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CONCEPTS OF SUSTAINABLE ENERGY

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ABSTRACT

Thanks to technological advancements, the profitably useable fossil energy deposits are increasing, and their exploitation requires more and more energy investment. In developed countries, the efficiency increase driven by competition decreases the per unit energy need, however, this effect cannot compensate for the increasing energy demand of the world. The use of renewable energy resources in not only vital for the three pillars of sustainability but for supply security, too, even though their competitiveness is still lower than that of fossil energy resources. The exploitation of renewable energy resources involves higher investment costs and lower maintenance costs per unit. Due to extra costs deriving from long transportation routes, lower maintenance costs are not necessarily true for conditionally renewable energy resources. This significantly influences environmental sustainability, too. The exploitation of solar and wind energy are the fields where considerable improvement can be expected due to the increasing efficiency and low maintenance costs. However, these favourable effects can also be achieved by other energetic investments; therefore an objective comparison of options is required. The analysis of the retail price structure of electricity reveals that electricity prices primarily depend on the energy resources used and the technology; however, final prices are to an even greater extent influenced by tax and fee elements.

Keywords: Renewable energy sources, sustainability, energy prices, competitiveness, energy efficiency, technological development, energy structure

INTRODUCTION

Our current macroeconomic model ignores humanity's eternal dependency on nature; it does not take the limited resources (limited carrying capacity) of Earth into consideration (*Vida*, 2007). Instead, the model is built on increasing material consumption, it generates excessive demand for natural resources, it wastes them, it creates problems to be solved, and besides these, it requires constant population growth and the generation of consumer needs (*Gyulai*, 2013). This led to a disturbance in the balance of consumption and environment, as presented in the study "A fogyasztás zsákutcája" ("The dead-end of consumption") by *Náray-Szabó* (2003). The higher demand generated by the increased consumption also revealed the limited availability of energy resources, thus highlighting the key importance of energy security and supply security.

MATERIALS AND METHODS

The study examines the competitiveness of renewable energy resources in electricity production from the points of view of sustainability and energy security. The

review is based on statistical data from several international organizations (Eurostat, Energy Information Administration and World Nuclear Association) and Hungarian scientific studies. The economic analysis of the investment side deals with the per unit cost of electricity generation and the risks derived from cost structures. The environmental approach of the study examines the per unit GHG emissions of production by evaluation and comparative analysis of the data available, then the possible alternatives of the emission savings are presented.

RESULTS AND DISCUSSION

By today the symptoms of the overturning of the natural balance and the problems and their consequences caused by environmental externalities appear in the list of the ten most important global challenges compiled by Nobel Prize winner Professor Richard E. Smalley. On the top of the list there are *power-supply, water-supply, food-supply* and the *protection of the natural environment* and in the tenth place there is the *stoppage of overpopulation* is (*Dinya*, 2010). Referring to the list Dinya mentions and emphasizes several times it can be stated that the exponential challenges are interlocked and appear in a complex way strengthening each other. Among them there are numerous cause and effect relationships, direct and indirect interference also can be discovered. For example, due to the population- and the consumption growth occurring increasingly - more energy can be used and as a result of this environmental problems have global effects, too. The population growth keeps on enhancing the problems of the food supply, meanwhile the environmental pollution caused by extreme weather increases the unpredictability of food production. A consequence of soil degradation and the desertification of further areas must be involved in agricultural use, which is also leading to the deterioration of the environmental values. Facing the complicated economic, social, environmental correlation of the system that produce effects on each other, the challenges need simultaneous and collective solutions. The summary of this whole multifactorial coherent problem-system can be described by the sustainability concept, to which the complete response of ecological economics and the ideology of sustainable development can be given. Nowadays the three-dimensional theory is generally accepted defined and improved by the Brundtland Commissions which interprets sustainable development as a synchronous harmony of ecological, social and economic factors (*Szlávik*, 2013). *Csete* (2008) considers that the implementation of this question as well as the most important stepping stone is the energy issue that could be the answer given to the climate change. With regard to that fact energy is provided for the economic foundation and therefore the base of the production, there is every reason to believe that without the rationalization of our energy utilization and the usage of the renewable energy sources the sustainability cannot be achieved (*Dinica*, 2006). *Pálvölgyi's* (2000) conclusion also supports this theory when he determines that the combustion of different types of fuel are responsible for the climate change in 50-60% due to the emission of greenhouse (GHG) gases.

The power-supply question is of overriding importance not only from the sustainability side but also from the point of view of security policy. . As most of the developed countries need energy import (in the EU Denmark is the only exception for

this) from the point of view of security policy the reduction of energy dependence is also important, which may affect the country's sovereignty. The maintenance of the power-supply and the security of supply can primarily mean the insurance of the uninterrupted availability of the energy sources and services. This complex economic-trading-technical system can be considered within an economic, societal, political, military, technical, technological system summarized in a geopolitical-strategic acting issue which the national energy strategy and energy politics give the respond to. This relative stability must be adapted to our ever changing, ambiguous World. This relative stability must be adapted to the changing circumstances and also against its root causes of the change, for example to the economic and political interests, technological innovations, energy poverty, environmental and climate protection or its summary can be interpreted as a suit correspondence to the previously mentioned requirements of sustainability (*Katona*, 2013).

Energy supply security is threatened by several factors. Among others the following factors can be considered as a risk: the decreasing stock of fossil energy sources, the unstable political, economic situation of the countries possessing energy resources, natural catastrophes, anthropogenic effects caused by the more and more extreme weather conditions (*CKKE*, 2010). Firstly, it was the crude oil crisis in 1973 and the news on the decreasing sources of fossil energy. They drew the attention to the terminating stocks of fossil energy sources as the risk of primary importance. This also highlighted the importance of the diversification of the utilized energy sources and their purchasing routes.

Today, with the non-conventional crude oil and natural gas production, the risk of the depletion of stocks permanently seems to be passing away. But the revolution of the shale oil and shale gas leads to decreasing prices in the United States, with the expansion of the production it could become net energy exporter. This can redraw the Worlds' geopolitics and as the *Figure 1* shows, due to the increasing supply appearing at low prices owing to the industrial investments, developments become more risky. With the lower operating costs working production units and technologies have the competitive advantage, while further environmental anxieties arise as a consequence of the spread of new technologies (*Genté*, 2013; *Flues and Simon*, 2013).

The question has arised whether the global competition for the natural resources that shares the world could be available for sustainablility at all. Or instead of the competition the solidarity and the cooperation would be necessary that is not typical of this economic system.

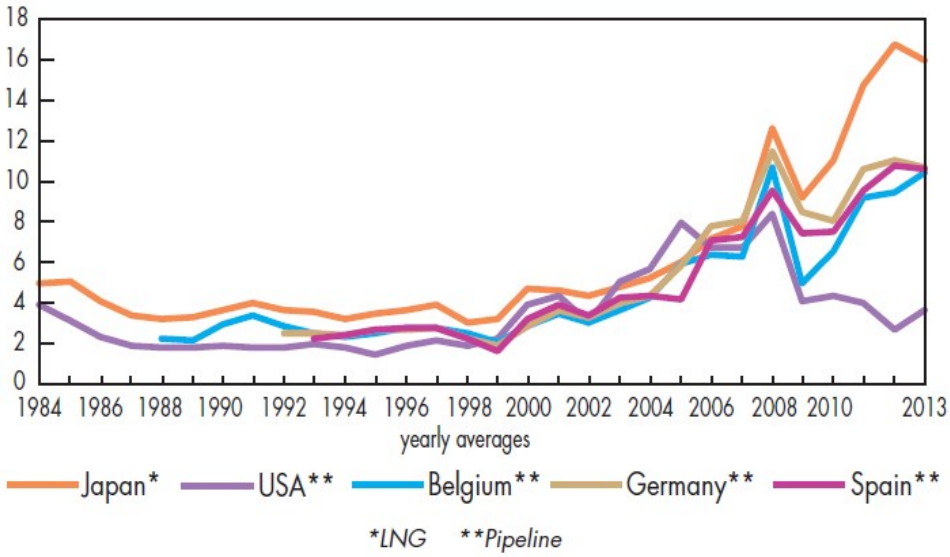
As for the terminating fossil energy resources and the unsustainability Schultz states that the problem is not the size of the stock of the fossil energy. The main problem is „before all fossil fuel would be used up the mankind would destroy the economy due to the environmental damages" (*Schultz*, 2005).

Creating the energy structure

Creating the sustainable energy mix and power plant structure is an economical, energy and environmental matter which is determined by energy politics through the energy strategy, based on the resources of the given country. Besides supply

Figure 1.

Natural gas import prices in USD/MBtu



Source: International Energy Agency: Key World Energy Statistics 2014

security, compliance with international and (for EU member states) Community commitments is another important factor. For electricity production this primarily means the reduction of harmful emissions, which among others, can be achieved by the wider use of renewable energy resources. Spreading renewable energy resources cannot only offer a solution to energy supply security issues but has several positive economic effects, too (e.g. creates jobs).

According to the prognosis of the International Energy Agency, the use of coal as an energy resource will be taken over by gas and renewable energy resources. In 2035, the proportion of renewable energy resources will be 3 times higher than the level of 2010, with different energy resource repartition in each economy (*Putzer*, 2013). Since 2011 there has been a decline in global investments in renewable energy resources, with the greatest decrease observed in the European Union. In 2013, China, the largest coal user took over the leading role from the EU with an investment of 56 billion USD, while in the EU the renewable energy sector, which is considered to be the most recession-proof, already takes up 1% of the GDP in the EU. Out of the global investments of 215 billion USD in 2013, solar energy took up 53%, wind energy 37.2%, and biomass 6.04% (with 2.34% biofuel) (*FS-UNEP*, 2014*; REN21*, 2014).

Governments around the world have begun to quantify the environmental costs by developing various financial instruments, subventions that are granted to those who generate or purchase renewable energy. Despite the globally increasing subventions, renewable energy resources are in a competitive disadvantage: in 2010

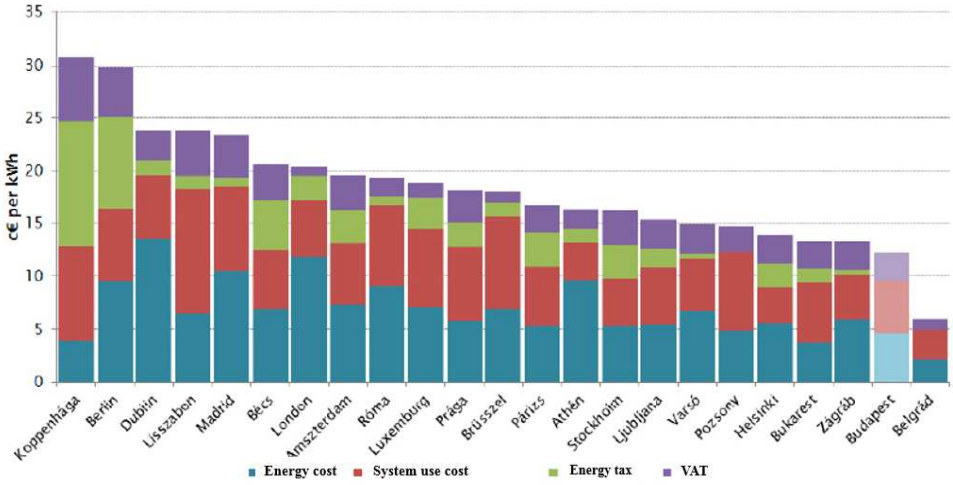
subventions for fossil fuels totalled 409 billion USD, while subventions for renewable energy resources totalled only 64 billion USD (*Dupcsák and Marselek*, 2013).

The retail price of electricity

Due to the fact that energy is one of the bases of production, the price of fuels and electricity is a determining factor in economic competitiveness. This is the primary reason for preferring certain energy sources when creating the energy mix. Due to the competition, there are no considerable differences in industrial electricity prices in EU member states, however, retail prices differ significantly. As shown in *Figure 2*, each component of retail prices shows considerable variance with taxes and other costs over energy prices being significant, too. Fiscal policies (taxes and fees) play a major role in forming prices. As shown in the example of Denmark, the energy fee does not considerably influence the retail price, other fees and taxes have a more significant impact. Hungary is the only EU member state with no energy tax implemented.

Figure 2

Household cosumers electricity tariff items in euro (eurocents/kWh) January 2015.



Source: MEKH, 2015

In countries with relatively higher consumer price levels, higher electricity retail prices are considered cheaper on purchasing power parity while with relatively lower consumer price levels, prices on purchasing power parity are higher. In countries with higher net income, there is an opportunity to create higher retail prices in order to rationalize consumption. Besides that, in accordance with the needs of the society, certain cost elements imposed on electricity retail prices can be

increased, with the collected money used to subsidise the use of renewable energy resources.

The Levelized Cost of Electricity (LCOE)

Besides the environmental considerations viewed from the investment side it can be said that difference can be experienced not only due to the type of the energy source in the value of specific investment's cost. Over the primary commodities depending on the type of the utilization and the conversion, also there is a perceptible difference in its technological level and the plant size in the specific investment's cost and in the cost of the produced electricity power.

As a financial tool, LCOE is very valuable for the comparison of various generation options. LCOE is often cited as a convenient summary measure of the overall competiveness of different generating technologies. It represents the per-kilowatthour cost (in real dollars) and cost structure of building and operating a generating plant over an assumed financial life and duty cycle. As the *Table 1* represents, key inputs calculating LCOE include capital costs, fuel costs, fixed and variable operations and maintenance (O&M) costs, financing costs, and an assumed utilization rate for each plant type. Owing to the LCOE the investors can get accurate picture of the cost structure of the power generation, which involve numerous factors during investment decisions. The importance of the factors varies among technologies and regional characteristics, that is why the different generating technologies contain different risk during the cost recovery period. The factors such as project utilization rate, existing resource mix, capacity value, policy-related factors, portfolio diversification, marginal unit of new capacity determine the success of the project. To the same technology the different legal regulations and economic environment may produce very different financial results by countries, but in this case the same proportion remains between the values of productions. A relatively low LCOE means that electricity is being produced at a low cost, with higher likely returns for the investor. LCOE estimates may or may not include the environmental costs associated with energy production (*Namovicz*, 2013).

The different cost proportion of the power generation technologies also contain different risks or potentials in the future. The effects of inflation on future plant maintenance must be considered, and the price of fuel for the plant must be estimated for decades into the future. As those costs rise, they are passed on to the rate-payer. A renewable energy plant is initially more expensive to build but it has very low maintenance costs and there is no fuel cost in a life-time of 20-30 year with the exception of that based on the various biomass sources. In case of biomass from the point of view of greenhouse (GHG) gas emission and profitability, the transport distance has decisive importance due to low energy density.

Due to the component prices for photovoltaic systems fell drastically over the last years. Also this can be mentioned according to the onshore wind. According to sectoral forecasts, the efficiency of photovoltaic and wind power generation technologies will prove to be the best. Therefore, these renewable technologies can be a match for fossil energy sources in the future (*EIA*, 2014*; Lazard*, 2014*; DECC*, 2013*; Fraunhofer ISE*, 2013).

Table 1

Estimated levelized cost of electricity (LCOE) for new generation resources, 2020, (U.S. Average Levelized Costs (2013 $/MWh) for Plants Entering Service in 2020)

Plant Type	Capacity Factor (%)	Levelized Capital Cost	Fixed O&M	Variable O&M (incl. fuel)	Transmission Investment	Total System LCOE
Dispatchable Technologies						
Conventional Coal	85	60,40	4,2	29,40	1,2	95,1
Advanced Coal	85	76,9	6,9	30,7	1,2	115,7
Advanced Coal with CCS	85	97,3	9,8	36,1	1,2	144,4
Natural Gas-fired						
Conventional Combined Cycle	87	14,4	1,7	57,8	1,2	75,2
Advanced Combined Cycle	87	15,9	2	53,6	1,2	72,6
Advanced CC with CCS	87	30,1	4,2	64,7	1,2	100,2
Conventional Combustion Turbine	30	40,7	2,8	94,6	3,5	141,5
Advanced Combustion Turbine	30	27,8	2,7	79,6	3,5	113,5
Advanced Nuclear	90	70,1	11,8	12,2	1,1	95,2
Geothermal	92	34,1	12,3	0	1,4	47,8
Biomass	83	47,1	14,5	37,6	1,2	100,5
Non-dispatchable Technologies						
Wind	36	57,7	12,8	0	3,1	73,6
Wind - Offshore	38	168,6	22,5	0	5,8	196,9
Solar PV	25	109,8	11,4	0	4,1	125,3
Solar Thermal	20	191,6	42,1	0	6	239,7
Hydroelectric	54	70,7	3,9	7	2	83,5

Source: *EIA* (2015).

The matter of technological development and efficiency

In sustainable development the goal is to achieve economic growth with the least possible environmental pollution which includes the greatest possible reduction of greenhouse gas (GHG) emission. The desired reduction of emission can be achieved in different ways, even by the simultaneous use of several instruments. Different alternatives compete for the investments. *Benkő and Pitrik* (2011) define the basic types of efficiency-increasing investments which also have positive effects on the use of renewable energy resources, rational energy use, energy savings and supply security. They also mention the decreasing of the unfavourable effects of current facilities thus making them "greener". For the most efficient possible use of

resources it is advisable to examine the economical and environmental sustainability of investments and to choose the most efficient solutions, which does not necessarily mean the creation of modern, renewable electricity sources.

Relative carbon dioxide or GHG emissions are widely accepted indexes of energy efficiency. The emission of carbon dioxide and other greenhouse gases can be examined in several ways. It can be broken down to the emission of economic sectors, it can be connected to efficiency (related to relative economic performance or as per capita emission), and can also be characterised as one of the efficiency factors of electricity production. The energy use per unit of GDP on purchasing power parity is constantly decreasing in OECD countries. In the USA, energy intensity decreased to the 40% of the 1950 value by 2010 (*EIA*, 2013*; Eurostat*, 2014). The global value is primarily deteriorated by the high-proportion coal use of China where GDP-related carbon dioxide emission is more than twice of the USA values (*UNSD*, 2013). This can only be partly explained by technological developments, the favourable values in developed countries can also be attributed to the relocation of pollution-intensive industries. The average 2.5% growth of global primer energy consumption in the last 10 years can primarily be attributed to India and China (*BP*, 2014). The dispersion of use can be demonstrated by the fact that while in 2003 the per capita energy consumption in the USA was 4.1 times higher than the global average as opposed to the 2.2x, 0.33x and 0.11x relative values of the EU, China and India, respectively, now the per capita energy consumption in China exceeds the global average (*Ekéné Zamárdi and Baros*, 2004*; Zsoldos*, 2013).

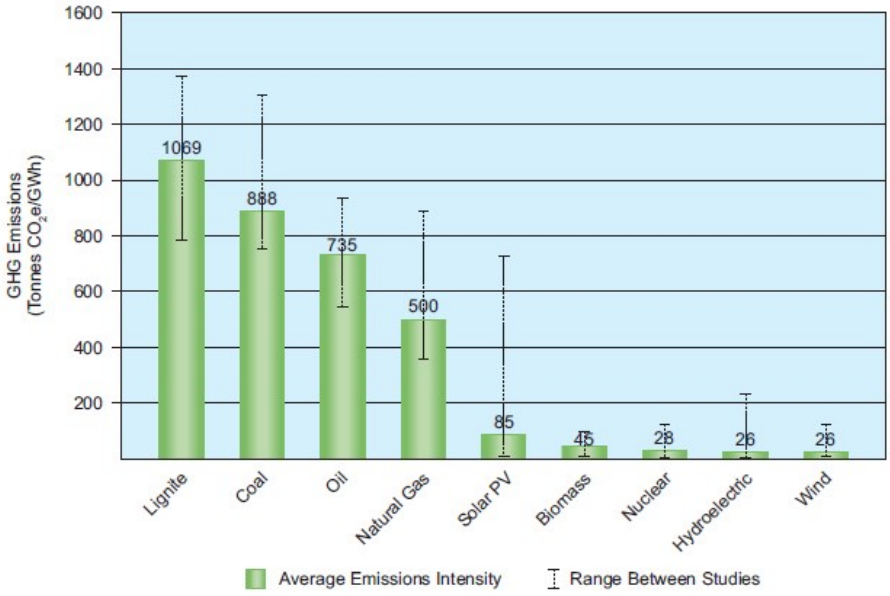
The reduction of harmful substance emission and the related costs depend on the economical and technological level of each country. Economic competition facilitates this process, which is also supported by the words of Shrivastava as cited by *Kerekes* (2014): "Companies may profit from cutting down costs by increasing ecological efficiency, they may tap green markets and gain other advantages … they may improve their image". *Porter and Van Der Linde* (cited by *Kerekes*, 2014) share the same opinion: "the ecological effect turns into resource efficiency which may result in competitive advantage." Due to technological differences, the cost of emission reduction differs considerably in developed and developing countries. Reducing the carbon dioxide emission by 1 ton costs 300 to 500 USD in developed countries while only 10 to 15 USD in developing countries (*Nagy*, 2006). This raises the question whether it would be more effective to support the technological developments in developing countries rather than subsidizing EU investments. To address this issue, the United Nations Framework – Convention on Climate Change, Green Climate Fund; UNFCCC – GCF) was created which spends 100 billion USD on these projects in the following years (*Fenton*, 2014*; Lattanzio*, 2011).

GHG emission is one of the major elements of environmental costs. Results aggregated by World Nuclear Association (WNA) from various literature sources also support that emissions from renewable energy resources are significantly lower than that of their fossil counterparts (*Figure 3*). It must be noted, however, that there is a considerable dispersion among the results of the individual studies. It is interesting that emissions from conditionally renewable biomass is lower than that

of the renewable solar energy, despite the fact that exploiting biomass energy involves the production of raw materials and the transportation of products of low energy density.

Figure 3

Lifecycle GHG Emissions Intensity of Electricity Generation Methods



Source: *WNA* (2011)

The achievements from technological developments driven by competition have complex effects that may have adverse influences on sustainability. Thanks to the innovations, not only renewable energy resources become more and more competitive but also less-accessible conventional and unconventional fossil energy deposits can be exploited profitably. It must be noted, however, that despite the improvements in technological efficiency, more and more energy must be invested in order to recover one energy unit. The "Energy Return on Energy Invested" (EROEI) index shows how much energy can be acquired from a particular energy resource by expending 1 unit of energy. A report by Worldwatch Institute also confirms that despite technological developments, the average EROEI value of petroleum is globally decreasing, having been 100:1 in 1900 and being only 20:1 at present times. According to data of the USA petroleum industry, the return of energy invested decreased from 24:1 to 11:1 between 1954 and 2007 (*Zencey*, 2013). At present times, developments make it possible to decrease the external effects of use of fossil energy resources. This helps maintain the competitiveness of traditional electricity producing capacities, making them alternatives of renewable energy investments. Examples of these new technologies are cogeneration systems

and carbon capture and sequestration (CCS) systems which are recommended by IPCC as well (*Pápay*, 2011; *Valaska*, 2011). There are several carbon capture methods (*Buzea*, 2013) which can also be associated with carbon emission trading (*Horánszky*, 2012). Studies in this field were conducted in Hungary as well, concluding that our country has favourable conditions for storage capacities (*Szunyog*, 2012). Although this technology appears to be quite promising, it is currently in early developmental stages and does not have widespread commercial application. Therefore, the lifecycle GHG emissions cannot be accurately estimated and have not been included in the WNA report. CCS systems significantly decrease harmful emissions, however, due to the energy used for carbon capture the electricity production of power plants decreases as well.

For certain energy production and energy efficiency technologies, calculating the additional costs of relative primer energy savings provides us with a more accurate overview from the points of view of environmental sustainability and comparability of investments. These calculations can compare not only electricity producing technologies but also investments in energy efficiency (adding heat insulation, replacing doors and windows) where there is considerable energy efficiency potential to be exploited. Besides that, an accurate overview of the general situation can be produced, with the possibility to compare it with the technological level of other countries or industries.

CONCLUSIONS

Due to the large number of factors, the per unit investment costs and harmful emissions of fossil and renewable energy resources show a great variety between countries and regions, even within the same technology. When planning an investment, in addition to the economic sustainability, the environmental sustainability of the project should also be examined using eligibility criteria. This would particularly be important for conditionally renewable biomass where transportation costs and energy investments substantially influence the energy balance and harmful emissions. Thanks to technological innovations, a considerable increase in competitiveness can primarily be expected on the market of renewable energy resources. Until then, besides strict regulation, currently competitive, technologically sound investments of the same environmental effects (e.g. modernization of transmission systems in order to increase efficiency by decreasing losses) may be preferred. This way, the consequences of the "rebound effect" can be minimized, too. Fast technological advancements offer a take-off point for the companies in the industry, by giving them an opportunity to increase their market share.

The retail price of electricity affects competitiveness, too; low retail prices are favourable for consumers while higher prices help increase effectiveness and promote a more rational use. Retail prices of electricity are influenced by other fee elements than by the actual production costs to a greater extent.

REFERENCES

Benkő, Zs.I., Pitrik, J. (2011): Energetika – Energiamenedzsment. (in Hung.) Digitális Tankönyvtár, TÁMOP 4.2.5. [online] <URL: http://www.tankonyvtar.hu/en/tartalom/tamop425/0021_Energiamenedzsment/ch12.htht>

BP (British Petroleum) (2014): BP Statistical Review of World Energy 2014. [online] <URL: http://www.bp.com/content/dam/bp-country/de_de/PDFs/brochures/BP-statistical-review-of-world-energy-2014-full-report.pdf>

Buzea, K. (2013): Az erőművi szén-dioxid leválasztási és tárolási (CCS) technológiák jelenlegi módszerei. (in Hung.) In: Energiagazdálkodás, 54. 1-2. 21-23.

CKKE (Corvinus Külügyi és Kulturális Egyesület) (2010): Biztonságpolitikai Corvinák. (in Hung.) [online] <URL: http://biztpol.corvinusembassy.com/?module=corvinak&module_id=4&cid=10000>

Csete, L. (2008): Új paradigma az agrárgazdaságban: alkalmazkodás a globális kihívásokhoz. (in Hung.) In: Gazdálkodás, 52. 4. 352-367. p.

