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GAINING COMPETITIVE ADVANTAGE IN INTERNATIONAL BUSINESS ENVIRONMENT THROUGH SMART PRODUCTS AND SERVICES DEVELOPMENT

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Abstract: *This paper analyzes the role of smart products and services with the view of their impact on competitiveness of company in international business environment. The paper reviews the importance of systematic organizational learning and dynamic capabilities development for smart business activities and overall performance. Strategic planning is observed within regional business units and how the flow of feedback information creates advance level of expertise. The emphasis is on the cross-department interaction and knowledge transfer for extensive capabilities of products and services formation. The efficiency is obtained through future oriented flexible adjustments, alongside with component knowledge for total product quality and intense responsiveness. Relevant examples show how successful smart systems expand their complex business networks and how they reshape management structure in accordance with international market demand. Smart products and services progress is examined in terms of increasing long term competitive advantage in international business. Accumulation and deployment of crucial resources are viewed as a result of effective knowledge articulation and superior operating routines. The paper also evaluates current strategies and possibilities of new business models for smart organizational learning as a perspective source of sustainable development.*

Keywords*: international management, smart products and services, competitiveness, multinational corporations, profit, dynamic capabilities, strategic planning*

1. INTRODUCTION

Creating competitive advantage by placing smart products and by providing smart services is a modern approach to business of enterprises oriented to future business success in an international environment. Business strategies, organizational skills and an entrepreneurial approach to solving business problems are relevant to the new system of managing companies' development. Consideration of the learning process based on experience and finding alternative options is viewed through the concept of organization that continuously generates new knowledge. Smart products and services require advanced structure, decentralization of the parent company and decomposition of the value chain based on business functions. The role of strategic business units is also significant, as they are in terms of the knowledge-based economy viewed as centres of responsibility and feedback information. In this context, the flow of information and improving all product components individually create competitive advantage based on efficient adaptation to market conditions. Long-term relationships with subcontractors, together with the perspective of investment in foreign markets, develop new sources of sustainable development of enterprises.

Business units autonomy based on the principle of loose structure of the company encourages creative solutions and helps protecting innovative ideas for upgrading the existing production facilities. The theoretical framework suggests the importance of delegating authority to lower levels of management and informal communication with superiors from the parent company. Incremental improvements in the vertical value chain and diversification of production form the basis for successful development of smart products and services. Equal distribution of dynamic manufacturing capabilities and absorption of relevant management skills strengthen the competitiveness of the entire organization, with an emphasis on operation efficiency. Meeting the needs of consumers stands out as a very important area, as evidenced by the fact that users of smart products and services are given special attention by reconfiguration of the products during the design phase. Strategic decisions at the enterprise level are adopted in accordance with the needs of local markets, which implies the emergence of a dynamic framework of organizational evolution of resources, capabilities and knowledge. Support to production sequence by complex coordination of activities and inclusion of non-routine management decisions creates a strong competitive advantage of the company to the resource-based approach (Helfat & Raubitschek, 2000).

2. COMPETITIVE ADVANTAGE AND SMART PRODUCTS DEVELOPMENT IN CONTEMPORARY INTERNATIONAL MANAGEMENT

Business enterprises in contemporary conditions of intensive competition require a flexible approach to the organization of business processes and decentralization of business units on the principle of lateral communication. The growth of value for international consumers by disruptive access to integrated business operations imposes the necessity of realization of strategic business objectives at the level of technologically rounded units of the company. Products at higher processing level are becoming the source of competitive advantage, with a focus on more efficient use of operating capital, increasing inventory turnover ratio, reducing product obsolescence, strengthening the responsiveness of consumers and other relevant factors. The integration of domestic and global business operations is achieved by standardizing business processes, improving operational performance and efficiency by using "pull" strategy, with the aim of taking advantage of economies of scale and aligning the physical capital of the company with the needs of the local market.

By providing specific and advanced services, a company is focusing on the value that its products can achieve in a competitive market and a long-term relationship of trust with consumers. Modern business model is transformed from the business philosophy of "value is in the product" to the modern concept of "value in the service that the product provides", thus obtaining a "return value" from satisfied customers. For active participation of consumers in creating a generic value chain the term *prosumer* is used in international management.

In the context of strategic planning, orientation to stabilizing the business and better positioning in the market has resulted in the "outward-in" management approach in the movement from the analysis of external environment to the analysis and adjustment of the company's internal environment (Davenport, Leibold & Voelpel, 2006). Bearing in mind that in terms of global business discontinuity accurate predictions of future market trends are hard to attain, incremental improvements in operations and expansion of business opportunities are considered to be insufficient to create a competitive advantage in foreign markets. Consequently, new strategies are needed to encourage dynamic capabilities of enterprises on the basis of continuous learning about the needs of the open business system. The acceptance of complex and interdependent network of intra- and inter- relationships of the companies is necessary in order to adapt the product to specific and individual needs of consumers and to incite changes in the organizational sense.

The development of smart products and services requires a significant change in the strategic approach to business and reshaping of the phases in terms of evolving enterprise management. Data exchange between business eco-systems and external sources of competence serves as a platform to support new technological infrastructure of the company. Combination of data controlling and the possibility of remote supervision of business processes creates new opportunities for business optimization in a broader sense (Porter & Heppelmann, 2015). The variety of smart products and services is also cost-effective, bearing in mind that the software engineering tools are changing the physical components of the product. Special attention is given to the interconnected system of production, in which the placement of related products is based on the relationship of trust with subcontractors, with special emphasis on system interoperability.

Analytical approach to creating business databases strengthens the expertise and facilitates communication between business units. Shorter development cycles of new smart products and services affect the responsiveness of the local markets to the approach of production integration and differentiation, with an emphasis on continuous improvement of the modification process of new product. In addition, smart products are designed according to the concept of voluntary exchange of information, which fosters consumer loyalty, facilitating further analysis of user preferences (Cronin, 2010). A new attitude towards certain other external stakeholders also becomes prominent (Milicevic, 2014).

Holistic approach to business eco-system consists of an efficient joining of resources, cooperation with business partners, suppliers and consumers in order to educate the established business networks based on organizational values, dynamic capabilities and company profitability. The principle of entropy, which originates from the field of thermodynamics, can describe the loss during the process of knowledge and information transfer within the company, according to which the ability of a business model to provide competitive advantage will decline due to pressure from uncontrolled market forces (Davenport, Leibold & Voelpel, 2006). Consequently, business eco-system must be able to continuously adapt to new market conditions in knowledge-based economy, related to "increasing returns". Thus, in modern international business an enterprise is considered to be an integrated business entity if it is made up of separate business units, which often include operations in different industries.

Smart product can be viewed as a series of post-added features in the process of the development of production line, which increases its usability and functionality. In other words, the competitive advantage of smart products and services is viewed from the aspect of dynamic approach of value creation, as opposed to the conventional model of achieving competitive advantage on the basis of the final production program (Annacchino, 2007). This offers new opportunities for growth of companies with a high degree of adaptive capacity. Managers should aim at accelerated growth in profit per product unit based on the uniqueness of the product, while the scale of business should gradually grow with the tendency of decreasing fixed costs per unit. When creating competitive advantages of smart products and services worldwide, managers should take into account the complexity of internal and external influences on the international competitive advantage of firms and the essence of sustained competitive advantage (figure 1).

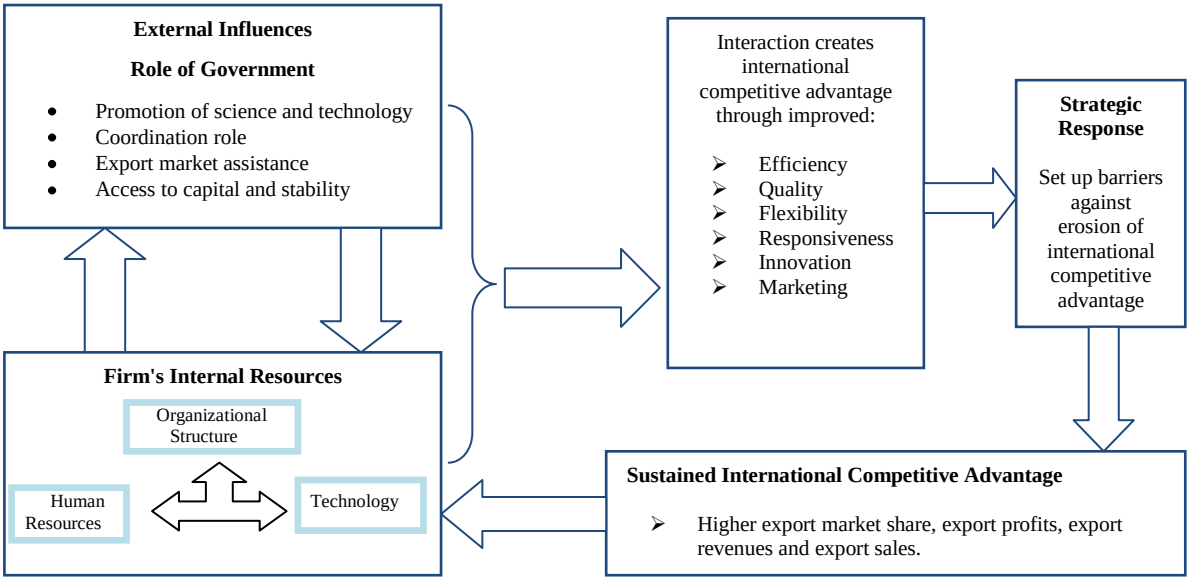

Figure 1: Internal and external influences on the international competitive advantage of firms
Adapted from: Chadee & Kumar (2001), p. 464

3. ORGANIZATIONAL LEARNING AS A SOURCE OF COMPETITIVENESS

Multinational corporations play a dominant role in present global market, considering the fact that the top 200 corporations combined sales were “bigger than the combined economies of all countries, minus the biggest 10” (Anderson & Cavanagh, 2000). This data implies the impact that globalisation has on all aspects of today's business landscape, and by that it emphasizes the importance of future intra-firm correlations. Here we must point out that the globalisation influences substitution of traditional assets in exchange for factors of paramount importance to the multionational corporations, where most crucial are technology, knowledge and capital (Demirbag & Glaister, 2010). These three factors are certainly the main causes for existence of competitive advantage. Nevertheless, they cannot be integrated into corporations operation processes if there is a lack of managing capability. According to that, the firm has to maintain and enhance its internal capabilities by learning from its own operations and by absorbing knowledge outside the firm (Andersson, 2003).

Capability can be defined as “the firm's capacity to deploy resources for a desired end result” (Capron & Mitchell, 2009). Therefore, it is essential to achieve quantity and quality overlap of these know-how and know-what sources. Several scholars have researched and empiricaly tested significance of capability transfer, as a genuine raison d'être of multinational corporations (Holm & Pedersen, 2000). Although there are various relevant studies that are built around premise of top-down capability flow (Porter, 1990), there are still only few studies concerning reverse-based relationship between headquarters and subsidiaries, especially in-between developed countries and countries in economic transition (McGuiness, Demirbag & Bandara, 2013). Giving the interest rate for this topic and its importance to firm's future organizational framework, it is vital to accentuate main reasons that could impact transfer of capabilities in a reverse based form. This contemporary management concept is particularly important for further smart products component development, as the dissemination of knowledge is used for establishing vital firm competencies.

Important aspect of capabilities development is subsidiary's absorptive capacity, which stands in correlativity with multiple factors. Furthermore, we can “assume that resources are limited, which means that the more engaged a subsidiary is in absorbing external knowledge, the less resources it is likely to allocate to interaction with its own sister unit” (Andersson, 2003). As a result, absence of developed transfer network generates knowledge-based diseqaulity, that eventually slows down integration process in foreign markets. Because of that, corporate management must be able to transfer available competence within subsidiaries, especially in market discontinuity conditions.

Even though empirical studies suggest that a transfer of capabilities is less difficult and more efficient within intra-organizational units (Zander & Kogut, 1995), some scholars specify several obstacles, recognizing that a transfer is not just an act, but a long-term process (Szulanski, 2000). On the basis of this empirical data, we can assume that “capability-development problems primarily arise from implementation difficulties, rather than from selection mistakes” (Capron & Mitchell, 2009). This acknowledgement refer us to several complex questions regarding intensity of intra-firm correlation and its effects on firm's productivity. Answers to these questions depend on the set of subsidiary characteristics.

