantages and the vulnerabilities of this status-quo. However, it is our strong belief that political will is essential for Romania's accession in the Eurozone, and therefore the establishing of a proper institutional framework is crucial for finally adopting the European single currency.*

Keywords: *European Union, Eurozone, Romania, economic development, European single currency*

JEL Classification: *E, E32, E42, F, F02*

1. The need for a new dynamic approach

There is no doubt that the need to reform the European construction opens new opportunities for each Member State, while offering the chance to actively contribute to shaping the future of the EU. As a member state, Romania needs to put in practice a strategic approach taking into account the exogenous and endogenous challenges of this crucial moment for its future and for that of the EU. In this economic and political framework Romania has the duty and the obligation to express its opinion on the scenarios described in the European Commission's documents regarding the future of the EU, while being free to critically analyze them. At present, Romania has a unique chance to express itself on how its own future can be shaped within a Union of states that share the same democratic values: the rule of law, respect for human rights, and enforcement of market economy and property guarantee. Taking this into account, our article proposes an analysis of "Romania's

European moment", critically reflecting on the possibilities and challenges brought by the vision exposed in the strategic documents of the European Commission (Report of the 5 Presidents, State of the Union). It should be noted that these strategic documents underline not only the need to choose a way to continue the integration process (flexible integration, Multi-speed Europe), but also the need to find adequate solutions to some pressing challenges of the present. In our endeavor to imagine the Romania's European future we will group all the above-mentioned elements in order to create a construction that we want solid, perennial, able to face any kind of challenges. As a result, the axes of Romania's future development will be seen as pillars starting from the "vault" of Romania's EU membership, since this is a key element in the multi-dimensional stability at national and European level.

We hope that it has not yet been forgotten that Romania's accession has been unanimously approved at political level and that is why we cannot think of Romania's future outside from the European community. We believe that we have not yet fully benefited from all the instruments of European integration (the Schengen Area, the Eurozone) and that the fault must be shared objectively with our European partners if we want to pragmatically take into account the principles of solidarity and cohesion and their real effects on Romania's development. It is noteworthy that Romania, as a full and equal member state, after 10 years of accession has not made significant progress on real convergence. Sustainable economic growth remains a necessity, but expectations have been and are related to the recovery of development gaps, while achieving a match with EU standards and performance. Returning to the pillars of European construction, they are linked to the challenges, opportunities, vulnerabilities and risks to which Romania is currently exposed, and the "Romania's European Moment" signifies the necessity of expressing its own position regarding the future of the EU. The strategic approach to this common future must take place as quickly as possible and in a very narrow window of opportunity. Together with its European partners Romania needs to find solutions to a tense geopolitical situation at home and abroad, in order to prevent a possible new economic crisis, but also multiple imbalances that might occur in the Euro-Atlantic relationship as a result of Brexit and of the Trump Administration policy. All these challenges require a fast positioning of Romania in relation to the European integration future scenarios (EC, a, 2017) while expressing its support for one of the scenarios of the future of the Union (See Figure 1).

Figure 1: Five scenarios for EU's future

SCENARIOS	IMPLICATIONS
1. CARRYING ON	<i>Focus on jobs, growth and investment in digital, transport and energy infrastructure</i>
2. NOTHING BUT THE SINGLE MARKET	<i>The single market as key pillar of EU-27 with a more positive outcome for free movement of capital and goods</i>
3. THOSE WHO WANT MORE DO MORE	<i>A group of Member States decides to cooperate much closer on defence matters making use of existing legal possibilities</i>
4. DOING LESS TOGETHER	<i>New tools for deepen single market in key areas: innovation, trade, security, defence</i>
5. DOING MORE TOGETHER	<i>EU speaks and acts as one organic body in trade and is represented by one seat in most international fora</i>

Source: Authors, based on studied literature.

We believe that the current tensions faced by EU may prove be an incentive for Romania providing a historic chance to capitalize on existing opportunities in order to reshape its priorities and gain benefits related to its future development. We are currently witnessing rapid changes triggered by the Fourth Industrial Revolution which has induced a new competition for all the countries of the planet: the race for the development of high technology. As regards globalization, it is noted that this process has reached certain limits. This is why, in the future, we could front with the process of deglobalization¹ or we may witness the emerging of new driving forces of this process. For both globalization and the European integration, we can name plenty failures in the interaction of states, currently assisting either to an informal globalization or to a formal European integration. But the new competition induced by the Fourth Industrial Revolution puts into question the very essence of the current international order.

¹ "Deglobalization" is the process of diminishing interdependence and integration between certain units around the world, typically nation-states. The term is widely used to describe the periods of history when economic trade and investment between countries decline.

Accepting this, Romania may build a strategy in order to approach the new status-quo regardless of what kind - political, geopolitical and geostrategic – even if this new international framework disturbs the traditional order of powers. Depending on this, we can discuss what Romania should do as a Member State, since the Union itself is endangered by those changes occurring in the international arena. The risks related to the future of the EU are self-generated by the implementation of its own common policies and by the complicated decision-making process (see the financial, economic and fiscal crises, the sovereign debt crisis, the migration crisis, some member states deviations from the Treaty, the Brexit event) or driven by external factors such as: the new US administration, the divergences with Russia post the Ukrainian crisis, the global financial stability, the quantitative easing policies, growth of trade protectionism, climate changes.

Considering the modernization stages of its historical past (the Revolution of 1848, the Unification of the Romanian Principalities, the regimes of Cuza and Carol I, the achievement of Great Romania², the reign of Carol II and the systemic changes that occurred after 1990), but also the present developments (the signing in 1993 of the Association Agreement with the European Economic Commissions and of the Treaty of Accession to the European Union in 2007, through which our country became involved in Europe's largest political project of all time), for Romania the future is defined within the EU, and this is why we believe that Romanian authorities must support by all means the consolidation of the European project.

Romania's European destiny of is validated by both the political parties and by the population's choice³, backed-up by the political consensus on three capital strategies: systemic changes (1990, transition to the market economy), argumentation of the necessity of Romania's European integration on the basis of the 1995 Strategy and the Pre-accession Strategy from 2000 which was preparing the accession through detailed negotiations.

It should be noted that in the context of its aspirations for European integration, Romania has established the foundations of its future evolution as a democratic state with a functioning market economy, and was subsequently recognized as such by the international partners. At the same time there was a national consensus on the need to become a part of the collective defense system of the NATO Alliance. What is to be emphasized is that in the current global political, economic, financial and commercial system, with the maintenance of its European trajectory, Romania is seeking to secure its own national security in all its dimensions, in order to build a future at European standards for its own citizens. Of course, such a target is not easy to achieve given the existence of multiple challenges - internal governance, sometimes divergent interests of external partners, new challenges and the uncertainties caused by globalization that have affected the very essence of the European integration process. We are currently witnessing the erosion of confidence in the European project due to the lack of strong external activism as well as due to the weak performance of national governments. In this context, Romania has to decide as a Member State on the five scenarios of the European Commission, supplemented by the synthesis scenario proposed by Jean-Claude Juncker.

Note that after the global financial crisis a series of systemic transformations occurred (geographically closer or more distant from the European space), and both the EU and Romania faced economic imbalances as a result of the somewhat brutal measures enforced in order to cope with the crisis challenges. At EU level such measures designed to help the affected economies were for instance the controversial austerity programs that have proven to be exaggerate, affecting the economic development of the targeted states – see the “Troika” and the Greek case.

For Romania, the international context (especially the one related to the Eastern Neighborhood) calls in our opinion for a revival of the national political consensus, which must now focus on a way of action under the new EU approaches in order to ensure the European security and, implicitly, the national security at all levels.

Both in the European space, under the impact of the EU reform as well as on the global stage, Romania faces the emergence of new interests and dimensions of economic and political competition. As a result, recognizing a certain lack of internal and external activism, we are confronted with the urgent need to express a national position regarding the scenarios for the future of the EU at global level. Asserting ourselves

² The origin of the modern Romanian state can be traced to the 1859 unification of the principalities of Moldova and Wallachia under Prince Alexandru Ioan Cuza. During Prince Carol I regime the country obtained its independence (1877), followed by the great unification during king's Ferdinand I regime (1918) and the birth of Great Romania.

³ The signing of the Accession Treaty was received by the Romanian society as a political event of paramount importance, which made possible unprecedented opportunities in promoting Romania's role in building up the united Europe, founded on the principles of liberty, sustainable development, tolerance and respect for human rights.

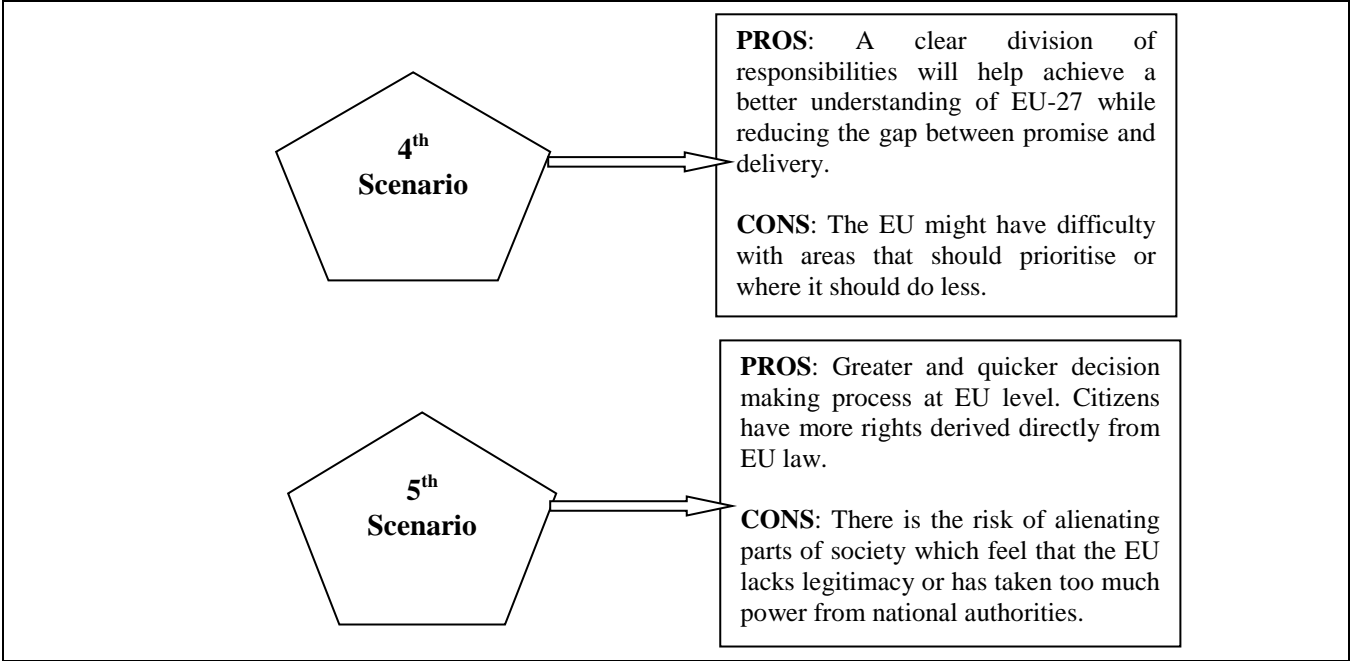
a notable voice in the international arena, maintaining our membership in a stronger and more democratic Union is essential. Hence Romania has to decide whether it remains just a contemplative EU Member State or is firmly committed to the European future agenda that will be depicted at the next European Council meetings. This position involves both an offer of credibility and the allocation of resources to justify it.

From this perspective, we believe that Romania needs to support a mixed choice: embracing the 5th scenario ("doing more together"), with some element from the 4th scenario ("doing less and more efficient"), a formula that might lead to a better structured Union (see Figure 2).

Otherwise, it must be said that the crucial importance of choosing a future path for the EU was highlighted by the President of the European Commission, Jean-Claude Juncker: "We only had two options: either to reunite around a positive European agenda or to retire each in his own corner."

We believe that in this historic European moment it would be a mistake for Romania to choose self-isolation influenced by false activism based on some political statements that are fueling the nationalist and populist agenda.

Figure 2: Pros and cons for the 4th and 5th scenario regarding EU’s future



Source: Authors, based on studied literature.

In addition to expressing its support for one of the scenarios presented by the European Commission, Romania needs to show its readiness to engage actively in the new European security and defense structure, in line with how the Union defines its specific action instruments in the field, since the future of the European political project depends greatly on strengthening the external security. The goal of meeting the expectations of European citizens in terms of security and defense has been an established through the adoption by the European Council of the Rome Declaration on 27 March 2017 (EC, b, 2017). The Rome Declaration presented a vision of a Union that can provide stability and security and is based on a Reflection Paper of the European Commission on the Security and Defense Package of the Union (EC, c, 2017. The Reflection Paper established measures for creating a Union for Defense and Security by implementing: the EU's overall strategy in the security and defense sectors; the European Defense Action Plan; the Union’s cooperation with NATO.

These three strategic pillars are already being implemented through actions for the reform of the common security and defense policy structures and for developing civilian and military capabilities and tools while deepening European cooperation with partner organizations such as the UN and NATO. Their enforcement put Romania in front of its own responsibility of choosing the appropriate enforcement measures that will be required under three different scenarios for the transition to a Union of Security and Defense (each scenario reflects the "EU ambition levels" for implementing joint security and defense activities).