DECC (Department of Energy & Climate Change) (2013): Electricity Generation Costs 2013. [online] <URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/223940/DECC_Electricity_Generation_Costs_for_publication_-_24_07_13.pdf>

Dinica, V. (2006): Support systems for the diffusion of renewable energy technologies – an investor perspective. In: Energy Policy 34. 461-480. p.

Dinya, L. (2010): A biomassza-alapú energiatermelés és fenntartható energiagazdálkodás. (in Hung.) In: Magyar Tudomány, 171. 8. 912-925. p.

Dupcsák, Zs., Marselek, S. (2013): Biogáz termelés, mint a környezettudatos energiatermelés lehetősége. (in Hung.) In: Journal of Central European Green Innovation 1. 1. 35-44. p.

EIA (U.S. Energy Information Administration) (2013): Today in Energy, U.S, Energy Intensity projected to continue its steady decline through 2040. [online] <URL: http://www.eia.gov/todayinenergy/detail.cfm?id=10191>

EIA (U.S. Energy Information Administration) (2014): Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual of Energy Outlook 2014. [online] <URL: https://www.eia.gov/forecasts/aeo/pdf/electricity_generation_2014.pdf>

EIA (U.S. Energy Information Administration) (2015): Annual Energy Outlook 2015, With Projections to 2040. [online] <URL: http://www.eia.gov/forecasts/archive/aeo15/pdf/0383(2015).pdf>

Ekéné Zamárdi, I., Baros, Z. (2004): A megújuló energiaforrások felhasználásának társadalmi vonatkozásai a világban, Európában és hazánkban. (in Hung.) In: Kircsi, A., Baros, Z. (eds.) Magyar Szélenergia Társaság kiadványai, 2. 113-123. p.

Eurostat (2014): Energy Intensity (CSI 028/ENER 017) [online] <URL: http://www.eea.europa.eu/data-and-maps/indicators/total-primary-energy-intensity-1/assessment-2>

Fenton, A. (2014): Green Climate Found, Sean-CC Negotiation Briefing Paper. Southeast Asia Network of Climate Change Offices, [online] <URL: http://www.sean-cc.org/wp-content/themes/sean-cc/Publications/Activities/

Negotiation/Negotiation_Briefing-Papers_NOV-2014/SEAN-CC-Green Climate Fund_Nov 202014.pdf>

Flues, F., Simon, A. (2013): Lassú és költséges út a semmibe: palagáz-fejlesztések Európában (in Hung.) [online] <URL: www.mtvsz.hu/dynamic/palagaz_eu.pdf>

Fraunhofer ISE (Institut Für Solare Energiesysteme) (2013): Stromgestehungskosten Erneuerbare Energien. [online] <URL: http://www.ise.fraunhofer.de/de/veroeffentlichungen/veroeffentlichungen-pdf-dateien/studien-und-konzeptpapiere/studie-stromgestehungskosten-erneuerbare-energien.pdf>

FS-UNEP (Frankfurt School – UNEP Collaborating Centre for Climate & Sustainable Energy Finance) (2014): Key Findings Global Trends in Renewable Energy Investment 2014. [online] <URL: http://www.uncclearn.org/sites/default/files/inventory/unep246.pdf>

Genté, R. (2013): A palagázfelborítja a geopolitikát. (in Hung.) In: Le Monde Diplomatique – Hungarian edition [online] <URL: http://www.magyardiplo.hu/1315-a-palagaz-felboritja-a-geopolitikat>

Gyulai, I. (2013): Fenntartható fejlődés és fenntarthat növekedés. (in Hung.) In: Statisztikai Szemle, 91. 8-9. 797-822. p.

Horánszky, B. (2012): Az Európai Unió emisszió-kereskedelmi rendszere és a CCS technológia. (in Hung.) In: Energiagazdálkodás, 53. 5. 11-12. p.

Katona, T.J. (2013): Az energiabiztonság mint rendszer. (in Hung.) [online] <URL: http://www.atomforum.hu/eloadas/130604Katona.pdf>

Kerekes, S. (2014): Felelősség – korlátolt felelősség – felelőtlenség. (in Hung.) [online] <URL: http://docplayer.hu/1284629-Felelosseg-korlatolt-felelosseg-felelotlenseg.html>

Lattanzio, R.K. (2011): International Climate Change Financing: The Green Climate Found (GCF). [online] <URL: https://www.google.hu/books?hl=en&lr=&id=yBDRsDUklPIC&oi=fnd&pg=PA1&dq=unfccc+gcf&ots=tHBkx447Gq&sig=2Dk_NCQqwWdsaWAIUwrUAgPLxjc&redir_esc=y#v=onepage&q=unfccc%20gcf&f=false>

Lazard (2014): Lazard's Levelized Cost of Energy Analysis – Version 8.0 [online] <URL: https://www.lazard.com/media/1777/levelized_cost_of_energy_-_version _80.pdf>

MEKH (Magyar Energetikai és Közmű-szabályozási Hivatal) (2015): A lakossági villamos energia és földgázárak nemzetközi összehasonlító vizsgálata 2015. január. (in Hung.) [online] <URL: http://www.mekh.hu/download/d/e1/10000/mekh_nemzetkozi_arosszehasonlitas_2015_januar.pdf

Nagy, S.Gy. (2006): A környezethez való jog és a Kiotói Jegyzőkönyv. (in Hung.) In: Acta Humana 1. 41-48. p.

Namovicz, C. (2013): Assessing the Economic Value of New Utility-Scale Renewable Generation Projects. [online] <URL: https://www.eia.gov/conference/2013/pdf/presentations/namovicz.pdf>

Náray-Szabó, G. (2003): A fogyasztás zsákutcája. (in Hung.) In: Magyar Szemle 12. 9-10. 26-42. p.

Pálvölgyi, T. (2000): Az új évezred környezeti kihívása: az éghajlatváltozás, Környezet és társadalom. (in Hung.) XXI. századi forgatókönyvek, Budapest : L'Harmattan Kiadó, 112. p.

Pápay, J. (2011): A szén-dioxid visszasajtolásának tapasztalatai az olajipar területén. (in Hung.) In: Magyar Tudomány, 172. 4. 444-449. p.

Putzer, P. (2013): Energia- és alternatív energiafogyasztás Magyarországon. (in Hung.) [online] <URL: http://energia.pii.pte.hu/files/tiny_mce/Projekteredmenyek/Okologia/Teljes%20tanulmanyok/energia__alternativ%20energia_energiafogyasztas_irodalomkutatas_tamop_422A.pdf>

REN21 (Renewable Energy Policy Network for the 21st Century) (2014): Renewables 2014, Global Status Report, Key Findings. [online] <URL: http://www.ren21.net/Portals/0/documents/Resources/GSR/2014/GSR2014_KeyFindings_low%20res.pdf>

Schultz, Gy. (2005): Energiaellátás, energiatakarékosság világszerte. (in Hung.) In: Az energiagazdálkodás alapjai, BME OMMIK, 44. 4. 5-13. p.

Szlávik, J. (2013): Fenntartható gazdálkodás. (in Hung.) Budapest : Wolters Kluwer, 270. p.

Szunyog, I. (2012): A villamos erőműi szén-dioxid-kibocsátás föld alatti tárolásának lehetőségei Magyarországon. (in Hung.) In: Műszaki Földtudományi Közlemények, 83. 1. 11-220. p.

UNSD (United Nations Statistics Division) (2013): Millennium Development Goals Indicators, Carbon dioxide emissions (CO2), kg CO2 per $1 GDP (PPP) (CDIAC) [online] <URL: http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=788>

Valaska, J. (2011): A szén-dioxid-leválasztás és –visszasajtolás szükségessége és korlátai a hazai szénalapú erőművek esetében. In: Magyar Tudomány, 172. 4. 441-443. p.

Vida, G. (2007): Fenntarthatóság és a tudósok felelőssége. (in Hung.) In: Magyar Tudomány, 168. 12. 1600-1606. p.

WNA (World Nuclear Association) (2011): Comparison of Lifecycle Greenhaus Gas Emissions of Various Electricity Generation Sources, Report. [online] <URL: http://www.world-nuclear.org/uploadedFiles/org/WNA/Publications/Working _ Group_Reports/comparison_of_lifecycle.pdf>

Zencey, E. (2013): Az energia, mint fő erőforrás. (in Hung.) In: Varga É. (ed.) A Világ helyzete 2013 – Van még esély a fenntarthatóságra? Budapest : Föld Napja Alapítvány, 90-100. p.

Zsoldos, I. (2013): Chart-orgia: mi merre mennyi a világ energiapiacán? (in Hung.) [online] <URL: http://gurulohordo.blog.hu/2013/07/12/chart-orgia_mi_merre_mennyi _a_vilag_energia-piacan>

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COMPARATIVE ANALYSIS OF THE INVESTMENT ENVIRONMENT IN THE ECONOMIES OF THE WESTERN BALKANS

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ABSTRACT

Factors to attract investment are different, which gives investors the option of choosing and determination. The structural characteristics of a country are one of the main activities to attract foreign direct investment (FDI), whose growth leads to an increase in gross domestic product. In this paper, the authors analysed the investment environment in the economies of the countries of the Western Balkans, respectively Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia. The work consists of three parts. The first part describes the process of investing in Serbia, where we analyzed investment flow through the primary benefits. The second part is based on the Global Competitiveness Index (GCI), which is based on the theory of competitive advantage and which is analysed in these countries. The last, or third part of the paper analyses assessment of the investment environment in transition economies of the Western Balkans and the global competitiveness report, according to which the Western Balkan countries variously estimated, where Serbia is currently ranked the worst, while Montenegro achieved the best results. At the end of the work there was done a recap and given a conclusion.
Keywords: investment, environment, analysis, Western Balkans

INTRODUCTION

Several studies have tried to define and systematize the list of factors for attracting investments and evaluate their significance. A list of specific factors include almost all the economic (structural and market) factors, which are the main reasons for foreign investors to invest in a particular country. Empirical analysis showed that the factors that influence investors' decisions to invest just in a specific location can be roughly divided into three major groups that are related to (*Filipovic et al.*, 2011):

- the basic structural characteristics of the economy,
- municipality regulatory framework of the country and
- policies that define the investment climate in the country.

However, studies show that variations among countries in terms of their attractiveness for investment attraction, more than 50% of cases can be explained by their structural characteristics. Although research has shown that the regulatory framework and investment climate in a sense have a secondary importance to the decisions of investors. This group of factors can be the second phase of investment

decision, which will be crucial, as the regulatory framework and political stability are closely linked to the general economic environment and investment security.

INVESTING IN SERBIA

Serbia has begun the process of transition reforms since 2000, which in the period 2000-2008 attracted a large number of investments amounting to 7.5% of GDP. Due to the great openness towards the free market, the Serbian economy has largely become dependent on FDI, but there was also a large increase in imports, while the level of exports remained weak. The big difference of imports and exports led to an increase in foreign trade deficit and current account deficit in the period before the global economic crisis. FDI in Serbia has been uneven, or oscillating since 2000, when it stood at 0.77% of GDP, while in 2006 it was 16.2%, due to the sale of the Norwegian mobile telephone company Telenor. In that period most of the investment inflow was from privatization, which has resulted in a decrease in investments since 2006. The overall situation has influenced the increase in the current account deficit, which indicated reduced exports and lack of competitiveness due to the lack of modern, ie, obsolete technology (*Adzic et al.*, 2014). It has initiated the restructuring of the real sector, which is the first step towards changing domestic economic policies and raising competitiveness. At the emergence of crisis FDI inflows amounted to 9.7% of GDP, while in 2010 the escalation of the crisis reduced inflows to 7.3%. Obtaining the candidate status for EU membership in 2011, Serbia became an interesting destination for foreigners. It is certainly meant to attract FDI that should be used to improve the technology, which will lead to an increase in exports, its growth and reduce the trade deficit. In the period from 2005-2012 the country's largest investors who invested in Serbia were Austria with 2.348 billion euros, Norway 1,308 billion and Germany 1.103 billion euros. Total FDI inflow in the same period on the basis of the countries analysed (*Table 1*) amounted to 12.519 billion euros.

In the period 2001-2011 the highest level of investment of foreign companies that invested in Serbia were the Norwegian Telenor in the amount of EUR 1.609 million, Russia's Gazprom Neft in the amount of NIS 947 million, the Italian Fiat with 940 million, the Belgian Delhaize with 933 million and the British Philip Morris in the amount of 733 million EUR (*Figure 1*). According to analyzed data from SIEPA, the largest inflow of investment was in telecommunications, energy, car industry, the food industry (retail), the tobacco industry and the pharmaceutical industry.

Specific advantages characteristic of Serbia that can attract foreign investors refer to: Corridor 10 (which connects Europe with the Middle East), Corridor 7 (the longest international navigation on the Danube River, a distance of 588 km), free trade agreements (Russia, countries South East Europe (CEFTA), EFTA, Belarus, Kazakhstan and Turkey), simplified regulations concerning foreign trade and foreign investment (seven free zones), shortened procedures for setting up businesses, cheap labor, foreign languages, IT literacy, continental climate, deal of quality office and residential space, cheap food and a large number of restaurants, a variety of cultural and entertainment facilities, natural beauty (*Business Info Group*, 2012).

Table 1

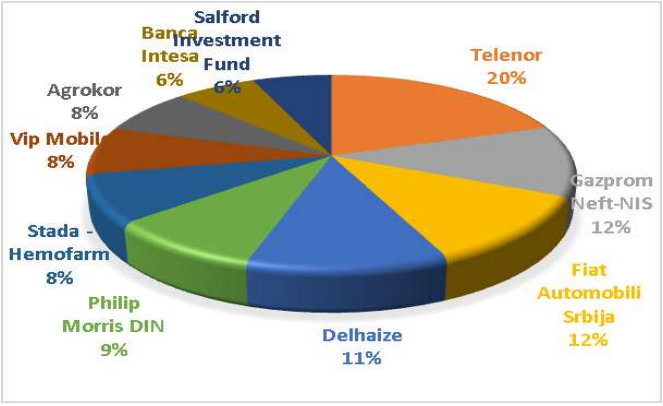
FDI in Serbia, net in the period 2005 - 2013, by country of origin (mil.)

No	Country of origin	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Austria	168.864	409.815	848.627	330.567	234.149	145.85	154.693	55.275	40.646
2	Norway	0.024	1,296.06	2.326	4.025	-0.526	1.567	0.953	3.451	3.535
3	Greece	183.137	672.01	237.108	33.338	46.724	24.45	9.958	-296.053	29.057
4	Germany	154.868	645.37	50.516	59.572	40.101	32.921	76.591	43.444	48.391
5	Italy	14.759	49.087	111.504	333.665	167.386	42.296	128.068	81.709	43.912
6	Netherlands	80.387	-176.56	-24.199	336.711	172.267	200.1	240.84	1.386	131.094
7	Slovenia	149.854	154.529	64.033	70.659	34.29	80.859	-108.387	52.56	24.48
8	Russia	11.722	12.713	1.7	7.903	419.751	6.993	74.187	18.503	45.295
9	Luxembourg	88.331	4.839	185.226	48.576	6.002	6.739	812.829	64.435	22.604
10	Switzerland	45.922	-4.223	70.458	82.319	62.883	50.643	47.742	78.389	49.012
11	Hungary	24.613	179.26	22.901	21.891	17.787	15.488	67.591	0.504	45.686
12	France	34.816	79.087	61.458	53.81	7.15	17.089	113.652	14.304	-1.08
13	Croatia	30.356	17.446	26.802	100.428	19.938	37.928	4.918	118.959	-5.548
14	Great Britain	51.444	77.977	-21.054	10.122	51.842	53.344	-6.174	39.541	32.848
15	Montenegro	0	10.466	152.631	54.078	-3.608	-64.947	5.621	-8.747	0.102
16	USA	16.067	-20.593	23.536	35.624	12.583	54.779	25.633	28.051	16.759
17	Bulgaria	0.651	42.034	34.35	14.605	1.291	9.745	0.793	29.654	7.587
18	Slovakia	21.578	15.959	2.32	0.935	24.512	32.531	-4.83	-13.449	2.661
19	Belgium	10.306	4.16	17.276	12	2.366	3.536	5.006	1.672	43.659
20	Israel	11.588	3.681	19.397	-0.494	0.052	1.703	0.223	1.042	2.041
21	Latvia	5.208	8.178	2.645	0.482	1.065	0.08	1.715	3.093	7.396
22	Liechtenstein	-32.839	-14.595	-1.916	3.375	0.174	0.814	9.867	-0.429	0.854
23	Cyprus	56.697	-300.383	99.901	1.795	26.348	44.953	42.581	39.776	8.682
24	Bosnia and Herzegovina	3.599	-13.582	-622.496	-47.327	0.34	-22	-9.8	0.143	5.559
25	Other	118.317	169.871	455.78	255.755	27.605	82.665	132.637	-115.344	163.304
TOTAL		**1,250.27**	**3,322.61**	**1,820.83**	**1,824.41**	**1,372.47**	**860.125**	**1,826.91**	**241.869**	**768.534**

Source: *National Bank of Serbia*, 2015

Figure 1

Structure of FDI by foreign companies from 2001-2011



Source: *Serbia Investment and Export Promotion Agency*, 2014

Specific advantages characteristic of Serbia that can attract foreign investors refer to: Corridor 10 (which connects Europe with the Middle East), Corridor 7 (the longest international navigation on the Danube River, a distance of 588 km), free trade agreements (Russia, countries South East Europe (CEFTA), EFTA, Belarus, Kazakhstan and Turkey), simplified regulations concerning foreign trade and foreign investment (seven free zones), shortened procedures for setting up businesses, cheap labor, foreign languages, IT literacy, continental climate, deal of quality office and residential space, cheap food and a large number of restaurants, a variety of cultural and entertainment facilities, natural beauty (*Business Info Group*, 2012).

GCI AND THE WESTERN BALKANS

The Global Competitiveness Index (GCI) is based on the theory of competitive advantage defined by the American economist Michael Porter. Potter analysing a number of economic branches (more than 100) in the most developed countries in the worldcame to the conclusion that some countries were more competitive than others in different industries, where he confirmed that no country could be competitive in all of its activities. In this way, there has been a defining GCI, which was first used in 2004 at the World Economic Forum in Davos. GCI is calculated based on a set of factors, which are all factors cited in nine groups:

- institutions,
- infrastructure,
- macroeconomics,
- health and primary education,
- higher education and training,
- market efficiency,
- technological equipment,
- development of business,
- innovation.

How factors have different effects on competitiveness in different countries, and global competitiveness index is variously estimated, and the country falls into three groups with different three sub-indices (*Bezić*, 2008):

- Subindex 1 consists of countries in which competitiveness is based on the factors of production, while in the formation of GCI factors involved institutions, infrastructure, macroeconomy, health and primary education.
- Subindex 2 consists of countries in which competitiveness is based on the factors of efficiency in the enterprise, while higher education and training as well as market efficiency participate in the formation of GCI factors.
- Subindex 3 consists of countries in which competitiveness is based on the factors of technological innovation and cuts, while business development and innovation participate in the formation of GCI factors .

In the countries of the Western Balkans, unlike other European countries, the government has low competitiveness, which is represented in the analysis of the GCI ranking countries (*Table 2*), as well as analysis of the complete score of 1-7 (*Table 3*).

Table 2

Rank of Western Balkan countries in the Global Competitiveness Index 2005-2015

Rank GCI	2005-2006 (od 125)	2006-2007 (od 131)	2007-2008 (od 134)	2008-2009 (od 134)	2009-2010 (od 133)	2010-2011 (od 139)	2011-2012 (od 142)	2012-2013 (od 144)	2013-2014 (od 148)	2014-2015 (od 144)
Albania	98	109	108	96	96	88	78	89	95	97
BiH	88	106	107	107	109	102	/	88	/	/
Macedonia	75	94	89	89	84	79	79	80	73	63
Montenegro	/	82	65	62	62	49	60	72	67	67
Serbia	/	91	85	93	93	96	95	95	101	94
SCG	75	/	/	/	/	/	/	/	/	/

The analysis was conducted according to reports Competitiveness Council during 2005-2012SCG were in the community of Serbia and Montenegro until 2006, so the data are valid for both countries together during that period.
Source: *Schwab*, 2015

GCI ranking in early 2005 included 125 countries, but by 2015 the number of countries expanded to 144 countries. According to the analysed period, the highest ranking of competitiveness among the countries of the Western Balkans, was reached by Bosnia and Herzegovina, while Montenegro achieved the lowest one. The average rank of Bosnia and Herzegovina is 101, Albania 95, Serbia 93, Macedonia 80 Montenegro 65. *Table 3* shows the analysis of the complete score of GCI which is measured from 1-7.

Table 3

Complete GCI score of the Western Balkans from 2005 to 2012.

Rank 1-7	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Albania	3.4	3.5	3.5	3.6	3.7	3.9	4.1	3.91	3.85	3.84
BiH	3.6	3.7	3.6	3.6	3.5	3.7	/	3.93	4.02	/
Macedonia	3.8	3.9	3.7	3.9	3.9	4.0	4.1	4.04	4.14	4.26
Montenegro	/	/	3.9	4.1	4.2	4.4	4.3	4.14	4.20	4.23
Serbia	/	/	3.8	3.9	3.8	3.8	3.9	3.87	3.77	3.90
SCG	/	3.8	/	/	/	/	/	/		/

The analysis was conducted according to reports Competitiveness Council during 2005-2012. Serbia and Montenegro were in union SCG until 2006, and data are valid for both countries together during that period.
Source: *Schwab*, 2015

Analysing the complete score of the index of global competitiveness for the period 2005-2015 it is concluded that the best position was recorded in Montenegro in the amount 4.18. A weaker position recorded a 3.9 in Macedonia, in Serbia 3.8, 3.73, in Albania and Bosnia and Herzegovina 3.70. In the ranking of competitiveness worst position was taken by Bosnia and Herzegovina. Macedonia has recorded the worst position in the set of the total Global Competitiveness Index. It can also be

concluded that, although the competition is at a low level, the position of the Western Balkan countries is given to move to a better time. However, in the coming years even better results are forecast and expected.

ASSESSMENT OF THE INVESTMENT ENVIRONMENT IN TRANSITION ECONOMIES OF THE WESTERN BALKANS

Countries of the Western Balkans should improve their attractiveness for foreign direct investment by implementing economic, administrative and legal reforms, and developing the infrastructure network. FDI inflows in the first place, raises the level of investment and overall economic activity in a country or region. Direct consequences of the increase can be observed in the volume of production or services, and the most common employment growth (*Antevski*, 2009).

There are different multi-criterion approaches and measurements of the competitiveness of defining and systematizing the list of factors that influence FDI attraction. A list of specific factors include almost all the economic (structural and market) factors, which are the main reasons for foreign investors to invest in a particular country. Empirical analysis showed that all factors that affected the decision of investors to invest just in a specific location, could be roughly divided into three major groups that are related to the basic structural characteristics of the economy, the overall regulatory framework of the country and the policies that define the investment climate in the country. However, research shows that variations between countries in terms of their attractiveness for foreign direct investment, more than in 50% of the cases can be explained by their structural characteristics. Regardless of the fact that the regulatory framework and investment climate in a sense have a secondary character on the decisions of investors, this group of factors can be in the second phase of investment decision, which will be also crucial because the regulatory framework and political stability is very closely linked to the general economic environment and safety investment. Hence, it is not surprising that the results of numerous studies point to the complexity of factors and their causal connections (*Filipović et al.*, 2011). Numerous international institutions deal with the issue of assessment of competitiveness of countries. In terms of performance the implementation of reforms, European Bank for Reconstruction and Development on an annual basis monitors the progress of countries in transition by determining and publishing collective transition indicators for each of the countries in transition. The methodology of the World Economic Forum annually monitors the 12 pillars of competitiveness and their constituent elements, which results in calculating the value of the Global Competitiveness Index and individual subindex of 144 countries in the world. The calculated value of the Global Competitiveness Index (GCI) contributes to a better understanding of the key factors that determine economic growth in each country (*Lazic and Markov*, 2011).

Today in the Global Competitiveness Report, the analysis is performed by calculating the value of the Global Competitiveness Index and subindex for 144 individual countries, following twelve pillars of competitiveness. The calculated

value of the Global Competitiveness Index (GCI) contributes to a better understanding of the key factors that determine economic growth in each country (*Lazic and Markov*, 2011). Current ranking and rating of the Western Balkan countries is poor in almost all relevant indicators. Among the studies carried out by international institutions, the methodology of the World Bank in its annual report Doing Business tracks the so-called Ease of Doing Business in 144 countries. The methodology is based on an assessment of all parameters that are relevant for investors. The results published in the latest report are presented in the *Table 4*.