High-order dynamic capability relevant for smart products and services strategies enables companies to develop lower-order partnering skills to manage different phases in alliances more efficiently (Kale & Singh, 2007). By accumulating and applying knowledge, organization deliberately articulate company’s know-how in order to undertake complex tasks more systematically. Considering managerial aspects of providing smart products to new business environment, it is especially significant to emphasize the role of knowledge sharing and personal interactions between individuals. Absorption of learning process is associated with extraction of valuable task-related skills that involve proactive usage of available resources. This process provides then more ability for internationalization mechanism to be applied. The focal point of coordination is to share best practices within the company, that result in competitive advantage obtained through dynamic model of strategic product sequencing.

Adapting business processes to changing market conditions requires explicit dynamic framework, that tracks stages of organizational evolution through time (Helfat & Raubitschek, 2000). Knowledge that integrates in several stages of vertical chain demands advance management of codified information about smart products and services and research on how they affect other activities in company. This mechanism allows company to gain knowledge about their customers’ needs and to give an upper hand for associated business activities. By doing so, company may introduce diversified portfolio of products and services in a separate market and therefore enhance horizontal expansion (Huang, Chang & Henderson, 2008). The possibility for replacement products utilization of manufacturing techniques and previous integrative knowledge could also lead to economies of scope, explaining how two systems of learning function within production sequencing. If separated, these two system would consist out of incremental learning and step function learning (Helfat & Raubitschek, 2000).

Incremental learning is referred to as a dynamic capability process in which company gains competitive advantage from accumulation and deployment of resources (Zollo & Winter, 2002). The systematic enhancement of intangible resources increases company’s flexibility to set up smart services for new customers. In the value creation chain intuiting and interpreting acquired knowledge are essential elements at a micro level. Furthermore, it should be pointed out that incremental learning does not depart from current knowledge, but it emphasizes contemporary alterations of products and services with a view to generate growth of cumulative volume. Hence, customer can easily provide information about products characteristics and performances, which could be directly linked to business process modification and flexible adjustments strategy based upon clients’ feedback. Thereby, incremental learning is becoming more path dependant and user oriented as specific products and services evolve (Kvalshaugen, Lowendahl, Skojlsvik & Fosstenlokken, 2006). With regard to product sequencing over the period of time, existed, assimilated and applied knowledge is underlying the smart product while there are closely linked to one another. The expected outcome is effective interdepartmental communication that results in progress of core capabilities for smart organizational evolution. Some companies, as for example *Suzlon Energy Limited* (Indian wind energy company), even reorganize entire business divisions by creating “operation and maintenance service” that allow them independent growth in different market of the world, which further promoted flexible approach (Backović, Ilić & Milićević, 2016).

In accordance with difficult challenges of new international business environment, some markets demand learning based upon on-going feedback mechanism that signal potential need for rethinking major areas of supply chain. Thus, step function learning involves recognizing the permanent dedication to merge core and integrative knowledge in order to reshape smart products and services in initial development phase. It is obvious that “one-size-fits-all” solution is not available, considering that adjustments are made during production process and that they are creating substantial differential company’s success. By obtaining

information about shift in customer desires, alongside with benchmarking of competitors, organization effectively adapts to product sequencing within markets and across the value chain. A richer set of real options and product platforms form superior system of learning that is highly differentiated due to path dependence of new product and service learning process (Helfat & Raubitschek, 2000). Following these patterns, short term competitive advantage is converted into long term company's success. Co-evolution of reshaped knowledge and smart products in technology-intensive industries is a foundation for fundamental resource and capability expansion into different product markets. The logic behind this assumption relates to note that product is divided into multiple components that are analyzed individually under the architectural knowledge of various production stages (Zott & Amit, 2008).

Integrated circuit technology, as a basis for semiconductor chips, was a beginning of component knowledge which is emphasized across the vertical chain. This enables management to recognize potential threats and opportunities in the new business environment and to use tacit knowledge to conjoin organizational mechanism. Smart structures are developed from current system to understand the causal ambiguities surrounding a new technology, and are brought up to the forefront of strategic planning thinking. The new insights suggest that it is vital that major part of those capabilities stay within the company, as empirical studies indicate that greater outsourcing for business process enhancing technologies lowers a firm's integrative capabilities and performance in the market (Weigelt, 2009). Effective operating routines that involve experience accumulation, knowledge articulation and knowledge codification, alongside with superior operating routines of acts of creativity are sources of competitive advantage for extended period of time (Zollo & Winter, 2002). The degree of causal relationships clarity is also relevant for performance implications of specific subtasks actions.

A coherent organizational structure interact with the numerous learning patterns, which is why it is significant to avoid distorted versions of knowledge exchange, especially during managerial decisions for new product markets. Stable and reliable infrastructure is highly beneficial for companies with a high proportion of export sales from digital and remote-controlled services, that allow downstream activities to be offered independent of location (Lerch & Gotsch, 2015). The intangible assets have far-reaching consequences for customer oriented solutions, so it is expected they will create an external digital environment with the view of competitiveness increase. Gaining advantage will emerge from more customized products and services and intensive responsiveness on local markets. Managing value based activities in collaborative business networks through application of ecosystem models configurates company to continually sustain and reinvent itself to satisfy the multiple objectives of its various stakeholders (including shareholders) (Davenport, T., Leibold, M. & Voelpel, S., 2006). In order to compete in a well-defined industry, smart learning company has to construct disruptive business approach that magnify differences for discovering new ideas in dynamic nonlinear systems. Therefore, "an enterprise should simultaneously manage a family of incubating (being formed), experimental (being tested in the market place), and significantly reinvented (e.g., incrementally innovated) business models" (Davenport, Leibold & Voelpel, 2006).

4. THE RELEVANCE OF SMART PRODUCTS AND SERVICES FOR SUCCESSFUL INTERNATIONAL BUSINESS

Smart products and services built on dynamic capabilities and continuous learning process are difficult to imitate and create signature components for outstanding level of profit and, consequently, long term effectiveness. Well developed, idiosyncratic systems exclude a threat of innovation diffusion to other companies by constant modification of guiding strategies and policy. Entrepreneurial activities within dynamic capabilities are conducted by "identifying undersatisfied demands and mobilizing resources in such a way as to profit from satisfying them" (Teece, 2014, p. 335). It is important to highlight that these capabilities are not influenced by purpose of the product or service itself, but can be reused for similar purposes. The exceptional value for well-delineated tasks is what distinguishes smart strategies from ordinary one. Several advanced examples point out the relevance of smart products and services for competitive advantage and successful internationalization of core business activities.

Netflix, as one of the most successful online movie rental services in the world, revolutionized the movie rental business model, capturing approximately 33.3 million subscribers and offering nearly 100.000 movies and other entertainment videos to their customers (Hitt, Ireland & Hoskisson, 2009). Facing emerging competitors called "video on demand" business networks where the movie is viewed in real time, Netflix creates its competitive advantage by providing high quality smart services to clients for below average costs (18 US$ per subscriber), establishing partnerships with video recorder companies, investing vast amount of financial means for online advertisements and by running ads on the mainstream media networks (Hitt, Ireland & Hoskisson, 2009). Because Netflix is an online entity, it must have capability and foresight to manage extensive growth to maintain its stronghold position. Considering rapid expansion of its distribution

network, Netflix has an ability to compete effectively and to provide quick deliveries to dramatically growing subscriber base.

Sony Corporation is an impressive example of well-coordinated subsidiary initiatives and lucrative managerial actions, as parts of wider strategic context of devoting special attention to most successful regional business units and promoting functional and operational autonomy. Sony's management converted product-centred networks into solution-oriented companies by regrouping them into seven companies and allocating resources under the new management platform (Frynas & Mellahi, 2015). With the strategy of integrative learning called "four-network gateway", Sony managed to combine hardware and service businesses so that subsidiaries as centres of excellence could, with innovative products and fast paced information feedback, effectively control this over-diversified conglomerate company. Radical restructuring of divisions enforced cross-department collaboration and break down of the barriers between independent units. Sony removed overlapping business processes and focused on high growth businesses, such as UHD, 4K and 3-D technology, while forming two major groups inside the company: the "Consumer, Professional and Devices" group and "Network Products and Services" group (Frynas & Mellahi, 2015). Sony's step function learning has established strong link among smart products and services found on feedback from consumers, feedback from partner companies and integrative knowledge that facilitate these advantages. With products such as Smart Tennis Sensor, smart B-Trainer and SmartWear Sony has integrated several vital functions for inspiring ways of exploring new connection and communication devices (Sony Corporation, 2016). Sony's smartphone "Xperia" strategy rethinks flagship devices introduction to meet market requirements and to reach outstanding performance in midrange price section.

Integrating various features into smart products and services as a management tool for promoting overall production quality and reducing maintenance costs has been key to success of Huawei Technologies. Set up from a three-level technical support system, Huawei is a Chinese telecommunication company that offers total network products and end-to-end solutions based on its experience in technology and applications (De Toni, 2011). The most important component for Huawei regarding customers' needs is its application specific integrated chip. Highly skilled managers are committed at the two ends on research and development and market needs, representing typical knowledge-based firm. Huawei also gives special effort to promote component based system of interactive learning and to simplify the organizational structure and thereby to put an end to technology "leakage". Regional headquarters are established as a business philosophy of developing national industry instead of focusing on joint ventures with foreign investors (De Toni, 2011). Sustaining superior performance in fast moving global environment and transformational leadership are of great importance for Huawei's business identity. It is important to emphasize that Huawei is an example of outstanding diversification, having in mind that it is seeking to reduce their reliance on mobile phone industry and to increase strength in adjacent markets. "FusionSolar Smart PV Solution" incorporates accumulated knowledge and expertise in digital information technology, Internet technology and PV (Photovoltaics) technology. Huawei supports investors to maximize return on investment and other financial ratios within the solar power plant life cycle by enabling high-speed components applicable to various environments (Huawei Technologies Co. Ltd, 2016).

5. CONCLUSION

The analysis presented in this paper shows the significance of the development of smart products and services to a modern company, with special reference to the conditions of international business environment discontinuity. Investing in the business processes of technologically advanced systems is a challenge for the international management and imposes the need for adapting the basic functions of business to the new, holistic concept of creation. Free and efficient flow of knowledge between highly differentiated strategic business units generates competencies based on adaptive and proactive organization's ability to continuously evolve. Disruptive business models effectively allocate and employ resources to upgrade components of smart products and connectivity of services portfolio. Strategies of incremental and step-function learning have special significance for the stable growth of production, adapting services to the needs of users and gaining competitive advantages. Dynamic development opportunities depend on the change management and the ability to timely market products and services.

Research in the context of modern international management of smart products and services indicate the emergence of an integrated approach to understanding the capabilities of the company. Further development and technological completeness of strategic and regional business units is expected, where interactive relationship based on knowledge economy will have a major role in increasing the efficiency of the business entity as a whole. The decentralization strategy with clear restructuring will establish the necessary degree of autonomy in local business markets, with control by the parent company. Flexible customization of smart products and services to the needs of international consumers will create long-term stability of

companies' growth, focusing on the competitiveness derived from the improved management actions and commitment to preserve the existing benefits of the products and services, but also to create new advantages in international terms for future success.

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INTERNATIONAL SOURCES OF FUNDING ECONOMIC DEVELOPMENT

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Abstract: *In order to obtain economic growth and development, developing countries have implemented certain models, policies and funding. The aim of this paper is to analyse international sources of funding economic development of Serbia for the period 2005-2014. The structure and influence of international sources of funding (FDI, loans, aids, remittances) on the economic development of Serbia have been analysed. The results show that there is no statistically relevant influence of FDI on economic growth and development, that remittances have no influence on economic growth, but have certain positive effects on some components of economic development. Financial aids and loans have positive influence on economic growth and development in the short run. Apart of international sources of founding, there is a need for domestic sources for obtaining economic growth and development in the long-run period.*

Keywords*: economic development, international sources of funding, remittances, foreign direct investments, Serbia*

1. INTRODUCTION

Process of development in developed economies has been long-lasting and very complicated. These economies have obtained a high level of development in all fields: economic, political and social. On the other hand, most developing countries have not obtained such level of development. These countries are trying to find a way to obtain economic development more quickly and to decrease the gap in development between them and developed countries. Due to different levels of development of countries and complexity of economic development process, each economy should choose and implement suitable concept of development depending on their resources and possibilities.