For achieving Romania's commitment to assure peace for today's and tomorrow's generations, political parties have to express their support for implementing the guidelines from the White Paper on the Future of

Europe and from the five reflection papers addressing key themes for the future of the European Union. Hence Romanian authorities could express their support for the best scenario that could lead to an authentic Union of security and defense, while ensuring the highest protection of national interests.

Political consensus should focus not only the EU and NATO membership, but also on a concrete way of action, on finding instruments to ensure European security that responds to the current global geopolitical challenges. At the same time, this consensus should also focus on Romania's commitment to some non-antagonistic bilateral partnerships, such as the one with the USA.

Decisions made through political consensus must reflect an official commitment regarding the major ideas outlined in the five reflection papers related to: the future of European defense policy, the deepening of the Economic and Monetary Union, the future of EU finances, the social dimension of Europe and the exploitation of opportunities brought by globalization.

It is our strong belief that as a Member State we cannot pass onto the exclusive concern of the Euro-Atlantic partnership the tasks related to the national security. Such an approach would lead to a strong national deficiency in the field hence increasing the development gap compared with our strategic international partners.

What we want to emphasize is that in the midst of these evoked needs, against the backdrop of the most active agenda for reforming the European Union, Romania must actively contribute to this process even by assuming the economic costs that shorten its road to security and prosperity. In our view the adoption of the euro is a vehicle and not a goal of these targets.

In our opinion, Romania must support the creation of the Fiscal Union as a medium-term objective, with its "core" being represented by the Eurozone. This means implicitly engaging in a deeper Economic and Monetary Union, with participation in the Banking Union. The completion of the joint resolution fund (European Stability Fund) that will become the European Monetary Fund would allow Romania to become a founding member of the European Monetary Fund. By default, Romania urgently needs to decide on the adoption of the single currency - the euro - not in terms of a date, but as a formalized political program, immediately institutionalized for action. For technical reasons this window of opportunity is very narrow and is also related to Romania's commitment for maintaining its macro stability especially regarding the exchange rate of national currency. We are now facing an outlook marked by inflationary growth driven by domestic causes (the inflation rate will probably exceed 3% annual growth) and this evolution will have negative effects on the exchange rate (the depreciation of the national currency). Moreover at this inflation level the Central Bank will most likely act by applying restrictive monetary policies that will diminish market liquidity.

2 The need for a different strategy

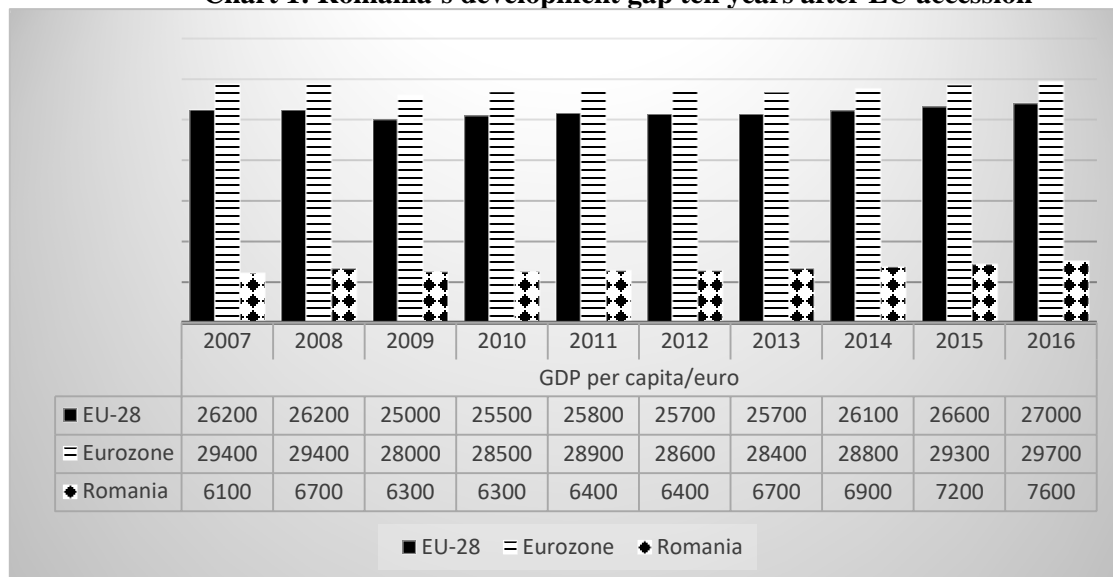
2.1. A changing context

At present, fundamental institutions such as the Romanian Parliament, the Romanian Academy, the National Bank, and other research institutes are hosting crucial debates regarding Romania's future in the European Union. Public space has become a forum that addresses this issue that we could call the "Romania's European Moment" and this context implies the need for urgent and far-reaching policy decisions on strategic and geopolitical options.

We consider that the current framework is defined by the key documents issued by the European Commission (White Paper on the Future of Europe, Reflection Documents about Integration, State of the Union, Towards a Defense and Security Union). At the same time, these new developments take place in a context that is marked by geopolitical risks for the EU and Romania, hence being necessary to find the most appropriate ways to reduce the vulnerabilities for both parties. The start of a major EU reform based on the aforementioned strategic documents is a major opportunity for Romania. In this context, Romania can acquire a new position within the EU due to its geostrategic advantages, and this change may be equivalent with leaving behind its former peripheral status and that of simple follower.

In our view, this historic chance means overcoming the Euroscepticism while targeting a true European future for Romania, which we see indissolubly linked to its Eurozone membership. Romania's accession to the Eurozone is vital because only in this way we will be able to fully benefit from all the advantages of integration, coming closer to the EU's decision-making core. In fact, joining the Eurozone can be an anchor for the stability of Romania's economy, guaranteeing that we fully commit to reducing the development gap, which remain visible ten years after accession (see Chart 1).

Chart 1: Romania's development gap ten years after EU accession



Source: Author's representation based on based Eurostat data. It should be noted that the goal of joining the Eurozone can only be achieved through political will, coupled with balanced macroeconomic policies. Such policies will stimulate Romania's sustainable growth, representing the key step in contributing to a stronger and more democratic Europe (Gallagher, 2013).

2.1. Why should Romania support a mixt choice of elements from the 4th and the 5th scenarios?

We believe that, on the basis of the offers presented in the strategic documents of the European Commission and taking into account the Report of the Five Presidents, Romania must take firm action by implementing the necessary steps for the adoption of the single currency. The adoption of the Euro is not of course a panacea for all our economic imbalances, but it can undoubtedly be a catalyst for the reforms that we need to enforce for becoming a stronger voice within the Union. As a Member State, Romania should not endorse a Multi-Speed Europe project, since such future could ultimately lead to European disintegration. The best possible choice for us as for other Eastern European countries would be to support a necessary flexibility (elements from the 4th and 5th scenario) that could be achieved through enhanced cooperation under the current treaties while emphasizing the need for unity as future engine of EU development.

Strengthening the EU through Romania's participation in the 4th scenario (*less and more effective*) with the transition to the 5th scenario (*more together*) corresponds to our national interests, offering many advantages: (i) we could be at "the decision table" enjoying all the tools of integration; (ii) we could benefit from financial support (SF, EIB, the future European Monetary Fund) for economic objectives or for addressing future crises, without resorting to the IMF; (iii) we could benefit from the security tools that will be available for the Eurozone.

We note that the political action of the powerful states in the Union will now focus primarily on the Eurozone, including the distribution of European funds that will be diminished after Brexit, considering that the well-functioning of the EU's tough nucleus is vital for the future of the Union. Ultimately all major projects will focus on the Eurozone in the near future.

If left aside of the Eurozone, Romania could be entrapped under the Multi-Speed Europe reality. In such scenario we will in fact face a EU divided between a strong and developed core that make all the decisions, and a vulnerable periphery that is doomed only to austerity programs while lacking resources for growth and development. If the "less and more efficient" scenario materializes, Romania will benefit through common policies of the chance to progress in disadvantaged areas, and in our view this is the only way to make real economic progress through the partnership with other Member States. Only after narrowing the gap, Romania could really benefit from the 5th scenario: "doing more together."

3 Ten steps for shaping the future development

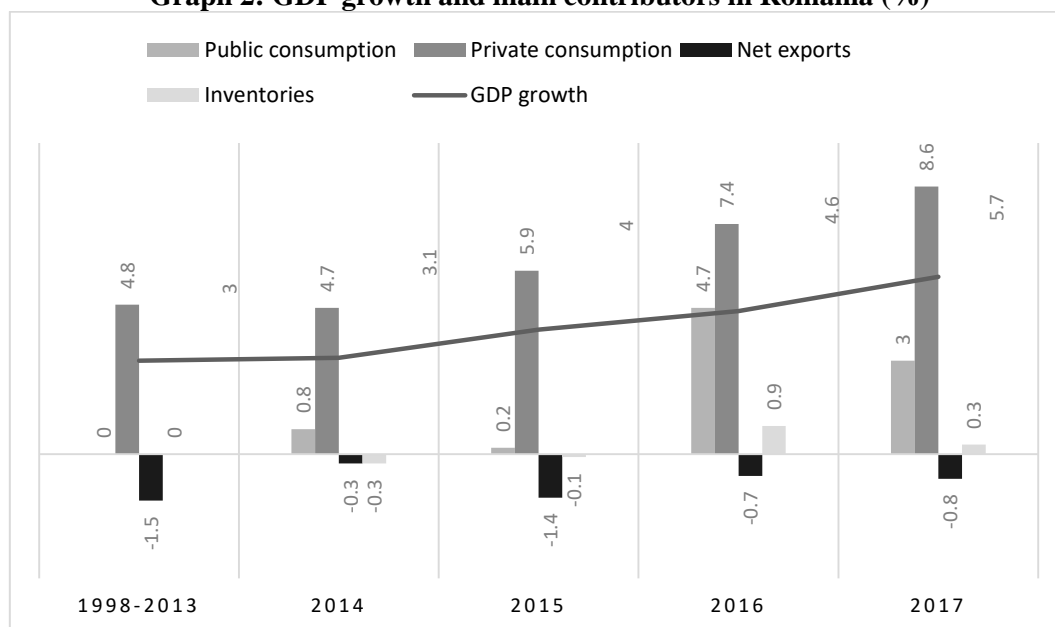
Although Romania is on track towards growth at a fast pace (see Chart 2), its economy is subject to a series of risks in the current European and global economic environment, marked by multiple imbalances. For instance, at European level “although the cyclical recovery has now been underway for 18 uninterrupted quarters, it remains incomplete, with for instance still significant slack in the labour market and untypically low wage growth while GDP growth and inflation are still dependent on policy support” (EC d, 2017).

Meanwhile, the European Central Bank must keep its monetary policy “very accommodative while some other central banks around the world have started raising interest rates” (EC d, 2017). The main risk for Romania is related to the cost of the increasing financing of the public deficit, in parallel with the outbreak of inflationary pressures.

As shown by the recent economic forecast of the European Commission in 2017 “the general government deficit is projected to remain at 3.0% of GDP, while tax cuts (the cut of the standard VAT rate by 1 pp.) will most likely reduce tax revenues” (EC d, 2017). On the expenditure side, public wages and social benefits that were increased will add additional pressure on the general government deficit.

Moreover as a consequence of fiscal easing and of an increasing output gap, “Romania’s structural deficit is forecast to rise to around 3¼% in 2017, hence despite strong GDP growth, the debt-to-GDP ratio is thus projected to rise from 37.6% of GDP in 2016 to 40.5% in 2019” (EC d, 2017).

Graph 2: GDP growth and main contributors in Romania (%)



Source: Authors based on *European Economic Forecasts (2017)*.