Table 4

Western Balkans results by Doing Business Report, 2015

	Serbia	**Montenegro**	**Albania**	**Bosnia and Herzegovina**	**FYR Macedonia**
GNI per capita (USD)	5,730	7,260	4,700	4,740	4,800
Population (m)	7.2	0.6	2.8	3.8	2.1
Ease of doing business rank (1-189)	**91**	**36**	**68**	**107**	**30**
1. Starting business (rank)	66	56	41	147	3
1.1. Procedures (number)	6	6	5	11	2
1.2. Time (days)	12	10	4,5	37	2
1.3. Cost (% of income per capita)	6.8	1.6	10.0	14.6	0.6
2. Dealing with contsructions permits (rank)	186	138	157	182	89
2.1. Procedures (number)	16	8	19	15	11
2.2. Time (days)	264	158	228	179	89
3. Getting electricity (rank)	84	63	152	163	88
3.1. Procedures (number)	4	5	6	8	5
3.2. Time (days)	131	71	177	125	107
3.3. Cost (% of income per capita)	454	467.9	472.6	484.4	255.3
4. Registering property (rank)	72	87	118	88	74
4.1. Procedures (number)	6	6	6	7	7
4.2. Time (days)	54	69	22	24	31
4.3. Cost (% of property value)	2,7	3,1	9,9	5.2	3,3
5. Getting credit (rank)	52	4	36	36	35
6. Protecting minority investors (rank)	32	43	7	83	21
7. Paying taxes (rank)	165	98	131	151	7
7.1. Payments (number per year)	67	29	34	45	7
7.2. Time (hours per year)	279	320	357	407	119
7.3. Total tax rate (% of profit)	38.6	22.3	30.7	23.3	7,4
8. Trading across borders (rank)	96	52	95	104	85
8.1. Documents to export (number)	6	6	7	8	6
8.2. Time to export (days)	12	14	19	16	12
8.3. Cost to export (US$ per container)	1635	985	745	1260	1376
8.4. Documents to import (number)	7	5	8	8	8
8.5. Time to import (days)	15	14	18	13	11
8.6. Cost to import (US$ per container)	1910	985	730	1200	1380
9. Enforcing contracts (rank)	96	136	102	95	87
9.1. Procedures (number)	36	49	39	37	38
9.2. Time (days)	635	545	525	595	604
9.3. Cost (% of claim)	34.0	25.7	34.9	34.0	28.8
10 . Resolving insolvency (rank)	48	33	44	34	35
10.1. Time (years)	2.0	1.4	2.0	3.3	1.8
10.2. Cost (% of estate)	20	8	10	9	10

Source: *Doing Business*, 2015

It can be concluded that the Western Balkan countries were evaluated differently according to the survey. Macedonia and Montenegro are nonpareil high position on the list, while Serbia and Bosnia and Herzegovina cannot boast of good results. If compared with the positions of these countries in 2010 when Albania was at 82 cities, Serbia88, Bosnia and Herzegovina 116, Macedonia 32 Montenegro 71 sites (*Doing Business*, 2010), Serbia is the only country that is currently ranked three positions lower. All other countries have made progress, some like Montenegro have achieved phenomenal result of making progress for as many as 35 cities. When it comes to investment conditions and terms, the Western Balkans has its regional characteristics, due to common heritage, a similar economic situation, the same process of transition and implementation of reforms through which it passes, but also because of the influence of the state of the economy of European countries on the economic situation. In the context of the global economic crisis, all countries of the Western Balkans felt the same negative consequences. However, there are significant differences when it comes to the level achieved by improving the investment environment, and individual countries have distinguished themselves with their results, as evidenced by the large differences in the position of Doing Business Report 2015. Individually, the states could be described briefly as follows.

Albania since 2013, recovering from the crisis, achieved the trend of FDI on the rise, when they accounted for over 1.2 billion USD. FDI is arranged in oil and metal ores, in the sectors of infrastructure and construction, and in the telecommunication sector. Some of the positive aspects of investing in Albania are the strategic geographic position, substantial natural resources, cheap labour, the perspective of joining the EU. On the other hand, Albania is one of the least developed countries in Europe which still has problems with inadequate infrastructure. The main problem of investing in Albania is marked by corruption and administrative difficulties. The World Bank's study Doing Business 2015 Report ranked Albania in the 68th place. In terms of starting a business, in Albania starting a business is easier by reducing the cost of registration. Obtaining building permits is now much easier for the re-issuance of building permits and land permits consolidated into one building-editorial license. The transfer and registration of property improved the establishment of effective time limits and the computerization of records of real estate. In Albania, the secured transactions system weakened by amendments to the Law on securing claims not to be an intangible asset does not provide the government pledge. Paying taxes has become more expensive for companies due to the increase in income tax rates (*Doing Business*, 2015).

The level of FDI in **Bosnia and Herzegovina** is at a relatively low level of 2011. Trends are improving thanks to the support of the IMF and the EBRD. States that invest the most are Serbia, Austria, Croatia, Slovenia and Russia. The sectors which are most attractive for foreign investment are manufacturing, banking, telecommunications, trade, financial and other services. There are several positive elements to invest in Bosnia and Herzegovina. The countries of the Western Balkans have a highest growth rates in the region, about 5% on average annually since 2000 and one of the lowest inflation rates in the region, below 5% on

average since 2000. In addition, there are a candidacy for EU accession, to the World Trade Organization, a stable currency, which is directly linked to the euro, well developed banking sector and a low tax on corporate income. Negative aspects of investing in Bosnia and Herzegovina are a complicated legal and regulatory framework, divided into two governing entities, the lack of transparency in business procedures, especially when it comes to public tenders. It is necessary to make additional efforts to open the economy to foreign investment. In previous years there was a change in the faster registration of property, and tax policy - reducing employee contributions to social insurance (*Kordić*, 2011). The World Bank ranked Bosnia and Herzegovina at 107th place when it comes to ease of doing business, and this is the worst place in the region.

FDI in **Macedonia** is without increasing importance and at a lower level compared to the other analysed countries. It is believed that to attract investment, the country lacks a better status in the international community. On the other hand, in the Doing Business Report 2015, Macedonia is on the high 30th place on the ease of doing business, particularly in ease of starting a business in the area of tax policy. The main investors are Austria, Hungary, Greece and Cyprus, while investment from the countries of former Yugoslavia are weak compared to their trade relations. Benefits of Macedonia FDI are the highly educated workforce, low wages, procedures for the establishment of the company are simple and do not last long, favourable geographical location. In contrast, because of the economic crisis, the growth rate is very low, and inflation is considerably high. In addition, the country is facing corruption and high external indebtedness. In recent years, state measures included the adoption of laws that provide foreign investors the same rights as domestic investors. Macedonia has a very advanced and easy procedure for starting a business, so it is implemented through free online registration. Macedonia has the enhanced protection of minority investors through a request that they are considered related party transactions by external auditors. Resolving insolvency in Macedonia is easier because of the established framework for electronic auctions of property of the debtor, simplification and tightening of deadlines for bankruptcy procedures and the appeal process and the establishment of a framework for restructuring out of court.

Montenegro has become an interesting investment destination because of the economic system has been fully oriented to attract FDI by offering a high degree of economic freedom and a stable currency. SDI increased especially after 2004, and the sectors that attracted maximum FDI include finance, tourism, energy, health care and real estate. Countries that invest most are Switzerland, Norway, Austria and Russia. The economic crisis led to a drop in investment in 2010 that would be followed by a recovery, economic growth and the adoption of measures to improve the situation in the economy, but it is realistic to expect that the growth of FDI in Montenegro will continue in the future. The World Bank has ranked Montenegro at 36th place on the ease of doing business, which is not surprising as it has done a lot for the relief operations in the area of starting a business (reduced procedure), tax payments, as well as in the field of cross-border trading by introducing customs exemptions. Obtaining building permits in Montenegro is considerably cheaper by

reducing the fee for the provision of utility services to building land and the elimination of fees for obtaining urban-technical requirements of the municipality.

In the region of Central Eastern Europe, **Serbia** is one of the most attractive investment locations, positioning itself in second place in the region, behind the Polish. Compared with other countries, Serbia is the only country in the period 2009-2013 which increased its investment attractiveness (*Ernst & Young*, 2014). In recent years, Serbia demonstrates a particular orientation towards the implementation of reforms, which should result in the improvement of the investment environment. Simplified closing of the transaction (one of nine criteria on which the ranking is determined), will bring the laws on bankruptcy and liquidation of the company and the possibility of outside courts. Serbia made transferring property more difficult, as well as the elimination of emergency procedure for registration of transfer of property (*Doing Business*, 2015). Amendments to the Labour Act have been made and the law has improved in one of the most flexible ways in Europe. It also promoted the Privatization Act. Serbia has the support of the European Union in implementing the reforms that will be even stronger that the accession process progresses in the coming years. There is an enormous potential in the IT industry, which cannot be allowed to remain unused. Continuous improvement of the business environment and reduction of the influence of the state in the economy must aim to provide incentives for investors, diversification of the economy and sustainable growth of the private sector that will create new jobs. Serbia has set an ambitious plan in national priorities: joining the EU, fiscal consolidation, completion of the privatization process, improving the pension system and reform of the public sector. There are many positive sides to invest and Serbia, but they can be briefly summarized as exceptional trade opportunities through a number of free trade agreements (CEFTA, EFTA, EU, Russia, Belarus, Turkey, Kazakstan), human resources – educated, available, flexible, cost-competitive – the central geographical position, low operating costs and financial incentives for foreign investors. Sectors such as automotive industry, agriculture and food production, IT sector, real estate, textile industry, tourism, are very attractive for investors and business conditions in them are necessary to be improved (*Serbia Investment and Export Promotion Agency*, 2014). The Serbian government has adopted a series of measures to attract foreign capital: the allocation of subsidies to investors for the creation of new jobs in the field of research and development, production and services. Agreements have been signed with many countries to avoid double taxation. It is necessary to state that their actions are all available methods to encourage attracting FDI. This sometimes is not the case, on the contrary, there are cases when the state directly discourages producers. In the case of two entrepreneurs, one of whom is a manufacturer and the second one is an importer, and which have the same or similar income, the manufacturer pays five times more taxes than the importer. This treatment will certainly reject the foreign investors to invest their capital and start a business in Serbia. It is expected that 2015 will be a difficult year for Serbia, with a real decrease of standards of the population. Tight monetary and fiscal policy is an extorted path Serbia has started and will result in a drop in demand. In this context, the only hope is to attract FDI and job creation. In Serbia there is a significant amount of small foreign direct investment, for example,

opening factories that invest 5-10 million, and that are the FDI which achieves a symbolic prosperity. The necessary investments for the economic recovery of the country would have to be much more comprehensive in order to obtain new jobs and a higher standard. Cautious analysts say that the beginning of the investment cycle in Serbia and necessary investments in infrastructure and reconstruction of the domestic industry are more certain now. Weak points are related to the political risk, which is more pronounced in comparison with other countries in the region, and then a very comprehensive procedure for the establishment of companies. Accordingly, the Government of Serbia has adopted a series of measures to attract foreign capital: the allocation of subsidies to investors for the creation of new jobs in the field of research and development, production and services; agreements have been signed with many countries to avoid double taxation. In the region of Central Eastern Europe, Serbia is considered to be one of the most attractive investment locations.

CONCLUSION

In the last few years, the countries of the region recorded an average of about five percent higher GDP growth than is the case in the countries of Central Europe, which has contributed to the successful development of transitional reforms and attracting FDI. According to the forecasts for the future, economic growth is expected to continue in the countries of the Western Balkans. One of the biggest problems is the wax unemployment rate, which is certainly an opportunity for investors and certainly to create new jobs. Countries in the region, besides their favourable geographical position, can offer a competitive business environment and cheap labour force.

Overall it can be concluded that the main advantages for attracting FDI in the Western Balkans are: geographical proximity of the EU market, a relatively good business environment, a relatively stable macroeconomic environment and high economic growth, a stable and relatively developed financial system, relatively low costs and skilled workforce, ensured protection of the rights of investors and contracts resulting in the Stabilization and Association agreement, EU and other CEFTA bilateral trade agreements. Further reforms in the Western Balkans are necessary, especially in the construction of infrastructure and a strong institutional framework, measures in the area of tax policy and customs, strengthening the judicial system, macroeconomic position and in particular in the fight against organized crime and corruption.

We also conclude that the Western Balkan countries certainly need strong injection of foreign direct investment so as to improve the overall macroeconomic performance. Recommendations for improvement of the Western Balkan countries in attracting large scale foreign direct investment could relate to:

- ensuring non-discriminatory treatment of foreign investors;
- simplification of the overall legal and administrative procedures in connection with foreign investments, from preparation to production and profit repatriation;

- offer qualified legal and other via holders of FDI;
- preparation of a transparent system of legal protection for foreign investors;
- creation of a special export zone (with tax and other benefits) in order to attract FDI to encourage;
- the development of certain regions of the country.

In any case, in order to develop, the region must be improved to ensure the stability of the foreign investors and non-discrimination. This means further that the investment climate should be adjusted to investors by simplifying administrative procedures, providing legal protection and legal assistance and coordination of export processing zones.

REFERENCES

Adzic, J., Toskovic, J., Markovic, J., (2014): Analysis of the external position of the Republic of Serbia: structure and trend of foreign debt. In: Пословна Економија - Business Economics, 8. 1. 67-88. p.

Antevski, M. (2009): The development of potential foreign direct investments: Comparative international experiences. [online] <URL: http://www.doiserbia.nb.rs/img/doi/0025-8555/2009/0025-85550902048A.pdf>

Bezic, H. (2008): Technology Policy and Competitiveness, Rijeka. [online] <URL: https://www.efri.uniri.hr/sites/efri.hr/files/crcollections/2/tehnoloska_pol_i_konkurentnost.pdf>

Business Info Group (BIG) (2012): Foreign direct investments in Serbia 2001–2011. [online] <URL: http://big.co.rs/upload/Edition/Download/2013-06/Strane_Direktne_Investicije_U_Srbiji_2001_2011.pdf>

Doing Business (2011): Doing Business 2010, Reforming through difficult times [online] <URL: http://www.doingbusiness.org/~/media/GIAWB/Doing Business/Documents/Annual-Reports/English/DB10-FullReport.pdf>

Doing Business (2016): Doing Business 2015, Going Beyond Efficiency [online] <URL: http://www.doingbusiness.org/~/media/GIAWB/Doing Business/ Documents/Annual-Reports/English/DB15-Chapters/DB15-Report-Over view.pdf>

Ernst & Young (2014): European Attractiveness Survey 2014 - Back in the game [online] <URL: http://www.ey.com/GL/en/Issues/Business-environment/ european-attractiveness-survey>

Filipovic, S., Andrejevic, A., Vucenov, S. (2011): The impact of global economic crisis on attraction of SDI in Serbia. In: Пословна Економија - Business Economics, 5. 2. 105-129 p.

Kordic, M. (2011): The attractiveness of Serbia for attracting foreign direct investment. PhD thesis, University Singidunum, Belgrade

Lazic, B., Markov, J., (2011): Analysis of the competitiveness of Serbia in terms of global competitiveness index. In: Пословна Економија - Business Economics, 5. 1. 211-230. p.

National Bank of Serbia (NBS) (2015): Serbia's Balance of Payment. [online] <URL: http://www.nbs.rs/internet/cirilica/80/index.html>

Schwab, K. (ed.) (2013): The Global Competitiveness Report 2012–2013 [online] <URL: http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf>

Schwab, K. (ed.) (2014): The Global Competitiveness Report 2013–2014 [online] <URL: http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf>

Schwab, K. (ed.) (2015): The Global Competitiveness Report 2014–2015 [online] <URL: http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf>

Serbia Investment and Export Promotion Agency (SIEPA) (2014): Doing Business in Serbia SIEPA 2014 [online] <URL: http://siepa.gov.rs/sr/files/pdf2010/DBIS_SIEPA_2014_SITE.pdf>

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THE EUROPEAN INVESTMENT BANK – A LESS KNOWN FUNDING SOURCE FOR INVESTMENTS

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ABSTRACT

The European Investment Bank (EIB), as an institution of the European Union and as the world's largest multilateral financial institution is one of the most important financial partners of Hungary. Originating from the early times of the European integration it plays an outstanding role in the financing of infrastructure development, SMEs and Mid-Caps, combating unemployment (especially youth unemployment) and promoting renewable energy projects. Beside the EU budget, the EIB's financing contributes significantly to the member states' development and investment goals. Since 1990 and especially since the EU accession, Hungary has received a significant amount of the EIB's financing and enjoyed the technical assistance of the EIB to the EU grants. However, EIB could provide much more financing to Hungary than it has absorbed in the last decade, to help our country accelerate its development. Currently, with the 2014-2020 program period, Hungary receives a significant financial support of the European Structural and Investment Funds (ESIF). However, a decrease of this financial support beyond 2020 cannot be excluded, even if the needs for investments and investment finance will remain unchanged. Hungary will need to find new sources. If the non-refundable financial sources are not available at the same level as under the current Multiannual Finance Framework, they will have to be substituted by refundable sources, preferably with the most advantageous conditions (in pricing, maturity, security structure etc.). From 1990 until now, the EIB has provided financing to Hungary in a volume of EUR 19.3 billion, and as it is the largest multilateral financing institution of the world, it can make further sources available. This paper is about this unique institution, about what it is designed to finance, and what it can finance in reality.
Keywords: European Investment Bank, finance, structure, finance conditions investment

INTRODUCTION

The European Investment Bank in a nutshell

Even if the European Investment Bank (EIB) cannot be regarded as an EU institution like among others the Commission, the Council or the European Parliament, at the examination of the bank's role and activity we must not ignore the facts, that it has the same age as the European integration and it is one of the most important players in deepening the integration.

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In 1958, the Treaty of Rome (EEC Treaty) enacted the establishment of a European Investment Bank to facilitate the economic expansion of the Community by opening up fresh resources. [2]

There were and there are a plenty of financial instruments in the European Community and the European Union for reducing the differences between the development levels of the member states. A significant part of these financial instruments are budgetary sources, among others the structural funds (European Social Fund[3], European Regional Development Fund[4]), the Cohesion Fund[5] and the European Agricultural Fund for Rural Development[6] contributing with non-refundable grants to the development of the member states' economies. Besides the non-refundable grants from the EU budget, there are refundable funds additionally from the EIB having already a significant yearly financing volume.

During the fulfilment of its tasks, the Bank in conjunction with assistance from the ESIF and other Union Financial Instruments facilitates the financing of large development and investment programmes. The additionality of the EIB's financing has not got a negligible volume. The EU budget provided some EUR 133 bn direct, non-refundable grants in 2015. The EIB adds to the budgetary funds yearly approximately EUR 65-80 bn refundable financing. In 2015 the volume of the signed loans stood at EUR 77,5bn (*Figure 1*). (It is worth comparing it with Hungary's GDP, which stood at HUF 33711.8bn or EUR 108.7bn in 2015.)

Nowadays, the EIB is an outstanding financing actor worldwide. In terms of size, it is bigger than the other well-known multilateral financial institutions, eg. the World Bank or the EBRD (*Figure 2*).

The legal basis of the operation of the European Investment Bank is the Statute, which is laid down in a Protocol annexed to the Treaties[7]. The Council has the competence for any modification of the Statute.

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[2] Article 3 Treaty on establishing the European Economic Community (EEC Treaty)

[3] Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006 OJ L 347, 20.12.2013, 470-486. p.

[4] Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006 OJ L 347, 20.12.2013, 289-302. p.

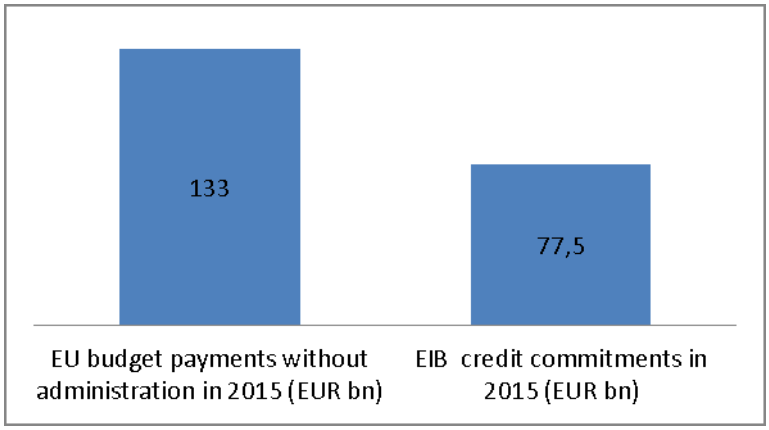
[5] Regulation (EU) No 1300/2013 of the European Parliament and of the Council of 17 December 2013 on the Cohesion Fund and repealing Council Regulation (EC) No 1084/2006 OJ L 347, 20.12.2013, 281-288 p.

[6] Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 OJ L 347, 20.12.2013, 487-548 p.

[7] Protocol (No 5) attached to Treaty on the Functioning of the European Union on the statute of the European Investment Bank

Figure 1

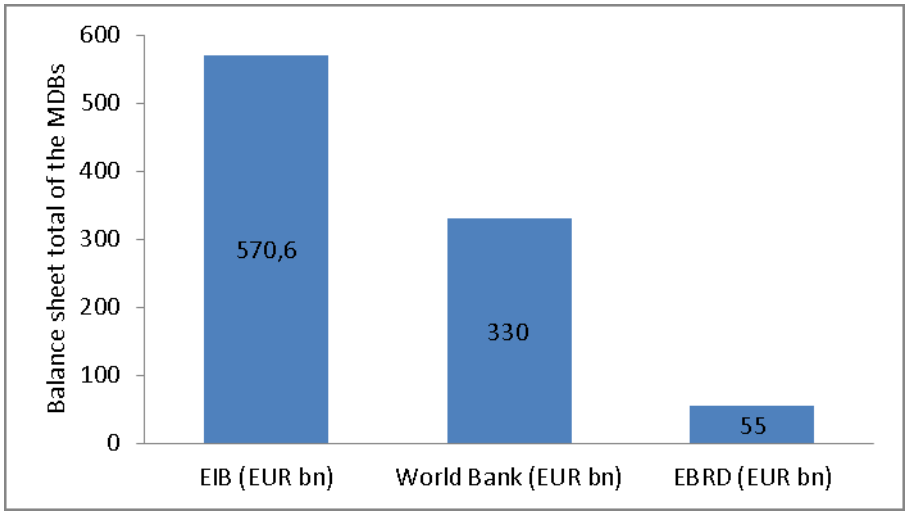
The main non-refundable and refundable EU financial sources: the EU budget and the EIB



Source: *EU budget*, 2015[8], *EIB Financial Report*, 2015[9]

Figure 2

Multilateral development banks



Source: *EIB[10], IBRD[11], EBRD[12] financial reports for 2015*

[8] EU annual budget life-cycle: figures – payments without administration [online] <URL: http://ec.europa.eu/budget/annual/index_en.cfm?year=2015>

[9] [online] <URL: http://www.eib.org/attachments/general/reports/fr2015en.pdf>

[10] [online] <URL: http://www.eib.org/attachments/general/reports/fr2015en.pdf>

The task of the European Investment Bank is to contribute, by having recourse to the capital market and utilising its own resources, to the balanced and steady development of the internal market in the interest of the Union. For this purpose the Bank, operating on a non-profit-making basis, will grant loans and give guarantees which facilitate the financing of the following projects in all sectors of the economy:

a) projects for developing less-developed regions;
b) projects for modernising or converting undertakings or for developing fresh activities called for by the establishment or functioning of the internal market, where these projects are of such a size or nature that they cannot be entirely financed by the various means available in the individual Member States;
c) projects of common interest to several Member States which are of such a size or nature that they cannot be entirely financed by the various means available in the individual Member States[13].

According to the provisions of the Treaty on the Functioning of the European Union (TFEU) the members (shareholders) of the Bank are the member states, however their participation rates in the capital are different.

Each of the biggest member states (Germany, France, Italy and the United Kingdom) owns 16% of the shares, and the others have a differently smaller percentage, Hungary has only 0.7%. The share of a member state in the subscribed capital may not be transferred, pledged or attached[14].

The EIB has a unique capital structure, because the subscribed capital will be paid in by Member States only to the extent of 5 % on average of the amounts laid down in the Statute. However, the Board of Directors may require payment of the balance of the subscribed capital, to such extent as may be required for the Bank to meet its obligations.

The Structure of the EIB

The Bank is directed and managed by a Board of Governors, a Board of Directors and a Management Committee[15].

The *Board of Governors* is composed of the ministers designated by the Member States. The Board of Governors lays down general directives for the credit policy of the Bank, in accordance with the Union's objectives and ensures that these directives are implemented. Furthermore, the Board of Governors has competence among others for the followings:

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[11] [online] <URL: http://siteresources.worldbank.org/EXTABOUTUS/Resources/29707-1280852909811/IBRD_Mar_16.pdf>

[12] [online] <URL: http://www.ebrd.com/news/publications/financial-report/financial-report-2015.html>

[13] Treaty on the Functioning of the European Union (TFEU) Art. 309.

[14] Details on the capital structure can be found here: [online] <URL: http://www.eib.org/about/structure/shareholders/index.htm>

[15] The current members of the respective bodies can be found under [online] <URL: http://www.eib.org/about/structure/index.htm>

- the decision on the increase of the subscribed capital;
- the determination of the principles applicable to the financing operations undertaken within the framework of the Bank's task;
- approval of the annual report of the Board of Directors, the annual balance sheet and profit and loss account [16].

The *Board of Directors* takes decisions on financial operations, in particular on the form and conditions of loans, guarantees, and other operations. The Board of Directors determines the particular terms and conditions for such operations and supervises their execution.

The Board of Directors is responsible for the proper run of the Bank and ensures that the Bank is managed in accordance with the provisions of the Treaties and of this Statute and with the general directives endorsed by the Board of Governors.

At the end of the financial year the Board of Directors discusses and submits the annual reports for approval to the Board of Governors.

The Board of Directors consists of twenty-nine directors and nineteen alternate directors. The directors are appointed by the Board of Governors for five years. Each Member State and the Commission nominate one director. The alternate directors are also appointed by the Board of Governors for five years; however the four biggest member states have the right to nominate two alternates each, and the smaller member states have a joint nomination right[17].

The *Management Committee* consists of a President and eight Vice-Presidents appointed for a period of six years by the Board of Governors on a proposal of the Board of Directors.

The Management Committee is responsible for the daily business of the Bank, under the authority of the President and the supervision of the Board of Directors. It prepares the decisions of the Board of Directors, in particular decisions on the raising of loans and the granting of finance; it shall ensure that these decisions are implemented[18].

The *Audit Committee* is the supervisory body of the Bank. It consists of six members, appointed on the grounds of their competence by the Board of Governors, verifies that the activities of the Bank conform to best banking practice and is responsible for the auditing of its accounts. The Audit Committee annually ascertains that the operations of the Bank have been conducted and its books kept in a proper manner. It verifies that the Bank's operations have been carried out in compliance with the formalities and procedures laid down by this Statute and the Rules of Procedure.

The Audit Committee confirms that the financial statements, as well as any other financial information contained in the annual accounts drawn up by the Board of Directors, give a true and fair view of the financial position of the Bank in

[16] Statute, Art. 7.
[17] Statute, Art. 9.
[18] Statute, Art. 11.

respect of its assets and liabilities, and of the results of its operations and its cash flows for the financial year under review[19].

The Bank enjoys the most extensive legal capacity accorded to legal persons under their laws in each of the Member States. It may, in particular, acquire or dispose of movable or immovable property and may be a party to legal proceedings[20].

The activity of the EIB

The Bank provides finance, in particular in the form of loans and guarantees to its members or to private or public undertakings for investments to be carried out in the territories of Member States. General precondition of the EIB financing is that funds are not available from other sources on reasonable terms.