There are different theories, models and policies of economic growth and development. Economic growth is considered to be a prerequisite for obtaining economic development. The two categories are mutually interrelated. In order to achieve a higher level of development, certain policies have to be implemented in order to obtain economic growth. The increase in national production, or economic growth, can be achieved by using resources more efficiently, or by increasing the resources, i.e. implementing new resources and technologies. Economic growth implies the growth in Gross Domestic Product, and thereby the growth of GDP per capita, which causes better standard of living. There are also some changes in allocation of the obtained income. Increased production, along with structural, institutional and other economic transformations brings to the economic development. That is why obtaining economic growth results in the increased level of economic development, which then results in the increased economic growth. Obtaining higher level of economic growth, the economic growth rate becomes more stable and lower. Developed countries have stable and low economic growth rates. Developing countries have the same aim. At the beginning of implementing economic reforms, developing countries achieve high rates of economic growth. Efficient use of resources and the foreign capital inflows lead to the increase in production which generates a higher level of income. Higher income enables higher saving, which is the basis for future investments that will influence economic growth and development. Obtaining economic growth and development in developing countries is related to choosing the appropriate model, policies and sources of funding. The aim of this paper is to analyse the influence of international sources on funding the development of Serbia for the period 2005-2014.

The paper includes following sections: Introduction is followed by Section 2 which provides an overview of economic growth and development theories. Section 3 provides an overview of sources of funding economic development. Section 4 is dedicated to the overview of economic development of Serbia, while Section 5 provides the analysis of structure and influence of international funding sources on economic development of Serbia. An overview of the achieved results is provided in the Conclusion.

2. THEORIES AND MODELS OF ECONOMIC GROWTH AND DEVELOPMENT

Economic development represents a progress in economy. Economic development is a slow, multidimensional and coherent process (Kragulj, 2014) directed towards the "improvement of living standard, greater availability and distribution of basic goods and services like food, shelter, health and protection, and expand range of social and economic choices available both individuals and nations (Todaro and Smith, 2009)".

After goals have been defined, there is a need for defining strategies and theories of economic growth and development. There are various strategies and theories of economic growth and development. Depending on the availability of certain resources, economic growth and development strategies can be based on: natural resources, labour or capital. Economic growth implies certain structural changes where the share of agriculture decreases in favour of industry and services sectors. Therefore, strategies can be based on the strategy of industrialisation or the strategy of agriculture. Furthermore, there are other criteria for defining strategies, according to which there can be strategies of balanced or imbalanced development, the strategy where state and market play dominant roles, the strategy of intensive and extensive development, opened or closed strategies, saving or consumer oriented strategies, etc.

If we consider the theories of growth and development, they can be divided into classical and contemporary theories. If we analyse only the growth theories, there are three basic groups of theories – classical, neoclassical and endogenous (Cypher and Dietz, 2009). Some growth theories, depending on the period of their application can be classified as a subgroup of certain theories of development. Each of the growth theories recognises certain economic factors that influence obtaining economic growth. Classical growth theory is related to natural resources and population. According to this theory the use of capital and labour increases income per capita, but population growth decreases it. Neoclassical growth theory explains that growth in gross domestic product per capita depends on technological changes that influence saving and investment, which further increase income per labour. If a country has a fast technology development, it will also have a high rate of economic growth, unlike the countries with the slower technology growth. Endogenous growth theory is based on innovation and knowledge. The theory is focused on human capital, which represents the entirety of knowledge, skills and competences of the employees in an economy, and which is the basis for increasing production.

According to Todaro and Smith (2009), classical models of growth and development are: 1) linear-stages theories, 2) structural-change models, 3) international-dependence revolution, and 4) neoclassical counter revolution: market fundamentalism. 1) Classical theories of growth and development recognize growth as the process of successive stages of economic growth. Each economy should undergo the successive stages in order to obtain economic growth through the mixture of saving, investments and foreign aid. Most frequently explained linear-stage theories are *Rostow's stage of growth* and *Harrod-Domar growth model*. The major limitations of these theories are that saving and investment are not a sufficient condition for obtaining economic growth. 2) One of the most popular *structural-change models* is Lewis Theory of development, i.e. the Lewis two-sector model. This theory focuses on structural transformation in underdeveloped economy. Economy consists of two sectors – traditional and modern sector. In the traditional agricultural sector there is surplus labour force that is transferred into the modern industry sector. Labour transfer and the increase in production and employment in the modern industry sector is the basis of this model and is determined by industrial investment rate and capital accumulation in the modern industry sector. *3) International-dependence revolution models* show that developing countries have dependence and dominance relationships because of institutional, political, and economic rigidities. These models see "developing countries as beset by institutional, political, and economic rigidities in both domestic and international setup" (Todaro and Smith, 2009). These models stress out the need for the policies that will decrease poverty, create new opportunities for employment and decrease income inequality. In developing countries, 4) *Neoclassical counter revolution: market fundamentalism* emphasises freer markets, dismantling of public ownership i.e. privatization of public enterprises and government regulation of economic activities. In addition to these activities, the model also recognizes other possibilities for obtaining economic growth like promoting free trade and export, drawing foreign investment and greater accumulation of capital as a consequence of decreasing influence of the state on the prices of goods and services and on financial markets.

Some of contemporary models of development are: 1) The Big Push and 2) Kremer`s O-Ring Theory of Economic Development. 1) *The Big Push theory* shows that market failures can be overcome by public policy. Furthermore, for development there is need for huge investment particularly in industry and infrastructure. 2) The basic idea behind *Kremer`s O-Ring theory* is that production requires a series of activities that should be done well in order to output obtains high value. Kremer`s O-Ring theory of economic development shows that development consists of a series of tasks, i.e. different economic processes that have to be interconnected. There have to be strong complementarities among economic processes. Beside

the mentioned classifications of theories, there is the classification of economic growth and development into – linear stages theories, balanced growth theory, theory of secular stagnation, the Gerschenkron effect and innovation growth theory.

3. SOURCES OF FUNDING ECONOMIC DEVELOPMENT

The role of the government in a developing country is to coordinate and make economic decisions in order to transform the economy and obtain higher level of development. Achieving economic growth and development depends on the source of funding. There are domestic and international (external) sources of funding. The basic sources of funding are – borrowing from IMF, the World Bank or other international organisations, various aids, domestic or foreign capital, especially foreign direct investments, and taxes.

Furthermore, sources of financing development could be divided into these categories: 1) accumulation and allocation of capital, 2) domestic saving and 3) external source of financing. 1) *Capital* could have different forms like: financial capital, capital goods, human capital, and natural resources. Regardless of the form of capital, the increase of capital and its efficient use remain the prerequisites for obtaining economic growth and development. Capital increase is through investments that are necessary for increasing production, productivity and growth. It is necessary for economy to properly allocate capital in order to achieve good economic performance and progress in the long run. 2) *Domestic savings* are the main source of financing investments at the level of individual economies. Savings represent a voluntary refraining from consumption in the present in order to achieve greater consumption in the future. If there would be no savings, but all the income would be placed into current consumption there would be no growth, but stagnation. Domestic savings depends on the amount of GDP per capita and the rate of national savings. Saving is a future investment that will lead towards economic growth and development. Within domestic saving, there is private and public saving. Private saving belongs to households and companies, while public saving can be positive or negative, depending on what is bigger – government revenues or expenditures. i.e. whether there is a budgetary surplus or deficit. Therefore, it can be concluded that savings finance investments, while budgetary revenues finance government expenditures.

External, i.e. international sources of financing are 1) foreign direct investments (FDI), 2) portfolio investment, 3) banks loans/ lending, 4) public international capital (Cvetanović, 2000; Dragutivnović et al., 2005), 5) foreign aids and 5) remittances. The inflow of foreign capital is determined by the return rate and/or risk. Capital inflows cause the increase in domestic savings, thus creating more funds available for investments and due to that, the rise in economic growth. High capital inflows increase total saving which brings to interest rate decrease and investment increase. It is necessary for developing countries to direct domestic investments that are financed by foreign funds in an adequate way. Otherwise, a debt crisis may appear if interest rates and dividends are not duly repaid to foreign investors. 1) Attracting *foreign direct investments* is one of the key issues for developing countries. The experience of some developing countries, especially transition countries, shows that FDI is an important driver of economic development. Campos and Kinoshita (2010) point out a strong connection between economic reforms (privatisation, financial and trade liberalisation) and FDI. FDI may have both positive and negative effects on economic performances. Positive effects of FDI are - generation of employment, raise of productivity, technology transfer, increased export and influence to obtain higher level of economic development (Parezanin et al., 2014). Due to that fact, developing countries try to improve many factors and policies that have influence on attracting foreign capital. Beside attraction of FDI, foreign portfolio investment has an important role in economic developing strategy. Portfolio investment is different from FDI. 2) *Portfolio investment* is composition of investment in shares, government and corporate bonds, treasury bills, different kinds of funds, deposits, etc. Composition depends on various factors, and one of the most important ones is risk. Portfolio investment diversification efficiently decreases risk, enables efficient allocation of resources and represents an important source of cash. Attracting foreign portfolio investment is connected to development of capital market in a way that if the market is well-developed, they can influence obtaining economic growth and development (Errunza, 2001). Most developing countries try to develop capital market to do market opening, regulation and liberalization. For example, Balkan stock market started trading in 1980 and continued until mid 1990s. The volume of circulation was quite small. Economic reforms (2000-2006) first affected financial sector. On average, stock prices on stock markets in Balkan countries increased over 70% in dollar terms (Kenourgios and Samitas, 2011). Market development causes foreign portfolio investments become more important source than debt, which is one of the major ways of funding in developing countries. Durham (2004) analysed the effects of FDI and foreign portfolio equity investment on growth and found that there is no direct effect on obtaining economic growth, but "the effects of FDI and foreign portfolio equity investment are contingent on the 'absorptive capacity' of host countries, with particular respect to financial or institutional development".
3) *Bank loans* are a form of lending where loans are provided by certain interest rates to a foreign country, institution or company. Such loans are usually granted by bank associations or a group of banks in order to

reduce risk. Bank loans provide more independence to the country or company that was granted the loan as for how the funds will be used. It is easier for a developed country to be granted a loan, because of a high level of political stability, lower risk, developed market and stable currency. 4) *Public international capital* is the most favourable source of capital inflows in developing countries. This form of financing refers to lending and borrowing between governments. Such capital flows are under direct government control. They are used to maintain credit stability, export and import financing or financing projects. 5) *Foreign aid* is international transfer of money, goods or technology in the form of aid that does not have to be given back, or as a transfer in the form of loan, where debt repayment terms (interest rates and repayment period) are much better than commercial terms. There are two basic types of foreign aid: a) public official bilateral and multilateral development assistance and b) private unofficial assistance provided by nongovernmental organizations. Donors, i.e. developed countries provide aid primarily due to political, economic or strategic interests, while donees, i.e. developing countries, receive aid for economic reasons. There are different views on effects of such aid. Some studies indicate that there are positive effects of foreign aid on structural changes and economic growth, while others show that there is no positive influence on obtaining economic growth through foreign aid. Edwards (2014) analysed the effectiveness of foreign aid. He claims that foreign aid tends to create dependency, fosters corruption and encourages currency overvaluation, but on the other hand foreign assistance should be increased in order to reduce poverty. OECD provided a term Official development assistance (ODA) that measures aid. Official development assistance (ODA) "is defined as government aid designed to promote the economic development and welfare of developing countries". ODA includes concessional loans and grants. ODA loans and grants are providing low-interest, long–term and concessional funds to finance the development in developing countries. ODA loans require repayment, and supervision of the projects financed by ODA, thus promoting the efficient use of the granted loans. 6) *Remittances* are increasingly important for poverty reduction, obtaining economic growth and development due to migrations. Remittances are associated with monetary gains and human development in the areas such as health, education and gender equality. Remittances that are transferred in developing countries are almost three times greater than official development assistance. It is estimated that in 2014 developing countries' remittances amounted to $ 427 billion. Remittances are greater in smaller and low-income countries (The World Bank, 2014). Remittance increase gains more and more importance in the international capital flows, especially in the countries with lots of migrations.