All these good and less good elements need to be objectively and pragmatically analyzed, to prevent vulnerabilities from turning into systemic risks with heavy impact on the exchange rate. Regarding these possible vulnerabilities we highlight some countermeasures that can be considered:

i) The Romanian state needs additional funds to support its policies. Between 2008 and 2017, the Romanian state collected around €365 billion from taxes and other contributions. During the same period, the Romanian state spent around €430 billion to support public debt payments, pension payments and redistribution policy. Throughout this period, public investment amounted to almost €44 billion. For the mentioned period, besides the refinanced debt for periods of less than one year (not included here), public debt increased by €48 billion. In the economic boom phase, the state had the duty to save funds for the adjustment phases that are to be forecasted according to economic cycle.

ii) The increase in government spending and public debt has no correspondent in the number of beneficiaries. During the mentioned period the average number of pensioners remained relatively constant at the level of 4.7 million people while the number of employees in the public sector decreased by about 200 thousand people. On the other hand, Romania's population decreased by 1 million people (from 21.6 million in 2008 to 19.6 million people on January 2017). Rapid growth has proven to be inconsistent with sustainable economic development, and as a result real convergence remains low. As an EU Member State, real

convergence can only be achieved by capitalizing the opportunities brought by all EU policies. The EU was created precisely for achieving the real convergence of all Member States (materialized in achieving a better living standard for all) in order to avoid the conflicts and carnages of the 20th century.

iii) Romania's current macroeconomic framework presents higher risks compared with other CEECs countries. According to the European Commission forecast, Romania, together with Poland, is the only EU country that will register, this year and in the next one, an increased public debt and a growth of the current account deficit. The difference between Romania and Poland is that the latter has a slower rate of deterioration of the balance between foreign currency inflows and outflows. In addition, Romania is dangerously approaching the situation of a double deficit (a deficit of the current account balance and a budget deficit higher than 3% of GDP). Countries with such macroeconomic imbalances have a fragile position in the following negotiations regarding the future of EU and the new governance mechanisms. Hence the need for rapid political action, in order to avoid an increased economic fragility, while we are facing a very narrow window of opportunity in terms of both the chosen scenario regarding EU's and the possible deterioration of Romania's economic stability.

iv) Romania depends on foreign capital markets that finance its public debt, and this state of affairs presents at least two vulnerabilities. First, half of Romania's public debt depends on the perceptions of risk of non-residents. About 42% of Romania's total public debt is financed by external creditors. They are influenced in their decisions regarding the purchase price of state bonds issued by Romania, compared to yields offered by other states under similar risk conditions. The prospects of rising interest rates on international markets can no longer be neglected, even if Romania has fixed interest rates for 38% of the total public debt. In addition, even in the case of government securities issued on the domestic market, the share of non-residents' holdings in the total public debt reaches 8%. The second vulnerability is that 40% of Romania's total public debt is in euros, which may lead to additional costs for public spending, if external adjustments are needed and, ultimately, to the depreciation of the exchange rate. Romania needs to analyze the new macroeconomic adjustment and rebalancing mechanisms promoted within the new European governance, compared to the possibilities offered by the IMF and free markets, and ultimately choose the better option. No cost is now higher than the consequences of not being part of the tough EU core: the Eurozone.

v) Romania needs to look into whether it is prepared to cope with the effects of a possible new economic and financial crisis. There are four reasons to consider: (i) the state of public finances has become vulnerable, as has been shown above; (ii) there are no instruments to prevent internal macroeconomic imbalances, except for the provisions of the Financial and Budgetary Responsibility Act and the guidelines from the Country Recommendations of the Commission that have not been fully implemented for at least the last two years; (iii) there are no shock-absorbing instruments in the absence of a fiscal policy aiming on building capital reserves or a positive budget balance, or other elements in the structure of public revenues and expenditures that could actively contribute to the "smoothing" of the economic cycle while reducing GDP volatility (automatic stabilizers); (iv) there are no mechanisms to manage the negative effects of a crisis.

vi) As it is not a member of the Eurozone, Romania should resort, in the event of a crisis (external imbalances), to the support offered by the Troika: the EC, the ECB, and the IMF. In the case of the EC, the balance-of-payments facility has two disadvantages: it is a slow procedure (requires the individual agreement of each Member State) and is reduced in volume (the amount made available to all non-euro area countries is €55 billion). In the case of the IMF, funds can be accessed quickly (if the negotiations are successful) and the amount may be optimal, but there are disadvantages related to the conditions imposed that are often too harsh. This kind of financial support is just a panacea, as the lessons learned from the experience of other states have shown, and it does not answer Romania's need for to establish its own tools for preventing and absorbing shocks propagated by various imbalances and crises. In fact, the sovereign debt crisis has shown that in some cases external financial support imposes constraints on the receiving-state, but may not trigger the expected positive effects.

vii) In the event of a crisis, the Member States of the Banking Union can resort to the European Stability Mechanism (ESM), which, besides the bail-out function, will also provide financial support for major European cross-border investment projects (when it will be transformed into ESM+ and then into the future European Monetary Fund). Accession to the Banking Union is an important step of Romania towards Eurozone membership and this requires a political decision. Membership into of Banking Union is an investment for the future while the immediate costs must be negotiated to be covered by the proper functioning of the new structure that must enable the necessary resources.

viii) *The Banking Union is a large-scale European project involving financial costs (stemming from the national contribution but staggered over a long period of time) and uncertainties regarding the settlement of some issues such as the completion of the Single Guarantee Scheme.* However, political indecision may be a risk for Romania. Due to the fact that Romania is a host state for banks with majority capital from member states of the Banking Union, by not being a member of the Banking Union, Romania will have no say in the decisions that are being made regarding banking supervision and resolution mechanisms. Moreover in the Banking Union, the dangerous interdependence between the budget deficit and the holding of government bonds by foreign banks could be limited (a situation currently existing in Romania as mentioned previously).

ix) *There are multiple benefits for a Member State that is part of the Banking Union:* (i) a risk-sharing scheme (which ensures a smooth financial disintermediation excluding the need for international agreements such as "Vienna I and II" that were imposed to Romania); (ii) a risk mitigation mechanism (through the European Banking Authority and the Single Regulatory Mechanism); (iii) a common rescue mechanism; (iv) best surveillance practices; (v) a common cooperation scheme; (vi) a common supervisory decision-making process that provides a place at the euro area decision-making table (within the Supervisory Board). The Banking Union requires Member States to strengthen both their prevention and risk mitigation capabilities so that the need to absorb risks and manage the effects of the crisis is minimized. So, Romania has all the interest to strengthen its prevention capability and at the same time to be in the decision-making pole for banks that have subsidiaries in our country (the parent banks).

x) *The completion of the Economic and Monetary Union by 2025 requires rapid progress achieving the Banking Union over the period 2017-2019* (according to the Reflection Paper on Economic and Monetary Union from May 2017). It is precisely for this purpose that the European leaders' agenda that will be presented at the European Council of 14-15 December 2017 will agree on a timetable for decisions on the Banking Union and on the Economic and Monetary Union. We believe that Romania's opportunity to publicly declare itself in favor this projects should not be lost, such decision opening a path that will gradually bring us closer to the adoption of the euro as a vital instrument for achieving real convergence. What is extremely important is for such political decisions to be backed-up by concrete measures marking Romania's contribution to the consolidation of the EU in the post-reform era.

4. Conclusions

We are currently witnessing a historical moment for both the EU and Romania marked by the search for the most desirable solutions and scenarios for the common future. It is worth noting that at a Eurogroup meeting in April 2017 it was stated that there was need for the necessary steps to be taken for the creation of the Fiscal Union within the Eurozone, and that the most appropriate solution for this new European mechanism are being debating: its own budget or a security fund. If it were to create its own budget, it would require permanent contributions either from the Member States or from the EU budget which would delay the creation of the "fiscal pillar" endangering the stability of the EU during the boom and bust cycle. We believe that the solution of a security fund would be more useful in the event of a crisis, contributing to the achievement of a true financial capacity of the Eurozone (as shown by the most recent European Council, which concluded that the euro area needs clear reform targets by the first half of 2018).

At the same time we must consider the most pessimistic scenario that would involve the dissolution of the EU, indicating an alternative future for all Member States in the post-EU period. It seems that the hypothesis that leads to this conclusion would be the fall into the trap laid by Russia of the former socialist countries placed under its influence during the Cold War since many of those states have relaunched closer cooperation with Russia in recent years, distancing themselves from the ideals and values of EU. It should be noted that some signs of such a "seizure" are already observed in Hungary and Poland, where democracy is jeopardized by certain recently adopted laws and political initiatives.

Last but not least we cannot ignore some of the latest news encouraging our immediate vision for the common future of Romania and EU. The first reffers to the fact that a large number of EU finance ministers believe in developing a fiscal capacity of the Eurozone with its own budget. It seems that the proposals of the Five Presidents' Report are taken into consideration in the light of the Eurozone need to stabilize the single currency area. The news has been made public in a conference (November, the 6th) by the head of the Euro group Joreon Dijsselbloem who has to present some conclusions on the subject to EU leaders at a summit in mid-December this year. The summit is to set goals for euro zone reforms which should be worked out in the first semester of 2018.

As the views differ from hundreds of billion euros to no budget at all, according to European Commissioners for Economic and Financial Affairs Pierre Moscovici, we detect not only the controversial debate but a possibility for a common ground. The main ideas were around a revolving fund conceived as a financial source to be used in order to prevent a bigger crisis. The second news revealed in Financial Times (November, 8th) is following a Jean-Claude Juncker's meeting with Bulgaria's prime minister. Recognizing the message the Brussels pushes for all the countries in the EU to adopt the common currency (see Jean-Claude Juncker's speech held on the occasion of presenting the latest State of Union), Juncker declared that he "bluntly" supports the country's application to adopt the euro as Bulgaria's currency (leva) has had a high dependency to the euro since as early as the beginning of the single currency in 1999. As we said before, Romania has to take the opportunity to enjoy the "pre-accession" aid offered to member states who decide to take the road to membership to Eurozone.

But while considering good news, we must also take into account the perspective of a "nightmare scenario" which may become reality in the next 25 years. A secret document that was leaked recently to "Der Spiegel" says that the German defence ministry set out its worst-case scenario for the year 2040, predicting the dissolution of the EU. We remember that the beginning of such a scenario can be traced back immediate after the burst of the financial crisis following the worried declarations of some high ranking EU officials. We hear even now the echo of one famous statement from that period "if the euro falls, the EU falls too", coupled with this unsettling allegation "EU enlargement has been largely abandoned, and more states have left the community ... the increasingly disorderly, sometimes chaotic and conflict-prone, world has dramatically changed the security environment" (see Paul Mason, Guardian columnist: "The Germans are making contingency plans for the collapse of Europe. Let's hope we are, too", November 2017).

We think however that Member States will not fall for the trap of EU dissolution but on the contrary we believe that all projected reforms will boost the birth of a more powerful and democratic EU. We support the idea that a reformed and revitalized Europe will deliver enough economic growth and jobs to counteract the nationalist and xenophobic trend. However we have to be aware of the fact that if the desired reforms will fail on the background of not succeeding in delivering a better new order "*through engagement, multilateralism, by accommodating what we can of the demands of rising powers and through the promotion of resilient democratic institutions*" (Paul Mason), the very future of EU will be endangered.

Regardless of the good or less good scenarios, Romania has the opportunity to capitalize on the current challenges, otherwise geopolitical developments may be all the more unfavorable as the country delays in expressing a clear and firm position. It is indeed a unique chance, so our insistent mention of the "window of opportunity" is not accidental. For Romania, this window of opportunity is best described by the opinion expressed by one of the founding fathers of the modern Romanian state, I.C. Bratianu: "There is a good part in any unfavorable situation, it depends on the wisdom of man to take advantage of the offered opportunities."

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Portfolio Risk Control by Using Derivative Instruments

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Abstract: *The priority in portfolio management is a good risk assessment and management. Of great importance is the margin that an asset portfolio guarantor must use with specific expertise in certain areas of market temporal inefficiency in order to improve its management performance. The relevant validity of the financial market and the emphasis laid on risk management carried along the development of financial instruments tailored to risk management. New derivative financial instruments have revolutionized the methods of portfolio management, of corporate treasury management, of banking management and, more generally, all financial strategies.*

Keywords: *risk management; portfolio management; Treasury management; hedging; derivative structures; financial strategies; options; futures; OTC products; securities traded outside the Stock Exchange; financial leverage; PUT options; CALL options; bull spread; binomial model.*

1. Introduction

Major developments in financial theory after the 1980s and the positive evolution of the study and research activities of the financial market have profound implications on the financial theory in general, dealing with the corporate financial management or the financial and banking economy, and particularly with the portfolio management. It was thus developed the concept of the capital markets efficiency, exposing the most important empirical results, obtained both on the European and the American markets, and aiming at demonstrating the independence of securities rate and their behaviour analysis in relation to the occasional financial events.

Within the framework of the modern theory of capital markets it emerged the theory of new financial instruments for hedging the market risks: short-term futures contracts, options, swaps, caps, forward etc. These tools enable financial risk management depending on the particular previsions. Financial leverage brought through these tools, the flexibility in their use, association to very feasible transaction expenditure allow for a very precise risk management⁵.

It aimed at putting forward the principles and new models for the valuation of derivative financial instruments, and uses of the new financial instruments, with concrete examples, which prove to be very useful as instruments of control, and especially of insurance against risks (Alexandru Olteanu, Florin Olteanu “Managementul portofoliului si a riscului pe piata titlurilor financiare”, Editura Fundatiei “Andrei Saguna”, Constanta 2011).

2. Literature review

2.1. Derivatives and risk control (Markowitz, H.M. “Portfolio selection”, Journal of Finance, mars 1952)

A debate on the use of derivatives for the portfolio risk management, by giving examples of methods of risk control and alternation of portfolios, is aimed to discard the beliefs according to which the derivatives are particularly risky and dangerous instruments.

The derivative structures, especially the exchange-traded options, may offer some key benefits for institutional investors and investment managers in Romania², such as those related to:

- **Change of assets:** The exact identification of the market evolutionary changes and monetary liquidity in such critical moments is impossible to quantify. The immediate question is: What can a manager do to avoid such a situation, or at least mitigate its negative effects that could redound upon the portfolio. It appeals to derivative products which provide a continuous cash flow, even in times of market uncertainty, at a cost significantly lower than the one associated to limited non-cash.
- **Risk covering (hedging):** Options can be effectively used in a long-term hedging strategy to counter adverse market movements, with the benefit that the volatility of the structure costs is relatively small when hedging operations are initiated at the precise moment when a risk is perceived.
- **Low costs:** Losses arising as results of a fall in the cost of certain shares could be covered by the sale of CALL options. A manager who calculates the absolute profit generated by the portfolio may order the sale of options whose profits exceed that level.
- **Speculation:** The call for options can be done by participating on the moving market, without making use of a significant amount of capital, participation which may generate substantial profits if derivative instruments are used, but after understanding the mechanisms of operation and combination of effects.

Therefore, large volumes of derivative products that were globally traded on the alternative financial markets lastly are a proof of the appreciation thereof and increasingly large use in the financial community. On the one hand, 2006 - the most significant year before the crisis, has undoubtedly been a year of uncertainty, of small gains and corporate-level scandals. European stock markets closed the reporting period with losses ranging between 25% and 50%. On the other hand, it was a year characterized by growth in hedge operations and the increasing volume of derivative instruments markets.