The Bank provides financing

- for the member states,
- for enterprises, public and private undertakings or bodies directly (above EUR 25-50 million financing volume[21])
- for enterprises, public and private undertakings or bodies indirectly via financial intermediaries (under EUR 25-50 million financing volume)[22].

The financing provided by the EIB must be always additional and should not exceed 50% of investment costs. However, in exceptional cases (e.g. infrastructural renewable energy and energy efficiency projects, projects following natural disasters, projects related to migration) the EIB may finance a higher share of the investment costs.

Beside the operations in the Member States, by decision of the Board of Governors, the Bank may grant financing for investment to be carried out, in whole or in part, outside the territories of Member States. Most of these operations are secured by guarantee provided by the EU budget (in line with the consent of the Council, the European Parliament and the Commission – External Lending Mandate[23]).

When granting a loan to an undertaking or to a body other than a Member State, the Bank shall make the loan conditional either on a guarantee from the Member State in whose territory the investment will be carried out or on other adequate guarantees, or on the financial strength of the debtor.

The Bank may guarantee loans contracted by public or private undertakings or other bodies for the purpose of carrying out projects provided for in Article 309 of the Treaty on the Functioning of the European Union.

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[19] Statute, Art. 12.

[20] Statute, Art. 26.

[21] The exact volume depends on the specific operation.

[22] Statute, Art. 16, 19.

[23] Decision No 466/2014/EU of the European Parliament and of the Council of 16 April 2014 granting an EU guarantee to the European Investment Bank against losses under financing operations supporting investment projects outside the Union OJ L 135, 8.5.2014, 1-20. p.

The aggregate amount outstanding at any time of loans and guarantees granted by the Bank shall not exceed 250% of its subscribed capital, reserves, non-allocated provisions and profit and loss account surplus.[24].

Additionally to the traditional financing operations, the EIB can provide much more services. Its activity is often described by three words: lending, blending and advising. Lending means the traditional financing operations. Blending is for the refundable financing from the EIB blended with other sources like EU non-refundable funds, guarantees, structured finance etc.[25] Providing finance is only one step towards a successful project. They also need to be properly managed. As there is a significant need in project administration matters, EIB provides advise on administrative and project management matters to help investments.

For its own financing, the Bank borrows on the capital markets the funds necessary for the performance of its tasks.

The fundamental task and aim of the Bank as an AAA-rated debtor is to on-lend its relatively cheaply borrowed funds from the capital markets at an appropriate pricing (taken into account its not-for-profit operation and the operational costs) to the eligible counterparts.

Interest rates on loans to be granted by the Bank and commission and other charges shall be adjusted to conditions prevailing on the capital market and shall be calculated in such a way that the income there shall cover its expenses and risks and to build up a reserve fund. The Bank shall not grant any reduction in interest rates. Where a reduction in the interest rate appears desirable in view of the nature of the investment to be financed, the Member State concerned or some other agency may grant aid towards the payment of interest to the extent that this is compatible with the Treaty on the Functioning of the European Union[26].

General finance conditions of the EIB

Having regard to its nature as special financial institution providing specific financing services, the aim of its operation determines its financing conditions. These conditions are the following:

- Projects eligible for EIB financing can be geographically both inside and outside the EU. However each project must comply with the requirements set in Article 309 of the TFEU (as mentioned above). The financing operations outside the EU are generally based on a Mandate concerned. Such Mandates are not simple appropriations for operation in certain countries, but a guarantee of the EU budget is linked to them. An example is the general External Lending Mandate and the connecting EU-Guarantee[27], and the operations among others in the

[24] Statute, Art. 16. According to the current financial and performance figures of the Bank this limit stands above EUR 700bn at the end of the 2015 financial year.

[25] More details on what can be blended: [online] <URL: http://www.eib.org/products/blending/index.htm>

[26] Statute, Art. 17.

[27] Decision No 466/2014/EU of the European Parliament and of the Council of 16 April 2014 granting an EU guarantee to the European Investment Bank against

framework of the FEMIP[28], or the Eastern Partners Facility[29]. However, it is not excluded to provide financing outside the EU purely on own risk, especially when the risk profile of the operation, the counterpart and the country of the project allows it.

- Certain activities are excluded from EIB financing: ammunition and weapons, military/police equipment or infrastructure, projects which result in limiting people's individual rights and freedom, or violation of human rights, projects unacceptable in environmental and social terms, ethically or morally controversial projects, activities prohibited by national legislation[30].
- Essential requirement as usual is the creditworthiness of the counterpart, the financial viability of the project and the acceptability of the risks.
- Another essential requirement is that the EIB must not provide financing to any projects alone, it must be additional and the minimum project cost must exceed EUR 25 million. In certain cases EIB can provide direct loans to midcap companies with up to 3000 employees where the loan volume is smaller and stands between EUR 7.5m and EUR 25m.
- A general rule for the EIB's share in the financing is that it should normally not exceed 50% of the project costs, except for special cases like: TEN projects in the rail, maritime and inland waterway sector, or projects following natural disasters, etc.
- Where the EIB co-finances with other EU grants, the total Community (EU and EIB) finance cannot exceed 70% of the total project cost. However in the Cohesion countries and other Convergence regions within the EU the total financing level may reach 90% (in very well founded cases 100%).

The loans and other financing operations provided by the EIB are typically long term loans and they finance investment projects.

The main types of the EIB financing:

- Direct investment loans for individual projects having more than EUR 25m project cost. The borrowers can be both private- and public-sector entities, the later can be governmental or local municipal promoters.
- Intermediated loans for smaller projects through local financial intermediaries. In the framework of this special construction the EIB finances local financial institutions, which subsequently on-lend for the SMEs, Mid-Caps, local municipalities or other public entities.

In this construction the EIB has contractual relationship with the financial intermediaries, but not with the final beneficiaries. However, the intermediary must

losses under financing operations supporting investment projects outside the Union OJ L 135, 8.5.2014, 1-20. p.

[28] Facility for Euro-Mediterranean Investment and Partnership

[29] For the States of the Eastern Partnership: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine

[30] More details on the excluded activities: [online] <URL: http://www.eib.org/attachments/documents/excluded_activities_2013_en.pdf>

transfer a financial advantage reflecting the impact of our funding and inform the end-client of this.

- Guarantees with the aim to make the secured projects more attractive without direct financing to other investors. They provide different types of guarantees to the projects of the public and private sector.
- Additionally to the traditional types of financing, such as loans and guarantees, the EIB provides equity financing as well mainly through equity funds.

Interest rates can be fixed, revisable or convertible (that allows a change of interest rate formula during the lifetime of a loan at predetermined periods). As the EIB can finance itself at a very advantageous pricing level due to its AAA rating, this advantage in pricing is passed over to the borrower counterparts. As usual, EIB can apply different fees as well, like fees for project-appraisal, legal services, commitment, disbursement, non-utilisation, etc. The main currencies used for lending are EUR, GBP, USD, however it is possible to borrow in JPY, SEK, DKK, CHF, PLN, CZK and HUF as well as in other currencies[31].

The EIB provides a signific ant value through its technical assistance services for the realisation of viable projects.

In the framework of the JASPERS[32] programme the Bank provides technical support to prepare major infrastructure schemes financed by the Structural and Cohesion Funds. The total investment cost of the more than 550 projects supported is more than EUR 60bn.

In the JESSICA[33] programme supporting integrated, sustainable urban-renewal projects with equity investments, loans and guarantees from the Structural Funds the EIB provides advisory and technical assistance support.

The ELENA (European Local ENergy Assistance) programme helps the implementation of large energy efficiency and renewables projects by covering up to 90% of the technical support cost needed to prepare, implement and finance the investment programme. It is run by the EIB and funded through the European Commission's Intelligent Energy-Europe programme.

The smaller sister: the European Investment Fund

Beside the traditional financing tools and channels, the EIB and the European Investment Fund (EIF) support with further special products the realisation of eligible projects.

The more than 20 year old EIF was originally created[34] to provide infrastructure development (TEN-T) financing and guarantee instruments for SME finance. For today the infrastructure development financing has been passed over to the EIB, but in the field of SME-finance the EIF showed significant growth during the last

[31] [online] <URL: http://www.eib.org/products/lending/loans/index.htm>

[32] Joint Assistance to Support Projects in European Regions

[33] Joint European Support for Sustainable Investment in City Areas

[34] The European Investment Fund was established in 1994 based on the Statute (Article 28 (former 30.)) of the EIB

years. Actually the EIF contributes to the development of the SME-sector with three main investment products:

- investment in venture capital and growth funds, mezzanine funds that support SMEs,
- financing financial intermediaries (banks, mutual guarantee funds, leasing companies and special purpose vehicles) providing funding for beneficiary SMEs
- microfinance: funding (equity and loans), guarantees and technical assistance to a broad range of micro-credit providers[35].

EIF has a unique tripartite ownership structure combining public and private investors: the EIB 61.2%, the European Union through the European Commission (EC), 26.5%, and 25 public and private financial institutions from the EU Member States and Turkey 12.3%[36].

Beside the financing services, the tasks of the fund-manager are performed by the European Investment Fund in the JEREME programme[37], which is a joint initiative of the European Commission and the EIF to improve access to finance for SMEs via Structural Funds interventions.

The Investment plan for Europe and the European Fund for Strategic Investments

In November 2014 the European Commission decided to launch the Investment Plan for Europe (IPE or Juncker Plan), to tackle the investment gap[38] that was hampering economic growth and competitiveness in the European Union. The plan intends to unlock investment of EUR 315billion.

The IPE has three components:

- mobilising finance through the European Fund for Strategic Investments (EFSI),
- supporting the investment in real economy through the European Investment Advisory Hub (EIAH),
- creating an investment friendly environment and to abolish barriers and to improve the business environment and financing conditions, it will include progress towards a Digital Single Market, Energy Union[39] and Capital Markets Union[40].

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[35] The Governance of the European Investment Fund, [online] <URL: www.eif.org/news_centre/publications/eif_governance_en.pdf> More details on EIF's history: [online] <URL: www.eif.org/who_we_are/20years/index.htm>

[36] The detailed structure of the EIF's shareholders can be found under: [online] <URL: http://www.eif.org/news_centre/publications/register_shareholders.pdf>

[37] Joint European Resources for Micro to Medium Enterprises

[38] More details on the investment gap and needs: Investment and Investment Finance in Europe, European Investment Bank, Economics Department, Luxembourg, 2015, [online] <URL: http://www.eib.org/attachments/efs/investment_and_ investment_finance_in_europe_2015_en.pdf>

[39] European Commission - Fact Sheet on The Investment Plan for Europe and Energy: making the Energy Union a reality, Brussels, 14 June 2016

The EIB was entrusted with the financial implementation of the IPE. The main financial component of the IPE is the EFSI, which composed of EUR 16bn guarantee from the European Commission and EUR 5bn capital contribution from the EIB. It is expected to raise some EUR 60bn additional financing by the EIB and its subsidiary, the European Investment Fund (EIF) and to crowd-in private investors to reach the targeted EUR 315bn additional investment within 3 years. Importantly, EFSI is not a separate legal entity, it is a contractual arrangement, a strategic partnership between European Commission and EIB. All EFSI operations are EIB operations and have to fully comply with the Bank's general standards[41].

The financing under EFSI is open for private companies of all sizes (including SMEs and Mid-Caps), public sector entities and national promotional banks. The projects to be financed have to

a) be economically viable;
b) be consistent with Union policies;
c) provide additionality;
d) maximise the mobilisation of private sector capital where possible; and
e) be technically viable.

The additionality is an essential requirement of the EFSI financing, which means the support by the EFSI of operations which address market failures or sub-optimal investment situations and which could not have been carried out without EFSI support, or not to the same extent. Projects supported by the EFSI shall typically have a higher risk profile than projects financed by the EIB under its normal investment policies before the application of the EFSI. Private sector investments are also required for EFSI financing[42].

The EIAH has been built upon existing EIB and Commission advisory services in order to provide advisory support for the identification, preparation and development of investment projects and to act as a single technical advisory hub for project financing within the Union. The EIAH supports projects which may be eligible for financing by the EIB (either under EFSI or without it), but the Hub's assistance is not limited to EIB-financed projects. The Hub is the single point of entry to a wide range of advisory and technical assistance programmes and initiatives like ELENA, JASPERS or InnovFin for public and private beneficiaries[43].

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[40] Communication from the Commission to the European Parliament, the Council, the European Economic and social Committee and the Committee of the Regions Action Plan on Building a Capital Markets Union COM/2015/0468 final

[41] Regulation (EU) 2015/1017 of the European Parliament and of the Council of 25 June 2015 on the European Fund for Strategic Investments, the European Investment Advisory Hub and the European Investment Project Portal and amending Regulations (EU) No 1291/2013 and (EU) No 1316/2013 OJ L 169, 1.7.2015, 1-38. p.

[42] Article 5 and 6 of Regulation (EU) 2015/1017

[43] Article 14 of Regulation (EU) 2015/1017

The EIB and Hungary

As the geopolitical situation determined Hungary's connections with EU and EIB, there were no veritable connections before the political Regime Change in Hungary. The Regime Change resulted in significant changes in the EU-Hungary connections as well and the EIB became a financing partner of paramount importance for the Hungarian investments from 1990.

Although the financial connections were not really significant in the first half of the 90's, they became much more intensive after 1997, and the EU accession resulted a real uplift in this field.

For Hungary, until now the EIB has signed

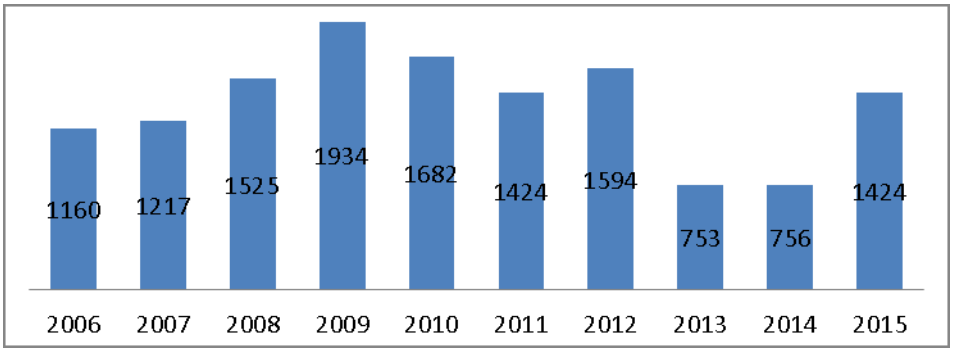
- EUR 19.3 bn since it has begun its activity, and
- EUR 3.1 bn within the last 3 years since 2013[44].

The current exposure stands at EUR 10.7bn towards Hungary, which is 9.9% of the Hungarian GDP[45]. (The EU average is 3.5%). Among the EU member states, this is one of the highest rates!

In the last 10 years, between 2006 and 2015 some EUR 13,5bn arrived from the EIB to Hungary (including the state-coordinated projects and the direct or intermediated financing of enterprises). *Figure 3* demonstrates the yearly financing volumes in Hungary in the last seven years.

Figure 3

EIB financing volume in Hungary
(volume of the signed loans in EUR million)



Source: *EIB*[46]

[44] [online] <URL: http://www.eib.org/projects/loans/regions/european-union/hu.htm>

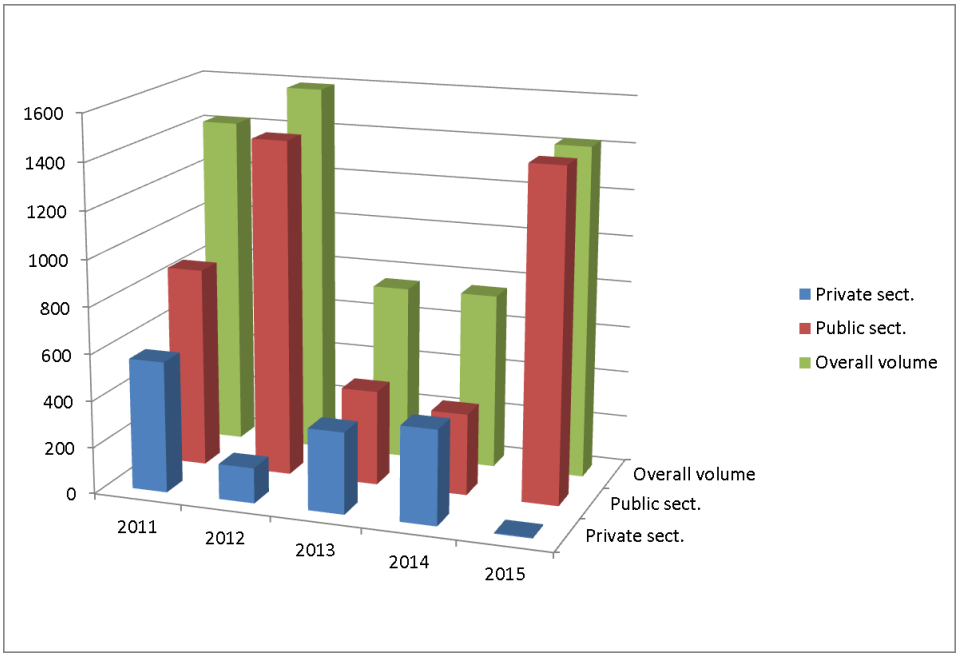
[45] [online] <URL: http://www.eib.org/infocentre/press/releases/all/2016/2016-004-eib-group-lends-record-eur-84-5-billion-in-2015-and-mobilises-over-eur-50-billion-investment-under-investment-plan-for-europe.htm>

[46] EIB Statistical report 2015, 24. p., [online] <URL: http://www.eib.org/attachments/general/reports/st2015en.pdf>

As it can be seen from the chart, EIB provides on average yearly more than EUR 1bn financing to Hungary. And it can do even more. The overall yearly financing volume depends on different factors. The main driver is the needs in public sector, mainly the EU Funds co-financing and infrastructure financing loans (*Figure 4*). In 2015 alone, the signed volume of the EU structural and cohesion funds Co-financing loans amounted EUR 1bn, (and there is an additional stock of EUR 1,5 already approved and to be signed in the future). Such waves in needs are the main reasons for the significant differences of yearly signature volumes. Additionally, EIB's private sector activity in Hungary is traditionally weaker, it finances SMEs and Mid-Caps and cannot counterbalance the different needs on the public side.

Figure 4

Financing volumes from EIB to the public and private sector of Hungary in EUR million



Source: Based on *EIB*[47]

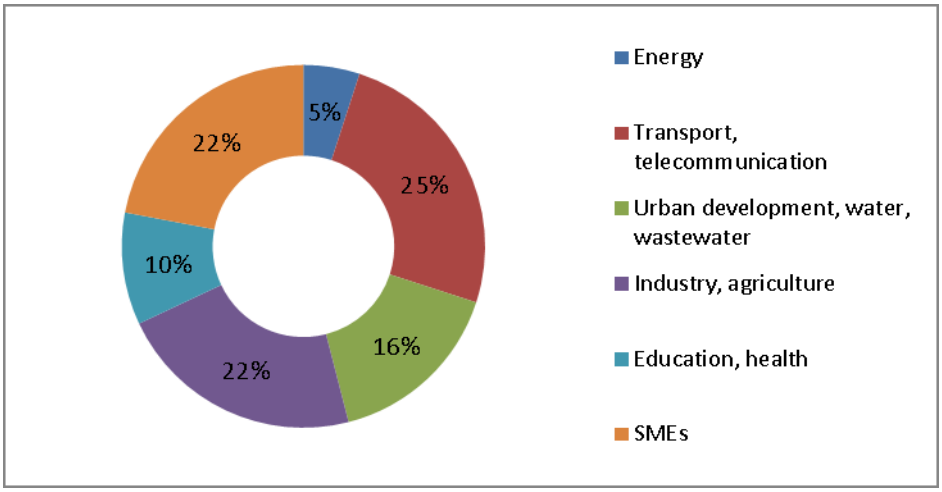
The financing sources allocated to Hungary between 2011 and 2015 can also be broken down between the various sectors of the economy as follows (*Figure 5*).

List of project already financed on EIB homepage: [online] <URL: http://www.eib.org/projects/loans/regions/european-union/hu.htm?start=2006&end=2015&sector=>

[47] EIB Statistical report 2015, 24. p., [online] <URL: http://www.eib.org/attachments/general/reports/st2015en.pdf>

Figure 5

EIB loans by sectors between 2011-2015 in Hungary



Source: *EIB*[48]

Some examples of the projects financed by EIB in Hungary

In the first half of 2016 two loans were signed in Hungary.

- in March EUR 140million for the road network modernisation (first tranche of EUR 500m),
- in June EUR 48 million for the development of nurseries, elementary schools, gymnasiums and swimming pools.

In 2015 the EIB signed EUR 1.4 bn, which resulted in a year having one of the highest levels of activity. This year the most important signatures were the EU-fund co-financing loans totalling EUR 1bn for the programming period 2014-2020. This involves two loans: EUR 500m to co-finance priority projects receiving support from EU Cohesion Funds, European Regional Development Funds and the Connecting Europe Facility; and EUR 500m to co-finance priority projects receiving support from the European Regional Development Funds and the European Social Fund. Both loans are first tranches of already approved EIB loans totalling EUR 2.5bn and they will support projects with total costs of EUR 24bn. These loans make possible for Hungary to absorb the available EU financial support from the ESIF funds.

Budapest Municipality has received a significant support for the development in 2015 in form of an EUR 200m to finance priority investment schemes in the areas of public transport and road networks, including the reconstruction of underground and suburban railway lines, tram and trolleybus infrastructure, road

[48] EIB Statistical report 2015, 24. p., [online] <URL: http://www.eib.org/attachments/general/reports/st2015en.pdf>

and bridge rehabilitation and rolling stock-related investments designed to improve the quality of public transport services, and an EUR 100m to support improvements in the fields of Budapest's urban renewal and regeneration, energy efficiency enhancement and environmental protection.

In volume smaller but not less important loan has also been provided in 2015 to the Hungarian Academy of Sciences to finance its basic scientific research and the operation of its Library and Digital Information Centre (HUF 34.5m or EUR 115m).

In earlier years, EIB was one of the most important financing partners for the road and railroad projects (e.g.: construction of certain sections of the M3, M6 and M43 motorways, reconstruction of the Budapest-Székesfehérvár, Budapest-Esztergom and Sopron-Szentgotthárd railway lines, locomotive purchase of MÁV), municipal transport projects (M2 Metro line rolling stock, M4 Metro line construction, Budapest Tramway line 1 and 3 reconstruction) and other infrastructural development projects (construction and/or rehabilitation of water, wastewater, and telecommunication networks, Hungarian-Slovakian and Hungarian-Croatian gas interconnection). Besides these projects, the Bank regularly provides financing for the Hungarian Student Loan Centre (Diákhitel Központ) and co-finances projects financed by EU funds. EIB has provided important financial support even with smaller amounts for the liquidation of consequences of natural disasters (floods).

Beside the financial services the technical/advisory support of the EIB is even important for Hungary. This support helps the high level utilisation of the EU grants that are essential for the Hungarian economy.

CONCLUSION

Compared to the GDP, Hungary can utilise a significant volume of loans provided by EIB. Within this significant volume, the share of the public sector financing loans represents a much larger share than the loans channelled to the private sector. On one hand it means that Hungary has chosen the most advantageous (in terms of pricing, tenor, and security structure) financing for its biggest public investments. However, the funding level of the private sector is lagging behind, and the reason for it is not the lack of the available financial sources, but the modest level of the demand and cheap liquidity made available by the funding programme of the Hungarian National Bank.

Even in this financial environment, the EIB can be attractive for Hungarian private sector entities, through its increased risk taking capacity made possible by EFSI or other specific products not mentioned in this paper. However, in every case the most important issue is the ability to set up a technically and financially viable project.

REFERENCES

Communication from the Commission to the European Parliament, the Council, the European Economic and social Committee and the Committee of the Regions Action Plan on Building a Capital Markets Union COM/2015/0468 final

Decision No 466/2014/EU of the European Parliament and of the Council of 16 April 2014 granting an EU guarantee to the European Investment Bank against losses under financing operations supporting investment projects outside the Union OJ L 135, 8.5.2014, 1-20. p.

EBRD Financial report 2015, [online] <URL: http://www.ebrd.com/news/publications/financial-report/financial-report-2015.html>

EIB Financial Report 2015, [online] <URL: http://www.eib.org/attachments/general/reports/fr2015en.pdf>

EIB Statistical report 2015, [online] <URL: http://www.eib.org/attachments/general/reports/st2015en.pdf>

EU annual budget life-cycle: figures – payments without administration [online] <URL: http://ec.europa.eu/budget/annual/index_en.cfm?year=2015>

European Commission - Fact Sheet on The Investment Plan for Europe and Energy: making the Energy Union a reality, Brussels, 14 June 2016

IBRD Financial Report 2015, [online] <URL: http://siteresources.worldbank.org/EXTABOUTUS/Resources/29707-1280852909811/IBRD_Mar_16.pdf>

Protocol (No 5) attached to Treaty on the Functioning of the European Union on the statute of the European Investment Bank

Regulation (EU) 2015/1017 of the European Parliament and of the Council of 25 June 2015 on the European Fund for Strategic Investments, the European Investment Advisory Hub and the European Investment Project Portal and amending Regulations (EU) No 1291/2013 and (EU) No 1316/2013 OJ L 169, 1.7.2015, 1-38. p.

Regulation (EU) No 1300/2013 of the European Parliament and of the Council of 17 December 2013 on the Cohesion Fund and repealing Council Regulation (EC) No 1084/2006 OJ L 347, 20.12.2013, 281-288. p.

Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006 OJ L 347, 20.12.2013, 289-302. p.

Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006 OJ L 347, 20.12.2013, 470-486. p.

Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 OJ L 347, 20.12.2013, 487-548. p.