4. SERBIAN GROWTH AND DEVELOPMENT MODELS

Economic growth and development in Serbia rests on domestic demand, import and need for foreign funds. In the period 2001-2008 the economic growth average was 4.9% annually (Izvestaj o razvoju Srbije, 2010). When "Europe 2020" strategy was adopted, Serbia established a new economic growth model for Serbia 2020. The new model of economic growth changed from consumer-oriented to pro-investment and export-oriented. The growth of this new strategy is based on the reform of the public sector, economic restructuring (reindustrialization, development of agriculture, telecommunications and information society development) and infrastructure development. The main aims are – increase in employment, human capital improvement, investing in knowledge and technology, export-based growth, efficiency in energy use and poverty reduction. However, accomplishing such objectives depends on – fixed investment increase, reducing the share of public consumption in GDP, increasing the share of export in GDP and decreasing deficit of the current account (Jednak et al.,2014).

Since the end of the global crisis, Serbia has run tight fiscal policy in order to obtain economic recovery. Economic growth is mostly driven by investments. The greatest investments were in automobile and oil industry. Those two industries had a big impact on export and growth. It was projected that economic growth for 2015 would be about 0.5 % (the World Bank), and in 2016 the plan was to reach 1.8 %. According to National Bank of Serbia (2015), economic growth could be obtained by "monetary policy relaxation, business climate improvement, structural reforms and external demand recovery". Economic growth was also the result of new investment loans that pushed up private investments. Investment loans were 2.5 times higher in 2015 than in 2014. Besides, investment loans increased FDI inflows. In 2015 FDI inflows were 45.6 % higher than in 2014. Attraction of FDI was the consequence of implementation of structural reforms and better business and investment climate. External imbalance was reduced due to export increase. Internal imbalance was improved because of reduction of pensions and wages on one hand, and better collection of revenues, on the other hand. Lower interest rate should lead to recovery in lending activities i.e. rise in demand for loans. During the time, similarly to all the other countries, economic growth and development In Serbia was financed by the government, banking sector, financial markets and investors. External sources of financing, especially economic FDI and loans are considered to be crucial sources of Serbian economic growth and development. However, remittances are more and more important.

5. STRUCTURE AND INFLUENCE OF INTERNATIONAL FUNDING SOURCES ON DEVELOPMENT IN SERBIA

International sources of funding, such as FDI, remittances and official development assistance (ODA) have been significantly increased during the past few years, and more attention has been paid on their influence on economic development (Driffield and Jones, 2013). International financial institutions are of particular importance for financing economic development in developing countries (Dreher and Gassebner, 2012; Kanbur and Sumner, 2012; Greenhill et al, 2013).

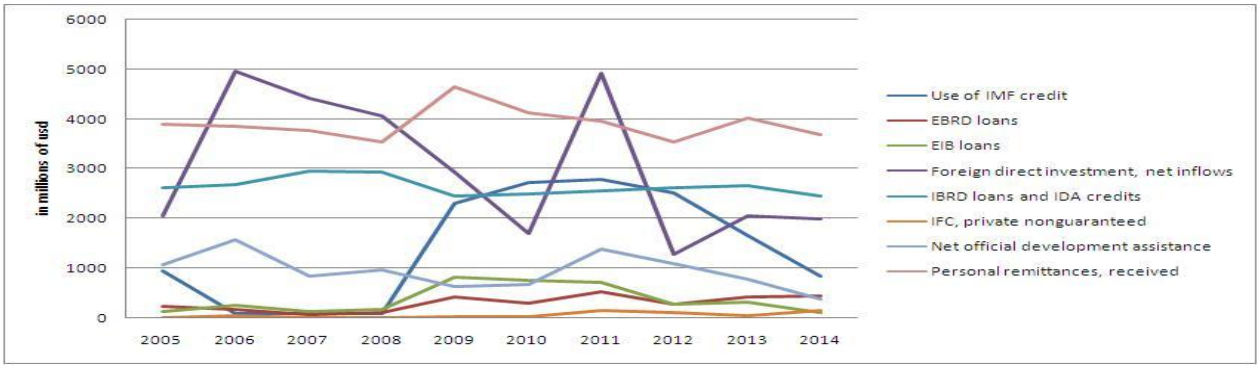

Figure 1: International sources of funding in Serbia (2005-2014)

Figure 1 represents the structure of international sources of funding in Serbia for the period 2005-2014 (European Investment Bank, 2016; European Investment Bank, 2016; the World Bank, 2016). The inflows of the IBRD and IDA loans are relatively constant. IMF borrowing started to increase at the beginning of the 2008 crisis, but since 2012 loan amounts have been decreasing. The loans inflows granted by other international financial institutions and from Official development assistance (ODA) is significantly lower. Such form of financing demands additional costs such as loans and losses due to changes in foreign exchange rates (Seiber, 2013).

It can be noted that FDI and remittances dominate throughout the observed period. However, the inflow is not constant. Remittance inflows peaked in 2009, but afterwards they decreased each year to reach their lowest level in 2012. Remittance inflows slightly increased in 2013. FDI showed significant fluctuations throughout the entire observed period. The greatest inflows were recorded in 2006 and 2011, and the lowest income was recorded in 2010 and 2012. In the periods 2008-2010 and 2012-2014 the remittance inflows surpassed the FDI inflows.

Remittances cause two kinds of effects. If they are capital-oriented, then along with FDI and foreign aid they can be significant for the long-term economic development. However, if remittance inflows are primarily used by households to alleviate short-term financial problems to finance consumption, then remittances do not influence economic development, but significantly increase living standard of the citizens in that country. There are certain cases though, when due to the increase in consumption, remittance inflows can influence long-term economic growth, even if they are used by households (Morton et al., 2010).

5.1. The Influence of Foreign Direct Investments and Remittances on Economic Development

Since FDI and remittances dominate in the structure of international funding of economic development in Serbia, it is necessary to determine whether there is a correlation between the mentioned sources of funding and economic development of Serbia. The following variables are used as the indicators of economic development: GDP per capita, unemployment rate, population (the World Bank, 2016) and HDI (United Nations Development Programme, 2016).

In the observed period (2005-2014) there was no statistically relevant correlation between FDI and economic development. Similarly, there was no statistically significant correlation between remittances and economic growth indicators (Table 1).

Table 1: Correlation between FDI net inflow / Personal remittances and GDP per capita, unemployment rate, population and HDI (2005-2014)

		GDP per capita	Unemployment rate	Population, total	HDI
Foreign direct investment, net inflows	Pearson Correlation	0.039	-0.306	0.447	0.222
	Sig. (2-tailed)	0.916	0.39	0.195	0.538
	N	10	10	10	10
Personal remittances, received	Pearson Correlation	-0.061	-0.172	0.097	-0.209
	Sig. (2-tailed)	0.868	0.634	0.789	0.561
	N	10	10	10	10

In order to discern whether these are the consequences of the global economic crisis or a long-term trend which indicates that there is no statistically significant correlation between FDI and remittances, and economic development in Serbia, the observed period was separated into two sub-periods - period 2005-2008 and the period after the economic crisis 2009-2014. The influence of the global economic crisis on the correlation between FDI and economic development is evident in almost all countries of Southeast Europe (Kragulj and Parežanin, 2015).

Table 2: Correlation between FDI net inflow / Personal remittances and GDP per capita, unemployment rate, population and HDI (2005-2008)

		GDP per capita	Unemployment rate	Population, total	HDI
Foreign direct investment net inflows	Pearson Correlation	0.424	-0.215	-0.544	-0.004
	Sig. (2-tailed)	0.576	0.785	0.456	0.996
	N	4	4	4	4
Personal remittances, received	Pearson Correlation	-0.972*	0.993**	0.950*	0.885*
	Sig. (2-tailed)	0.028	0.007	0.05	0.115
	N	4	4	4	4

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

In the first observed period there is no statistically significant correlation between FDI and the chosen indicators of economic growth. However, there is a significant and strong correlation between remittances and economic growth indicators (Table 2). A significant positive correlation exists between remittances on one hand, and unemployment rate, population and HDI on the other. Strong negative correlation exists between remittances and GDP per capita, which means that remittances and economic growth are almost perfectly negatively correlated. Such observations are in accordance to the research (Barajas et al., 2009; Aggarwal, et al, 2011; Bettin and Zazzaro, 2012) that discuss negative correlation between remittances and GDP per capita in certain developing countries.

Table 3: Correlations between FDI net inflow/Personal remittances and GDP per capita, unemployment rate, population and HDI (2009-2014)

		GDP per capita	Unemployment rate	Population, total	HDI
Foreign direct investment, net inflows	Pearson Correlation	0.604	-0.011	0.238	-0.213
	Sig. (2-tailed)	0.204	0.984	0.649	0.686
	N	6	6	6	6
Personal remittances, received	Pearson Correlation	-0.111	-0.914*	0.771	-0.816*
	Sig. (2-tailed)	0.834	0.011	0.073	0.048
	N	6	6	6	6

*. Correlation is significant at the 0.05 level (2-tailed).

Throughout the observed period 2009-2014 no significant correlation between FDI and economic development was recorded. There was, however, a significant negative correlation between remittances and unemployment rate, and remittances and HDI. Throughout this period there was a decrease in remittance inflows into the Republic of Serbia, but there was also an increase in unemployment rate as compared to the previous period.

6. CONCULISION

Slow economic growth and drop in domestic demand caused stagnation in economic development and demand for additional capital. External sources of funding are significant for economic development of Serbia. At the beginning of economic reforms implementation, capital inflow contributed to economic growth and development. In the period 2005-2014, FDI showed downward tendency, except in 2006 and 2011 when the highest inflow was recorded. Low FDI inflows resulted in the fact that in the period 2005-2014 they had no influence on economic growth, and consequently on economic development. Constant remittance inflows are used for final consumption, therefore increasing purchasing power of the population. There was a significant influence of remittances on certain components of economic development, but there was also a negative correlation to economic development in the period 2005-2008. Therefore, we cannot talk about positive influence of remittances on economic development.

Financial lending (loans, grants and credits) and, aids and assistances provided by international financial institutions can influence financial development of Serbia, but only in the short run. However, if this way of funding continues to exist in the long run, it can cause a significant outflow in the form of debt repayment and losses caused by variation in exchange rate. Another issue arises when such approved funds are used for financing current government expenditures. Many credits were granted by international financial institutions to build infrastructure objects. Nonetheless, few infrastructure objects have been realised so far, and Serbia is still among the countries with underdeveloped infrastructure.

Implementation of the new economic growth model in Serbia has yielded some results. It is clear that long-term growth of Serbia should rest on clear development policies. FDI should be a dominant source of international funding and it should be primarily export-oriented. Although some important incentives have been provided to encourage foreign investments, underdeveloped infrastructure and low purchasing power of population make Serbia a less attractive investment destination, which currently prevents it from achieving a more significant level of economic development through external sources. Economic development should be funded from foreign sources, but domestic sources should be used as well.

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TRANSFER PRICES - AN INSTRUMENT FOR BOOSTING COMPETITIVENES OF MULTINATIONAL ENTERPRISES

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Abstract: *In the era of globalisation and growing interdependence of the world economy, multinational enterprises are achieving competitiveness in the global markets due to their widespread and efficient distribution network and intra-firm transactions. Transfer prices are a tool that enables multinational enterprises to influence their level of profit in certain markets. Furthermore, they are able to redistribute the profit at the desired destination, thereby affecting their competitiveness, tax savings, operating results and volume of trade. Their intra-firm transactions cause an outflow of taxable income from one country to another. The paper will analyse the impact transfer prices have on boosting the competitiveness of MNEs and on redefining their business strategies against the backdrop of harmonisation of tax regulations.*

Keywords*: multinational enterprises, transfer pricing, competitiveness*

1. INTRODUCTION

The growing impact of globalisation has helped strengthen the position of multinational enterprises (MNEs) in the global markets. MNE expansion on the global level can be analysed from several economic aspects. Their biggest influence is reflected in the transfer of technology to developing countries and transition economies. Together with their growing trade volumes, this has lead to an increase in Foreign Direct Investment (FDI) inflow and to rising gross domestic product (GDP). MNEs are driven to expand into the new markets mainly by their desire to increase their market share and profits, receive a preferential tax treatment, and to compensate for the saturation of their home and existing markets.