Interestingly, the increase in the volume of traded derivatives was recorded only in the case of Stock Exchanges. The Report of the Bank for International Settlements has shown an increase in the value of derivatives, reaching the figure of over USD 700 billion. The explanation lies in the fact that the exchange-traded options have some advantages over packets (such as OTCs, securities traded outside the stock exchange via a brokerage agency or direct contract between the purchaser and the seller), making the same extremely attractive to managers.

Given the downgrade in confidence in some large financial institutions, following the triggering of the financial crisis in 2008, not surprisingly, traders prefer to avoid entering into contracts with individual parties. The exchange-traded options make possible the commitment of a central counterparty – the Clearing House. Moreover, the transparency of operations allows continuous monitoring of prices and the known number of participants generates a more competitive environment than in the case of OTC products.

The biggest drawback of the options, put forward in the past, has been the inability to absorb large volumes of issues, non-existent aspect in the case of OTCs. Although this statement could be true, it is no longer a current problem. The increased volume of the value of exchange-traded contracts and the special interest thereto prove the ability to place large volumes of issues.

2.1. Incorrect use of derivatives - a trap of ignorance

Derivatives are not inherently dangerous, as many commentators might believe. They are definitely not “financial weapons of mass destruction”. On the contrary, for many institutional investors, the derivatives were the instruments that kept them afloat. This does not mean that derivative instruments (like many other financial products) mechanisms of operation and their role in risk management. Flexibility and the nature of options strategies require continuous monitoring of changing markets conditions, the risk and

the value of the option and require a regular revaluation of financial assets. Once these conditions are met, the benefits of using derivative products, such as options (insurance against future risks), outweigh the costs.

Hedging strategies used in transactions with derivative instruments⁽⁷⁾

There are several methods whereby options can be incorporated into the portfolio. Thus, options can be used to develop hedging strategies, because it offers multiple possibilities of risk management to economic agents⁴. In this respect, in return for payment of a premium, options contracts account for a substantial protection against adverse movements in the underlying asset price, while offering opportunities to obtain some returns, this time as result of favorable changes in prices. Among the derivatives trading strategies, indicated to be used, are listed by way of example the following:

Covering risk hedging: example - the spread strategy⁸

A spread strategy involves taking a position on two or more options of the same type (two or more CALL options or two or more PUT options).

It is considered one of the most widely used spread strategies, namely bull spreads, which involves buying a CALL option on a futures contract with a certain strike price and selling a CALL option on the same type of contract, but with a higher strike price. Both options have the same expiration date. The investor hopes that the price of the security goes up.

Suppose, at a certain moment, a low volatility on the futures market of the USD BRM contract. A fund manager at an import-export company, analyzing the commercial evolution of the last quarter of the year, reaches the conclusion that the evolution of the RON/USD ratio will suffer considerable variations, which could seriously affect the value of the portfolio. In this respect, the administrator shall order its broker on the BRM options market to purchase CALL options on futures contracts, worth USD 100,000, paying a premium of 700 u.m/USD, at a strike price of 26,000 u. m/USD and sell CALL options on futures worth USD 100,000, the premium of 200 u. m/USD, at a strike price of 28,000 u.m/USD.

The first scenario assumes an increase in futures price (S_T) up to the value of 27,000 u.m. Fully confident in his forecast, the manager expects the maturity date of the USD BRM futures contract in December. Upon the maturity date of the USD BRM futures contract in December, the settlement price is 27,200 u.m. This means a gain of 1,200 u.m/USD, out of which is deducted the premium, resulting in a final profit of 500 u. m/USD, amount covering part of the devaluation incurred by the Romanian RON.

Another possibility would have been that, on the maturity date, the manager would opt for the execution of the contract through physical delivery and thus take possession of USD 100,000 at a price of USD 26,000, once the market rate reaches the level of 27,200 u.m/USD.

The second scenario would have been the increase of the futures price up to 28,300 u. m, in which case the manager earns 1,800 u.m/USD, the final profit being 1,600 u.m/USD, profit which would maintain this level unchanged, no matter how much the futures price may increase. Such a strategy results in that, while the CALL price goes down as the strike price goes up, the value of the sold option is always less than the value of the option purchased. The volatility was thus significantly reduced, and the costs were relatively small.

Participation in the moving markets with the view to earn profits: example – buying a PUT option⁹

The use of such derivative trading strategy can be explained by way of an example. Thus, after analysing the futures market trend at EURO BRM contract, it is estimated a price decrease. Because the customer is not firmly convinced that this trend will manifest, he decides not to open a futures position and decides to buy a EURO BRM August 2012 PUT option at a strike price of 29,100 u.m. If the current futures price tends to rise, the premium paid for this option is small, managing to buy a PUT option against a premium of 300 u.m./EURO. For those who are in a similar position in terms of market analysis results, it is recommended buying “in the money” options or even “out of the money” options because it may be cheaper. When the futures settlement price falls below the strike price, the intrinsic value relevant for these options begins to go up and, therefore, the premium thereof to rise. At this point, the customer can proceed to obtain

⁷ Bookstaber R “Option Pricing and Strategies in Investing”, Ed. Addison Wesley, 1981

⁴ R. Ferrandier, V. Koen “Marchés de capitaux et techniques financières”, Ed. Economica, 1997

⁸ Black F., Sholes M “The evaluation of option contracts and attest of market efficiency”, Journal of Finance, May 1972

⁹ Cox J., Rubinstein M “Option Market”, Prentice-Hall, 1985.

funds to cover the futures margin and wait for the time of exercising the option. Upon exercise, the customer will have the PUT option position cancelled and the futures selling position initiated.

Buying a PUT option is less risky than selling a futures contract, because an increase in futures quotation does not entail mark-to-market losses, the maximum loss being related to the premium paid.

Profit occurs when the futures settlement price falls below 29,000 u.m., when exercising this option causes the customer to have a futures selling position initiated at a price of 29,100 u.m. If the settlement price is 29,050 u.m., the customer earns 50 u.m. from the mark-to-market, and if the settlement price is 29,090 u.m., the same earns 90 u.m. As the futures settlement prices go down, the profit goes up.

The loss is limited to the premium paid upon registration of the transaction. If the futures settlement prices range above the value of 29,100 u.m., the buyer does not exercise his option, remaining with the loss of 300 u.m. Note that the premium paid of 300 u.m./contract must be recovered in order to record a net profit. The mark-to-market gain, resulting following the exercise of the option, must be higher than the premium paid and is registered at futures settlement prices below 29,070 u.m.

Selecting the use of models for the valuation of derivative financial instruments, in particular of options^{10,11}

All models for the valuation of financial instruments are derived from arbitrage reasoning between derivative instruments and the underlying securities-asset. For example, for a stock option, the arbitrage reasoning used for the capitalization of a stock and option contract is as follows: all investors can establish, by combining the purchasing of shares and options, a perfectly covered portfolio, risk-less, in other words the value is independent of the evolution of the course of stock. In such a case, the portfolio may not be reported to the risk-free interest rate during the period of ownership. Therefore, it is recommended to be used as models for the valuation of derivative financial instruments the One-Period or Multiple-Period Binomial Model, and the Black and Sholes Model.^{1,8}

The Binominal Model

This model has the advantage of a large simplicity. It involves checking the classic assumptions of capital market perfection and responds to the principle according to which no risk-free arbitrage may exist in such a market. The Binomial Model leads to the continuous-time model of Black and Sholes.

Capitalization of a buying option under the Black and Sholes arbitrage model^{8,12}

For the formalization and reasoning of the arbitrage within the model proposed a certain number of assumptions are required:

The risk-free interest rate must be continuous and constant at the period rate;

The security price follows progress at random, with a variation of its fluctuations in direct proportion with the square of its security rate. Also, the distribution of the different possible prices of the security at the end of a certain period follows a normal logarithmic law. The variation in the rate of return is constant during this period.

The security shall not entitle to any dividend or interest distribution;

The option to be "European" and cannot be exercised on each due date;

There should not be trading costs related to the security's or option's buying or selling;

It is possible to make a loan to the daily interest rate, the security's rate fraction being unimportant.

The assumptions are indispensable to the demonstration. R. Merton¹² argued, in 1973, that the original model of Black and Sholes is very robust and conditions are sufficient and much less numerous than MEDAF (the market model of H.M.Markowitz). The analyses carried out show that the model does not require any particular securities market balance. Investors may not have a homogeneous anticipation, especially in terms of the rate of return.

¹⁰Geske R., Shastri K "Valuation by approximation: a comparison of alternative valuation techniques", Journal of Financial and Quantitative Analyses, march 1985.

¹¹Geske R "The valuation of compound options", Journal of Financial Economics, 7, 1979.

¹ Alexandru Olteanu, Florin Olteanu "Managementul portofoliului si a riscului pe piata titlurilor financiare", Editura Fundatiei "Andrei Saguna", Constanta 2011

⁸ Black F., Sholes M "The evaluation of option contracts and attest of market efficiency", Journal of Finance, May 1972

¹² Merton R., „Options pricing when underlying stock returns are discontinuous”, Journal of Financial Economics, Jan-March 1976

However, an investor can establish a portfolio of securities containing a basic security (e.g. stock) and for which the funding is provided by the sale of “n” purchase options. In this case, the value of the “V” relevant for such a portfolio is calculated as follows:

$$V = x - nw \quad (1)$$

Where:

V – value of the portfolio

X – value of the security

W – premium of the negotiable option (call or

It is worth mentioning that, during a small period of time “dt”, the rate varies at a volume “dx”, the premium of “dw” volume and a “dv” volume portfolio calculated as follows:

$$dV = dx - ndw \quad (2)$$

Under the assumptions hereabove, the premium “w” is not based on the “x” rate and the due date upon the maturity of the “t” option contract, as follows:

$$W = w(x, t) \quad (3)$$

Where:

t – time;

x – the rate of the financial instrument is a diffusion process that can be written as a variation of the price and is depending on the variation of the basic security rate and time:

$$dw = w_1 dx + w_2 dt + \frac{1}{2} w_3 \delta^2 x^2 dt \quad (4) \quad \text{where:}$$

w_1 – w first derivative with respect to x;

w_2 – w first derivative with respect to t;

w_3 – w second derivative with respect to x.

Entering the value of “dw” shown in the equation (4), in the expression “dV” indicated in the equation (1), we get:

$$dV = dx - nw_1 dx - n(w_2 dt + \frac{1}{2} w_3 \delta^2 x^2 dt) \quad (5)$$

where:

dx – is the only random variable of this expression.

To the extent that “n” was selected, such as $(1 - nw_1)$ is equal to zero, the variation of the portfolio value becomes certain and the portfolio is risk-free. For this it is enough to get “n” equal to $\frac{1}{w_1}$; the portfolio will be constantly revised since w_1 varies in time:

$$dV = \frac{1}{w_1} (w_2 dt + \frac{1}{2} w_3 \delta^2 x^2 dt) \quad (6)$$

Under the penalty of arbitrage, a risk-free portfolio cannot be reported at the risk-free investment rate of the financial market, and hence the equation:

$$dV = rVdt$$

$$\text{respectively: } dV = r(x - \frac{1}{w_1} w) dt \quad (7)$$

By equalling the two equations, we get:

$$r(x - \frac{1}{w_1} w) dt = \frac{1}{w_1} (w_2 dt + \frac{1}{2} w_3 \delta^2 x^2 dt) \quad (8)$$

and hence:

$$w_2 = w_r - w_1 rx - \frac{1}{2} w_3 \delta^2 x^2$$

We agree to translate this differential equation with the boundary conditions specific to the option considered. Hence, the following equations:

$$W(s, o) = s - k \text{ if } s \geq k$$

$$(9) \quad W(s, o) = 0 \text{ if } s < k$$

Thus, the value of a CALL C is resolved by this differential equation. Solving this problem is well known in mechanics. This result is given in the equation (2).

For a PUT- P the boundary conditions are:

$$W(s, o) = 0 \text{ if } s > k$$

$$W(s, o) = k - s \text{ if } s \leq k \quad (10)$$

The solution is given in the equation: $dw = w_1 dx + w_2 dt + \frac{1}{2} w_3 \delta^2 x^2 dt$

The value of other European options types can be equally determined in part by this equation, adapted to the boundary conditions. However, some options lead us to differential equations, for which analytical solutions are not required.

It is worth mentioning that an American option, which is allowed to exercise at any given time, has boundary conditions at any time, and, by way of consequence, the differential equation will be solved by numerical methods.

3. Conclusions

The analysis showed that there are many advantages for institutional investors and financial managers of Romanian companies as a result of the use of derivative instruments for hedging and profit generation, a fact attested by the growing number of participants in the market that use these products currently and growing volumes of transactions concluded through its. Properly understood and used for risk management, derivative instruments are significantly less "dangerous" than other financial products.

In the last two decades has registered an increase in the importance of portfolio strategies and especially to use derivative financial instruments for the supervision and management of financial risks. The choice of a specific portfolio strategies, the use of financial instruments and appropriate valuation models are based on the needs and desires of customers. Successful portfolio management and adequate financial instruments involve more than just coordination of some technical information. Such information is useful only to the extent that help in generating high profitability.

Global financial crisis triggered alternative markets derivatives has led to multiple debates related to the use of these financial instruments. These debates of financial and banking analysts have different opinions on the causes and forms of manifestation of the so-called crisis of confidence".