Treaty on establishing the European Economic Community (EEC Treaty)

Treaty on the Functioning of the European Union (TFEU)

Further reading

CESEE Bank Lending Survey H2-2015, European Investment Bank, Luxembourg, 2016

Investment and Investment Finance in Europe, European Investment Bank, Economics Department, Luxembourg, 2015, [online] <URL: http://www.eib.org/attachments/efs/investment_and_investment_finance_in_europe_2015_en.pdf>

Restoring EU competitiveness, European Investment Bank, Luxembourg, 2014

Unlocking lending in Europe, European Investment Bank, Luxembourg, 2014

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ESTIMATION OF VEHICLE DEMAND FOR DOOR-TO-DOOR SEPARATE WASTE COLLECTION

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ABSTRACT

The paper analyses the current system of waste collection and waste quantity in a particular service area. It suggests an appropriate and applicable collection system that meets the legal requirements. The scenarios' waste flows are examined for various selective activities. The collection vehicle demand is designed for each scenario. As a result, a collection system for door-to-door collection is proposed that meets the needs of the residents and can be operated with the possible lowest cost.
Keywords: waste management, door-to-door collection, separate collection, vehicle demand

INTRODUCTION

Europe and other continents have recognized the potential of the wastes as material resources. Accordingly, there is a significant shift from the collection of mixed waste towards the separately collected materials. The appropriate choice of the collection system is important for the public service providers, since the increasing logistics is associated with more costs. The introduction of separate collection is an EU standard and it is also a Hungarian legal obligation (*Directive 2008/98/EC of the European Parliament and of the Council*, 2008; *2012/185 Act on waste*, 2013; *385/2014 Goverment regulation on the waste public service*, 2015). The Hungarian regulation requires the separate collection of the following fractions, at least:

- mixed municipal waste,
- separately collected paper and cardboard,
- separately collected plastics,
- separately collected glass,
- separately collected metal,
- hazardous waste,
- clothing and textiles waste.

The collection frequency of waste containing biodegradable ingredients is regulated by lawas well. Accordingly, it should take place in urban and small town environment at least twice a week and in rural areas at least once a week. (*16/2002. Regulation of Ministry of Health*, 2002).

Different forms of collection and disposal are used worldwide, because regional and municipal authorities have to adapt to their specific circumstances. The authorities must consider many factors for the different ways and features of

household waste collections that vary in the respective regions and countries. (*Williams and Cole*, 2013). A preferable waste treatment and recycling system should save a large amount of virgin resources and has to reduce environmental emissions, as well as the total costs, significantly. The utilization of the existing facilities can help to reduce the fixed cost (*Fujii et al.*, 2014). Separate collection has been applied successfully throughout Europe, however, the overall cost of systems, the various local implementation issues, and the generally disappointing results in contamination levels from urban areas have initiated a continuous discussion on the possible alternatives (*Cimpan et al.*, 2015). *Ionescu et al.* (2013) developed a scenario model according to the requests of EU regulation, involving also the selective collection rate and degree. They found that in the Central European region the curb-side (a.k.a. kerbside or door-to-door collection) collection system was efficient. They suggested the following separate waste streams: plastics, paper and cardboard, glass, metals, food waste, wood and inert waste (*Ionescu et al.*, 2013). In Hungary there is no regulation for separated collection of food waste, as well as wood and inert wastes can be contained in mixed municipal waste, so this paper works out solutions for the fractions of plastics, paper with cardboard, beverage carton glass and metal.

MATERIALS AND METHODS

The amount of the weekly collected waste was surveyed in the study area. As for a study area an average rural settlement was chosen, the town of Nagybajom. The waste amounts were registered for one year from July 1, 2014. The waste composition ratios for the rural region were processed and averaged. Next we determined the collection vehicle demand for the current system. The average amounts of the selective fractions that can be collected with a collecting vehicle, were determined from the practical data. With the knowledge of these data, we could determine the collecting vehicle demand, in accordance with legal requirements.

LITERATURE REVIEW

In Denizli, Turkey a new waste management system was introduced in 2003. They applied a curb-side system, using coloured bags for source separated and commingled recyclables (plastics, PET, metals and textiles). Paper with cardboard, metal and glass are collected in recyclable waste bins (*Agdag*, 2009). To collect the glass in the waste bin for commingled stream causes health and safety problems in the manual sorting, so we plan to collect it at drop-off points.

In China, recyclables are collected in two ways: one portion of the recyclables is collected by the residents themselves, while the other portion enters the municipal recycling system. In Beijing the percentage of household separation reaches 54%. The municipal waste is generally divided into organic matter, inorganic matter, paper, fibre, timber bamboo, plastic, rubber, glass and metal. Considering that kitchen waste appears in high proportion in municipal waste, some cities organize to collect food waste at source (*Tai et al.*, 2011).

Vaccari et al. (2013) elaborated six scenarios for the implementation of the system of selective collection in the municipality of Zavidovici, in order to provide

a useful tool for decision making. Costs, environmental and economic benefits of these scenarios were compared. At the time of the study, 90% of total waste was mixed, whereas in the "realistic" scenario this percentage decreased to 78% and the percentage of recycled materials was more than double (22%). In the "ideal" case, mixed waste was 74%, while recyclable fractions reached 26%.

Williams and Cole (2013) investigated the frequency of collection and the collected streams in England. Authors showed that the adoption of an AWC (alternate weekly collection, i.e. the frequency of curb-side collections changed from weekly to fortnightly) scheme had positive impact on recycling rates and the households' behaviour. The present paper does not deal with frequency questions, only with the changes of vehicle demand caused by increasing selectivity ratios.

If obtaining maximum yield of recycles is the primary concern, then dual stream option would be the optimal choice. This collection method consistently out-performed single stream, showing that residents were willing and capable of sorting materials into several different containers if they were supplied with large enough containers and had the room for storage. However, the trials showed that the single stream option (commingled materials in one container) was cheaper, easier to manage for the crew, and easier for residents to understand (*Williams and Cole*, 2013). In case of the introduction of a door-to-door separated system, it is important to facilitate the participation with an easy to understand collection system. Moreover, in Hungary it is very important to keep the cost of the collection system incurred by the public service provider as low as possible.

Gallardo et al. (2012) analysed the currently used separate collection systems in Spanish towns over 5000 inhabitants. Eight types of collection systems were characterised. The most widely implemented system is still the one that collects paper/cardboard, glass and lightweight packaging from drop-off points and mixed waste from kerbside bins. The efficiency indicators for quality in container and fractioning rate were used. They determined that the best system was, which collected mixed waste, organic waste and multiproduct door-to-door, while glass at drop-off points.

A LCA study in Italy developed twelve different municipal solid waste management scenarios. *De Feo and Malvano* (2009) obtained different percentages considering separated collection, as well as various types of treatment for the dry residue deriving from the municipal waste without the materials being separated, collected and recycled or composted. They found that all the considered municipal solid waste management scenarios produced negative impacts, and the highest percentage of separate collection corresponded to the highest avoided impact in total energy use.

In 2012 they performed a study about a high-toned kerbside collection model, applied to communities having inhabitants between 1,000-10,000. The following components were considered: organic, paper and cardboard, plastics, metals, glass, batteries and expired medicines, bulky and durable, green and wood, textiles, as well as dry residue. Timings and frequency of the separate collection were for organic three times a week, for paper and cardboard once a week, for dry residue twice a week, for commingled collection of plastics, alumina and tinplate once a week, for on-call service for bulky materials and durable goods at the end of life; and a separate collection for glass, batteries, expired medicines and textiles. The authors

stated that the 5000 inhabitant community is the lower level of the ideal size for an economically sustainable management of the kerbside separate collection service (*De Feo and Malvano*, 2012).

Calabrò (2009) stated that recycling systems were designed to obtain maximum benefits (high recycling rate, high quality of the recovered materials and simplification of the whole process from collection to waste treatment) at minimum cost. This effort often conflicts with the relevance of the emissions of greenhouse gases (actually the energy consumption of the processes). The commingled collection makes the collection simpler but increases the complexity and the energy demand of the recycling process.

Cimpan et al. (2015) underlined that mixed waste collection (i.e. the mixed waste fraction that can be sorted at mechanical or mechanical-biological treatment plants) resulted in a dependency on export markets with relatively low quality requirements, (e.g. in the Far East) because of poorer material quality. However, central sorting of residual municipal waste stays relevant for areas where source separation is difficult.

Gallardo et al. (2015) introduced a method to minimize the number of selective containers, which in turn will contribute to reduce the length of the collection routes and, as a result, also the final cost could be decreased. Two scenarios were proposed: scenario A considered that mixed waste (organic and reject fraction) would be collected door-to-door, paper/cardboard, light packaging and glass would be collected at drop-off sites, and medicines would be collected at the pharmacies. Scenario B considers that mixed waste will be collected in kerbside bins (street bins), paper/cardboard, light packaging and glass will be collected at drop-off sites located in the streets, while medicines will be collected at the pharmacies. The main difference between the two scenarios is that the mixed waste fraction in scenario A will be deposited in containers located at the front door of the buildings, while in scenario B it will be deposited in kerbside containers at a maximum distance of 30ms from the citizens.

Gallardo et al. (2010) gathered information by means of a survey in 2010 about the selective collection system in Spanish cities with over 50,000 inhabitants. They concluded the best solution with the following elements: organic waste and mixed waste in kerbside bins; paper/cardboard, glass and lightweight packaging from drop-off points. This way keeps waste materials as clean as possible from the moment when they are separated in the households until they reach the recycling plants. However, citizens must make a greater effort in this respect.

The study of *Alvarez et al.* (2009)presented a reconsidered collecting system that used drop-off points for light packaging materials. They concluded that with the redistribution of drop-off points, it was possible to reduce the number of collection points significantly, in addition, the quality and coverage of the collection service could also be maximized.

Facility planning decisions became a critical issue in designing a proper reverse logistics network to deal with waste management and material recovery. This is mainly due to the fact that the number of facilities and their locations have a great impact on global transportation efficiency (*Toso and Alem*, 2014).

Iriarte et al. (2009) compared three selective collection systems operating in densely populated areas. These systems are: the mobile pneumatic, the multi-container and

the door-to-door ones. The door-to-door system has the highest energy demand, which is 57% higher than the multi-container system and 38% higher than the pneumatic mobile system. However, the door-to-door system delivers higher recovery rates of waste, compared with other collection options, which improves the environmental profile. Therefore, in order to minimize the environmental impacts of selective collection of municipal waste in densely populated urban areas, the following actions should be evaluated: to increase the efficiency of inter-city transport, locate recycling/disposal facilities at shorter inter-city distances and integrate recycling/treatment facilities within urban industrial estates.

A comparison of municipal solid waste management scenarios was made by *Rada et al.* (2014). Separate collection of recyclable materials, organic fraction and other waste flows (textile, electronic equipment, bulky waste etc.) was available for citizens. The residual waste goes through mechanical-biological treatment in the first scenario and through a direct thermal treatment in the second one. They found that second case was preferable, given the option of not having pre-treatments on the incoming waste, since efficient waste separation removed the previously non-combustible and putrescible fraction (*Rada et al.*, 2014). This system does not fit to the tenor of EU at all, as efforts are made to keep the materials in the economy as raw material instead of incineration.

Besides the transport system, another important factor is the willingness of the participation of waste producers. To establish a well performing separate collection system is only possible if the consumers' habits and the regulatory enforcement power are taken into consideration (*Mosonyiné*, 2008). Until 2015 in Hungary the usage of drop-off points was typical. Many service providers introduced the door-to-door collection as well, but in these cases the focus was put on the amount of collected materials, not on the costs of the collection. After 2013 the waste service fees were frozen at a decreased level, so this expensive kind of service element was terminated as well. Modification of waste regulation by 2015 had terminated the drop-off points and preferred the door-to-door separate collection only. Many practices were introduced in 2015: commingles collection in yellow sack, commingled collection in bin, separate collection of paper and plastics in two bins etc. Unfortunately, these systems were not supported by calculations; the chosen form was influenced principally by the existence or the nonexistence of tender money for bins and collecting cars.

RESULTS AND DISCUSSION

Having studied the available literature and the current Hungarian waste legislation, I developed several scenarios to examine the vehicle demand of separate collection. For the analysis I chose the town of Nagybajom as a typical municipality both in waste production and in territorial speciality. It lies in the Western part of Somogy County, Hungary. The number of the properties contracted with the waste service provider is nearly 1000. *Table 1* shows the composition of the size of the contracted waste bins. Most of them are 120 litre dustbins; while the weekly contracted volume is 130 m^3. Service provider: South-Transdanubian Waste Management Nonprofit Ltd. (Dél-Dunántúli Hulladékkezelő Nonprofit Kft. – DDH Nonprofit Ltd.)

Table 1

Contracted dustbins in the city of Nagybajom

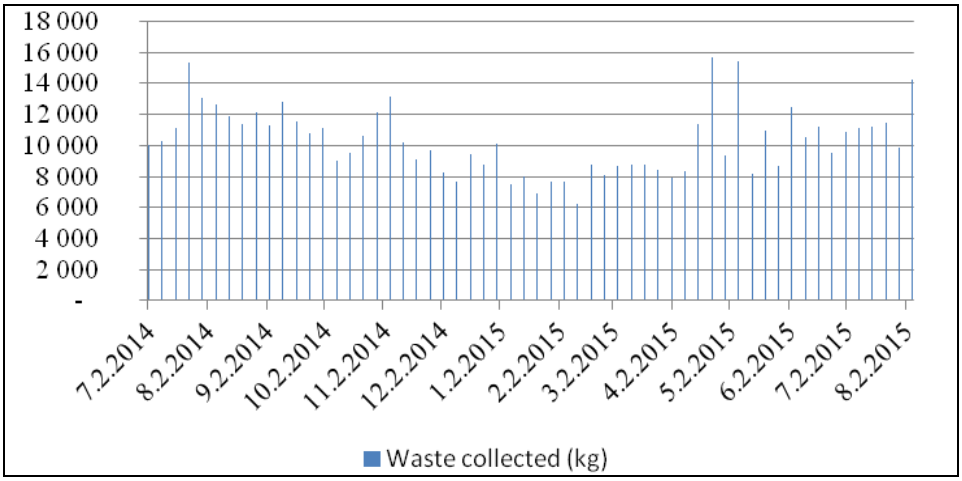
Size of the bin (l)	Bin (pieces)	Total volume (l)
35	1	35
50	9	450
60	132	7 920
120	851	102 120
240	21	5 040
1100	15	16 500
Sum:	1029	132 065

Source: *Based on data of DDH Nonprofit Ltd.*

The amount of waste collected last year is shown in *Figure 1*. The amount of selective collected material is not significant in Nagybajom currently. Based on the data, collected for one year, the average amount of collected waste is 9 951 kg weekly, with a standard deviation of 2 778 kg. It is visible that the waste amount is not constant along the year, but there is a significant increase in summer and the minimal values are in February. From week to week there can be unpredictable fluctuations. This fact makes the route planning more difficult. The smaller amount does not fill the collecting car, so part of the capacity is left unused. During the summer the vehicle may be overloaded.

Figure 1

Amount of the weekly collected waste



Source: Based on data of *DDH Nonprofit Ltd.*

Legislation contains the description of the compulsory elements of the system. Subject to compliance with legal requirements, the following collection system fully meets all expectations.

The favoured separation system in Hungary is door-to-door collection. Drop-off points can be used only in the areas where the local specifications justify it. According to the recent regulations, the following collection systems are appropriate:

1. Door-to-door collection for following streams:
   - mixed waste
   - plastics
   - paper and cardboard
   - metal
   - bulky waste
2. Drop-off points:
   - glass
   - textile
   - hazardous waste once a year at temporary collection points
3. Optional possibilities:
   - composting at home or door-to-door collection for biodegradables
   - door-to-door collection of food waste once a week
   - electrical and electronic waste and used tire collection before bulky waste collection at temporary collection points

This paper calculates with the simplification of collecting only two waste streams: door-to-door collected recyclables and mixed waste. The amount of glass and textile is added to the amount of mixed waste. Collecting the waste is contained in this paper, the two main activities of waste logistics are as follows: the trip to the workplace and the emptying process of waste into the collecting vehicle. The time and the cost calculations took this fact into account.

In door-to-door separate collection both dustbins and coloured sacks can be used. Mixed waste can only be collected in dustbins. The glass collection is still at the drop-off points. The optimum solution for green waste is home composting. Biodegradable waste can be collected separately, if not, then it can be placed in the bin for mixed waste.

It is important that not only the volume of waste is changing, but also the composition of it. The average composition (m/m%) for the period 2011-2015 is summarised in *Table 2*.

The weight portion of the separated fractions, collected door-to-door is 40.34%, which comprises the following streams:

- Paper
- Cardboard
- Beverage carton
- Plastics
- Metal

The calculation is made for 10 tons of waste a week. 59.66% of the sum is collected as mixed municipal waste, 40.34% of it as source separated material, while the whole amount is collected by door-to-door collection. Four scenarios were

developed. The versions differ from each other in proportion to the separate collection. The total weight of the involved material is 4034 kg/week. The first version considers the separate collection of 12.5%, while the second 25%, the third 50% and the fourth 75%. *Table 3* shows the weight of the collected recyclables.

Table 2

Composition of municipal waste

Type of waste	m/m%
Biodegradable waste	24.83
Paper	8.43
Cardboard	2.89
Beverage carton	3.33
Textile	4.39
Sanitary waste	4.11
Plastics	21.83
Non-classified combustible waste	4.93
Glass	3.41
Metal	3.87
Non-classified non-combustible waste	5.73
Hazardous waste	0.64
Small grain waste (<20 mm)	11.60

Source: Based on data of *DDH Nonprofit Ltd. and its predecessors*

Table 3

Amount of the recyclables at different source-separation rates

Type of waste	%	*v1*	*v2*	*v3*	*v4*
		Rate of the separation			
		12.5%	25%	50%	75%
		Collected amount (kg)			
Mixed waste	59.66	9 496	8 991	7 983	6 974
Paper+cardboard+ beverage carton	14.64	183	366	732	1 098
Plastics + metals	25.70	321	643	1 285	1 928

The collection vehicle demand of the above scenarios is shown in *Table 4*. In this calculation the recyclable material is collected in two separate streams (paper, cardboard and beverage carton, as well as plastics and metal), so the number of flights in the settlement are three. The calculations are made with an average useful mass of 10 tons per collecting car.

Because of the low density of plastics fraction, it is worth exploring the commingled collection with the paper fraction. This requires additional resources in waste processing, but the logistic demand decreases as shown in the *Table 5*. As it is

clearly visible, the higher specific gravity of the mixed paper/plastics stream means significant savings in transport.

Table 4

Number of collecting vehicles in the case of three material streams

Type of waste	Vehicle demand (pcs)				
	v0	*v1*	*v2*	*v3*	*v4*
Mixed waste	1.00	0.95	0.90	0.80	0.70
Paper+cardboard+ beverage carton	-	0.03	0.07	0.13	0.20
Plastics + metals	-	0.21	0.43	0.86	1.29
Sum:	1.00	1.20	1.39	1.79	2.18

Table 5

Number of collecting vehicles in the case of two material streams (commingled collection of recyclables)

Type of waste	Vehicle demand (pcs)				
	v0	*v1*	*v2*	*v3*	*v4*
Mixed waste	1.00	0.95	0.90	0.80	0.70
Commingled recyclables	-	0.13	0.25	0.50	0.76
Sum:	1.00	1.08	1.15	1.30	1.45

Another possibility to reduce the demand for logistics is the introduction of home composting; it is also a desirable waste management activity. *Table 6* presents the effect of reducing green waste amount on the reduction of collection routes to different degrees. For example, if half of the produced biowaste were composted at the 1000 homes, that would decrease the necessary number of collecting vehicles by 0.09.

Table 6

Effect of home composting on the vehicle demand

	Ratio of the composted biowaste at home	Decrease of vehicle need (pcs)
b1	12.50%	-0.02
b2	25%	-0.04
b3	50%	-0.09
b4	75%	-0.13

Setting together the selection activity of recyclables and green waste reduction opportunities. *Table 7* shows the cumulative vehicle demand. It can be seen that

75% separate collection of recyclables besides 75% biowaste reduction (both values need a relatively high participation and awareness of the population) require more logistic resources and performance as *v0* version (in table 6-7). However, keeping the collected recyclables in the economy as raw material, it can be a significant achievement.

Table 7

Vehicle demand of various separate ratios and various home composting systems

Type of waste	Vehicle demand (pcs)				
	v0	*v1*	*v2*	*v3*	*v4*
		b1	*b2*	*b3*	*b4*
Mixed waste	1.00	0.93	0.86	0.71	0.57
Commingled recyclables	-	0.13	0.25	0.50	0.76
Sum:	1.00	1.05	1.11	1.22	1.32

In *Table 8* it is shown, how the costs and benefits of the various methods and ratios are changing. The costs of vehicle operations, the costs of waste processing and landfilling, as well as the average selling prices of the balled recyclables were taken into account. The table shows that under favourable conditions of costs, revenues and separation intensity, the two stream system has an increasing advantage against no separate collection and even three stream collection.

Table 8

Final cost of waste management

Waste management	Final cost of waste management (thousand Ft/week)				
	v0	*v1*	*v2*	*v3*	*v4*
Three waste streams	310.0	314.4	318.8	327.5	336.3
Two waste streams	310.0	305.9	301.8	293.5	285.3

CONCLUSIONS

The introduction of separate waste collection from households will lead to selective waste sorting. The density of mixed waste is so high that the three-axis collection vehicles are full to the maximum of their compacting structure and we cannot increase their maximum laden mass significantly. If the light density plastic and paper fractions are sorted and collected separately, then the vehicle's useful mass cannot be fully exploited. Looking at the current Hungarian regulations, it seems appropriate and legitimate to use collection systems that apply commingled collection for recyclables. Commingled collection is more efficient than the separate collection of paper and plastic fractions. This collection system requires additional

work during the subsequent waste sorting, but the logistic costs can be significantly reduced. Another way of minimizing generated waste is the promotion of home composting. It is to be noted that this paper assesses the demand for the collection vehicles for the whole logistics phase, where the time and resource requirements of the waste emptying phase is quite standard for all area, while the resource demand for transporting phase can vary in a wide range.

REFERENCES

Agdag, O.N. (2009): Comparison of old and new municipal solid waste management systems in Denizli. Turkey. In: Waste Management, 29. 456-464. p.

Alvarez, L.J., Larrucea, A.M., Santandreu, S.F., de Fuentes, F.A. (2009): Containerisation of the selective collection of light packaging waste material: The case of small cities in advanced economies. In: Cities, 26. 339-348. p.

Calabrò, P.S. (2009): Greenhouse gases emission from municipal waste management: The role of separate collection. In: Waste Management 29. 2178-2187. p.

Cimpan, C., Maul, A., Jansen, M., Pretz, T., Wenzel, H. (2015): Central sorting and recovery of MSW recyclable materials: A review of technological state-of-the-art. cases. practice and implications for materials recycling. In: Journal of Environmental Management, 156. 181-199. p.

De Feo, G., Malvano, C. (2009): The use of LCA in selecting the best MSW management system. In: Waste Management, 29. 1901-1915. p.

De Feo, G., Malvano. C. (2012): Technical. economic and environmental analysis of a MSW kerbside separate collection system applied to small communities. In: Waste Management, 32. 1760-1774. p.

DDH Nonprofit Ltd. (South-Transdanubian Waste Management Nonprofit Ltd. - Dél-Dunántúli Hulladékkezelő Nonprofit Kft.) [online] <URL: www.ddhn.hu>

Fujii, M., Fujita, T., Ohnishi, S., Yamaguchi, N., Yong, G., Park. H.S. (2014): Regional and temporal simulation of a smart recycling system for municipal organic solid wastes. In: Journal of Cleaner Production, 78. 208-215. p.

Gallardo, A., Bovea, M.D., Colomer, F.J., Prades, M. (2012): Analysis of collection systems for sorted household waste in Spain. In: Waste Management, 32. 1623-1633. p.

Gallardo, A., Bovea, M.D., Colomer, F.J., Prades, M., Carlos, M. (2010): Comparison of different collection systems for sorted household waste in Spain. In: Waste Management, 30. 2430-2439. p.

Gallardo, A., Carlos, M., Peris, M., Colomer, F.J. (2015): Methodology to design a municipal solid waste pre-collection system. A case study. In: Waste Management, 36. 1-11. p.

Ionescu, G., Rada, E.C., Ragazzi, M., Marculescu, C., Badea, A., Apostol, T. (2013): Integrated municipal solid waste scenario model using advanced pretreatment and waste to energy processes. In: Energy Conversion and Management 76. 1083-1092. p.

Iriarte, A., Gabarrell, X., Rieradevall, J. (2009): LCA of selective waste collection systems in dense urban areas. In: Waste Management, 29. 903-914. p.

Mosonyiné, G.Á. (2008): Inverz logisztikai láncok működése. In: EU Working Papers, 1. 117-130. p.

Rada, C.E., Ragazzi, M., Ionescu, G., Merler, G., Moedinger, F., Raboni, M., Torretta, V. (2014): Municipal Solid Waste treatment by integrated solutions: energy and environmental balances. In: Energy Procedia, 50. 1037-1044. p.

Tai, J., Zhang, W., Che, J., Feng, D. (2011): Municipal solid waste source-separated collection in China: A comparative analysis. In: Waste Management, 31. 1673-1682. p.

Toso, E.V., Alem, D. (2014): Effective location models for sorting recyclables in public management. In: European Journal of Operational Research, 234. 839-860. p.

Vaccari, M., Di Bella, V., Vitali, F., Collivignarelli, C. (2013): From mixed to separate collection of solid waste: Benefits for the town of Zavidovici (Bosnia and Herzegovina) In: Waste Management, 33. 277–286. p.

Williams, D.I., Cole. C. (2013): The impact of alternate weekly collections on waste arisings. In: Science of the Total Environment. 445. 29-40. p.

Acts and Directives

16/2002. Regulation of Ministry of Health (2002)

2012/185 Act on waste (2013)

385/2014 Goverment regulation on the waste public service (2015)

Directive 2008/98/EC of the European Parliament and of the Council (2008.)