MNE expansion into new markets and opening of new branches worldwide requires significant initial investments, and research of the market and local regulations. Many MNEs face serious legal barriers to establishment and entry of foreign capital. One such barrier is taxation of MNE's profits gained abroad. It is a well known fact that MNEs build their competitiveness in the global markets on the economies of scale and efficient production processes which depend on relocation of their production into labour-intensive countries. MNE's business processes are engineered to create savings by having transactions with associated enterprises within the regional or global group. Intra-firm trade within MNEs between their affiliates is based on pre-arranged preferential prices, better known as transfer prices. It makes sense for MNEs to apply transfer prices for transactions within group members, because this strengthens the competitiveness of the entire MNE. All MNEs defend this business model by citing business policies included in their articles of incorporation.

Many MNEs have recognised transfer prices as a tool that guides trade flows and relocation of capital to more attractive tax destinations. As transfer prices can influence net operating profit of an MNE in a given country, tax authorities in those countries have identified this channel of capital outflow as problematic and suspicious. To harmonise tax regulations in this area, Organisation for Economic Cooperation and Development (OECD) has provided a set of rules for testing and recognising these transactions, which both MNEs and tax authorities are required to adopt. While MNEs are striving to avoid double taxation of their global operations, it is in the interest of the local tax authorities to keep as much of the profit tax as possible in their own country.

Transfer prices are becoming an ever-growing challenge for both tax authorities trying to harmonise new regulations and for multinational enterprises whose main competitiveness tool is being scrutinised by the lawmakers. Harmonisation of international and local regulations does exist to a certain level, but is incomplete. The effects of differences between local regulations and OECD guidelines can significantly affect the changes in MNEs' business strategies. Due to application of rules on transfer pricing, MNEs may decide to relocate their business to a country where they enjoy better privileges and higher tax reliefs. Furthermore, MNEs are prompted to potentially manipulate transactions in order to optimise their expense and revenue levels in any case.

2. IMPROVING THE COMPETITIVE POSITION OF MNEs

Understanding the structure and the operational particularities of an MNE established as a corporate network of affiliates points to the main factors of profitability of multinational enterprises, (Cole-Ingait, 2015):

- *Price efficiency* in the production process and creation of the value chain, which ensures a competitive selling price. By integrating kindred production or marketing activities in one location, a lot of cost savings is achieved through economies of scale, and all this is achieved via transfer pricing.
- *Operational efficiency*, which entails integrated production processes, use of information technologies and strategic platforms to maximally cut wastage, production time and costs by applying transfer pricing.
- *Pricing strategy* involves an individual and proactive approach to price formation on a specific local market. Since it is impossible to unify the global market, in order to optimise sales volumes, MNEs resort to creating market-specific strategies. Their goal is to acknowledge the specific market conditions and adapt the products to those conditions, in order to optimise sales and profits.
- *International marketing strategy* whose objective is to overcome the cultural and local barriers when placing products or sending public messages of the multinational enterprise, thus creating a positive image of its brand across the markets. This approach provides also for global positioning and international brand recognition.
- *Production and distribution flexibility* allows multinational enterprises to satisfy customer preferences and maintain brand loyalty.

Local market imperfections help strengthen the competitive position of MNEs by allowing them (Wittendorf, 2010):

- to achieve economies of scale,
- through the process internationalisation, to manipulate the prices and tax burden on the local markets,
- through horizontal and vertical integration, to create competitive advantage for themselves and their consolidated enterprises,
- through vertical value chain integration, to reduce transaction costs,
- to use their bargaining power and price differentiation to create market entry barriers for new competitors.

It can be concluded that MNEs' competitive advantage is based on the economies of scale in production, financial channels available to them, research and development (R&D), as well as on the process of gathering market intelligence. MNEs are also in a much better position compared to local enterprises with regards to controlling their operating conditions, i.e. the ability to choose their business environment. For instance, when deciding on the location where they will manufacture their components, MNEs first carefully select countries with low wages that also offer the best incentives in the form of tax reliefs, subsidies and foreign trade benefits. The very size of MNEs relative to the economies they go into demonstrates how favourable their position is to influence the local authorities and benefit from that, compared to any other local company. Furthermore, MNEs can acquire any prosperous local firm and thus prevent having any future competition, just as it can apply other methods to limit exchange and increase their profit. Through greater diversification, MNEs manage to reduce the risk and usually earn a higher profit relative to local firms.

3. TRANSFER PRICES – ROLE AND IMPORTANCE

3.1. Transfer price definition

Transfer price (TP) is a price, i.e. the amount a company charges for goods, services and intangibles sold to a subsidiary or another associated company or natural person (Ljutić, 2014). When the transfer price deviates from the market price range at which independent entities trade, the profit gained by the buyer and seller is redistributed within the MNE. For example, when the transfer price of the seller is overpriced, the buyer's profit is reduced, while the seller's profit increases. The buyer reports higher expenses and lower profit, unlike the seller, who reports higher revenue and a higher profit. Though the profit has been dislocated at the local level, the consolidated profit at the level of the entire MNE group remains unchanged.

The previous example suggests that the transfer pricing policy for consolidated entities (within an MNE) is very important for achieving their financial goals. If these entities are highly decentralised, transfer prices are very important because they directly influence revenues and expenses, i.e. the distribution of the overall consolidated profit, as well as the transfer of profit between the consolidated entities.

When a group of associated persons operates at a national level, all group members operate within one country and under the same tax and market conditions. Application of transfer prices regulations has no tax

implications in this case, because the taxable income at the state level is the same, and the profit is transferred between associated persons, without affecting their consolidated profit.

When a group of associated persons operates on the international level, all group members operate under different tax and market conditions, and the profit is transferred via transfer pricing most frequently with the objective of reducing the tax liability (toward a jurisdiction with the lowest tax burden). This does not affect the consolidated profit within an MNE, but it does affect the level of tax burden for the individual MNE branch and tax revenues of countries in which each group member operates.

To prevent this allocation of the profit, and of the capital, tax authorities in most countries legislate how transfer prices are to be tested in order to establish whether the transfer price is close to the market range. This test entails that a transfer price transaction is to be compared with a similar arm's length transaction, i.e. a transaction between non-related entities:

- Internally, where MNE uses its own transaction with another, independent entity,
- Externally, where MNE uses the transaction of two other independent entities.

3.2. Controlled transactions

Controlled or intra-firm transactions are a common feature of modern operation and are generally manifested through transactions between associated entities. The main characteristic of controlled transactions is the absence of conflict of interest and the fact that they are made at transfer prices, which are pre-arranged and unaffected by external market factors. These intra-firm transactions can be of commercial (trade) or financial nature and they most frequently include:

- Selling or buying goods or production materials,
- Selling or buying property,
- Property rental,
- Delivery of services (IT services, management fees, marketing services, financial and consulting services, etc.)
- Transfer of intangible property (for instance research and development, trademark, licensing agreements),
- Guarantee, receipt or provision of financial services (loans and deposits),
- Joint investments etc.

Given that MNEs operate in jurisdictions with various tax rates and tax rules, the different transaction structures and intra-firm pricing policies may significantly influence the global tax burden of the entire MNE. Even in cases where there are no variations in tax rates, the possibility of double taxation still exists and poses a threat to an MNE's financial position. As transfer prices on their own require that a certain level of profit be made by both parties to the transaction, they play an important role in the decision making process of the parent company's general management with regard to assessing the potential profit of the business unit for the purpose of capital allocation. Apart from the general management, transfer prices are also of key importance for (Bronson, et.al 2013):

- *The MNE's tax department*, which is the one most affected by transfer prices. The tax department must be familiar with tax systems in different jurisdictions and reconcile them into a single transfer pricing policy in line with legal norms. Also, in exceptional circumstances, these departments are expected to prepare additional reports for tax authorities regarding their intra-firm transactions.
- *Financial department*, because the effect of the transfer pricing policy is reflected on the stated profit and on the tax on profit reported in financial statements. Whether an MNE is located in a territorial tax system where foreign income is taxed locally or not, transfer prices affect the general taxation of an MNE.
- *Company operations*, where the transfer pricing policy must meet the legal requirements of the environment. For an MNE not to jeopardise its tax burden, the MNE's tax department stipulates transfer prices that are within the market range and are thereby defendable before the tax laws of that country.
- *MNE's accounting department* is very important, because it confirms that the established transfer pricing policies have been properly implemented and ensures that the reporting system provides real information on transactions with associated entities, and in the required form for the purpose of transfer pricing analysis.
- *MNE's legal department,* because intra-firm transactions take place in accordance with intra-firm policies and agreements, which are generally regulated by the legal department.
- *Tax authorities* are mostly interested in the transfer pricing policy, because these prices directly affect the level of public revenue.
- *Independent auditors*, whose duty is to establish whether a company concerned has properly determined its profit tax. A part of that analysis definitely involves transactions with associated entities and transfer prices, because these are of material significance for operating profit.

- *External and tax advisors*, as many global and local consulting companies worldwide specialise in transfer pricing.

4. APPLICATION OF TRANSFER PRICING POLICIES IN INTERNATIONAL OPERATIONS

4.1. OECD guidelines

Taking into consideration the growing importance of transfer prices in MNE operations and their potential impact on tax systems, in July 1995, OECD Council approved the publication of *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations* (the Guidelines), compiled by the Committee on Fiscal Affairs (the Committee). The Guidelines are the key global regulation regarding the application of transfer pricing rules and tend to be periodically adjusted and updated to reflect the experience of the member states and the wider business community in application of these principles and methods. The Committee in conjunction with the OECD Council monitors the application of these regulations in most countries and takes care of their implementation and consistency. In essence, the Committee's monitoring role is to test the laws and practice of the member states against the Guidelines, to identify the areas of the Guidelines that could be improved and amended, and to notify the OECD Council accordingly.

One of the main principles contained in the OECD Guidelines is the arm's length principle, which represents an international standard established by the OECD member states for applying rules on transfer pricing for tax purposes. The arm's length principle follows the approach where MNE group members are treated as two enterprises operating independently, their agreed conditions are set aside, and market conditions valid for similar transactions are applied. When the separate entities approach is applied to MNE, and associated persons are treated as independent, the focus is placed on the nature of the transaction and whether it is different from a comparable non-controlled transaction. This approach is called a comparability analysis, which is in the centre of the arm's length principle.

The basis for comparability analysis is the comparing of conditions under which controlled and uncontrolled transactions are conducted and determination of profit when arm's length principle is applied. The first important assumption when comparing a market transactions and an arm's length transaction is that when assessing the conditions of a potential transaction, independent entities will take into consideration also other real options available on the market and will accept a given transaction only if they fail to find a more favourable alternative. This principle should also be applied by tax authorities when testing transfer prices. When testing comparability factors, it is vital to take into consideration real-world transactions realised between two independent entities.

When assessing the market reality of transfer prices, OECD Guidelines accept the following methods for testing:

I Traditional transactional methods:

1) Comparable uncontrolled price;
2) Resale price method;
3) Cost plus method;

II Transactional net-profit methods:

4) Transactional net margin method;
5) Transactional profit split method;

The objective of choosing one or a combination of these methods is to make it appropriate for the specific situation. Accordingly, one should bear in mind the advantages and flaws of the offered methods, their adequacy established through functional analysis, availability of data for their application, level of comparability between a controlled and uncontrolled transaction. No method is reliable in every potential situation, hence their applicability in a given test transaction needs to be proven.

4.2. Application of rules on transfer pricing in countries with preferential tax systems and rapid-growth markets

Repositioning a part of MNEs operation into jurisdictions with preferential tax regimes (JPTR) and rapid-growth markets, besides strengthening the competitive position and global risk diversification, is frequently motivated by financial and tax savings. From the viewpoint of transfer pricing policy and intra-firm trade between MNEs and their branches in those regions, various issues in applying the arm's length principle may arise. The key problem with rapid-growth markets and developing countries regarding transfer pricing

regulations is the absence of or lack of harmonisation of tax laws. This may lead to difficulties in applying the regulations in practice and eventually result in administrative costs for both the MNEs and tax authorities. In many developing countries the notion of determining transfer prices is still novel, and in some developing countries there is still no legal requirement to set those prices. The challenges the developing countries face when striving to implement OECD Guidelines in their regulations involve: absence of comparable entities and/or transactions in the market, insufficiently developed knowledge and skills in the area of transfer pricing, complexity of application due to absence of adequate administrative basis, growing importance of information technologies and new business models. This can create further problems for consolidated entities within MNEs with head offices located in developed countries having transaction with associated entities in developing countries.