Some analysts have put the crisis on behalf of the „interventionist role on mortgage market”, which has led to a failure of markets („market failure”). Finally, the most plausible relates to the use of „toxic” financial products, in the form of CDOs and CDS (collateralized debt obligations, credit default swaps), synthetic non-regulated products respectively, and put in circulation by the major banks via the process of „originating and distributing ". Also, banks have turned to securitisation operations of bonds considering it a profitable business, to the extent that apparently eliminates the risk. They were selling securities (bonds) for some investors, removing them out of their own balance sheets. But what seemed a convenient dissemination of individual risks in the entire financial and economic system resulted in a high risk amplification system. The bottom line is that no new financial product complexity is responsible mainly for the financial crisis, but the pattern of financial innovation and financial products features that undermined what is essential for the proper functioning of markets: transparency and confidence.

Regarding the mechanisms of options contracts recently developed models and the equilibrium model of financial assets, allow endorers of portfolios perform a rigorous manner the price of such contracts and the risks that must be covered. Tradable options market had experienced a successful culmination because it allows portfolio strategies based on speculation, arbitration or insurances, that increase profitability-risk benefit.

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Risk Assessment: An Important Tool for Companies

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Abstract: *The study summarizes what it means risks, the main risk management strategies. The complexity of the business environment, liberalization and internationalization of financial flows, brings rapid innovation, diversified financial markets, new opportunities but also multiplied risks. Companies from Romania establish the types of risks they are prepared to take and the threshold at which risk is considered significant. The process of determining the risks that are taken includes the nature, the scale and the complexity of risk.*

Keywords: *companies, company's risks, the strategy of the companies, profit, risk management*

1. Introduction

Risk management is not an end in itself, but a key instrument supporting the management in achieving corporate objectives. This applies, in particular, to the risk management.

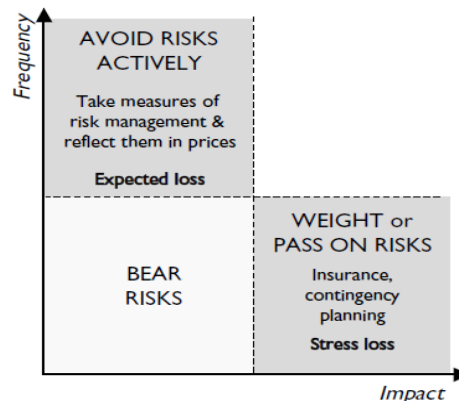
There is a close relation between a company's mission, its vision and general strategic orientation on the one hand, and its willingness to take risk (risk appetite, risk tolerance), risk policy and risk strategy, on the other hand. All these elements have a strong impact on corporate culture and, therefore, on values, opinions and attitudes of employees. It is decisive for the well-balanced interaction of those elements whether the focus is on formal compliance with regulatory requirements or expectations of the capital markets or whether operational risk management is fully embraced by the management and all employees in their day-to-day work. While the basic components of a risk management system are similar, companies often significantly differ by their culture.

The corporate culture of a listed, internationally active companies orientated to shareholder value, a multinational companies rooted in a region and committed to supporting its members or a savings companies focusing on public interests differ more than the basic components of their risk management systems which always include the identification, assessment, treatment and control of risks. It is the culture, mission and vision that shape the readiness of these companies to take risks, their risk tolerance and risk profile, and thereby the concrete form of risk management competences.

Using the relation between loss frequency and severity, a rough differentiation can also be made between the measures for managing the relevant risks (chart 1) in the case of infrequent vents involving low loss potentials, the most economical solution is to bear the risks, i.e. accepting them as a part of expected loss and including them in the calculated costs. As a rule, risk acceptance depends on a cost-benefit analysis or weighting of expected income versus risk. A rational reason for accepting risks would be that the expected loss is lower than the cost of management activities to mitigate the risks.

If the frequency of specific loss events exceeds a certain level, risk management methods pay off serving to actively avoid such loss events – their costs naturally have to be covered by the prices. As the impact increases and the frequency of the events decreases (unexpected loss, stress loss), there is a transition from these measures to crisis or disaster management (business contingency management); to cover the material damage, risk mitigating measures are frequently used, e.g. insurance contracts.

Chart 1. Matrix on Operational Risk Management as a Function of Impact Potential and Frequency of the Related Events



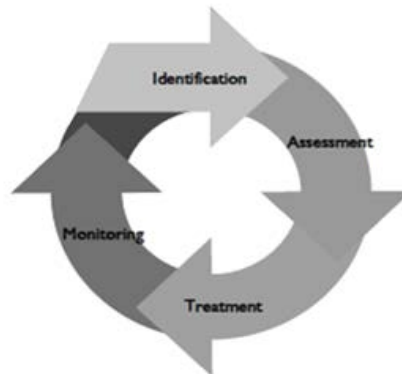
2. Risk Identification and Assessment

After laying the organizational basis and establishing the framework, the next step frequently is to build a loss event collection and risk inventory (self-assessment).

The management of risks can be described as a cycle comprised of the following steps:

- risk identification;
- risk assessment;
- risk treatment;
- risk monitoring.

Chart 2. Risk Management



In order to control and limit its risks, a company first has to become aware of the potential risks. By identifying risk sources and risk drivers, a sound “health check” – in line with the saying that “prevention is better than cure” – allows a company to take preventive measures.

During risk identification and assessment, companies should consider several factors in order to establish the risk profile of a company and its activities, for example: types of customers, activities, products, design, implementation and effectiveness of processes and systems, risk culture and risk tolerance of a company, personnel policy and development, and environment of the company.

The following tools have proven especially useful for this work: self-assessment (risk inventory), loss database, business process analysis, scenario analysis, and risk indicators.

Quantification combined with qualitative management already permits improvements in control and monitoring.

3. Risk Inventory

Self-assessments aim at raising awareness of risks and at creating a systematic inventory as a starting point for further risk management processes as well as process improvements towards better performance.

In most cases, they take the form of structured **questionnaires** and/or (moderated) **workshops** and complementary **interviews**. Their main purpose essentially is to identify significant risks and then evaluate them.

Special attention should be paid to the identification of those risks, which could endanger the survival of the institution. A SWOT analysis (this tool is very often used in strategic planning and can contribute to linking strategy definition, including the development of a risk strategy) and risk management) serves to identify and present one's own strengths and weaknesses as well as opportunities and threats. Depending on the purpose defined, self-assessments may have a different orientation or approach:

- risk orientation;
- control orientation;
- process orientation;
- goal orientation.

Depending on the approach, the inventory focuses on one component and derives the other elements from the identification of the key component. Workshops organized in the context of risk management primarily aim at highlighting risks. Because it is usually very important for such a self-assessment to know the core processes and sub-processes of a company, the implementation of risk management could be preceded by a workshop identifying and evaluating processes. This could be repeated, if necessary, e.g. when important new products are introduced or when organizational changes take place.

Structured questionnaires, which could also be distributed through the intranet, offer the advantage of easy data recording, also in the case of big organizations with numerous organizational units. **Moderated workshops** contribute to raising awareness and communicating risks across different organizational units to a particularly high extent. In many cases, a survey (questionnaires and/or interviews) will be carried out before such a workshop.

Based on the results, the workshop may then concentrate on significant risks, controls and processes. The decision on which instruments to use also depends on corporate culture and the participation of senior management. The active involvements of senior managers as well as a participatory culture are factors contributing to the success of a workshop.

Self-assessments may be limited to identifying and assessing risks, but ideally control and risk self-assessments (CRSA) expand risk assessments by highlighting existing or additionally required controls for mitigating the key risks identified. If considerable control gaps exist, CRSA workshops may develop suitable measures and action plans. A CRSA can determine the net risk of a process, business line or activity that is relevant as a target value for measures of qualitative risk management. The net risk depends on the magnitude of the inherent risk taking account of the effectiveness of existing control measures:

$$\text{Net risk} = \text{Inherent risk} - \text{Controls}$$

For the net risk, risk treatment measures can be planned and summarized in an action plan. For this residual risk only, there is a detection risk.

The detection risk is the risk that an auditor does not detect a significant risk. The following relation applies to the audit risk that is relevant for a risk-oriented audit approach of internal and external auditors:

$$\text{Audit risk} = \text{Inherent risk} \times \text{Control risk} \times \text{Detection risk}$$

In order to be successful, self-assessments need careful **preparation**. Specifically, this means that the most suitable approach has to be chosen and the participants have to be selected and trained. Before the self-assessment, the participants should, for example, be familiarized with the risk definition adopted by the company and other elements of the company's framework for managing risks that are essential for understanding the system. If possible, core processes to be assigned to risks and controls within the framework of self-assessment should be identified and documented already beforehand.

Self-assessments should not be performed only once when risk management is introduced, but regularly. In practice, most of the bigger companies perform such assessments once a year. Smaller companies should schedule a review at least when major changes take place, e.g. restructuring or taking up new business lines.

Repeated self-assessments involve the danger of a certain fatigue effect that occurs after the first few assessments. There is, for instance, a tendency to take over the results of the previous year without critically reviewing them.

This may be avoided by changing the membership of the group and by inviting employees who can contribute a new perspective to take part in the self-assessment workshop. Care should always be taken to ensure the consistency of the methodology and the comparability of the results.

Depending on the organization, internal auditors will be involved in self-assessment at different intensities. For smaller companies, internal auditors may be particularly helpful in the implementation phase because the internal audit function, even if outsourced, has knowledge about risks, controls and processes across the organization. In their turn, internal auditors can improve the risk orientation of audit planning on the basis of self-assessment results. In bigger companies, internal auditors should perform their own risk assessment independent of the management's self-assessment with a view to audit planning. On the one hand, internal auditors can obtain important information for their own work by analyzing different assessments and, on the other hand, they can provide an independent evaluation of self-assessment results and thereby contribute to quality control. At any rate, the risk controlling unit (or a comparable unit) has to stay in charge of the methods used and the risk owners, primarily the line managers, are to remain responsible for the management of risks, i.e. responsibility must not be transferred to internal auditors as this would impair their **process independence**.

5. Informational Risk - Internal Loss Databases

Internal loss databases are used to record and classify loss events. The systematic collection of loss data within forms the basis for an analysis of the risk situation and, subsequently, for risk control. The quality of models measuring risk strongly depends on the quality of the loss data recorded in the database.

An effect in collecting internal loss data is that primarily frequent loss events with low severity are recorded. ("high-frequency, low-severity events"). For this reason, the benefits of an internal loss database relate less to risk modeling, but rather to its use for improving the efficiency of processes and the internal control for those risks that should be reduced.

Internal loss databases are not suited for covering rare loss events involving high ("low-frequency, high-severity events") and even losses, which endanger the survival of the institution. Major loss events occur extremely seldom, but may basically hit many companies. Therefore, all companies wishing to model their risk need to rely on external data.

This reveals risk clusters reflecting the risk profile of companies. Moreover, trends can be identified over time. Loss databases can have a very simple form. However, simple procedures rapidly reach their limits in bigger or more complex organizations when data from diverse areas or several companies have to be collated. Other organizational changes, too, may raise problems related to data consistency. As a rule, bigger institutions, therefore, use intranet-based solutions ensuring the decentralized, but uniform input of loss data.

The data fields should both meet the regulatory requirements of the approach selected and permit data analyses offering benefits internally. Please note that characteristics not recorded initially are difficult to add at a later stage. Therefore, a balance has to be found between information depth as well as benefits and costs. Examples of important data fields are: date (loss event, detection, entry into the books), severity of loss (gross loss), value adjustments, provisions, write-offs, loss-related compensations, event-type category, business line, geographic location, company (within a group), organizational unit, description specifying significant drivers or causes of the loss event, etc., and reference to credit or market risk.

It is important to have strict standards for events that must not be input (e.g. rumours or pending procedures). While rumors have to be excluded at any rate, pending procedures are a good example of borderline cases for which "viable" solutions have to be found and laid down in the standards.

A decision also has to be made on how to handle non-monetary losses and "near misses". These are difficult to evaluate, but can provide important information if recorded systematically. Specifications are also required on how to treat opportunity costs/loss of profit or profits resulting from mistakes made.

Operational losses frequently have a history and a kind of life cycle, i.e. they are not confined to a single point in time, but gradually become known and develop over time. The estimation of the loss may change due to new information, links between losses can become identifiable little by little or connected loss events may be spread over a period of time. Finally, compensations paid under insurance contracts or lawsuits impact the loss amount, but it often takes relatively long until the definitive loss amount is determined. As a result, loss databases should be appropriately flexible in order to take account of such changes. It is important

to avoid duplication, for example by recording related events that can be traced back to one root event in connection with that event.

An approval procedure is required for recording losses. The input of loss data should be checked and approved. As a rule, the executives of the recording units will approve the entries in line with their powers, while losses exceeding a certain level should require approval by the unit responsible for risk controlling. Furthermore, an escalation procedure should be established to ensure that losses are reported to the relevant units in line with specific criteria.

In the approval procedure, it is also important to define a rule for passing on information to, and coordinating measures with, the accounting division. There is no harmonized non-recording threshold below which loss data need not be stored. This threshold frequently depends on the institution's size, the business line or the methods used. While this threshold is usually rather high in investment banking, a particularly low threshold is selected if the intention is to collect data on minor, frequent loss events in order to reduce their number by targeted measures.