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THE OPPORTUNITIES OF THE HUNGARIAN CORN AT THE INTERNATIONAL AGRICULTURAL MARKETS IN 2016

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ABSTRACT

Agriculture is traditionally an important sector in the Hungarian economy even though its importance is weakening today. The sector had positive export import balance during the past years, so it means that it is an export oriented field of the national economy which improves the performance of the national foreign trade balance of Hungary. On the global agricultural market we can expect volume increase of the different agricultural products, which forecasts harsh competition on the agribusiness market as well. Although it is not easy to make a long or even middle term prognosis because of the changes of climate, weather conditions, crude oil price, macroeconomics and agricultural policies but because of the size of the country we can conclude that the Hungarian agricultural market should follow the trends of the EU and the global market. The grain sector is one of the most dominant ones on the domestic agricultural market. Within the local market corn was the most dominant product during the last years. In this paper the objective of the author is to examine the present situation of the Hungarian corn on the local and on the international markets according to the available data of local and international institutions (KSH, MGTKSZ, FAPRI, USDA).
Keywords: agriculture, grain market, Hungarian agriculture, corn, international market

INTRODUCTION, METHODOLOGY

Traditionally Hungary was a country where agriculture was one of the most dominant fields of the national economy until the second half of the last century. It played a significant role in the income of the families, the food supply for the people and the employment of the country (*Nagy*, 2006). During the past decades Hungarian agriculture went through fast and significant changes starting from the Soviet system through the transition period of the 90s until joining the European Union. The countries situated in the Central-East European Region needed to face similar issues which affected not just their agriculture but the whole agribusiness sector as well (*Fertő*, 2006). In 1989 13.7% of the GDP was produced by the sector and more than 17% of the employed people worked in agriculture. In the next decade the sector lost its importance in the national economy by the millennium (*Kiss*, 2002). In 2001 4.1% of the GDP while in 2014 only 3.7% were produced by the sector and 4.6% of the employed people worked there. Even though there are negative tendencies visible according to the previous numbers, but the agricultural sector is still a dominant one in Hungarian economy. 79% of the territory of the country is cultivation land and out of this 5.3 million hectares are used by

agriculture. Year by year the country exports more agricultural products than it imports. From the study point of view it is more important that the volume of the crop output of Hungary increased in 2014. In 2014 there was a record high volume of corn harvested (9.2 million tons) but also the output of fodder and industrial plants was higher than before. Although the sown area of corn decreased a bit during the past years, it is still the most dominant crop of the country with the biggest volume of grain harvested year by year. Hungarian agriculture is important not only on the national level but also on the EU level, since 2% of the total EU agricultural output were produced by Hungary. In case of crop products, this number is even higher since it reaches 2.3%, while within the grain sector it was 4.9% in 2014 (*KSH*, 2015).

The objective of the study is to examine the position of the Hungarian corn in 2016 on the international market. The data analysis was made after a secondary data collection according to the data bases of different international and domestic institutions. The idea of the paper is to start first with a broad overview of the current world and after EU markets of the corn while at the end to show the most important available domestic data of the product.

RESULTS AND DISCUSSION

The situation of corn on the world markets

The world corn production has decreased compared to the last crop years, but still corn is the most popular agricultural crop before wheat and rice with its more than 30% of share on the crop market (*Popp-Potori*, 2010). In the last year 5% less corn was harvested globally than in 2014/15 crop year, which means 969 million tons of corn were available on the global market as *Table1* shows. In contrast, this number was still about 10 million higher than the previous year forecasts said, since China and some South American countries were able to harvest more than they had expected. The agricultural use of this year might be around 970 million tons, which exceeds the corn production, but because of the high close stock of the previous years, the author expects a high closing stock in 2015/16 as well. In case of big exporters and other corn producing countries they follow the world trend and we can see a decrease of volume in all cases except China. There are some countries where the decrease of corn volume is bigger than the world trend. In some of them there are military conflicts, while in others different kinds of other cereals are increasing their sown area, which affects corn production. In South-Africa the volume decrease is around 30% but in the EU and the Ukraine it is also around 25% compared to the previous years.

In case of corn trade according to the *Food and Agricultural Policy Research Institute* (2011) until 2025/26 the volume is projected to reach almost 130 million tons. The biggest change of the near future of corn is that China becomes a net importer of the product in 2016/17 and reaches about 6.5 million tons of imported corn by 2025/26. Brazil and Argentina's market share would decline, while the USA may increase slightly by the end of the period.

According to the projections of *OECD* (2014) the prices of the major cereals, including corn, remain under downward pressure in the near future until 2023. As

OECD's projection shows, the price of corn followed mostly the price trends of the other cereals during the past years. The projection of *OECD* (2014) says the prices of corn, rice and wheat may slightly decrease compared to the beginning of the decade. The oilseed products have different future in terms of prices according to the projection as there is a slightly increasing price visible in the trends. The price differences might be constant, which means that corn probably stays the cheapest of the four products measured by *OECD* (2014).

Table 1

Corn production of the world (million tons)

Country	13/14	14/15	15/16
Exporter			
USA	351.3	361.1	345.5
Brazil	80.1	84.7	83.5
Argentina	33.1	33.8	28
Ukraine	30.9	28.5	23.3
Others			
China	218.5	215.6	224.6
EU	64.2	76.2	57.1
India	24.3	24.2	21
South-Africa	15	10.6	7
World total	999.1	1015.7	969.4

Source: *MGTKSZ*, 2016b.

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As we are getting closer towards the Hungarian market, the paper must show some data about the corn market of the European Union. As the data of *Table 2* shows that there was no significant change during the past years in case of arable land used for corn and also for grains in the EU. In case of yield in both cases between the shown periods the numbers testify that the changes are not significant and they rather

happened because of the weather conditions of the continent than the changes in the sector. The situation of the crop follows the tendency of the land and yield as well. So during the past period there was stability on the EU agricultural market from the land, yield and crop point of view both for corn and grains in total. In the meantime the EU corn balance shows similar numbers and stability in a long term according to *MGTKSZ* (2016a). During the next crop year a slight decrease of import corn is expected on the market and also bigger volume of consumption on the EU level, which is basically caused by the bioethanol, starch and fodder production mainly in France, Hungary, Germany and the Benelux States. So the position of agriculture is quite stable nowadays within the EU. The processing industry is significant, the export import balance is still positive, as it exports more every year than imports. The issues of the future might be the situation of the Ukraine and the Russian markets because they produce a huge volume of corn and traditionally at a lower price. Besides the stronger integration of the Ukraine within the EU, it might have an effect mostly on the Central-Eastern European agricultural markets.

Table 2

EU volume production between 2012-2016
(land 1.000 ha/ yield 100 kg/ha/ crop 1.000 t)

	EU-27/EU-28 (Croatia from 01.07.2013.)				
	2016	**2015**	**2014**	**2013**	**2012**
Corn					
Land	9.328	9.144	9.629	9.815	9.032
Yield	68	64	78	64	70
Crop	63.168	58.522	75.011	63.150	63.248
Grains Total					
Land	57.129	56.634	57.313	57.225	55.992
Yield	54	55	57	53	50
Crop	306.282	308.864	325.046	301.097	281.751

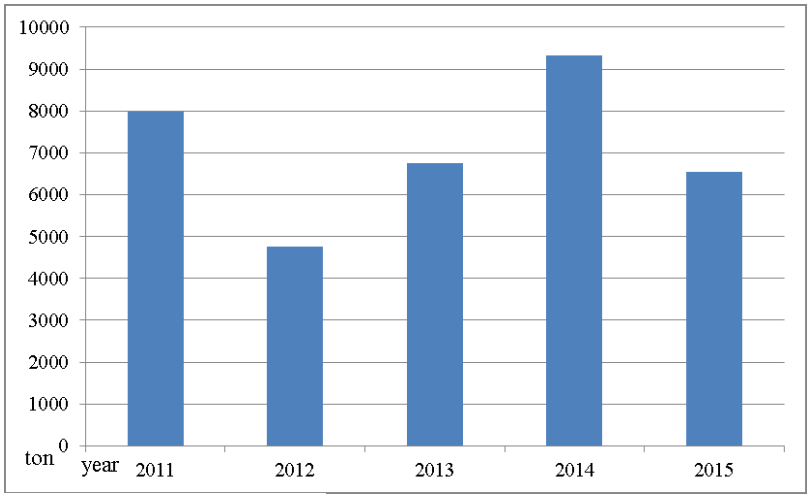
Source: *COCERAL*, 2016.

The Hungarian corn market

Hungary is a small country with a relatively big cultivation area, which means more than 7.3 million hectares of land. Out of this the use of agriculture is around 5.3 million hectares and more than 80% of them are arable land. The grain production is one of the most dominant one within the sector. In 2014 43% of the total harvested area of grain was corn which followed long years of tradition (*KSH*, 2016). The data shows that also the average yield of corn was the biggest during the past years. Consequently, the total volume of corn has been the biggest in Hungary. In 2014 more than 46% of the total grain volume was corn which means that it was the most dominant product of the sector before wheat (37%) and barley (10%). As *Figure 1* shows, during the past 5 years the harvested volume of corn was under 5 million only in 2012 while in 2014 there was record high volume of corn harvested in Hungary.

Figure 1

Harvested volume of corn in Hungary



Source: Based on *MGTKSZ*, 2016a

The volume of corn produced in the country is significant not just between the other grains in Hungary but also compared to the total corn yield of the EU. As we can see in *Table 3* in 2014 when there was a record high volume of corn produced in the country it reached the 15% of the total corn production of EU. But according to data of *KSH* (2016) there were years when these numbers were under 10%. Hungary has been usually the fourth biggest corn producer of the EU 28 since the country joined the EU. Only France, Italy and Romania produced more corn in the period. The top four producers of the EU 28 produced around two third of the total amount during the last decade.

Table 3

Volume of corn between 2005-2014

	2005	**2006**	**2007**	**2008**	**2009**
Hungary	9 050	8 282	4 027	8 897	7 528
EU 28	65 446	57 901	50 268	65 413	60 026
	2010	**2011**	**2012**	**2013**	**2014**
Hungary	6 985	7 992	4 763	6 756	9 315
EU 28	59 204	70 574	59 812	66 948	61 344

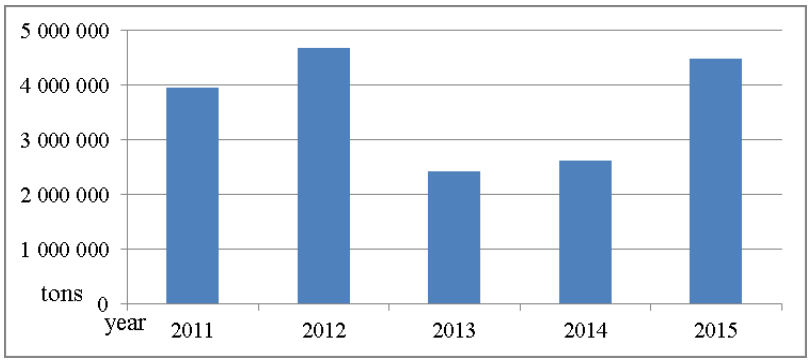
Source: *KSH* (2016)

The volume of corn produced in Hungary is more than the domestic consumption of the country including grinding, husking, industrial consumption, seed and animal

feed. Because of this, the export markets are necessary for the product. Year by year Hungary exports more corn than it imports. During the last years, as *Figure 2* shows, the export volume was between 2.5 and 4.6 million tons of corn/year, which means that the country is one of the biggest exporters of corn in the region.

Figure 2

Corn export in tons



Source: Based on *MGTKSZ*, 2016a

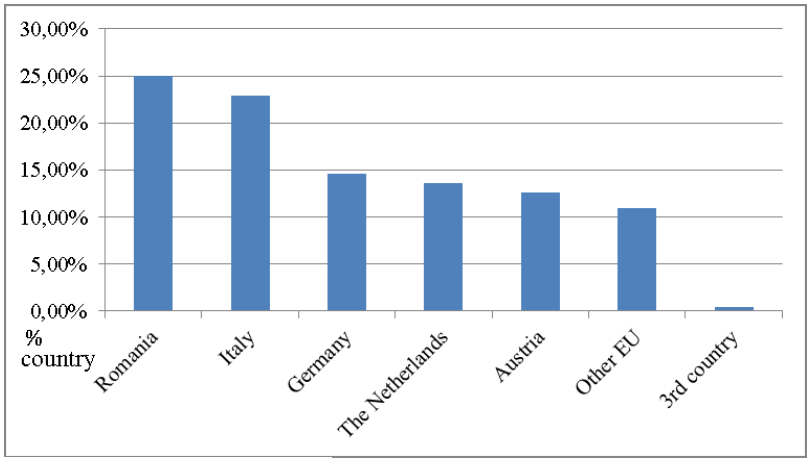
As it is visible in *Figure* 3, the export markets of the Hungarian corn are quite concentrated. After 2004, when Hungary joined the EU, the export direction of corn went mainly towards the EU member states. This tendency is still working today, since in 2015 less than 1% of the total corn export of the country went to 3rd countries. The concentration of the export markets is also visible within the EU member states. There were five dominant countries in the last year where around 85% of the total corn export of Hungary went to. Traditionally, Italy is one of these countries with its huge processor sector. But also the neighbouring countries are taking a huge volume, such as Austria or Romania. Romania had the biggest share of the corn export market of Hungary in 2015. Except for Italy, we can see that the other four countries are directly connected to Hungary via the Rhine-Main-Danube Canal, which is one of the most popular transporting ways of bulk products, such as corn.

Figure 4 shows that during the past years we can see changes in case of export freight types. Although the export by truck is still the most dominant, Danube corn export has taken the second position from the rail freight. Using the River Danube or train as a way of export the target market should be far from the country in order to make it worth loading the wagons or the barges. For bigger distances probably they are competitive but since Hungary's most important export destinations are the neighbouring markets with short distances, the truck business might still be the dominant type of freight in the near future according to the author's expectation. In case of the Danube export, the exporter must take into consideration the risks originated from nature (low water level, flooding). From the logistic point of view, the geographical location of the country is quite advantageous, as the main European train networks of the Central-East European

Region pass the country as well as the River Danube, which is the only waterway passing the continent. Because of the multiple options of freight types, the corn exporters have more options to sell the product on different international markets.

Figure 3

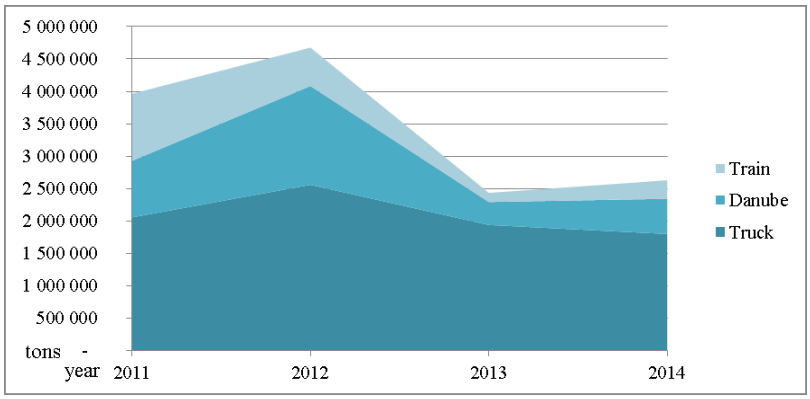
Corn export by countries in 2015 (KN:10059000)



Source: Based on *MGTKSZ*, 2016c.

Figure 4

Corn export by freight types between 2011-2014



Source: Based on *MGTKSZ*, 2016c.

CONCLUSION

Hungary as a country and part of the international agricultural markets needs to follow the world trends. In the world global crop production corn plays a decisive

role as well as in Hungary. According to the data shown in the paper, the position of corn was relatively stable during the past decades and as the forecasts say, it may stay in the same situation in the near future. Hungarian corn production has decades of history in agriculture. The country produces a huge volume not only compared to other local cereals but also compared to other corn producers of the EU. The domestic processor sector was stable during the past years and the entrance of new processors is expected on the market in the near future. Besides the domestic market, the Hungarian corn export is important in the Central-Eastern European region as well, since the main importers are the neighbouring countries and their agribusiness sector, as it is visible from the paper. The main issue of the Hungarian corn is not its place on today's agricultural market but the possible changes in front of it. The domestic sowing structure is slowly changing and the different oil seeds are taking bigger and bigger territories from the arable land, which tendency may affect the sown area of corn as well. The biggest issue on the Central-Eastern European agricultural market in the near future is the situation of the Ukraine. The further integration of the Ukrainian economy and agricultural products might cause changes on the whole EU agricultural market and mainly in the regions where countries should directly compete with cheap grains coming from the country. Other possible open issue is the situation of Russia and the embargo against the country. There is a big market and also huge production of corn in the country as well.

REFERENCES

COCERAL (2016): EU-28 Grain crop forecast. March 2016. [online] <URL: http://www.coceral.com/data/1457967495Corrigendum - Coceral GRAIN estimates_2016_March_11032016.pdf>

Food and Agricultural Policy Research Institute (2011): Overview of the FAPRI-ISU 2011 World Agricultural Outlook, [online] <URL: http://www.fapri.iastate.edu/outlook/2011/>

Fertő, I. (2006): The changes of the agricultural trading in Hungary and in the Central-East European countries, Budapest : MTA Közgazdaságtudományi Intézet

Kiss J. (2002): The opportunities of the Hungarian agriculture on the world market, Budapest : Akadémiai Kiadó Rt.

KSH (2015): The role of agriculture within the national ecnomy, 2014, [online] <URL: http://www.ksh.hu/docs/hun/xftp/idoszaki/mezo/mezoszerepe14.pdf>

KSH (2016): Táblák (STADAT) – Time series and annual data – Agriculture, [online] <URL: https://www.ksh.hu/stadat_eves_4_1>

MGTKSZ (2016a): Commercial newsletter 0516, [online] <URL: http://www.gabonaszovetseg.hu/hirek.php?c=4042>

MGTKSZ (2016b): Commercial newsletter 0316, [online] <URL: http://www.gabonaszovetseg.hu/hirek.php?c=4028>

MGTKSZ (2016c): Export-import, [online] <URL: http://www.gabonaszovetseg.hu/informaciobazis.php?m=exportimport>

Nagy G. (2006): Country Pasture/Forage Resource Profiles – Hungary, FAO, Rome

OECD/Food and Agriculture Organization of the United Nations (2014), OECD-FAO Agricultural Outlook 2014, OECD Publishig

Popp, J., Potori, N. (2010): Prospectives on the international agricultural market 2010, Budapest : Agrárgazdasági Kutató Intézet

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CONTINUOUS OBSERVATION AND MODELLING INTERVAL RISK MANAGEMENT AS PART OF THE IMPROVEMENTS OF THE COMPANY

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ABSTRACT

Evaluation of the company is necessary to perform in accordance with applicable international accounting standards and financial reporting standards with the aim of improving actual management and valid decision-making management. Possible deviations from the present value of asset carried amounts in the books of the company should be corrected as soon as possible, in order to achieve a real and realistic "fair value" of real estate or other equipment used by the company in its operations. The significance of this work lies in the fact that it draws attention to the professional public on the application of fair expression of the value of assets. In addition, the authors in this paper point to the importance of finding a management that ensures the elimination of potential risks in everyday business management.
Keywords: fair value, management, model, IFRS

INTRODUCTION

In this paper the subject of interest stems from the basic assumption that the financial statements of the company should serve the interests of better and more successful management of the company's management. The financial statements are seen as categories that are subject to adjustments, and based on the overall picture created by the business, they can make the right evaluation of the quality of financial statements that benefit the top management and other Government agencies (eg. the supervisory board) of the enterprises, but also shareholders in case of joint stock companies.

There are several objectives in this study. The first one is to highlight the importance of fair reporting enterprise management. The next objective is to define the conditions in which it is necessary to carry out the evaluation of property managed by the management. The last goal is to show the actual activities undertaken by management with the aim of correcting the financial statements. Actualities of labour in the opinion of the author are large, especially in countries in transition, such as the Republic of Serbia, as well as in countries of the former socialist bloc, and because they switched to a market way of organizing the economy.

Thus, evaluation involves a process of determining the value on the day of the entire evaluation procedure, which is an essential starting point for the adoption of further activities for the possible correction of the financial statements in the company.

Accordingly, the fair value is the amount for which the seller is willing to cede the ownership of the property to the buyer in a voluntary exchange, provided that there is a reasonable level of awareness on both sides of the case evaluation. It is necessary to note that the amount that will be the estimated value of the property, will almost never be an identical amount in the financial statements of companies, and corrections are typically made in accordance with IAS and IFRS.

MANAGEMENT AND ITS RELATIONSHIP TO THE MANAGED ASSETS

In order the management could own real and fair value of property, which is close to fair value of property which are owned, it must be within the framework of its policy management to adopt accounting policies in the framework of which it will be incorporated into the basis of the fair value of all assets. For these reasons, the management has access to certain activities, which are usually of long-term character.

Prior to making decisions significant for enterprise financial management, it is required that the decision makers acquire the best possible image of comprehensive conditions, such as socio-economic (*Popović*, 2014a) influences on the enterprise they manage. There is no general model for reaching actual, that is, initial understanding of the environment and influences on the enterprise that the management could implement, but it is very useful to make a short SWOT analysis of the existing situation which will present the following: opportunities, weaknesses, odds and threats the enterprise will most probably encounter with. Consequently, prior to control process (*Gritsenko and Skorba*, 2015), harmonization (*Panchuk*, 2015) and audit (*Majstorović and Popović*, 2015), it would be preferable to execute SWOT analysis, first of all of the initial state. This is why the authors start this study with the presentation of possible short SWOT analysis, presented in *Table 1*.

After the completion of the SWOT analysis, enterprises may start forming the internal control mechanisms of the enterprise (*Popović*, 2014b; *Popović* , 2014c), which is particularly useful in case of capital investments (*Wang*, 2003; *Titman et al.*, 2004). The procedure of the essential evaluation process is continued with the concretization of the evaluation of the enterprise, that is the evaluation of the parts of equipment or the real-estate (*Popović et al.*, 2015), and finally completed with the audit process (*Sloltani*, 2009; *Skrypnyk and Vygivska*, 2015).

The aforementioned activities should be seen as ongoing activities that are being implemented in the company, and the size of the company will depend on the degree of organization such as internal controls, the frequency of the evaluation of assets, the substantial use of audit opinions in order to remove the irregularities, etc. Most of the companies are trying to reduce risks in their operations, and in some ways they try to get this model to minimize risk. Therefore, using different risk factors, risk intervals will define firms in relation to the level of expected security.

Table 1

SWOT analysis of the existing state of influences on evaluation of the real-estate in the Republic of Serbia.

The available options and the existing power	**Weaknesses**
- Justify the existence of legal solutions that encourage re-evaluating the assets of the company in the Republic, - The tradition of combining work book which dates from the time of the socialist economy, which proved to be very useful in real business conditions, we say that it is time that precedes Serbia's EU accession, - The existence of high-quality workforce that knows the situation in Serbia and finance companies, - The existence of the desires of skilled labour to perform continuous education and their professional development, which is essential in the process of assessing real estate, - The existence of a legal basis in the Republic of Serbia for the implementation of modern MRS, especially IAS 16 and IFRS 13 in the field of real estate appraisal company	- The lack of current information, - Insufficient interest of managers, due to the short presence in companies that link, - Insufficient repressive role of the state in terms of the implementation of adopted laws that relate to tax policy, - Lack of interest of local companies in the re-evaluation, as in the case of an increase in expression of the value grows tax liability companies, - Incoherent inspections and other state authorities, especially when detecting irregularities detected the final accounts of the company
Chances	**Threats**
- Permanent increase in the security of financial statements, especially large companies, - Acceleration of the integration of several related companies into the large business system of international companies, - Development of new forms of financial reporting which is compliant with the EU reporting system, - Companies who first introduce a new system of financial management and control can be sold to other companies that model and realize the benefits of "knowledge" which are mastered, - Strengthening the institutional capacity of the state, if there is a large number of companies that present fairly the state of their business books	- The suppression of domestic enterprises by big foreign companies that have introduced new systems of financial reporting, as pressuring them to buy the right to use their knowledge, AOP, software systems et al. - Striving to increase the purchase price of finished programs of financial reporting companies, or pressure those big estimating and audit firms that carry out the assessment of property for the needs of domestic enterprises, - Negative impact of certain legal provisions, which are introduced in the Republic of Serbia, under the direction and influence of large companies that realistically lobby for some legal solutions that will be adopted in Serbia

CONTINUOUS MONITORING OF RISK AND SPECIFYING THE INTERVAL RISK WHICH AFFECTS THE COMPANY

Based on research conducted by the authors of this study in the second half of 2015 in the area of the second largest city in the Republic of Serbia, at over 100 medium-sized enterprises that actively exist over 5 years, the authors present some of the most important factors influencing the company, as well as at the evaluated risk intervals proposed by financial and general managers of medium-sized enterprises.

The authors of this study provide the presentation of certain factors significant for enterprise management, and which have particular influence on the real-estate evaluation, as follows: if the majority of risk intervals is higher in the presented *Table 2*, the influence on the enterprise will be stronger and the management will have to execute the correction of the current enterprise policy. After presentation of this "walk through the possible system", the steps that the authors present in the first part of the study, the management may decide to execute balancing in the enterprises, as there are minimal risks of entering poor data in the business records of the enterprise.

Table 2

Presentation of the selected possible factors of influence on the enterprise preparing to make decisions relating real-estate evaluation and balancing

General factors' influence		**The impact of activities on risk assessment**		**Internal factors in enterprise organization**	
Selected risk factor	Interval risk	Selected risk factor	Interval risk	Selected risk factor	Interval risk
Number of days of illiquidity in the past 12 months	1-5	Public-sector enterprises	1-5	Built mechanism of internal audit	1-5
The gearing ratios (the ratio of total loans and equity)	1-5	Sector Finance and Insurance	1-5	The existence of the obligation to harmonize accounting policies	1-5
Profitability ratios (the ratio of net income and operating income)	1-5	Industrial sector	1-5	The existence of the obligations of the IAS and IFRS in the company	1-5
The total risk	***		***		***

**** Total risk represents the value of adding risk presented by groups, numbered and presented on the basis of measurable impact on the Company in accordance with the policies of management companies.*

Thus the assessment of the overall risk for the company can be affected by other factors such as:

- integrity management,
- knowledge and experience of management, and the impact of management changes,
- unusual pressures on management,
- the nature of business enterprises,
- other.

MODEL SELECTION OF INTERVAL RISKS AFFECTING THE ADOPTION OF BUSINESS MANAGEMENT DECISIONS

The authors point out that there is no universal model that will provide answers to all the questions of risk evaluation interval. Possible explanation of those risk intervals the authors illustrate *Table 3*, where they presented three possible models of real value determining intervals of risk expressed in the range of risks that are obtained after collecting the results shown in the *Table 3*.