The difficulties in applying the arm's length principle in jptrs and rapid-growth markets may be assuaged by establishing rules on tax havens for the mnes to follow, which would make transfer prices acceptable for tax authorities as well. A tax haven relieves a specific category of companies from paying some duties in exchange for fulfilment of other, simpler obligations. From the aspect of transfer pricing, requirements of a tax haven may range from a complete tax relief for a given group of taxpayers to the obligation for these companies to comply with national transfer pricing laws and different procedural rules in order to be allowed into the tax haven.

5. CONCLUSION

MNEs competitive position in the global business environment is primarily reflected in the sprawling network of MNE branches on the global market and their intra-firm trade. On top of providing for economies of scale, production efficiencies, specialisation, technology development and transfer, MNE influence the overall dynamics of global trade and shape the international business environment via intra-firm trade. Intra-firm trade at transfer prices has become a hallmark of globalisation, because it creates a powerful position for MNEs in the global and local markets. This power is primarily reflected in their ability to choose locations where they will operate and to use their dominance to influence local authorities to create a more favourable business environment. Their power is also reflected in their ability to use transfer pricing to diversify losses and tax burden, and consequently to increase their profit.

Because of these global implications, transfer prices have been in the focus of interest of international organisations, local tax authorities, MNEs and other stakeholders. Implementation of international regulations and OECD Guidelines in laws of the countries in question should limit the impact MNEs exercise via transfer prices. On the other hand, application of the rules on transfer pricing will persuade the MNEs to thoroughly plan the transfer prices they apply in intra-firm transactions, review their intra-firm agreements, and also to seek other mechanisms to optimise their consolidated profit.

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ROMANIA AND SERBIA – SIMILARITIES AND MAJOR DEVIATIONS FROM THE STATISTICAL PROFILE OF A GENERIC BALKAN ECONOMY

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Abstract. *This paper uses the statistical method of profiling in order to detach a few defining aspects of Balkan economies of Romania and Serbia in the context of the peninsula where they belong geographically, and by confronting economic and social performance. The article presents several profiles, in a methodical and structured manner, in an attempt to identify significant similarities and deviations from a generic profile of the Balkan country or economy of the two economic entities and neighbours, one of which has already been a EU member since 1 January 2007, and placed within an intense and converging process of integration, and the second one located at the end of a long process of accession to the same European Union. A special case between the profiles analyzed is that of the energy dependence of GDP and that of flows of exports and imports at a macroeconomic level depending on fuel prices in both Romania and Serbia, which is actually the very illustration of the complexity of the econometric profile as part of the method of the statistical profile in general.*

Keywords: *profile method, Balkan economies and countries, the Balkan Peninsula, economic gap, statistical confrontation*

1. INTRODUCTION

The Balkan area is not homogeneously defined in the literature, and the media themselves provide delimitations based rather on the geographical criterion, as well as demarcations primarily based on political, cultural and historical criteria. The etymology of the peninsula's name is linked to the Turkish word "balkan", which means "wooded mountain" (Griffiths, Krystufek and Reed, 2004). All these issues have induced the idea of a Balkan economy or profile, with special emphasis on studying Romania and Serbia, as targets declared in the very title of this paper. From a geographical standpoint, the Balkan Peninsula can be defined in two distinct ways: by convention, and considering the strict definition of a peninsula. By convention, it is generally considered that the peninsula is bounded, on the north, by the waterways Soca-Vipava-Krka-Sava-Danube. Given the geographical notion, as the easternmost of the three major peninsulas in southern Europe, the Balkans encompass the entire territory between the Black Sea and the Adriatic Sea (including parts of Hungary, the Republic of Moldova and the Ukraine).

From a political point of view, the term Balkans is sometimes used to refer to a limited group made up of several countries (http://www.state.gov/p/eur/rt/balkans/). Thus, the acceptation given by the US State Department, includes the Balkan states of former Yugoslavia (except Slovenia) and Albania. Also for political purposes, the European Union institutions use the term "Western Balkans" to refer to the Balkan states that are not members of the European Union (http://ec.europa.eu/trade/policy/ countries-and-regions/regions/western-balkans/). Starting from the geographical criterion, and also from political and historical criteria, it can be considered that the Balkan Peninsula (or the Balkans) includes Albania, Bosnia & Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Montenegro, Romania, Serbia, Slovenia and Turkey's European region. The Balkan states have a common history: their territories were included, in turn, in the Roman Empire, the Byzantine Empire, and later the Ottoman Empire. The Balkan Peninsula is the European region which had the most volatile borders: in the last hundred years alone they changed several times. Given that Turkey is located mostly in Asia, and also the fact that in point of area and population, it exceeds all the other Balkan states, we chose not to include Turkey in the analysis or the specific profile of a Balkan country.

If one takes into account the population and the size of the Balkan countries, they are generally small in both geographical and demographic terms. As far as the area of the Balkan states, it appears that most of them have less than 100,000 km^2. Romania is the only state with an area exceeding 200,000 km^2, followed by Greece and Bulgaria with an area of over 100,000 km^2. The only Balkan states with a population exceeding 10 million inhabitants are Romania and Greece. In keeping with their GDP, the countries with the largest economies are Greece and Romania, followed at a distance by Croatia and Bulgaria. Except for Greece, all the other countries included in this study belong to the group of the former socialist economies. The transition from socialist economy to a market economy occurred at different speeds in each country; the

transition has been influenced by a complex internal and external factors. Political instability and military clashes have seriously affected the economy of the states in the former Yugoslavia. The attractiveness of the Balkan states for investors was determined by their ability to provide guarantees of peace and stability (Redzepagić and Vukotić-Cotič, 2009).

The Balkan states share the link with the European Union: some states are already members (Greece, Slovenia, Romania, Bulgaria, Croatia), others have the status of candidates (Albania, Macedonia, Montenegro and Serbia) or potential candidates (Bosnia and Herzegovina). The results can be found in the literature of researches on the synchronization of business cycles in the Balkan countries with the European Union and European Economic and Monetary. The results of such research show that between the countries in the region there are great discrepancies, given the varying levels of economic development, and also the degree of integration with the EU or Eurozone economy (Gouveia, 2014). Tourism development is an opportunity for the sustainable growth of the Balkan states. Therefore, the governments of the states in the region have developed strategies for tourism development (Metodijeski and Temelkov, 2014). The precarious economic situation of most Balkan states has led to underfunding of education. Krstic and Dzunic (2014) state that “when it comes to education as a basis for the development of the knowledge economy, the Western Balkan countries Observed lag significantly behind the EU in terms of investment in education”.

The economic situation is also one of the causes of the demographic problems of Balkan states, alongside emigration and aging. Lukic et al., referring to the Western Balkans, shows that “depopulation is evident on the whole territory of West Balkans”. Pilc (2015) tries to identify common determinants of the shape of labour market institutions in a group of 25 post-socialist countries during the transition period. The author concludes that “the levels of political liberty, protection of property rights, international trade freedom and government expenditures did not appear to have influenced the labour market institutions in these economies”.

In economics literature the issue of the “reputation” of the region for investors is also tackled. Estrin and Uvalic (2013) examine whether one can talk about the Balkans exerting a negative effect on FDI given the image problems of the states in the region. The cited authors conclude that, in addition to the factors that are acting on FDI in other transition economies, in the Balkans there is also a negative regional effect.

2. METHODOLOGY, OR ABOUT THE METHOD OF STATISTIC PROFILE

In this paper we present and apply the profile method, which gives powers to permanently shape the real outer environment, of the educational, human, entrepreneurship, etc. milieu, as well as the country profiles. We consider that the statistical profile method is one of the simplest solutions that can be used successfully to analyse the situation and the perspectives of Balkan countries.

The new method of statistical profile is a statistical method of investigation and knowledge with a decision-making impact through which the function of information and decision is hypertrophied; the decision may be completely influenced by the profiles used to support the statistical confrontation or comparison. The typology of the profiles that can be used is very diverse, ranging from temporal or dynamic profiles to territorial or hierarchical profiles, from profiles of coordination defined by means of sharp differences, to profiles of intensity, from structural profiles, to average profiles, from profiles focused on extreme values (minimum and maximum), to demographic profiles, from econometric profiles to climate profiles or geographic profiles, etc. One can define various specific operations using profiles, from the intersection of some of them, to combining others, or the complementary of a profile, as operations similar to those in set theory. A standard profile comprises both a selection of the variables for building the profile, i.e. the subsequent operation to that of analysis of variance, and the final ordering of the variables of the profile in accordance with the values of the coefficient of determination, for the characteristics considered to be explanatory or assumed to be able to solve the emerging managerial problem that requires prompt decision-making. (Săvoiu et al., 2008). Along with the models and variables, even the methods can become multidisciplinary, in their use within several specific disciplines, or simultaneously within a multidisciplinary reality. As part of this picture, one can define methods that can be applied in a multidisciplinary manner, being able to implement the method or approach mostly in multidisciplinary areas” (Săvoiu G., Čudanov M., Vladu M., 2012, p. 36).

The relativity of the exhaustive type of knowledge, or that of comprehensive analysis, limitation or restriction as a result of the imperceptible presence of the unknown, they all permanently offer both analysts and practice-connected researchers, and also theorists, a chance to identify and seek new solutions, as the realm of the unknown never has precise limits or bounds. The limitation caused by the researcher’s or theorist’s abilities or skills is a millennial tribute serenely bought to those competent, and especially to their strict scrupulousness in assessing their own incompetence. In this respect the limits of their own competence and powers of the method of statistical profile are metaphorically highlighted by the traditional Confucian

recognizing reciprocity as an active management principle, being expressed synthetically by this formulation: "I remember the days when scribes left empty spots on the page…" (Confucius, in the *Analects*). If the essential means designed to conduct an act of research interpreted scientifically is the one provided by the method, then the limits conferred to analysis by the statistical profile method, used in this article, are all the more important: "We can study real things, palpable things, but if we do not study them in keeping with a rigorous scientific method, those studies are not science. It is not the object or the subject, but the method that determines science" (Odobleja, 1984). The argument of the conceptual simplification of the applied multidisciplinary method is given by the previous statements made by Ştefan Odobleja in 1984.

The approach based on the method of profiling could be considered also a synectic approach or solution. Gordon's *Synectics* is suitable and indicated for selecting a single instrument, idea, concept, method, etc., or for identifying an original solution, and generates stages that have already become classical in the innovative research processes: forming the synectic group of entities, presenting the hierarchy or modelling problem, setting the synectic itinerary, developing the problem solving model, and finally testing or validating and applying the model (Săvoiu et al., 2008; Săvoiu, Jaško and Čudanov, 2009).

From the analysis of the typology of the statistical profiles, given the inherent complexity of modeling, the macro-econometric profile emerges, mainly through identifying the level and the intensity of the energy dependence of GDP and import and export flows, on a macroeconomic level, depending on fuel prices in both Romania and Serbia. The econometric profile begins with correlation matrices and is completed by four successive models focused on fuel prices as an exogenous variable revealing the instrumental diversity existing within the statistical method in general. The databases used were mainly those available at World Bank http://data.worldbank.org/indicator/AG.LND.TOTL.K2, and also at ChartsBin, available on line at http://chartsbin.com/, and not least for the domain of energy and the dependence on oil and its derivatives (gasoline, diesel, etc.) available at https://www.giz.de/expertise/html/4282.html (offered to users by GIZ-International Fuel prices).

3. RESULTS AND DISCUSSION

First, the econometric profile of the energy dependence of the two national economies is presented. The profile of the dependence of Balkan economies on the cost of gasoline and diesel is relevant – the level of intensity of connections between GDP, export, import and fuel prices is high, i.e. above 0.75, with a trend of reaching near 1.00 value, especially in relation to the export flow (0.97-0.98).

The macro-econometric profile focusing on quantifying the intensity of energy dependence of Romania and Serbia (i.e. GDP and export and import flows, on a macroeconomic level), is based on the dynamics of fuel prices in the two economies. The interpolation was conducted by the method of average annual modifications, reconstructing, with some error (under 3%), a data series impossible to use in modelling and in drawing the profile confronted. The econometric profile method has recourse, as a first instance, to correlation matrices defined for the two economies (Table 1 and Table 2 for Romania to Serbia).