6. Business Process Analysis

Within the framework of risk management, business process analyses are used, in particular, to link processes, risks and controls in a risk analysis. They may also have the purpose of ensuring risk-oriented process optimization.

The identification of business processes across all organizational units is a prerequisite for allocating loss data to processes and determining the risk for a business process. Moreover, there is a close connection between business process analyses and self-assessments. On the basis of self-assessment, it should be possible to allocate the significant risks and controls identified to the business processes. As a result, at least a rough business process analysis should already be carried out before self-assessment.

In a business process analysis, processes and process steps are assigned to products and process chains are examined for risk-sensitive items. For such items, loss scenarios can be defined. Scenarios are a mandatory element required for the approval of an AMA as well as a central input for a scenario based AMA.

Through the documentation of processes and the identification of the organizational units involved in them, processes can be made transparent and improved with regard to effectiveness and efficiency. It is recommendable to define first the processes that are especially critical with regard to risks and thereby prioritize them. The subsequent business process analysis should focus on these processes. In a process map or process matrix, management processes, operative processes and supporting processes can be presented together with their interactions. Process descriptions, which are updated as necessary, facilitate communication between process owners and the employees who are process users. Important criteria are the processes' transparency, user-friendliness and up to datedness.

A business process analysis is a procedure requiring great efforts. It has to be maintained on an ongoing basis and must be reviewed regularly, but makes it possible to establish links between cause and effect and, due to the improvements it triggers in process management, may provide an added value.

7. Conclusion

Various companies need different types of information on risk management. Therefore, an element of effective risk management is regular reporting on the risk situation (in appropriately aggregated form) to the level responsible as a basis of decision-making as well as to monitoring levels (supervisory board, internal audit) and ad-hoc reporting in the case of significant events or changes in the risk situation. It also depends on the control culture of a company whether communication is mainly limited to reporting to higher levels in the hierarchy or whether the focus is on open communication in all directions and across the company.

Control of a company's most important risks should be embedded into a companywide risk management system providing a portfolio and bank-wide overview of risks. In this context, risk management and an internal control system are complementary instruments supporting the management in achieving the objectives. In order to establish a common language, to permit measurements and assessments by the same standards and to facilitate the coordinated response to risks, it is recommended to introduce integrated frameworks including risk management and internal control system and, therefore, the control and monitoring of risks, activities and processes throughout the enterprise. Such frameworks, be it for risk management or company-wide risk management, should be simple and easily understood by the addressees.

The separate management of different risks, i.e. dealing with them in isolated risk silos, prevents effective risk management. Risks may arise in one area and, frequently with some delay, impact other areas. But related risks may also occur in several areas and have effects across the organization whose significance is not realized in the individual areas.

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National and International Norms on Accounting Policies and Procedures Applicable to Amortizable Tangible Fixed Assets. Impact on Patrimonial Result

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Abstract: *Choosing the accounting policies on amortizable tangible fixed assets influences the value of certain indicators in financial reports, namely the balance sheet or the patrimonial result account. The decisions regarding accounting policies have a direct influence on the value of the tangible fixed assets in the balance sheet and an indirect one on the result of a public institution. The result of the institution is influenced by the amortization expenses, the expenses on the depreciation of tangible fixed assets and, possibly, the revenues from resuming the depreciation of the tangible fixed assets. The ratio of the indicators mentioned at a certain point, as well as their trend is particularly important for the users of such information.*

The work presents a parallel between the provisions of the national norms on the organization and conduct of accounting in public institutions and the International Public Sector Accounting Standards referring to the accounting policies applicable to amortizable tangible fixed assets. Furthermore, the paper describes the manner in which choosing a method, rule on tangible fixed assets influences the result of a public institution.

Keywords: *tangible fixed assets, accounting policies, recognition, subsequent evaluation, amortization, de-recognition*

1. Introduction

As Ristea and Jianu were writing, the increasingly more acute need for information in the public sector, as well as the need to provide comparable and transparent information resulted in the development and spreading of the International Public Sector Accounting Standards (IPSAS).[1]

The IPSAS were drawn up by the International Public Sector Accounting Standards Board and are mainly aimed at establishing the criteria for the recognition, evaluation, description and presentation of the information regarding transactions and events in financial reports with a general purpose.

Applying these standards isn't compulsory, but only recommended, as Tiron says – Tudor [2], and in case it is done, it will lead to a significant improvement in the quality of financial statements published by public

institutions and, consequently, to a more informed evaluation of the decisions affecting the state resources, which will boost transparency and responsibility. [3]

In Romania, the development of accounting in the public sector was initiated in 2002 and imposed on all public institutions in 2005 [4] through the adoption of the Order of the Public Finance Minister No. 1917/2005 on the approval of the Methodological norms on the organization and conduct of public institutions accounting, the Plan of accounts for public institutions and its implementing instructions. Some of the IPSAS provisions were taken over in the aforementioned order.

Starting 2010, the public institutions of Romania must establish accounting policies that must observe the accounting legislation, the fiscal legislation and the one specific to the activity area. Taking into account the provisions of the accounting law No. 82/1991, the public institutions have drawn up accounting policies, approved by the credit release authorities.

When the legislation in force doesn't stipulate a clear rule that must be applied to a transaction, the management of the public institution exerts its professional judgment to draw up an accounting policy. Implementing the accounting policies, thus drawn up, must result in relevant and reliable information for their users in making decisions. The information reliability consists of accurately reflecting the financial position, the financial performance and the treasury flows of the public institution, reflecting the economic ground of the transactions and not just the juridical one, being neutral, prudent and complete.

The current paper presents the convergence and divergence between the national norms of organization and conduct of public institutions accounting, hereon called national norms, and the International Public Sector Accounting Standards concerning the accounting policies applicable to amortizable tangible fixed assets. Moreover, it stresses the impact on the result that the choices made by public institutions managers in respect to the accounting policies have. The importance of studying the impact of the accounting policies on the result consists of the fact that the latter shows the financial performance of the public institution and is an indicator influencing certain decision making.

To analyze the accounting policies applicable to tangible fixed assets, a normative research was conducted by carrying out an assessment of the IPSAS 17 "Property, Plant and Equipment" provisions, in relation to the national accounting norms referring to the accounting policies applicable to amortizable tangible fixed assets. The tangible fixed assets are elements holding a significant share in the total of assets owned by a public institution in Romania, thus their value presented in the balance sheet has a special importance in making decisions. The value presented in the balance sheet is influenced by the accounting policies adopted by the management of the public institution.

2. Accounting policies and procedures applicable to amortizable tangible fixed assets

The accounting policies represent the specific principles, grounds, conventions, rules and practices implemented by an entity in drawing up and presenting financial reports. [5]

The tangible fixed assets are, according to the IPSAS 17, tangible elements held in view of using to produce or supply goods or services, to be let to third parties or to be employed for administrative purposes, and they are planned to be used over several reporting periods.

The national norms point out that the tangible fixed assets are the item or complex of items that are used as such and that altogether meet the following requirements: have an entry value higher than the limit established by Government Decision and a normal use length higher than one year.

The Romanian public institutions accounting highlights both the amortizable tangible fixed assets and the non-amortizable tangible fixed assets. Basically, the tangible fixed assets in the private domain of the state, the territorial-administrative units, the private property of the public institutions, and which are not lands, are amortizable. Amortization means the inclusion of a part of the initial value of a tangible fixed asset in the expenses of the public institution until the full recovery of the investment, namely in the period the asset is used.

The tangible fixed assets not submitted to amortization are:

- the goods belonging to the public domain of the state and the administrative-territorial units, according to law, including the investment made on them;
- the tangible fixed assets in the patrimony of the public services of local interest conducting economic activities, which physical and moral use is recovered through tariff or price, according to law;

- the tangible fixed assets that are being preserved, as well as the mobilization reserves that are highlighted in accounting as tangible fixed assets;
- lakes, pools and ponds that are not the result of an investment;
- lands;
- national cultural heritage goods;
- goods used based on a lease contract;
- goods in the category of armament and battle technique.[6]

The accounting policies specific to tangible fixed assets are related to their recognition, evaluation, depreciation and de-recognition.

2.1. Depreciable tangible fixed assets recognition

The recognition of a patrimonial item represents its assignment, depending on certain criteria, to a particular category of property or expense items and the presentation of information regarding it in the balance sheet or in the patrimonial result account.

With respect to the recognition of tangible fixed assets, both the national norms and the IPSAS 17 "Property, Plant and Equipment" stipulate that asset items meet the following criteria: the future economic benefits should go to the public institution and the cost should be able to be assessed in a reliable manner.

Future economic benefits are reflected either in increasing revenue or service potential, or in reducing maintenance and operating costs, as stipulated by the domestic norms.

Divergences between international accounting standards for the public sector and national norms refer to the minimum value, cost or fair value that an asset must have when entering the public institution's patrimony. The international standards do not provide for an initial minimum value for tangible fixed assets, whereas the national norms specify in their definition that they must have a value higher than that established by Government Decision, namely RON 2,500. Thus, the accounting policies of public institutions in Romania must specify the rules according to which an item or a complex of items can be regarded as tangible fixed assets.

2.2. Amortizable tangible fixed assets evaluation

The process of evaluating tangible fixed assets is also important because the amount of the monthly amortization, inventory or revaluation differences, the value at which they will appear in the balance sheet are determined based on the initial value of the goods.

Establishing the initial value of tangible fixed assets is made upon the acquisition cost, production cost or fair value, depending on how the good is acquired.

In most cases tangible fixed assets are either purchased or obtained free of charge by public institutions, so that establishing the acquisition cost or fair value has a major impact on the balance sheet value of tangible fixed assets.

National norms do not provide any further explanation regarding the cost of acquisition, but only mention as cost elements: the purchase price, the irrecoverable taxes from the taxation authorities, the transport costs, the handling costs and other expenses directly attributable to the purchase of the asset. Commercial discounts are not part of the purchase cost according to the same norms.

Public institutions, using professional judgment, must determine through accounting policies, depending on the specific nature of the activity carried out, which are the other costs directly attributable to the acquisition.

Unlike national rules, the IPSAS 17 "Property, Plant and Equipment" provide users with examples of costs that may be part of the acquisition cost, such as: site fitting costs, installation and assembly costs, costs of testing the correct operation of the asset, professional fees. Also, according to the same international accounting standard, dismantling, removal and site restoration costs are part of the initial value of a tangible fixed asset.

The fair value of tangible fixed assets received free of charge is the market value of the assets traded on an active market.

National rules specify that the fair value is determined by specialists, with the approval of the credit release authorities, or by authorized evaluators. The authorized evaluators are the persons recommended by the IPSAS 17 to determine the fair value of a tangible fixed asset.

There may be cases in which the tangible fixed assets acquired free of charge are not traded on an active market and the fair value, at their initial evaluation, is difficult to determine. Both national and international accounting standards for the public sector do not have clear provisions for determining the fair value of such assets in the case of valuation upon recognition. Therefore, public institutions in Romania should, through

accounting policies, lay down rules for determining the fair value of tangible fixed assets that are not traded on an active market.

The evaluation of tangible fixed assets after recognition may be done based on the cost model or the reevaluation model as required by national and international norms. Once a valuation model is chosen for after the recognition of tangible fixed assets, it should be applied to the entire class of goods and consistently from one financial year to the next.

National rules require the reevaluation of buildings and land at least every three years, so that through accounting policies, Romanian public institutions should provide further valuation rules for other tangible fixed assets, except for land and buildings.

The cost model entails the evaluation of tangible fixed assets at their cost minus any accumulated amortization or depreciation.

The reevaluation model entails, according to national accounting norms, the determination of the value of tangible fixed assets by authorized evaluators or by a technical committee appointed by the credit release authority. International standards only recommend authorized evaluators.

Following the reevaluation, the tangible fixed assets will acquire a fair value. The national norms on the reevaluation of fixed assets present the determination manner only if it is done by an internal technical committee. In this situation, the consumer price index is used. Regarding the fair value set by authorized evaluators, national norms mention that it will be the market value for goods that have it and do not present details related to assets that are not traded on an active market. The IPSAS 17, however, provide clarifications on the fair value of goods for which there is no available evidence to determine their market value. Thus, the fair value of a plot of land can be determined by the value of another plot of land with the similar topography and features, in a similar location, which has a market price. The fair value of other tangible fixed assets in respect to which there is no evidence to establish the market price can be estimated based on replacement or restoration costs.

The value of depreciable tangible fixed assets resulting from revaluation is substituted with their cost.

2.3. Tangible fixed assets amortization

The amortization represents registering a part of the amortizable value of the tangible fixed asset in the monthly expenses over its entire useful life.

The amortizable value of a tangible fixed asset is presented differently. In accordance with national norms, it is the accounting value or the value resulted from the reevaluation in the case of goods submitted to the reevaluation process, however, according to the IPSAS 17, the amortizable value is the cost of an asset, namely the initial value, or another value replacing the cost, minus the residual value of the asset. The residual value represents the amount the institution could obtain from ceding the good minus the estimated costs for ceding it. In addition, the IPSAS 17 come with the clarification that, in practice, most of the times the residual value is zero. In such a situation there would be no divergence between national and international norms on amortizable value.

Divergences arise on when the amortization begins to be registered in accounting. National norms provide that the amortization of a tangible fixed asset is recorded from the month following reception or putting into service, while international standards state that the amortization begins when the tangible fixed asset is available for use.

Determining the useful life of a tangible fixed asset, according to the international accounting standards for the public sector, requires the professional judgment of the public institution and its experience with other similar assets. The useful life is the period the asset is used, which must be reviewed at least at each report draw-up.