After the presentation of this "walk through the possible system", the management may decide to execute balance in the enterprises, as there are minimal risks of entering poor data in the business records of the enterprise.

Table 3

Tabulation three proposed models intervals of risks, which are obtained after evaluating the overall results given in the previous table

Displaying risk sharing interval of possible risks by using three models				
The division of risk of different intensity into three categories that affect the company		The estimated value intervals in numerical risk evaluation		
		Model A	Model B	Model C
1	Low risk	1-10	1-11	1-12
2	Medium risk	10-13	11-13	12-13
3	High risk	13-15	13-15	13-15

CONSLUSIONS

The Republic of Serbia, as well as a larger number of countries in transition in recent years are beginning to take respect to a greater extent and apply new models of help that influence the reduction of the level of risk to manage. The authors point out that it is useful to detect basic preconditions for modelling intervals of risk in the first phase of the analysis, using the so-called SWOT analysis.

After that, the company management should aim at discovering intervals for predefined risk factors. The large number of enterprises can increase the safety of operations, because they will know the factors that must be paid attention to during

the operation. The last part of the general application is the modelling and the use of a satisfactory model that will cover most of the risk to the appropriate level of security.

The first phase is followed by the use of International Accounting Standards, International Financial Reporting Standards, and the standards of the auditing profession in order to strengthen financial reports evaluating the company's assets or assets managed by the company's management. The work can also be applicable to all enterprises, as well as in all sectors in which the company operates. The goal of all activities should be minimizing risks and creating the conditions for more secure operations. The aim was to show the importance of introducing a relatively new way of doing business by determining the interval risk in order to improve the financial statements, and to improve safety management in the function of enterprise management.

The result of such activities is a range of models within which the level of the security of future business will be shown. Also, in this paper the authors attempted to present and systematize some of the important impacts of risks that may affect a large number of companies in Serbia. The author highlights the importance of the introduction, observation, and treatment of a large number of heterogeneous risks, which could substantially increase the effectiveness of financial reporting.

REFERENCES

Gritsenko, O.I., Skorba, O.A. (2015): Internal business control of service quality costs: managerial aspect. In: Actual problems of economics, 3. 365-373. p.

Majstorović, A., Popović, S. (2015): Revizija poslovanja poljoprivrednog preduzeća. In: Računovodstvo, 1. 77-85. p.

Panchuk, I.P. (2015): Harmonization of accounting and taxation accounting at reporting formation on income. In: Actual problems of economy. 3. 373-379. p.

Popović, S. (2014a): Socio ekonomski faktori ograničenja razvoja agrara. Monograph, Fimek, Novi Sad

Popović, S. (2014b): The Significance of the Introduction of Internal Control Mechanisms to Monitor Production Company. In: Communications in dependability and QM. 17. 4. 56-62. p.

Popović, S. (2014c): Kontrolne funkcije u vođenju finansijske evidencije traktora konkretnog poljoprivrednog preduzeća. In: Traktori i pogonske mašine. 19. 4. 67-72. p.

Popović, S., Majstorović, A., Grublješić Ž. (2015): Valuation of facilities in use and application of international accounting standards. In: Actual problems of economics. 3. 165. 379-387. p.

Skrypnyk, M.I., Vygivska, I.M. (2015): Mortgage as one of the most effective types of collateral: accounting aspects. In: Actual problems of economics. 3. 388-393. p.

Titman, S., Wei, K.C. J., Xie, F. (2004): Capital investments and stock returns. In: Journal of Financial and Quantitative Analysis. 39. 4. 677–700. p.

Wang, X. (2003): Capital allocation and accounting information properties. Working paper, Emory University, Druid Hills, GA.

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THE EMPIRICAL ANALYSIS OF THE IMPACT OF THE ECONOMIC CRISIS ON TURKISH ISLAMIC BANKS USING THE CAMEL METHOD

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ABSTRACT

Islamic banking is a banking system that is based on the principles of Sharia or Islamic law. The principles of Islamic finance forbid interest commonly known as riba, but supports charity (Zakat), forbid high risk (gharar), forbid certain types of transactions like gambling and based on PLS (Profit-Loss Share). The most important concept is that both charging and receiving of interest is strictly forbidden; money may not generate profits. After the 2008 economic crisis special attention was given to alternative financing techniques, and so to Islamic banks. Islamic banks have largely survived the global economic crisis intact and they offer a safer operation than conventional banks. Turkey's banking system consists of 49 banks, four of them operate according to Islamic principles. In the study the authors analyzed the impact of the economic crisis on the Turkish Islamic banks. In the analysis a variety of indicators were calculated based on data from the annual reports. The annual reports of the banks were used between the period 2007 and 2013 and we evaluated indicators of each banks and the banking system from the points of view of Capital adequacy, Asset quality, Management efficiency, Earnings, and Liquidity.
Keywords: Alternative financing, Annual report, Crisis, Islamic banking, Sharia

ISLAMIC BANKING SYSTEM

In a former publication of *Bajkó et al.* (2013) an analysis was made of the Islamic banking system based on the 'saver-bank-borrower' relationship.

In case of the Islamic banking system the use of money is not neutral for the saver. First of all, he has to be sure that the money does not finance any prohibited activity. Second, his return or loss depends on the success of the borrower. Therefore, in this construction all the three parties are in connection with each other, the financial institution does not constitute an impenetrable "wall" between the saver and the borrower: The borrower and the saver find each other by the bank's intermediation.

Within the Islamic banking system risk is a natural part of business life, which equally applies to the participants of the transaction. Participants share the losses. Transactions with great risk have to be avoided. Moreover, speculative deals are explicitly forbidden by the principles. In Islamic banking system, transactions or contracts must be evaluated separately so as not to interfere with the laws of Sharia, and – as loss is shared anyway – it is much easier (cheaper) to say "no" at the

beginning than quitting from a collapsed enterprise. Thus, the chance of giving loans to a bad debtor is relatively small. Even in case of returns lower than expected, penalty interest cannot be required due to religious reasons. In such a situation, the bank may account for some additional cost, but its main interest is to have its client to be solvent again. If it can be achieved only by reduced installments, then the bank has to go with the modification. Actually, most Islamic banks can also be regarded as banks for the needy and poor. The conduct of the Islamic bank at this point is very similar to the basic concept of the Grameen Bank (Bank for the Poor) model. The bank for the poor has the opportunity to reschedule the installments without stressing the client with certain sanctions – contrary to the conventional banks where imposition of sanctions are expected. In such cases the bank for the poor helps its clients to recover the lost money as soon as possible.

Profit generation is a central mission for the Islamic banking system as well, the partner-based relationship among the participants, however, is also very important regarding it as real value (especially when all the three parties reach their goals). Because of the risk community they establish, they are all interested in the other one's success. Taking into account the fact that speculative, future or forward and other risky transactions are prohibited, the finance of productive sector comes into view, which gains lower yield at lower risk level.

After the 2008 economic crisis, special attention was given to alternative financing techniques, and so to Islamic banks. Islamic banks have largely survived the global economic crisis intact and they offer a safer operation than conventional banks.

The integration under the Basel III directive does not spare all the antecedents since Saria has already been introduced as a source of law, the so-called Saria judiciaries were inducted (Islamic Sharia Council) in Great Britain. This was a result of the fact that the archbishop of Canterbury saw the tendency clearly in 2008 that Europe was ageing, the demographic balance leaned toward the Muslims, therefore the question is relevant: Is it possible to integrate Islam into the European democracy structure? Another question is whether it is possible to integrate Islamic banks under Basel III. (*Cseh*, 2014).

Within a few years the Saria judiciaries got official legitimation during business related and financial legal conflicts. Hence the legal application of subculture was controlled by the state, the main conflicts ended. Due to Islamic financed products expanding in Germany it is necessary to ensure pioneers as the background of legal material of Saria (*Cseh*, 2014).

Turkey's banking system consists of 49 banks, four of them operate according to Islamic principles. Albaraka Turk Participation Bank Inc., Asya Participation Bank Inc., Kuveyt Turk Participation Bank Inc. and Turkiye Finance Participation Bank Inc. are the Islamic banks in Turkey. (*Annual report of TKBB*, 2014) At this point we would like to mention that the fifth Islamic bank, the Turkish Ziraat Participation Bank was founded on the 14th of October 2015.

CAMEL ANALYSIS

CAMEL analysis is a supervisory rating system to classify a bank's overall condition. The five factors examined are as follows:

C - Capital adequacy
A - Assets
M - Management
E - Earnings
L - Liquidity (*Baka et al*, 2012)

In the analysis a variety of indicators were calculated based on data from the annual reports. The results of the four banks were averaged separately, then classified (1 = good, 2 = adequate, 3 = satisfactory, 4 = acceptable, 5 = unacceptable) according to the desired criteria, the changes over the years and the relative values of the four banks. Furthermore, the Turkish banking sector's weighted average was calculated according to total assets and the results are depicted in the graphs.

Capital adequacy (C)

The bank's equity shows the strength of a bank and it is a major indicator of prudence. *Table 1* shows the evolution of the Turkish banks' Capital adequacy indicators.

Table 1

Results of the Capital adequacy indicators

	Capital adequacy ratio		Leverage ratio		Loan principal coverage indicators	
	Average	**Mark**	**Average**	**Mark**	**Average**	**Mark**
Albaraka	15.55%	1	11.01%	2	15.05%	3
Asya	13.89%	1	13.07%	1	17.74%	2
Kuveyt	15.17%	1	10.57%	2	15.01%	3
Turkiye	15.80%	1	12.21%	2	16.05%	3

Source: Edited from *annual reports of the Turkish Islamic banks*, 2007-2013

The main task of the Capital adequacy ratio (CAR) is maintaining the bank's long-term solvency. The indicator expressing solvency is used worldwide. The value of the index should be at least 8% in accordance with Basel standards.

The data show that in the examined years all banks met the 8% criteria, morever, they reached even higher than that. Looking at the averages, Turkiye Bank had the highest Capital adequacy ratio in the years examined, but the other banks' results were also close to this value. As each bank's results were above the desired value, we regard the development of Capital adequacy ratios as good.

The following is the Leverage ratio. The results of the index were calculated by the comparison of the equity and total assets of the banks. The indicator also provides information about the bank's prudence, namely the distribution of equity and debt. The reductions of the indicators suggest that the equity ratio increased.

Banks mostly manage foreign resources, so a high leverage is typical. In this case, following the crisis the change was a decline.

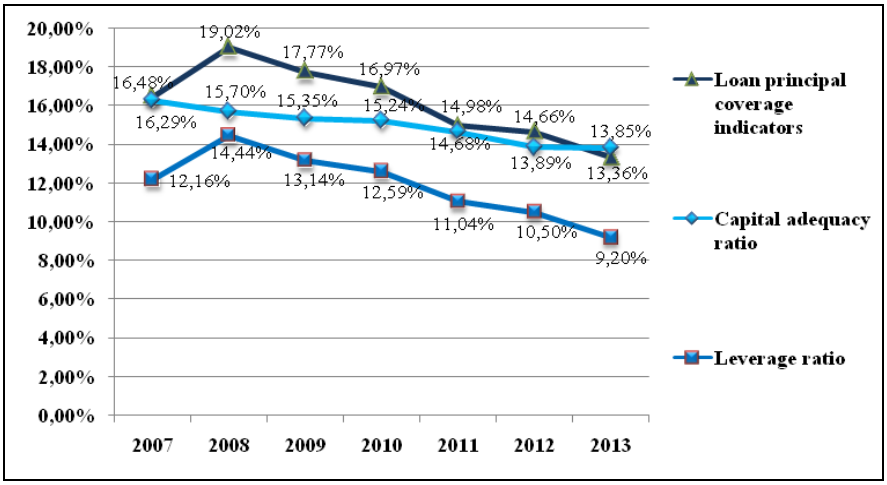
The main activity of the banks is lending. It is important to monitor the degree of credit losses througout this activity, i.e. how they are capable of covering the losses. This is shown by Loan principal coverage indicators. The values of the indicators show varying trends from year to year, but drastic changes cannot be detected. The decreasing tendency can be explained by the growth of loans.

At the end of each of the five factor test we calculated average for the Turkish Islamic banking system by weighting according to the balance sheet total (*Figure 1*).

The Turkish Islamic banking sector's capital adequacy is stable, its Capital adequacy indicators were in line with the accepted value and its solvency was not threatened.

Figure 1

Weighted values according to total assets of Capital adequacy ratios



Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

Quality of Assets (A)

Lending activities are especially important for banks, so it is essential to analyse the quality of the assets in terms of the bank's successful operation and efficiency. We mainly analyse classified loans especially Non-performing loans (NPL) compared to total loans, and to equity. What is the proportion of creadit loss in the total loans and in equity? *Table 2* shows the Assets quality indicators.

The NPL ratio provides information about the level of Non-performing loans in the total loan portfolio. The value of Non-performing loans below 5% is acceptable. Between 2008-2009, during the crisis there was a slight increase in the proportion of Non-performing loans for all four banks and the values of Kuveyt and Asya jumped above the accepted value. From 2010 to 2012, there may have been adverse events in the operation of Bank Asya, whereas the number of non-performing loans portfolio increased significantly.

Table 2

Results of the Assets quality indicators

	NPL ratio		NPL ratio to equity		The ratio of total assets in the loan portfolio	
	Average	**Mark**	**Average**	**Mark**	**Average**	**Mark**
Albaraka	2.62%	1	17.89%	2	72.97%	1
Asya	4.96%	2	29.00%	4	73.83%	1
Kuveyt	3.67%	1	24.21%	3	70.36%	1
Turkiye	2.89%	1	17.96%	2	76.05%	1

Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

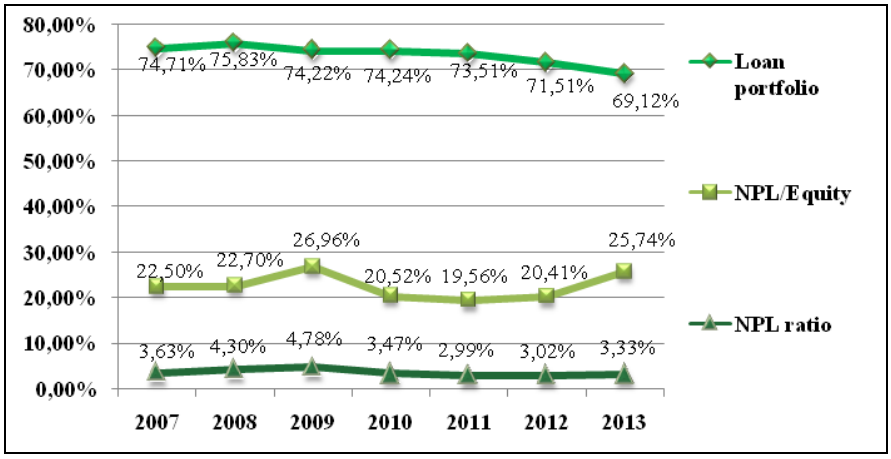
From the comparison of the extent of the NPL to the equity it can be seen that all four banks' indicators increased in the period starting from 2008 as a result of increased Non-performing loans portfolio. Bank Asya values have been higher than those of the other three Turkish banks since 2010 and its value has increased significantly since 2012.

The banks' activity is dominated by lending with more than 70%. On the positive side all of the banks' loan portfolio was higher year after year; i.e. their lending activity has not slowed down.

*Figure 2*shows the weighted values of the Assets quality indicators. With respect to assets we can say that the ratio of Non-performing loans is low and there is no significant deterioration, in spite of the fact that there were unfavourable economic conditions in this period.

Figure 2

Weighted values according to total assets of Assets quality indicators



Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

Management efficiency (M)

The bank's management is extremely important because the strength and the effectiveness of banks may depend on the type of the leadership and its ability to recognize risks and restore operation growth path. This factor is mainly examined with cost efficiency indicators.

The revenue and the cost of the Turkish Islamic banks were obtained from income statement of annual reports.

Revenues consist of Profit from loans, Profits from the "movable assets", from the Sale and from Leasing of financial income. Naturally, interest and similar income are not found in Islamic banks' revenues.

The total cost of the Turkish Islamic banks consists of Expenditures and Other spending items, in which a steady increase was registered during the reference years. *Table 3* and *Figure 3* show the results of the Management efficiency indicators.

Table 3

Results of the Management efficiency indicators

	Cost / Revenue ratio		Revenue proportionate earnings		Total Costs / Total Assets	
	Average	**Mark**	**Average**	**Mark**	**Average**	**Mark**
Albaraka	64.07%	3	22.25%	1	6.83%	2
Asya	67.69%	3	17.92%	3	8.56%	3
Kuveyt	65.30%	3	19.61%	2	6.69%	2
Turkiye	68.14%	3	21.68%	1	7.58%	2

Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

The higher the Cost/Revenue index is the less efficiently a bank operates, i.e. costs erode larger and larger parts of the revenue. The improvement in the cost-effectiveness can be discovered in some places, but it is not significant. Costs consume more than 60% of the revenues. Comparing the four banks, Turkiye proved to be the least cost-effective.

The following efficiency indicator is Revenue proportionate earnings. The pre-tax profit and total revenue ratio reflect the operational efficiency, namely how much of the proceeds is made up by the profits. It is clear that the index value fell between 2008 and 2009, but since 2009 the Turkish banks have been improving, except for Asya.

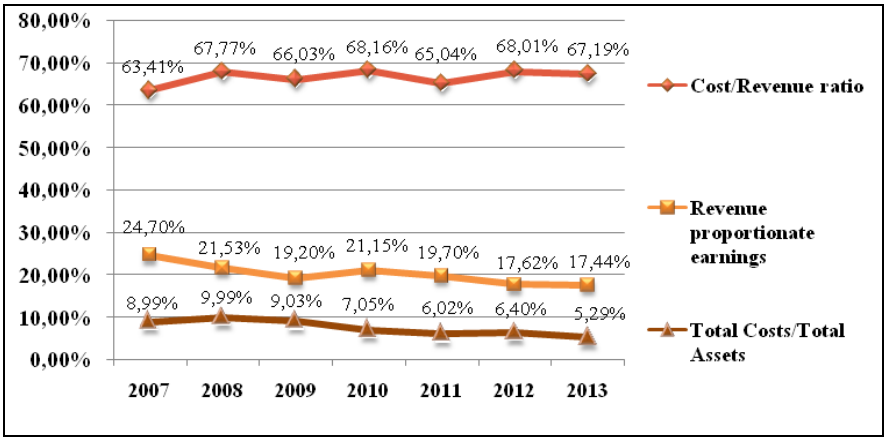
We can examine the developments on Assets proportionate costs. The index takes into account all costs showing the costs of financial intermediation. The costs of financial intermediation increased in 2008. The proportion of costs compared to total assets is high, but it is positive that we can see a downward trend in the years following the crisis and after 2012.

The efficiency of the banks showed a slight declining performance due to adverse changes in the costs, which have risen at the expense of profits. Overall,

the examination of the Turkish Islamic banking performance indicators showed no dramatic changes.

Figure 3

Weighted values according to Total assets of efficiency indicators



Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

Earnings (E)

By using the profitability indicators we can gain information about the effectiveness of management, i.e. how effectively the available funds and the assets acquired from them are used to generate profits.

Return on equity (ROE) and Return on assets (ROA) are commonly used indicators of profitability. *Table 4* and *Figure 4* show the results of the Earnings indicators.

Table 4

Results of the Earnings indicators

	ROE		ROA		Net operating margin	
	Average	Mark	Average	Mark	Average	Mark
Albaraka	16.56%	1	1.84%	1	3.91%	2
Asya	14.27%	2	1.97%	2	4.18%	2
Kuveyt	14.88%	1	1.57%	1	3.50%	3
Turkiye	15.82%	1	1.91%	1	3.50%	3

Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

ROE answers the question how the equity produces profit. In case of banks a healthy ROE is around 10-12%. This indicator did not depict a negative value, because there was not negative profit after tax. Markedly the profitability of the

Bank Asya decreased significantly and steadily from 2009, which can be explained by the decrease of net result. The other banks, however, performed above the expected value.

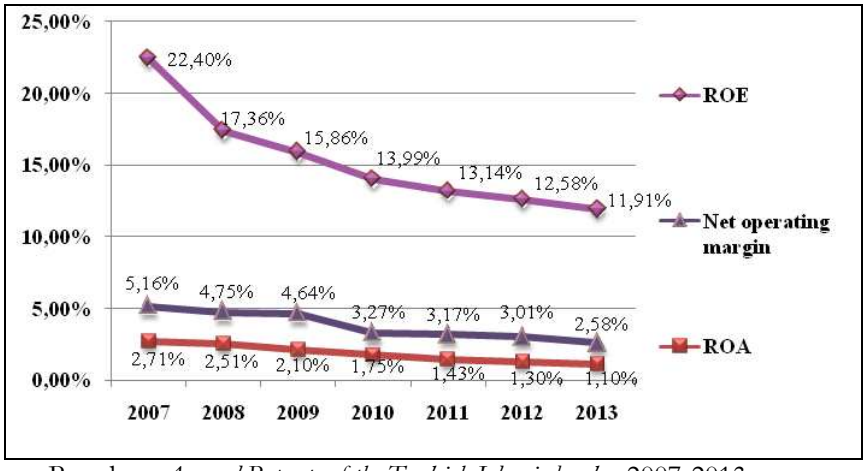
The ROA gives us data about banks'assets. It shows how the good placements of banks and the effectiveness of banks' placements are. The value of the index between 1 and 2 is estimated to be good. The decline of the indexes reflects the deterioration in the banks' recovery. From 2009 a downward trend can be observed. The downward trend in ROA is typical, but it is still within the limits. Bank Asya is classified as 2 due to the gradual decrease and the values below 1.

We get a picture about the effectiveness also by calculating Net operating margin. After the deduction of the full cost of total revenue it is compared to total assets. After the calculation of the index we have got a varied picture. Since 2008 Asya has been working with decreasing effectiveness. Albaraka Bank and Turkiye could improve the effectiveness.

Earlier we saw that the Turkish banks' Leverage ratio was in decline, which is likely to have had a negative effect on the profitability and have spoiled it.

Figure 4

Total assets weighted according to the values of profitability indicators



Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

Liquidity (L)

Liquid assets include Cash and deposit accounts at the Central Bank, Interbank deposits, as well as the Financial assets for sale.

Cash and deposit accounts at the Central Bank are the bulk of the Turkish banks' liquid assets. The Liquidity indicator informs you to what extent it can meet its short term liabilities with short term assets. The higher the index value is, the more liquid a bank can be considered. The results of the Liquidity indicators are shown in the *Table 5* and *Figure 5*.

Table 5

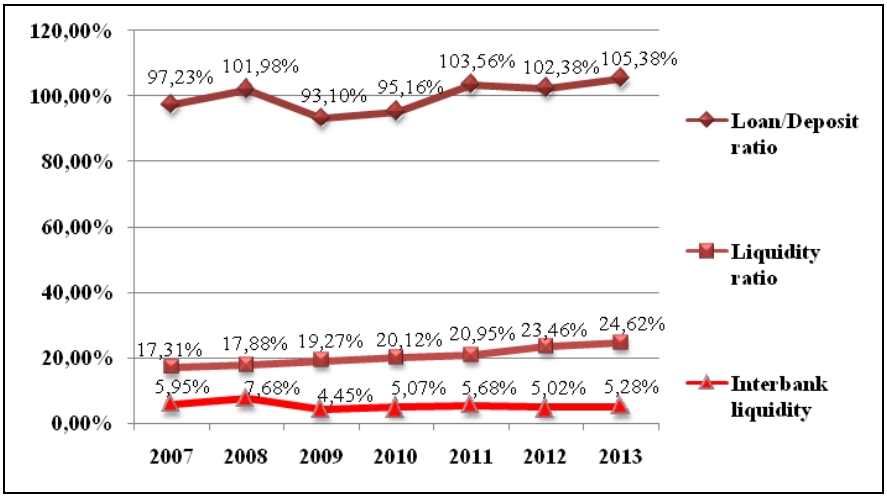
Results of the Liquidity indicators

	Liquidity ratios		Credit / Deposit ratio		Interbank liquidity	
	Average	**Mark**	**Average**	**Mark**	**Average**	**Mark**
Albaraka	20.53%	1	92.03%	1	10.05%	2
Asya	18.87%	2	100.67%	1	2.15%	4
Kuveyt	23.82%	1	98.66%	1	8.60%	3
Turkiye	19.06%	2	105.98%	2	3.72%	4

Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

Figure 5

Weighted values according to the total assets of the Liquidity indicators



Source: Based on *Annual Reports of the Turkish Islamic banks*, 2007-2013

We get a fluctuating picture of the changes of the liquidity of individual banks. The increase and decrease in liquidity may be justified by the changes of banks' liquid assets. In the case of Islamic banks the increase in liquidity can be explained by the rise in Cash and Central Bank accounts.

The Turkish Islamic banking system is on the rise in collecting deposits. The tested banks collected more and more funds each year.

The Banks' business policy is indicated by the Loan / Deposit ratio. In the years between 2011-2013 and in 2008 the index was 100%, which is above the healthy limit, which meant that the Islamic banks were on aggressive business policies, that is the size of the loans exceeded the value of deposits, which was a liquidity risk.

In order to get a picture of Islamic banks in the interbank position, Interbank liquidity ratios were calculated. At the majority of Islamic banks the interbank

deposit shows a changing trend. Based on the results they are likely to believe that customer deposits occur faster than bank deposits.

It is clear that the liquidity ratio increased slightly, but the Loan / Deposit ratio was variable, but also slightly.

Therefore, for the qualification of the Turkish Islamic banking system we classified various factors, and then the results were averaged (*Table 6*). The end result, according to the results of the banking system is 1.90, that is rounded to 2, which is good, which means that basically it is a good banking system, there are only a few problems.

Table 6

Results of the Turkish banks CAMEL analysis

	C	A	M	E	L	Average
Albaraka	2.00	1.33	2.00	1.33	1.33	1.60
Asya	1.33	2.33	3.00	1.67	2.33	2.20
Kuveyt	2.00	1.67	2.33	1.67	1.67	1.87
Turkiye	2.00	1.33	2.00	1.67	2.67	1.93
Average	1.83	1.67	2.33	1.67	2.00	**1.90**

SUMMARY

After the 2008 economic crisis, special attention was given to alternative financing techniques, and so to Islamic banks.