Table 1: Matrix of correlation (Romania)

	SER01	SER02	SER03	SER04	SER05
	Exports of goods and services	**Imports of goods and services**	**GDP (PPP-international $)**	**GDP per capita**	**Fuel price**
SER01	1.000000	0.968895	0.985179	0.969569	**0.964017**
SER02	0.968895	1.000000	0.966481	0.990420	**0.932306**
SER03	0.985179	0.966481	1.000000	0.981221	**0.961721**
SER04	0.969569	0.990420	0.981221	1.000000	**0.927678**
SER05	**0.964017**	**0.932306**	**0.961721**	**0.927678**	1.000000

Software used: E-Views

The econometric profile of energy dependence reveals four successive unique factorial competitive models with R squared values exceeding 0.86, and placed close to 0.93 in some the models typical of Romania. The econometric models that outline the profile of fuel price dependence, as an exogenous variable, are detailed in Table 3 for Romania and Table 4 for Serbia, and shows the diversity of existing tools part of the statistical method profile generally, and also the validity of the dependence on a level of intensity that is very high in statistical terms (the models are relevant in forecasts as well as scenarios or simulations correlated with expected developments on the market of oil resources, and especially fuels).

Table 2: Matrix of correlation (Serbia)

	SER06	SER07	SER08	SER09	SER10
	Exports of goods and services	**Imports of goods and services**	**GDP (PPP-international $)**	**GDP per capita**	**Fuel price**
	SER01	SER02	SER03	SER04	SER05
SER06	1.000000	0.963857	0.961261	0.953648	**0.950528**
SER07	0.963857	1.000000	0.965636	0.977119	**0.915656**
SER08	0.961261	0.965636	1.000000	0.939785	**0.969850**
SER09	0.953648	0.977119	0.939785	1.000000	**0.881686**
SER10	**0.950528**	**0.915656**	**0.969850**	**0.881686**	1.000000

Software used: E-Views

Compared to the econometric profile of the energy dependence of the Balkan economy in general, both Romanian economy and that of Serbia are placed on a high level of intensity of modeling, with a high forecasting and simulation valences, which must be capitalized in the medium and short term. The same thing has also been found through an approach based on statistical simplexity, however only with reference to the Romanian economy (Săvoiu, et al., 2015; Săvoiu, et al., 2016), and is reconfirmed for Serbia in a similar manner.

Table 3: Econometrical models based on fuel prices for GDP, Exports and Imports (Romania)

Dependent Variable: SER01 EXPORTS Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.26E+10	3.47E+09	-3.629917	0.0019
SER05 Fuel price	4.89E+10	3.18E+09	15.38515	0.0000
R-squared	0.929329	Mean dependent var		3.54E+10
Adjusted R-squared	0.925403	S.D. dependent var		2.49E+10
S.E. of regression	6.80E+09	Akaike info criterion		48.21307
Sum squared resid	8.32E+20	Schwarz criterion		48.31264
Log likelihood	-480.1307	F-statistic		236.7027
Durbin-Watson stat	1.257934	Prob(F-statistic)		0.000000
Dependent Variable: SER02 IMPORTS Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.03E+10	5.41E+09	-1.909530	0.0723
SER05 Fuel price	5.41E+10	4.95E+09	10.93659	0.0000
R-squared	0.869195	Mean dependent var		4.29E+10
Adjusted R-squared	0.861928	S.D. dependent var		2.85E+10
S.E. of regression	1.06E+10	Akaike info criterion		49.10087
Sum squared resid	2.02E+21	Schwarz criterion		49.20045
Log likelihood	-489.0087	F-statistic		119.6090
Durbin-Watson stat	1.186364	Prob(F-statistic)		0.000000
Dependent Variable: SER03 GDP Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.25E+10	1.48E+10	2.197634	0.0413
SER05 Fuel price	2.01E+11	1.35E+10	14.88979	0.0000
R-squared	0.924908	Mean dependent var		2.30E+11
Adjusted R-squared	0.920736	S.D. dependent var		1.03E+11
S.E. of regression	2.89E+10	Akaike info criterion		51.10953
Sum squared resid	1.51E+22	Schwarz criterion		51.20911
Log likelihood	-509.0953	F-statistic		221.7058
Durbin-Watson stat	0.762601	Prob(F-statistic)		0.000000
Dependent Variable: SER04 GDP PER CAPITA Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1287.249	678.5224	-1.897136	0.0740
SER05 Fuel price	6541.403	620.5706	10.54095	0.0000
R-squared	0.860586	Mean dependent var		5142.950
Adjusted R-squared	0.852840	S.D. dependent var		3463.541
S.E. of regression	1328.662	Akaike info criterion		17.31637
Sum squared resid	31776163	Schwarz criterion		17.41594
Log likelihood	-171.1637	F-statistic		111.1116
Durbin-Watson stat	0.901099	Prob(F-statistic)		0.000000

Software used: E-Views

As far as Serbia is concerned, the econometric profile of energy dependence reveals another four successive unique factorial models that are equally competitive, with R squared values exceeding 0.77, and placed close to 0.94 in some of the models.

Table 4: Econometrical models based on fuel prices for GDP, Exports and Imports (Serbia)

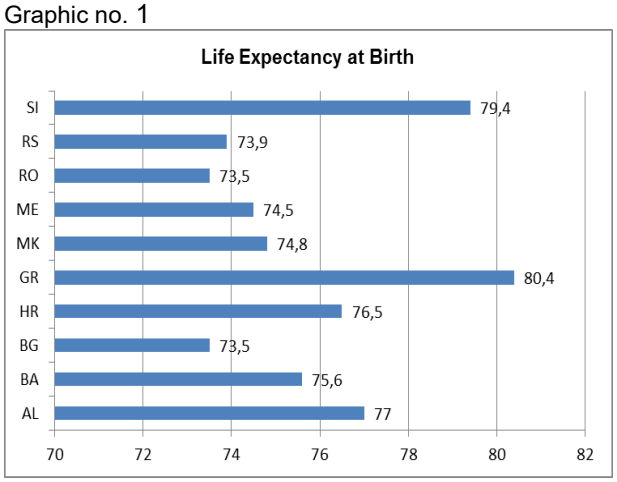
Dependent Variable: SER06 EXPORTS Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.18E+09	9.90E+08	-3.217642	0.0048
SER10 Fuel price	1.18E+10	9.05E+08	12.98212	0.0000
R-squared	0.903504	Mean dependent var		8.37E+09
Adjusted R-squared	0.898143	S.D. dependent var		6.07E+09
S.E. of regression	1.94E+09	Akaike info criterion		45.70248
Sum squared resid	6.76E+19	Schwarz criterion		45.80205
Log likelihood	-455.0248	F-statistic		168.5355
Durbin-Watson stat	1.107542	Prob(F-statistic)		0.000000
Dependent Variable: SER07 IMPORTS Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.38E+09	1.78E+09	-1.332665	0.1993
SER10 Fuel price	1.58E+10	1.63E+09	9.664573	0.0000
R-squared	0.838426	Mean dependent var		1.31E+10
Adjusted R-squared	0.829450	S.D. dependent var		8.45E+09
S.E. of regression	3.49E+09	Akaike info criterion		46.87887
Sum squared resid	2.19E+20	Schwarz criterion		46.97844
Log likelihood	-466.7887	F-statistic		93.40397
Durbin-Watson stat	1.227686	Prob(F-statistic)		0.000000
Dependent Variable: SER08 GDP Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.37E+10	2.73E+09	8.691018	0.0000
SER10	4.21E+10	2.49E+09	16.88415	0.0000
R-squared	0.940609	Mean dependent var		6.51E+10
Adjusted R-squared	0.937309	S.D. dependent var		2.13E+10
S.E. of regression	5.34E+09	Akaike info criterion		47.72846
Sum squared resid	5.13E+20	Schwarz criterion		47.82803
Log likelihood	-475.2846	F-statistic		285.0747
Durbin-Watson stat	0.879548	Prob(F-statistic)		0.000000
Dependent Variable: SER09 GDP PER CAPITA Method: Least Squares				
Sample: 1995 2014 Included observations: 20				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	713.0111	457.2398	1.559381	0.1363
SER10	3315.350	418.1875	7.927902	0.0000
R-squared	0.777370	Mean dependent var		3972.000
Adjusted R-squared	0.765002	S.D. dependent var		1846.979
S.E. of regression	895.3531	Akaike info criterion		16.52695
Sum squared resid	14429830	Schwarz criterion		16.62653
Log likelihood	-163.2695	F-statistic		62.85163
Durbin-Watson stat	0.942437	Prob(F-statistic)		0.000000

Software used: E-Views

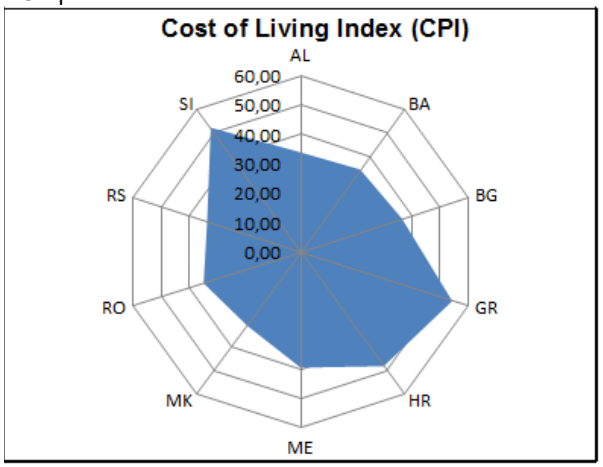
Detailed econometric profiles of Balkan entities (countries and economies placed within the area delimited in the introduction) are presented through representations in relevant graphical variants [Graphics no. 1 ÷ 10]. The statistical profile method applied to outline a Balkan pattern, and also some characteristic delimitations with reference to the economies of Romania and Serbia, succinctly reveals the following aspects through statistical confrontation of individual profiles in relation to the generic Balkan profile:

a) Synthetic evolution similarities in the Balkans (life expectancy at birth or LEB between 73.5 years and 80.4 years, and CPI within CLI between 31.10% and 54.50%):

Graphic no. 1



Graphic no. 2

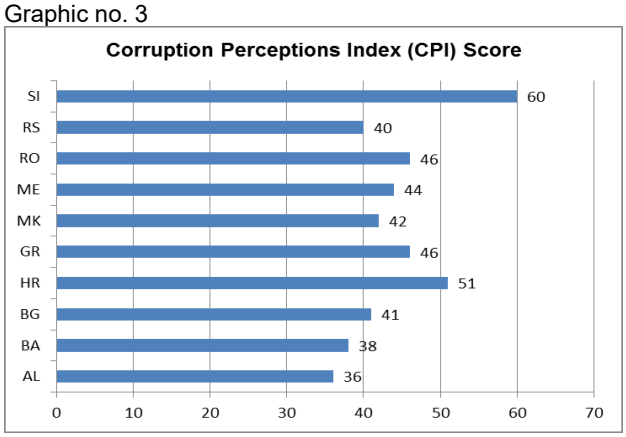


Sources: Life Expectancy at Birth in Years, ChartsBin.com, viewed 24th March, 2016, <http://chartsbin.com/view/33870> and Cost of Living Index 2016, ChartsBin.com, viewed 28th March, 2016, <http://chartsbin.com/view/39753>. Note*: RO and RS show very similar values in both statistical profiles (73.5 years and 73.9 years / 34.80% and 33.56%).