The useful life of a newr tangible fixed asset, according to national norms, is the tax amortization period, established by Government Decision. Accounting policies can only specify a useful life augmented or reduced by up to 20 percent for a tangible fixed asset category.

In the case of tangible fixed assets with an expired lifetime, a technical committee sets a new duration, with the approval of the credit release authority, but no more than 20 percent of the initial useful life. In the case of purchased tangible fixed assets for which the portion of the useful life in which it was used is unknown, a new useful life is set by a technical committee with the approval of the credit release authority.

As far as the amortization method is concerned, the national norms provide a single method, namely the linear method, and the IPSAS 17 recommend three methods: the linear method, the digressive method and that of the production units. Choosing the amortization method should take into account the expected rate of

consuming the economic benefits or the service potential of that asset [7] and should be reviewed at least at each reporting period. If the amortization method no longer reflects the consumption rate of the economic benefits or service potential of the asset, then it should be changed and the change should be treated as a change in the accounting estimate.

Once chosen, the amortization method is used consistently except for case with the change in the consumption rate of the economic benefits or the service potential of the asset subject to amortization.

According to the international accounting standards for the public sector, both the choice of the tangible fixed assets amortization method and the useful life require professional judgment and represent options for the institutions.

2.4. Tangible fixed assets depreciation

The depreciation of amortizable tangible fixed assets represents the value loss over the value systematically assigned during the useful life, namely amortization.

The national norms provide that the depreciation of a tangible fixed asset can come up in the following cases: the physical deterioration of the asset; the cessation or near cessation of the demand or need for services supplied by the asset; the good will be unusable or must be ceded; there is a decision to stop the construction of an asset before completion or putting into operation; its performance in service supply is below the targeted one; there are technology or legislation changes in the area. [8]

The IPSAS 21 “Impairment of Non-Cash- Generating Assets” and the IPSAS 26 “Impairment of Cash-Generating Assets” define the depreciation of tangible fixed assets as a loss from the future economic benefits or service potential of an asset in addition to the systematic recognition of the loss of future economic benefits or potential of the asset through depreciation (amortization). [9]

The frequency for identifying the depreciated tangible fixed assets is once a year, at the end of the financial exercise, according to the national norms, and at each reporting period, according to the international standards.

The value of the tangible fixed assets depreciation is established, according to national norms, when a specialist committee appointed by the credit release authority makes an inventory of the goods. The committee members must establish the current value of the tangible fixed assets depending on their state, the physical and moral level of usage and the market value. However, there aren’t any specific rules on how to determine the current value for the goods that aren’t traded on an active market. In this case the professional judgment of the committee members and the manner of establishing the current value of such goods must be mentioned in the accounting policies and procedures of the institution.

The IPSAS 21 and the IPSAS 26 provide that the tangible fixed assets depreciation can be established depending on certain external and internal data. The external data the standards make reference to are:

- if the market value has significantly dropped below it was forecast due to the passage of time;
- if there have been or there will be in the near future modifications in the economic, technologic, juridical, commercial environment in which the institution is conducting its activity, with a negative effect on it;
- if the interest rates on the market or the market rates of investment profitability increased in the respective period leading to a decline in the recoverable value of the asset.

The internal data which must be taken into account in establishing the value depreciation of a tangible fixed asset are:

- there is proof of the physical and moral usage of the asset;
- if there have been or there will be in the near future any modifications with a negative effect on the conduct of the institution’s activity and influencing or going to influence the degree in which the asset is used or will be used;
- if a decision is made to stop the construction of an asset before its completion or before its putting into operation;
- if there is proof that the economic performance of an asset is or will be poorer than estimated.

The last two criteria, depending on which it is determined whether an asset is depreciated or not, are also provided in the national norms, as mentioned above.

2.5. Tangible fixed assets de-recognition

The de-recognition of the tangible fixed assets value takes place when they are ceded by sale or donation or when there are no estimates on their generating future economic benefits or service potential through their use, according to the IPSAS 17.

In the Romanian public institutions' accounting, the tangible fixed assets are highlighted when they are sold, donated, transferred to other institutions, found missing in the inventory.

According to the International Public Sector Accounting Standards, the tangible fixed assets are de-recognized at their accounting value, namely the initial cost minus the losses cumulated through depreciation and amortizations.

The national norms don't explicitly provide any value in the case of the tangible fixed assets de-recognition, they specify, in the paragraph devoted to the general evaluation rules, that a good is evaluated the moment it leaves the public institution at its entry value. Thus, through the accounting policies, the public institutions of Romania must establish clear criteria for evaluating the tangible fixed assets at the de-recognition moment, what value they must have and under which circumstances.

3. Influence on institution result of accounting policies and procedures applicable to tangible fixed assets

The tangible fixed assets recognition, evaluation at the moment of recognition, amortization, and depreciation are operations modifying the value of certain indicators in the financial reports, namely in the balance sheet and in the patrimonial result account or only in the patrimonial result account.

Any tangible fixed asset at the entry in the management of the public institution must have a value, called entry value, which is determined based on the modality of obtaining the good.

The entry value is represented by:

Table 1

The modality of obtaining the asset	National norms on the organization and conduct of public institutions accounting	IPSAS
Acquisition	Acquisition cost	Cost
Production	Production cost	Cost
Donation, charge free	Fair value	Fair value

The national norms, as aforementioned in this work, provide a minimum entry value of an asset, namely the amount of RON 2,500; however this isn't also valid for the IPSAS. Therefore, according to the national norms, the assets with a value below the minimum limit will be recognized as inventory items. The value of inventory items is registered under expenses when they are removed from use.

The goods that meet the criteria of recognition as tangible fixed assets implicitly have a value over RON 2,500, are amortized on a monthly basis during the entire useful life. Thus, there are registered amortization expenses which influence the result of each financial exercise during the entire period of asset amortization.

According to the IPSAS, all goods meeting the criteria of recognition as tangible fixed assets are recognized in the balance sheet and are amortized during the entire useful life established through professional judgment. The amortization of a tangible fixed asset entails that periodically part of its initial value be registered as amortization expense affecting the institution result during the entire useful life of the good.

Example 1. To underscore the differences between the national norms and the IPSAS, we assume that a public institution purchases a laptop which costs RON 1,800 to be used in conducting the activity on a long period of time. According to the IPSAS, the laptop is recognized as tangible fixed asset and the useful life, determined by professional judgment, depending on the length of use of other goods with similar traits, 3 years. The amortization method is the linear one.

Table 2

National norms	Entry value < RON 2,500	Inventory item	It is not amortized	Influences the result in the year when it is taken out of use, in the sense of a RON 1,800 decrease
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IPSAS	Cost RON 1,800	Tangible fixed asset	RON 600 yearly amortization expenses	Diminishes the result by RON 600 per year during the entire useful life of the asset
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The initial value of a tangible fixed asset must be accurately established, as the amortization value and the reevaluation difference are determined depending on it.

In the case of the evaluation after the recognition, both the IPSAS and the national norms provide that public institutions can opt for the cost method or for the reevaluation method, however the national norms impose the reevaluation of lands and buildings at least once every three years.

Example 2. We assume that a public institution owns a building with an initial value of RON 500,000, a 50-year useful life, with a linear amortization method. The evaluation manner can be chosen after recognition only according to IPSAS and the option is the cost-based method, with the residual value zero. According to the national norms, the institution must reevaluate the building, and the fair value established by an authorized evaluator stands at RON 475,000. The manner in which the institution result is influenced in the first three years of using the building is displayed in the table below:

Table 3

- RON -

	Entry value	Annual amortization value	Influence on result
National norms	500,000	10,000	Annual result diminishing by 10,000
IPSAS	500,000	10,000	Annual result diminishing by 10,000

As noticed in the table above, in the first three years of using the building the result is diminished by RON 10,000 each year. The differences on influencing the result depending on the evaluation manner after the recognition begin to come into view in the financial exercise following the reevaluation.

Table 4

- RON -

	Entry value	3-year amortization value	Accounting value	Amortization value in the 4 th year	Influence on the result in the 4 th year
National norms	500,000	30,000	475,000	10,106	Result diminishing by 10,106
IPSAS	500,000	30,000	470,000	10,000	Result diminishing by 10,000

The national norms provide that the value resulted following reevaluation replaces that initial value, and the amortization will be calculated taking the new value into account, the fair value, on the number of remaining years. Therefore in the fourth year of use the amortization stands at RON 10,106, as the result of dividing the value obtained after reevaluation, RON 475,000, to 47 years.

The evaluation after recognition model, chosen according to the IPSAS, cost-based, determines an accounting value of the asset of 470,000 lei, as the result of deducting the cumulated value of the amortization from the initial value. Therefore, the annual amortization value isn't modified, same as the value by which the result diminishes.

Taking into account that, both the national norms and the IPSAS recommend that financial reports reflect an accurate image of the assets, they must be presented in the balance sheet at their current value, which can be determined by reevaluation. The reevaluation of assets is the method determining a value of the goods as closer to the real one as possible. As such, the recommended method for the subsequent evaluation of the recognition, at least for lands and buildings, is the method based on reevaluation.

In the Romanian public institutions accounting, one can opt for the reevaluation of tangible fixed assets carried out by authorized evaluators or for the reevaluation based on the consumption price indices conducted by a committee appointed by the credit release authority. The second method, although preferred by public

institutions due to the reduced costs, isn't always the one giving a current value of the reevaluated tangible fixed assets. This method, based on the consumer price index, doesn't take into account other factors that can favorably influence the value of the reevaluated assets, factors such as the economic context, the environment, the asset assignment.

The national norms don't offer alternative methods for the amortization of tangible fixed assets, with only the linear method being provided, which entails that the initial value of the asset be included in the monthly expenses during the entire useful life. This way, the result is diminished by the same amount in each financial exercise. The provisions of the national norms, nevertheless, allow the public institutions to establish a longer or shorter useful life by up to 20 percent of the useful life approved by Government Decision.

Example 3. We assume that a public institution owns a new laptop the initial value of which stands at RON 2,800. As it has a value higher than RON 2,500 is recognized as tangible fixed asset. The useful life stipulated in the 'Fixed assets catalogue' is between 3 and 5 years. The institution could opt to amortize the asset in 2, 3 or 4 years.

Table 5

- RON -

Useful life	Entry value	Annual amortization value	Influence on the result
2 years	2,800	1,400	The result is diminished by 1,400 per year for 2 years
3 years	2,800	933.33	The result is diminished by 933.33 per year for 3 years
4 years	2,800	700	The result is diminished by 700 per year for 4 years

As longer the useful life of an asset is as more years the amortization expenses will have an impact, in the sense of diminishing, on the institution result. However, if the useful life is shorter, the diminution value is higher. The diminution or augmentation by up to 20 percent of the useful life must also take into account the trend of the institution's revenues. Thus, if the institution's revenues are estimated to decline, an as short as possible useful life must be chosen, and if the revenues are constant or increasing, then a longer by up to 20 percent useful life can be chosen. It is worth mentioning that once the useful life duration is chosen, it cannot be modified until the full amortization of the good.

The differences between the national norms and IPSAS referring to amortization are: the IPSAS determine the amortizable value as a difference between the initial cost and the residual value, while the national norms provide as amortizable value the good's entry value; the national norms impose a single amortization method on all goods, namely the linear one, and the IPSAS recommend choosing, depending on the consumption rate of the future economic benefits, one of the linear, digressive and production units methods.

Example 4. We assume that a public institution owns a laptop the entry value of which stands at RON 2,700, with a useful life of 3 years. The residual value according to the IPSAS provisions is RON 300. The amortizable value according to the national norms is RON 2,700, and, according to the IPSAS provisions it is RON 2,400. According to the national provisions the amortization method is the linear one, and, according to the IPSAS, one can choose the linear or digressive method.

Table 6

- RON -

	Entry value	Amortization value in the 1 st year	Amortization value in the 2 nd year	Amortization value in the 3 rd year	Influence on the result
Linear amortization according to national norms	2,700	900	900	900	The result is diminished by RON 900 for 3 years

Linear amortization according to IPSAS	2,400	800	800	800	The result is diminished by RON 800 for 3 years
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The digressive amortization entails decreasing amortization expenses; however the IPSAS don't specify clear rules to determine the annual amortization value. Nevertheless, the impact on the result, in turn, is a decreasing one and thus in the beginning of the useful life the result is diminished by a higher amount than in the second and third year of using the asset.

The example above on the comparison of the amortization value determined after the linear method according to the national norms and the IPSAS shows that the impact on the result is higher if the annual amortization is made according to the national norms.

The depreciation of tangible fixed assets influences the result of a public institution through expenses only in the financial exercise in which it is established that the asset value has diminished more than the amortization value. In case the de-recognition of the asset takes place, the depreciation value is recognized as revenue in the financial exercise when the operation takes place.

The process of choosing accounting policies has a special impact on the quality of information provided to all interested users so that the financial statements must contain information regarding the accounting policies adopted by the entity, through the explanatory notes to the financial statements. [10]

4. Conclusions

The rules, practices employed by a public institution in drawing up the financial statements are found in the International Public Sector Accounting Standards and in the national norms on the organization and conduct of accounting in public institutions. The IPSAS implementing is only recommended, whereas the national norms are compulsory for accounting in public institutions of Romania. The aforementioned standards and norms also include conventions, principles, methods referring to the recognition, evaluation, depreciation, de-recognition of the tangible fixed assets, in fact, they represent a set of rules which are taken into account in presenting the information on the elements brought up in the financial statements.