The stability of the Islamic banks was higher than the stability of the conventional banks during the crisis, that is why the Islamic bank sector tries to expand its market share not only to Islamic countries but to Christian countries, too. The market share of the Islamic banks increased by 10-15% during the last few years. The experts expect the Islamic bank system to increase its assets by 21% yearly and to gain 70 million customers worldwide. (*Pavelka*, 2016)

Turkey's banking system consists of 49 banks, four of them operate according to the Islamic principles. The annual reports of the banks were used between the period 2007 and 2013 and we evaluated indicators of each banks and the banking system from the points of Capital adequacy, Asset quality, Management efficiency, Earnings and Liquidity.

In the case of the Turkish Islamic banking sector the following conclusions can be made after the examination of the data. The stability of the banks was not at risk, Capital adequacy is satisfactory.

The quality of assets is also said to be satisfactory. There was not significant increase in bad loans; the banks' assets are classified continuously.

With respect to the management - which is quite difficult to measure - revenue, expenses, assets and earnings indicators express the relationship. In this area improvement is needed, as quite high costs arise during operation.

Profitability is slightly on a deteriorating trend.

The liquidity can be said appropriate, as banks sought to have sufficient amount of liquid assets.

REFERENCES

Bajkó, A., Varga, J., Sárdi G. (2013): Rise of the Islamic Banking Sector In: Szendrő, K., Soós, M. (eds.) Proceedings of the 4th International Conference of Economic Sciences. 302-312. p.

Baka, I., Dancsó, J., Ligeti, S. Szarvas, F., Vágyi, F., Varga, J. (2012): Bankismeretek (in Hung.), Budapest : Tanszék Pénzügyi és Szolgáltató Kft., textbook, 44-62. p.

Cseh, B. (2014): A tradicionális vallási jog és a kodifikált állami jog együttélése. Az iszlám és a germán jogi kultúra a német területeken élő muszlim közösségekben (in Hung.), In: Drinóczi, T., Naszladi, G., Novák, B. (eds.) Studia Iuvenum Iurisperitorum 7. - A Pécsi Tudományegyetem Állam- és Jogtudományi Kara Hallgatóinak Tanulmányai, 15-33. p.

Pavelka, V.(2016): A török iszlám és a hagyományos bankrendszer összehasonlító elemzése (in Hung.), dissertation, Kaposvár University

Online Annual Reports of the Turkish Islamic banks:

Annual reports of Bank Albaraka 2007-2013: [online] <URL: http://en.albarakaturk.com.tr/investor_relations/detail.aspx?SectionID=Dr8Cw16dHGqYzoMeqx/jjQ==&ContentID=4oEu6KjEmU33gGZTiL4GkQ==>

Annual reports of Bank Asya 2007-2013: [online] <URL: http://www.bankasya.com.tr/en/investor-relations-annual-reports.aspx

Annual reports of Bank Kuveyt 2007-2013: [online] <URL: http://www.kuveytturk.com.tr/financial_information.aspx>

Annual reports of Bank Turkiye 2007-2013: [online] <URL: http://www.turkiyefinans.com.tr/en-us/investor-relations/financial-data-and-reports/Pages/annual-reports.aspx>

Annual reports of Participation Banks Association of Turkey: [online] <URL: http://www.tkbb.org.tr/research-and-publications-tkbb-publications-annual-sector-reports>

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AK PARTI GOVERNMENT VS. GULEN MOVEMENT RELATIONS

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ABSTRACT

The ruling Turkish Justice and Development Party (AK Parti) is often called Islamist or Islamic-rooted, since their accession to power in 2002, they have enjoyed the support of the majority of the Muslim communities of the country. These pious brotherhoods normally have a spiritual agenda and do not interfere with the political sphere. Unlike other groups, the Gulen Movement tried to establish close links with the political elite and later on to introduce their own elements into the democratic arena. Gulen, the founding preacher of the community named after him, created a large network of schools, dormitories and cultural venues and positioned his followers in important positions of the civil service. This "state in the state" parallel structure became more and more uncomfortable for the AK Parti government and decided to uproot it by closing down the Gulenist schools, Gulen's main source of revenue and centers of indoctrination. Operations from both sides have been common since the 17th December, 2013 when key government figures were put under arrest by Gulenist prosecutors. It is clear that after this conflict Gulenist distanced themselves from the Justice and Development Party, but political analysts are still unaware of their current political affiliation.

Keywords: movement, government, religion, politics

INTRODUCTION

The Turkish Justice and Development Party (Adalet ve Kalkinma Partisi, AK Parti), since its foundation and rise to power in 2002, has been representing the Muslim masses and the core Islamic values in a secular system. For this very reason, the AK Parti could successfully gather most Turkish Islamic communities and mystical brotherhoods. One of the largest of these communities, if not the largest one, used to be the Gulen Movement named after its initiator, Fethullah Gulen, a very authoritative Muslim preacher. Unlike most other Muslim groups supporting the ruling party, the Gulen Movement (or the Cemaat or Community as it is known to the Turks) has its own political agenda, therefore their aims might conflict with interests of the government. This conflict is very special in the sense that the members of the Cemaat secretly infiltrated into many important positions in the civil service.

Observing this clash resembling that of Quranic Habil and Qabil or Biblical Abel and Cain, one has the feeling that the participants are of the same origin, they all come from the early Turkish Islamic movements but have very different goals. Regarding their common origin, it is legitimate to wonder whether this "narcissism of small differences" (*Freud*, 1991) could be overcome or not. The aim of our

analysis is to demonstrate how it is possible to reconcile the two approaches: that of the AK Parti trying to build a society suitable for Muslims, and that of the Gulen movement focusing on the individual, which - due to a slow spiritual and religious transformation process - becomes a useful element of a future Muslim society. So, the AK Parti intends to change the society directly, the Gulenists take care of the Muslim individuals and by doing so, they indirectly form a society of practising Muslims. Despite the difference in the approach, both of them aim at creating an almost identical social structure. Obviously the partisans of the former one in Turkey are more numerous and the Gulenists are losing ground, so, if the open conflict continues in this way, the latter ones risk disappearing from Turkish politics and the sphere of civil society organizations and NGOs. We can assume that the ending of the dispute is in the interest of the Gulen movement, but its reunification with the mainstream Muslims is that of the whole Turkish nation. As far as our academic evaluation is concerned, we have to provide a methodology to strengthen this future national reunification in order to avoid inner discord at a time when Turkey is challenged by many political conflicts. and to prevent the destabilizing effects of external threats.

Who is Fethullah Gulen?

Fethullah Gulen is an influential Turkish religious figure, who was born in 1941 in the northern mountainous province of Erzurum. In his early ages, he got impressed by one Turkey's leading contemporary Muslim scholar, Bediuzzaman Said Nursi whose main work Risale-i Nur (Letters of Light) became one of the sources of Gulen's teachings such as inter-religious tolerance and dialogue, compliance with modernity, the importance of scientific learning and scholarship. Gulen managed to gather supporters first in Turkey, then in various other parts of the World as well. He used different means in order to promote his ideas. Already in the 1960's, Gulen took part in the People's Houses (Halkevleri) movement giving support to popular education, environment, women's and disabled rights. Later, he developed a large network of student dormitories, preparatory schools and cultural facilities and launched a certain number of religious and cultural events such as the "Olympic Games of the Turkish Language" aiming at fostering a solid Cemaat or Muslim community. This brotherhood was later named Nur Cemaat (Community of Light) reusing a key element of Said Nursi's ideas or Hizmet (Service), a central concept in the life of the Turkish Muslim groups. This Cemaat came to be known as Gulen Movement in the West.

Besides his religious and cultural missions, Fethullah Gulen is also firmly linked to the political sphere. Already in 1971, after the second military coup in Turkey, the political police arrested Gulen who – at that time – did not play any political role but gave sermons in a local mosque. The reason behind his arrest and the arrest of many other mosque speakers was to put pressure on practising Muslims throughout the country. The next year, Gulen was put under arrest once more and served a three year long prison term for his speeches. After the coup d'Etat of 1980, Gulen had to flee to the southern city of Izmir not to be arrested again. In the 1980's, the political consolidation permitted Gulen to become an acknowledged

journalist and to establish good relations with major political parties. Among his contacts one can find even prime ministers such as Turgut Ozal, Bulent Ecevit and Tansu Ciller. His movement started to grow slowly and many of his followers took office in the civil service. "Democratic openness in the 1990s prompted Gulen movement members to penetrate strategic state institutions in the judiciary, security and education sectors. The group began to exercise strong influence in society given its ownership of large education, media and cultural institutions, acting as a power with the government and prompting competition" (Thalji, 2014) between the group itself and the government. With the words of Ali Carkoglu, "the most significant difference of the Gulen movement compared to all other and earlier pro-Islamist conservative circles is their long-term investment in placing their cadres of sympathizers into the state bureaucracy. The movement is determined to follow an autonomous line of policy formulation and influence rather than just adopting a servant's role." (*Carkoglu*, 2014)

Gulen first visited the United States of America in 1992. Later, he used to return to that country quite frequently. After the 1997 postmodern coup and the degradation of his health, he decided to move permanently to the US where he lives in a huge palace in the state of Pennsylvania. An American journalist describes this place as follows: "the leader of what is arguably the world's most successful Islamic movement lives in a tiny Pennsylvania town called Saylorsburg, at the Golden Generation Worship and Retreat Center, otherwise known as "the Camp." The Camp consists of a series of houses, a community center, a pond, and some tranquil, woodsy space for strolling. From this Poconos enclave – which resembles a resort more than the headquarters of a worldwide religious, social, and political movement." (*Hansen*, 2014) The Turkish president, Recep Tayyip Erdogan frequently refers to him as the "Man of Pennsylvania" as Gulen opted for dwelling in that state. In the United States of America, his presence is a highly debated issue, while he argues that he stays there because his heart was operated several times by the specialists of the Mayo Clinic, an American health care service provider, his opponents think that he is supported by foreign forces and he serves foreign interests.

Gulen and politics

The Gulen Movement originally had good links with both sides of the Turkish political arena. For instance, Gulen was the one who led the burial prayer of Kasim Gulek, the Secretary General of the left wing Republican People's Party, but he had connection with the ruling AK Parti as well. The Nurcular (members of the Gulen Movement) were widely believed for a long time to support the conservatives with their votes.

As we stated earlier, in its methodology and in its approach to society and politics, there has been a visible difference between the Gulen Movement and the Milli Gorus or National Vision movement backing political Islamism and various political parties including the AK Parti since 2002. The Gulenists' ideal was the pious Muslim trained by the means of education and culture. "Up until the late 1990s, the Gülen and Milli Görüş movements were representing almost opposite

perspectives. The Gülen movement was focusing on faith service (iman hizmeti), by publishing magazines and books about Islamic faith, opening student housings and dormitories, and bringing business people together to fund this activities." (*Kuru*, 2007) The emerging Islamists at the same historical period wanted to create a society where Muslim principles prevail. "The Milli Görüş movement, however, was representing political Islamism in Turkey, by founding Islamist political parties." (Kuru, 2007) Some researcher even finds that in spite of the undeniable cooperation of this two spheres of Islamic and political activism, we can speak of collateral existence: "The Fethullah Gülen movement grew in parallel with the visibility of Islam in politics, i.e. the success of Islamist parties such as the MSP, RP, FP (Virtue Party), SP (Felicity Party) and, later on, the Muslim-conservative AKP. " (*Seufert*. 2014)

The ideological division between the Nur Cemaat and the ruling party was evident from that moment when the government decided to close down the so called preparatory schools in Turkey (*Table 1*), the split between the Nur Cemaat and the ruling party was evident. According to government sources, these schools were providing education for those willing to begin their studies at prestigious universities and preparing for their entrance exams – several times belonging to the Hizmet – in places of political and ideological propaganda and indoctrination.

Table 1

Number of centers run, students taught and teachers employed in Gulen's prep schools

Year	Centres	Students	Teachers
2000-2001	1,864	523,244	18,175
2005-2006	2,984	784,565	30,537
2010-2011	4,055	1,234,738	50,232

Source: *Thalji*

The AK Parti government started to speak about closing down these prep schools from the second half of the year 2012. The government argued that these schools were expensive and not accessible for everyone, all Turkish students should be able to get all the necessary knowledge to be accepted at good universities without paying an extra fee for it. The prohibition of preparatory schools spelled a possible disaster for the whole industry. Ahmet Tasgetiren, as a member of another Muslim community operating preparatory schools, a leading Muslim thinker and journalist, points out that a government is not entitled to intervene in the private sphere of individuals and companies. Foreseeing the upcoming conflict between the Cemaat and the government Tasgetiren pushed the idea that the issue could only be solved if the level of education improved increasing the necessity of preparatory schools. He ends his article by arguing: "if the contacts between the Cemaat and the government get wounded all social environments get wounded as well as the whole of Turkey." (*Tasgetiren*, 2012)

Open conflict with the government

In November 2013, the AK Parti government came to the final decision to abolish the preparatory schools. This step of the AK Parti government scandalized the Cemaat and an open letter was written by Fethullah Gulen published on the movement's controversial website, herkul.org. The name of this emblematic website regularly defended by Gulen, is problematic because "Her kul" in Turkish means "all servants of God", at the same time Herkul is the Turkish form of Hercules, the Roman name of the Greek divine figure of Heracles, a reference widely criticized in Turkey for not being Islamic. The above-mentioned writing entitled as "You will walk without stopping!" invites followers of Fethullah Gulen to continue to work in the Hizmet even though they might hear hideous things about its leader. (*Aljazeera Turk*, 2013)

On the 15th December 2015, the Turkish public was shocked when they learned that Hakan Sukur, the most famous football player of Turkish history, was an ardent follower of Fethullah Gulen. He had left the group of AK Parti in the Great Turkish National Assembly (Turkiye Buyuk Milli Meclisi, TBMM) and decided to keep his mandate to serve as an independent member of the parliament. In his open letter the practicing Muslim Sukur, who became a candidate on the personal invitation of Recep Tayyip Erdogan, explaining the reasons behind his resignation admitted that the ruling party succeeded in many fields but failed in attacking Hocaefendi (a name for Gulen used by his followers called by his adherents). Sukur says that he has been taking part in the Hizmet for twenty years and he describes their political activities as follows: "during the time of the referendum and the elections these honest persons supported the AK Parti government, ran from door to door, transported thousands of voters from abroad". (*Zaman*, 2013) Sukur in this quotation probably refers to the 2010 referendum on the change of the Constitution and when he speaks about transporting voters his reason for that is at that time Turkish citizens residing in another country were not entitled to vote unless they went home. Many Turks only proceeded to the border posts or airports where special voting polls were placed for them.

For Sukur, the Cemaat consisting of friends and supporters of the AK Parti until then became their enemies. If one considers what happened two days after Sukur's dismissal, one can say that it might have been only a prelude to the 17th and 25th December events when the main prosecutor of Turkey ordered the arrest of several people linked to the government including three sons of ministers (namely the minister of the interior Muammer Guler's son Baris Guler, the minister of economics Zafer Caglayan's son Kaan Caglayan and the minister of environment and urbanization Erdogan Bayraktar's son Abdullah Oguz Bayraktar.) Besides these persons, several famous businessmen were also pursued and even Bilal Erdogan, the prime minister's own son was also threatened to be put under arrest.

After these high tensions and the reactions of the government to which they called a mini-coup by the Gulen Movement, Fethullah Gulen wrote a peace message to the prime minister on the 4th January, 2014. Erdogan's response to this letter was clear: he was not ready to negotiate with a so called "parallel state" and he promised to restrict their opportunities. Using a recent secret service report, a new

operation started. On the 7th January, 2014 government loyalists arrested hundreds of police officers and civil servants who were believed to belonged to this state in the state.

The next episode in the row of conflicts is connected to the more and more uptight security situation near the border with Syria. On the 1st and 19th February, 2014 prosecutors and civil servants linked to the Gulen Movement searched two trucks in two southern cities of Turkey without the proper authorization from the national intelligence service. Those who were doing this search claimed that they discovered weaponry to be smuggled into the war-torn neighbor country. This move of the Cemaat prompted the re-composition of the Supreme Board of Judges and Prosecutors, as well as the re-organization of the police. Out of 260.000 Turkish police officers 1.000 have been dismissed and 4.000 were moved to other positions. The discharge of key judges and prosecutors - including Zekeriya Oz who played an important role in the Ergenekon trial judging the members of the so called Ergenekon conspiracy – continued in 2015, too. This means that the government operations against the presumed members and sympathizers goes on even at the time of writing this essay. The current accusations include the claim that the Gulen Movement put together an armed militia called Otuken after the name of the first Turkic capital in Central Asia.

The future of the conflict

The future of this conflict depends on how much the Gulen Movement would or would not erode in the near future. It is also evident that the Cemaat on its own is not powerful enough to form a successful political party. If it is so, would they vote *en masse* for an opposition party? The results of the 7th June, 2015 national elections show that this might be the most probable scenario with Gulenists gathering under the umbrella of the leftist-liberal People's Democratic Party, which is willing to represent all minorities, principally the ethnic Kurds (Halklarin Demokratik Partisi, HDP). Thanks to the Gulenist input "the Kurdish left has the opportunity to become a more mainstream actor in Turkish politics if the current dedication to the peace process is maintained and the Kurdish question is normalized. The three major parties – AK Party, CHP and MHP – cannot produce libertarian left-wing policies for various reasons." (*Celep*, 2014)

CONCLUSION

Our view, after presenting the main stages of this contention, is that the two parties, both the AK Parti side and the Gulenist side are centered on key personalities such Recep Tayyip Erdogan and Fethullah Gulen who are crucial to our proposed solution. A multiple conflict can be detected. There are three interpretations to what divides the AK Parti and the Hizmet, three levels, and we argue that the third might be the one leading to a certain compromise.

Detailing the three levels we have found that the first discontent is a conflict between world views, the two Islamic approaches: reforming the society in order to reform the individual or reforming the individual in order to reform the society.

This is the lowest level and the easiest discord to be solved. The second level is a conflict between two strong personalities, two bellwethers who are usually not ready to step back and divide the society. So, at the time of writing in July 2015, it is not feasible to side with both of them, Muslim Turks are forced to choose. This means that if the pacification of the personal conflict opposing them is not possible, other denouement is needed. The third level of the conflict is even more deeply rooted and linked to the secular nature of the Turkish Republic. In secular societies, such as the Turkish *laiklik system*, the spheres of religion and politics are strictly separated on one hand, but on the other, practising individuals might not follow the logic enforced by the government. In Islamic societies, the concept of *taqleed* is general and adopted by a large number of Muslims. Taqleed in Arabic means blindly following something or someone without looking for evidences from authentic sources. Taqleed works because of respect and the lack of knowledge. Muslims in their daily religious practice naturally require to follow a *mujtahid*, a scholar of religion and therefore do taqleed in praying, fasting or paying the compulsory alms, but it is not necessarily the case when it comes to politics. Muslims should question themselves how far they should go in their taqleed outside the field of religious jurisprudence. This includes also the opportunity of having separate religious and political leaders. Considering religious leaders, political advisers might lead to dissension or *fitnah* like the conflict forming the topic of our present paper. Knowing that fitnah is called by the Muslim holy scriptures worse than killing humans, no Muslim would oppose that this practice of taqleed in Turkish domestic politics should come to an end. We think that the Muslim circles and foundations in Turkey should limit themselves to spirituality, and politicians - using the core values of Islam or not - should not pose as religious leaders in order to break the situation of today in which parallel structures can be built and minds can be controlled.

To settle the dispute between the AK Parti and the Gulen movement, the government has to reduce pressure and favor the religious communities by giving them a chance to reach out to the people after the closure of the vocational schools, but the first step is the duty of Hizmet, even more as they are the ones who are losing ground. As the Hizmet tries to focus on the individual - as we mentioned earlier -, they have to educate the ordinary members of the Gulen Movement so as to distinguish between religious and political leaders especially since the submissiveness to two authorities, the government and the Community, which is clearly taught by Islam. As the holy book of Islam, the Quran says in the chapter n. 4. verse n. 59: "O ye who believe! Obey Allah, and obey the messenger and those of you who are in authority" (Pickthal, 1996) Many Muslims from the Hizmet think that in such a conflict obeying the government means betraying the religious authority, in our case Fethullah Gulen. This is the reason why even those who are unhappy with this political conflict are reluctant to quit the Community. One of the few who has already made this move is Munip Erdem who has known Gulen since 1968 when the latter one was a simple mosque speaker. (*Youtube*, 2014) The education of Gulenists would empower them, let them free choice in politics: they would get the chance in this way to decide whether they want to remain

conservative or really build a liberal Islamic alternative under the umbrella of the HDP, as we suggested in the previous point.

The Muslim brotherhoods are very useful in general in Turkish society by giving shelter, food or medical assistance as well as spiritual support to the needy, but at the same time they convey some secret teachings to their followers. Opening up this partly obscure world is the only way of avoiding a future movement of building parallel societies in Turkey.

REFERENCES

Afsaruddin, A. (2005): The Philosophy of Islamic Education: Classical Views and M. Fethullah Gulen's Perspectives. Islam in the contemporary World: The Fethullah Gulen Movement in Thought and Practice, Rice University : Houston, 1-26. p.

Agai, B. (2002): Fethullah Gulen and his Movement's Islamic Ethic of Education Critique. In: Critical Middle Eastern Studies, 11. 1. 27-47. p.

Akiner, N., Akbulutgiller B., Erkan G. (2014): Dershane Tartışması: AK Parti İktidarı ve Gülen Hareketi Arasındaki Uyuşmazlığa Dair Haber Söylemi. In: Sosyal Bilimler Dergisi. 16. 2. 87-113. p.

Aras, B., Omer C. (2002): Fethullah Gulen and his liberal 'Turkish Islam' movement. In: Middle East Review of International Affairs Journal 4. 4. 30-42. p.

Baskan, F. (2005): The Fethullah Gulen Community: Contribution or Barrier to the Consolidation of Democracy in Turkey? In: Middle Eastern Studies, 41. 6. 849-861. p.

Carkolu, A. (2014): Turkey Goes to the Ballot Box - 2014 Municipal Elections and Beyond. Brookings : Washington, D.C., 1-23. p.

Celep, O. (2014): Can the Kurdish Left Contribute to Turkey's Democratization? In: Insight Turkey. 16. 3. 165-180. p.

Esposito, J.L., Yavuz, H. (eds.) (2003): Turkish Islam and the Secular State: The Gulen Movement. Syracuse University Press : New York, 1-280. p.

Freud, S. (1991): Civilization, Society and Religion: Group Psychology, Civilization and Its Discontents and Other Works. Penguin : London, 1-384 p.

Gulay, E.N. (2007): The Gulen Phenomenon: A Neo Sufi Challenge to Turkey's rival Elite? In: Critical Middle Eastern Studies, 16. 1. 37-61. p.

Hendrick, J. (2013): Gülen: The Ambiguous Politics of Market Islam in Turkey and the World. New York University Press : New York, 1-292. p.

Mis, N., Ensaroglu, Y., Ulutas, U., Unay, S., Celik, Z., Caglar, I. (eds.) (2014): 2014'te Türkiye. SETA : Isztambul, 1-290. p.

Pickthal, M.M. (1996): The Meaning of the Glorious Qur'an - Explanatory Translation. Amana publications : Beltsville, 1-709. p.

Tittensor, D. (2014): The House of Service: The Gulen Movement and Islam's Third Way. Oxford University Press : Oxford, 1-272. p.

Toruk, I., Guran, M.S. (2014): 17 Aralık Sürecinde Türkiye'de Yaşanan 2014 Yerel Seçimleri. in: Türkiyat Araştırmaları Dergisi 36. 281-297 p.

Toruk, I., Olkun, E.O. (2014): Ekonomi-Politik Bağlamda Yaşanan AK Parti- Cemaat Olaylarının Türk Basınına Yansımaları: Yeni Şafak, Star, Zaman, Bugün ve Milliyet Gazeteleri Örneği. In: Türkiyat Araştırmaları Dergisi 35. 377-400. p.

Internet sources

Aljazeera Turk: Gülen'den cemaatine: Hiç durmadan yürüyeceksiniz [online] <URL: http://www.aljazeera.com.tr/haber/gulenden-cemaatine-hic-durmadan-yuruyeceksiniz>

Balci, B.: The AKP/Gülen Crisis in Turkey: Consequences for Central Asia and the Caucasus. Central Asia Policy Brief. 16 pp. 1-6. (2014) [online] <URL: http://www.sciencespo.fr>

Fekete, J.: A Gülen mozgalom tevékenysége a világban, különös tekintettel Délkelet-Európára. [online] <URL: http://www.mrtt.hu/>

Hansen, S.: A Guy Who Lives in Pennsylvania May Be Taking Down the Entire Turkish Government - A profile of Fetullah Gulen, the prime minister's greatest enemy. [online] <URL: http://www.newrepublic.com>

Kuru, A.: Changing Perspectives on Islamism and Secularism in Turkey: The Gülen Movement and the AK Party. [online] <URL: http://gyv.org.tr>

Onis, Z.: Monopolizing the Center: The AKP and the Uncertain Path of Turkish Democracy. [online] <URL: http://www.suits.su.se>

Seufert, G. (2014): Is the Fethullah Gülen Movement Overstretching Itself? A Turkish Religious Community as a National and International Player. In: SWP Research Paper. 1-31. p. [online] <URL: http://www.swp-berlin.org>

Tasgetiren, A.: Dershaneleri yazmak. [online] <URL: http://gundem.bugun.com.tr>

Thalji, M.J.: Prep Schools, Elections and AKP-Gulen Clashes. [online] <URL: http://studies.aljazeera.net>

Youtube (2014): Deşifre - 14.03.2014 (Münip Erdem / Eski Cemaat Mensubu) URL: https://www.youtube.com/watch?v=7XbEIiJqrU4>

Zaman: Hakan Sukur AK Parti'den istifa etti. [online] <URL: http://www.zaman.com.tr/politika_hakan-sukur-ak-partiden-istifa-etti_2184204.html>

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