The information presented in the public institutions financial statements reflects the decisions on the adopted accounting policies. Taking into account that the tangible fixed assets hold a significant share in the total assets owned by a public institution, any decision regarding the accounting policies referring to the tangible fixed assets has a major impact on the values of the indicators presented in the financial reports.

When no clear rules are provided in the legislation in force referring to certain transactions involving the tangible fixed assets, the public institutions must establish them under accounting policies, accounting procedures.

The accounting policies implemented by public institutions on tangible fixed assets must be selected of such a manner that the financial statements present relevant and reliable information.

On a European level, starting from the International Public Sector Accounting Standards, there has been initiated a debate and work on the European Public Sector Accounting Standards (EPSAS) in view to harmonizing the accounting systems. The EPSAS will represent a new set of rules which will be taken over and implemented in the public institutions of Romania, and a future research topic will concern the EPSAS provisions implementing manner and effects on the financial statements of the public institutions in Romania.

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The Professional Judgment and the IAS/IFRS Referential

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Abstract: *This paper aims to describe the professional judgment resulted from the issuance and application of international standards IAS/IFRS. A main purpose was to practically and conceptually identify the forms in which this judgment is generating its effects in the professional activity. The professional judgment raises various interrogations regarding its valences in the organizational environment and represents a central element of the current legislator's attention.*

Keywords: *professional judgment, IAS/IFRS, accounting, information, regulators*

1 Introduction

The International Financial Reporting Standards - IFRS incorporate a set of regulations. Currently, these norms are issued by the IFRS Foundation and the International Accounting Standards Board (IASB) to provide an identical information process and a common global set of procedures for companies so that the accounts can be understandable and comparable in an extended manner across international boundaries.

A large number of standards that are part of IFRS are known under the name International Accounting Standard (IAS). These standards were issued by IASC - Board of the International Accounting Standards Committee - the predecessor of IASB, and are still within use today.

IAS standards were issued between 1973 and 2001. On April 2001, the new International Accounting Standards Board (IASB) has adopted all IAS Standards, developing a permanent process of improving them. The new standards are called IFRS. IAS standards are no longer issued, those that already exist are still in force until they are replaced or amended by the issuance of new IFRSs.

2. A general view of the Financial Reporting Standards

Table 1. List of International Financial Reporting Standards

IFRS	← IAS
	IAS 1: Presentation of Financial Statements
The Conceptual Framework for Financial Reporting	IAS 2: Inventories
IFRS 1 First-time Adoption of International Financial Reporting Standards	IAS 7: Statement of Cash Flows
IFRS 2 Share-based Payment	IAS 8: Accounting Policies, Changes in Accounting Estimates and Errors

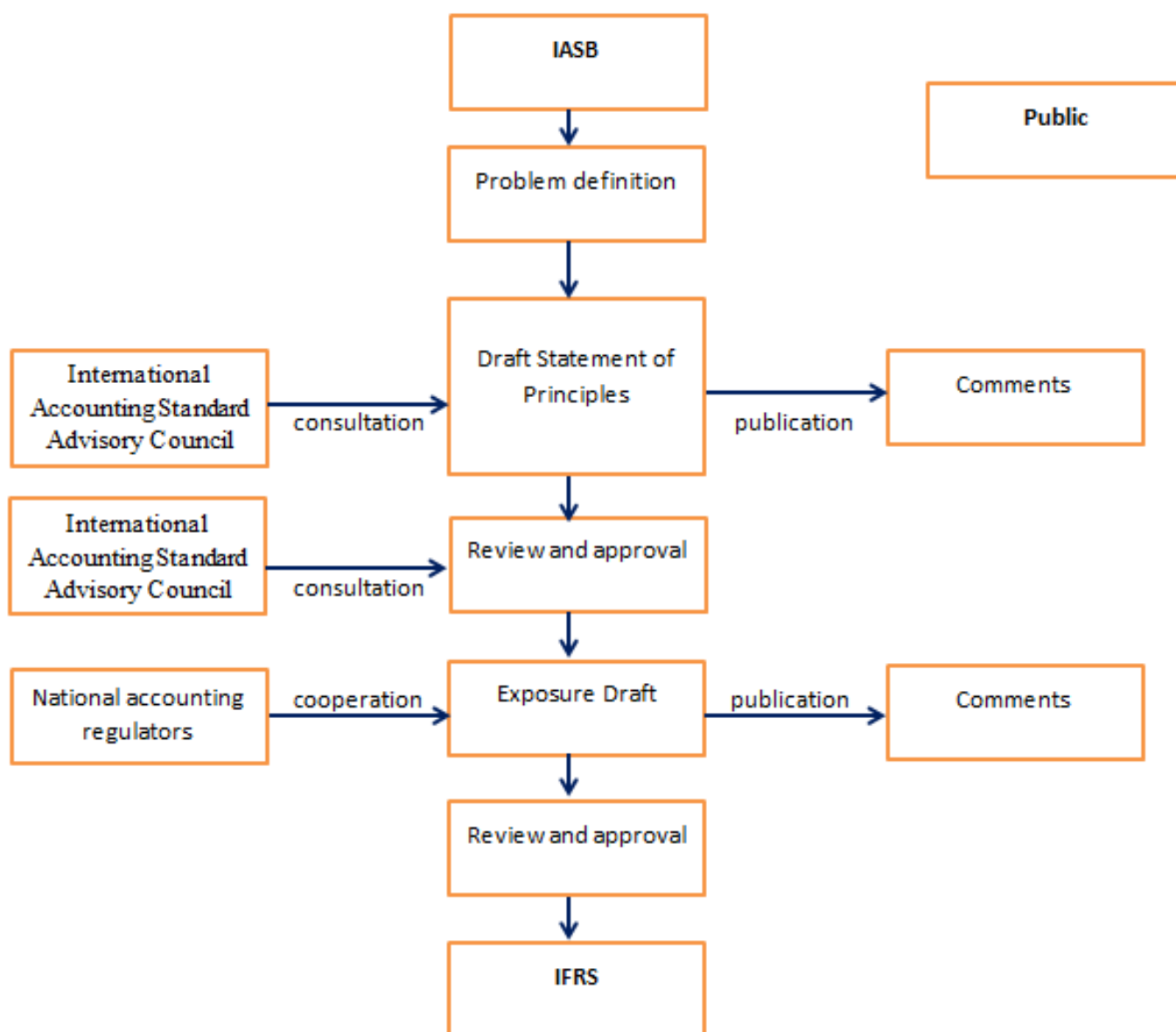
IFRS 3 Business Combinations	IAS 10: Events after the Reporting Period
IFRS 4 Insurance Contracts	IAS 12: Income Taxes
IFRS 5 Non-current Assets Held for Sale and Discontinued Operations	IAS 16: Property, Plant and Equipment
IFRS 6 Exploration for and Evaluation of Mineral Resources	IAS 17: Leases
IFRS 7 Financial Instruments: Disclosures	IAS 19: Employee Benefits
IFRS 8 Operating Segments	IAS 20: Accounting for Government Grants and Disclosure of Government Assistance
IFRS 9 Financial Instruments	IAS 21: The Effects of Changes in Foreign Exchange Rates
IFRS 10 Consolidated Financial Statements	IAS 23: Borrowing Costs
IFRS 11 Joint Arrangements	IAS 24: Related Party Disclosures
IFRS 12 Disclosure of Interests in Other Entities	IAS 26: Accounting and Reporting by Retirement Benefit Plans
IFRS 13 Fair Value Measurement	IAS 27: Separate Financial Statements
IFRS 14 Regulatory Deferral Accounts	IAS 28: Investments in Associates and Joint Ventures
IFRS 15 Revenue from Contracts with Customers	IAS 29: Financial Reporting in Hyperinflationary Economies
IFRS 16 Leases	
IFRS 17 Insurance Contracts	
	IAS 32: Financial Instruments: Presentation IAS 33: Earnings per Share IAS 34: Interim Financial Reporting IAS 36: Impairment of Assets IAS 37: Provisions, Contingent Liabilities and Contingent Assets IAS 38: Intangible Assets IAS 39: Financial Instruments: Recognition and Measurement IAS 40: Investment Property IAS 41: Agriculture

Source: issued by the author after *IFRS Foundation and the IASB website*

The conceptual framework of IFRS, an important regulatory element, guides the accounting practices and implicitly the conduit and judgment at a professional level through the presentation of the financial statement's objectives, of qualitative characteristics of accounting information through their utility for the financial statement, of the image of the "capital" concept and the detailed presentation of the elements that serve as foundation in the construction of the financial statements.

Within this framework we find the "theoretical principles and the concepts that form together the reference system for the issue and presentation of the financial statements for the external users, basically what should the accounting be, delimited as a normative accounting theory, respectively a particular case of the general accounting theory" (Ristea, Dumitru, 2005, p.12).

Figure 1. The process of an IFRS issuance



Source: Adaptation based on the work of F. Sârbu - „Sistemul contabil românesc”

The normative pack IAS/IFRS chooses priority of substance over form (choosing definitively the prevalence of economic over legal), establish in certain domains the rule of fair value reevaluation and, within this context, provide a wide space for the professional judgment of the accounting practitioner (Tabara, Horomnea & Mircea, 2010, p. 124).

Within the content of IAS standards, the professional judgment is explicitly mentioned 32 times within the activities presented in Table 2. The references have been presented below, on each activity that has in its content the express mention of the professional judgment, by the presentation of each IAS standard.

Table 2. Explicit mentioning of the Professional judgment within the IAS

• IAS 1	<ul style="list-style-type: none"> The identification of the financial statements Within the information that needs to be presented within the balance sheet; Within the information that needs to be presented whether in the P&L statement of the Notes; Accounting Policies; Main sources of estimates uncertainty;
• IAS 8	<ul style="list-style-type: none"> The selection and application of the accounting policies; The modification of accounting estimates; The presentation of the information;
• IAS 16	<ul style="list-style-type: none"> Recognition; The depreciable value and the depreciation period; The presentation of the information;
• IAS 21	<ul style="list-style-type: none"> Functional currency;
• IAS 23	<ul style="list-style-type: none"> The debt costs that can be capitalized.
• IAS 29	<ul style="list-style-type: none"> Retreatment of the financial statements; Domain of applicability.
• IAS 34	<ul style="list-style-type: none"> Materiality.
• IAS 36	<ul style="list-style-type: none"> The identification of the cash generating unit of which an asset belongs.
• IAS 37	<ul style="list-style-type: none"> Evaluation – the best estimate.
• IAS 38	<ul style="list-style-type: none"> Domain of applicability;

	✚ Recognition and evaluation.
• IAS 39	
	✚ The depreciation and non-recoverability of financial assets.
• IAS 40	
	✚ Definitions.

Source: issued by the author

3. Results and discussions

When the definition of the professional judgment comes into discussion, through the prism of normative vision, there are two important perspectives that work together at an organizational level:

1. **The explicit perspective** – that represents the explicit mentioning of using the professional judgment in the requested situations; this perspective appears when a norm allows the user of accounting information to act in accordance with his experience and professional skills;

An exemplification of this perspective can be highlighted through IAS 8 – Accounting Policies, Changes in Accounting Estimates and Errors as follows: “in the absence of a standard or interpretation that will apply especially to a transaction, another event or situation, the management needs to use the “professional judgment” to elaborate and apply an accounting policy that has as a result information:

- a) Relevant for the needs of users regarding the economic decision making process;
- b) Credible through the fact that the financial statements:
 - i. Fairly represent the financial position, the financial performance and the cash flows of the entity;
 - ii. Reflect the economic content of transactions, other events and situations other but their legal form;
 - iii. Are neutral;
 - iv. Are prudent;
 - v. Are complete in all material aspects;

In the case of using the professional judgment mentioned above, the management needs to refer and take into consideration the applicability of the following sources, in decreasing order:

- a) The requirements and recommendations from the Standards and Interpretations that refer to similar or alike elements;
- b) Definitions, recognition criteria and evaluation concepts for assets, liabilities, income and expenses from the General framework” (IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors, A 456).

2. **The implicit perspective** – represents a common label of normativism that generates an equivalence of applying the professional judgment and the assembly of norms issued through the obligation of norm application.

The norms stated in the IAS combines the two perspectives of framing the professional judgment in the accounting theory, coming to enforce the IFRS referential that uses preponderantly the implicit perspective.

In accordance with professors M. Ristea and C.G. Dumitru, “the IFRS accounting system is based on principles that invite to accounting policies in accordance with the standards’ provisions but also to the professional judgment of the practitioners ...().... The principles require judgment and the judgment is an integral part of issuing the financial statements.” (Ristea&Dumitru, 2012, p. 58).

On the background of the globalization process of the economy, the accounting companies need to develop an increasingly range of services (Sudacevschi, 2016, p. 718) and take into consideration the impact of the professional judgment over the companies. Another aspect that needs to be taken into consideration is that “in the financial theory, considering important the informational and strategic interaction’s imperfections allows the comparison of the effectiveness of different financing methods and different organization types of financial markets” (Grigore, 2009, p. 374).

The objective of these financial statements is to provide information regarding the financial position of the company and the changes that can occur regarding the financial position, information regarding the company’s performance, segments of the market that are influenced by the increase of prices etc. and addresses to an

extended number of users among which we state: actual and potential investors, employees, creditors, suppliers, public, the financial analysts etc.

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