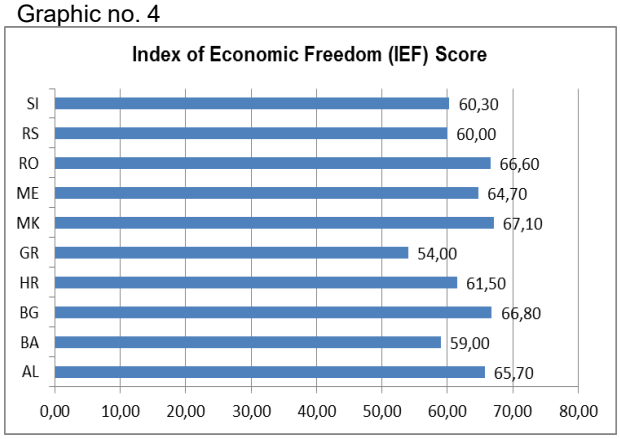
Cost of Living Index (CPI)

b) homogeneity in the Balkans in terms of Balkan profile of the population perception of corruption (8/11 of the populations of economies analyzed perceive a deep and aggravating internal corruption within a close interval between 36% and 46%, the CPI score being in inverse proportion to the minimum perception level, an index placed at 100%) and the profile of economic freedom (the range of variation is between 54% and 67.10%, with a low relative amplitude of about 20%):

Graphic no. 3



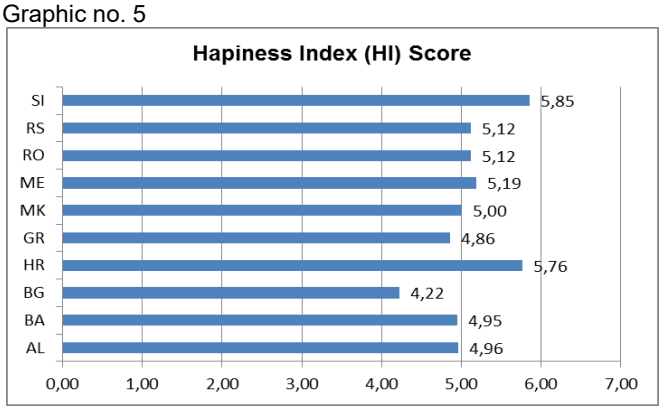
Graphic no. 4



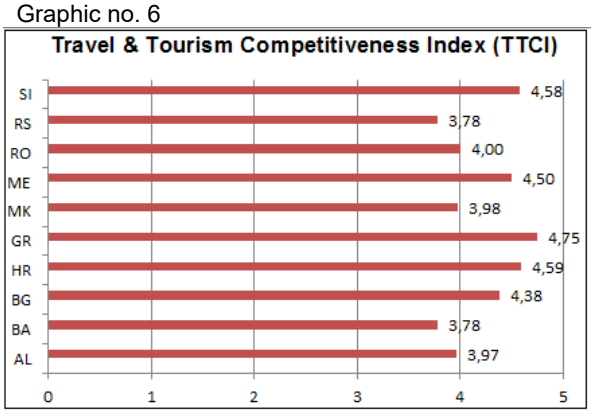
Sources: Corruption Perceptions Index 2015, ChartsBin.com, viewed 25th March, 2016, <http://chartsbin.com/view/38836>. 2015 Index of Economic Freedom, ChartsBin.com, viewed 24th March, 2016, <http://chartsbin.com/view/38591>. Note *: RO and RS show relatively similar values in these statistical profiles (46% and 40% / 66.60% and 60.00%).

c) significant structural or temporal deviations in relation to the average EU-28 or EU-15 level are identified in the generic Balkan profile concerning happiness (except Bulgaria and Greece, all other Balkan countries have a happiness perception index, HI, much higher than that of corruption or life expectancy perception, standing at a level 10% lower than life expectancy in the EU-15); again structural deviations, this time related to income, are a major cause of a very low TTCI, as compared to the EU-15 average):

Graphic no. 5



Graphic no. 6

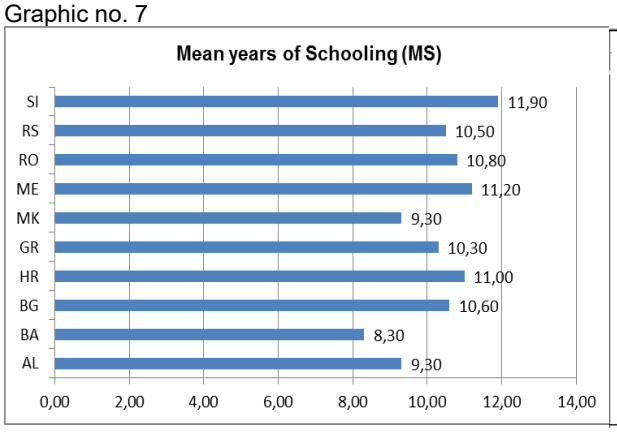


Sources: World Happiness Index, ChartsBin.com, viewed 24th March, 2016, < http://chartsbin.com/view/38559> and Travel &

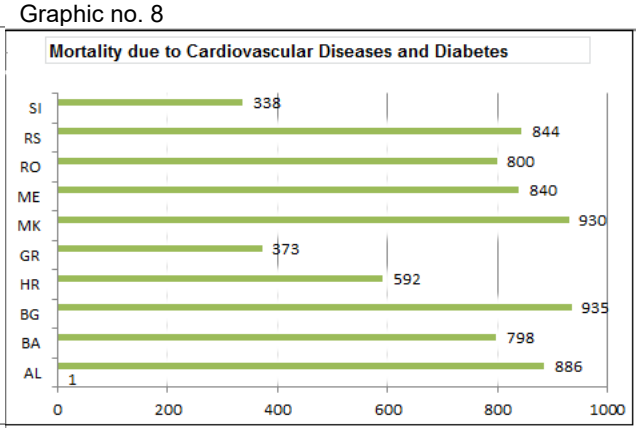
Tourism Competitiveness Index, ChartsBin.com, viewed 24th March, 2016, < http://chartsbin.com/view/38523>.
Note*: RO and RS show identical values in the statistical profile of the perception of happiness, HI, being deeply Balkan in spiritual terms (5.12), and relatively similar in the Travel & Tourism Competitiveness Index profile (TTCI) with 4 and 3.78.

d) relatively high statistical gaps between profiles that are individualized at the level of economy or country with values approaching 50% (the average length of schooling, or the average school years in the Balkan countries captures an obvious heterogeneity, but Romania and Serbia remain close in point of level, with the average of 10.8 years and 10.5 years, respectively) or even exceeding 100% in the profile of cardiovascular mortality and diabetes (the relative similarity is kept for Romania and Serbia):

Graphic no. 7



Graphic no. 8

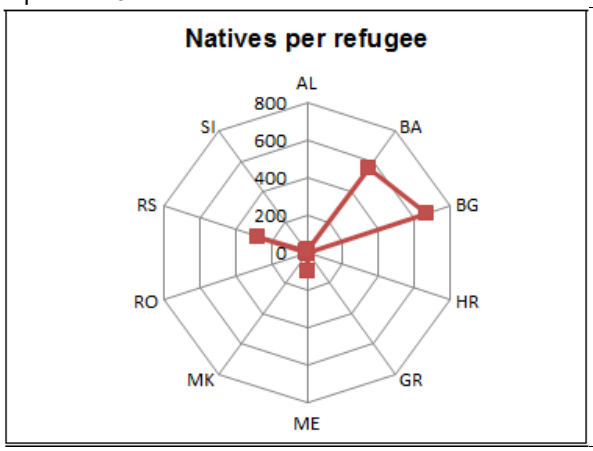


Sources: ChartsBin statistics collector team 2011, Mortality due to Cardiovascular Diseases and Diabetes, ChartsBin.com, viewed 24th March, 2016, http://chartsbin.com/view/2621, Human Development Index, ChartsBin.com, viewed 24th March, 2016, <http://chartsbin.com/view/38512>.

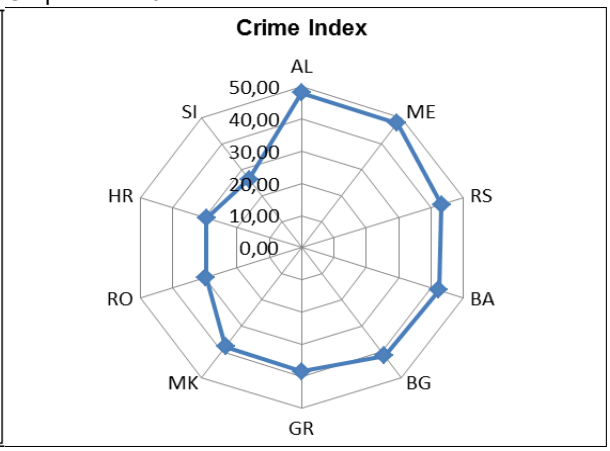
e) major disparities or inequalities between Romania and Serbia appear only circumstantially in the profile of migration perception term, and derived from there, in the profile outlining crime and implicitly personal safety, with emphasis on the Balkan corridor of Mediterranean immigration.

A more detailed and pertinent analysis, having a real statistical comparability comprehensively insured, will be able to perform with Serbia's accession to the European Union, in the context of a sharp relative convergence and common objectives of both economies, here distinctly profiled through the new method proposed in the article.

Graphic no. 9



Graphic no. 10



Sources: Crime Index for Country 2016, ChartsBin.com, viewed 28th April, 2016, <http://chartsbin.com/view/39717>.
Refugee Population by Country of Asylum, ChartsBin.com, viewed 28th March, 2016, <http://chartsbin.com/view/39661>

4. CONCLUSION

There has been very much writing, sometimes too much, slightly tinged with irony or self-irony, and there is still as much writing about the existence of a Balkan spirit defining a Balkan model of a political, economic, social, educational, cultural, etc. specificity. Without exaggerating the importance of the method of the statistical profile in identifying and tentatively drawing this specific model, one in which economic freedom, the feeling of happiness on the one hand, and the average income or GDP per capita on the other hand, seem to be in a completely reverse relationship as compared to Central and Western Europe, one can finally make use of Basarab Nicolescu's concept of trans-disciplinary knowledge (lying at the intersection expressly formulated by Dan Barbilian the mathematician, alias Ion Barbu the poet) of a Balkan economy or country starting from Balkan nature generally.

In the process, and in the complex interstitial space of Isarlyk, the poet and mathematician Ion Barbu, a symbol of the Balkan Peninsula in Romanian poetry, and also of the Balkan spirit, an intoxicating and alluring component part is transposed, a part that is Peninsular and Mediterranean, mountainous through aspiration and also flat through survival, specific to thought, speech, human nature and action in the Balkans, which is identified by a special swinging, both normal and abnormal at the same time, between "abstraction and concreteness, the real and the imagined" (Nicolescu, 2013), and also between authenticity and borrowed thinking, between purity or ideal and compromise or contingent… The method of the statistical profile, emphasizing the importance of instrumental constructs as indexes the origin of which is purely sociological in this article, redraws a tumultuous and unpredictable, Balkan contours, difficult to understand from outside the economic entities of the peninsula, and yet representing the starting point of the history of science, modern education, but also some of the worst conflicts and disasters of a multi-millennial Europe.

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INTERNATIONAL TECHNOLOGY TRANSFER AND SPILLOVERS IN MERGERS AND ACQUISITIONS

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Abstract: *This Paper explores technology transfer and spillovers when a company adopts the strategy of Merger and Acquisition (M&A) and gives us an insight into International Business arrangements that shape the business practice today. Companies are engaging in M&A with complex goals of entering new markets, improving and strengthening their technology and knowledge base, ultimately leading to competitiveness rise. The International Business literature has already acknowledged some positive outcomes for companies actively engaged in M&A, so we would pay special attention to technology spillovers, transfers, factors, and reasons of companies using these methods for improvement. The aim of this research is to deepen knowledge about M&A, to present technology transfer as one of the main reasons for companies doing M&A and to identify factors that are crucial for these companies' reactions.*

Key words: *International Business, Merger and Acquisition, technology transfer, spillovers*

1. INTRODUCTION

Nowadays, Multinational Companies (MNC) are aware of the importance of managing technology transfer as many of them review carefully all the factors before taking action. International technology transfer became a very popular theme for discussion among professors, students, business people, managers, and other stakeholders. Technology transfer is a process of transferring skills, knowledge, technologies, methods of manufacturing, employee's know-how, samples of manufacturing and facilities among Enterprises, Multinational companies, Universities, Countries... There are two kinds of technology transfer: horizontal and vertical technology transfer. Horizontal technology transfer is intentionally transmitted between countries and firms therefore we define "technology transfer" as a direct type of spillovers that occurs voluntarily from technology source to recipient. For example, Multinational firm transfer knowledge to local firm affiliating with supplied equipment (such as machines, equipment or manual) and with the form of software, know-how, patents, knowledge, and skills provided by education and training activities. Vertical technology transfer refers to the transfer of technology from Basic Research to Applied Research to development and then to production. It is the transfer of a pre-commercials technology from individual or institutional investor to an organization (L. Jakšić, et al., 2015). In this process, there are three factors that play an important role in technology transfer: the source, the recipient, and the technology itself. (Sonmez, et.al.2013)

There is long-term effect of spillovers and technology transfer when MNC acquire other company in order to use their technology potentials and to expand their business. The M&A are very interesting strategies and part of doing business today and it can be made for many reasons, but for us, the focus will be on technology and technology transfer reasons.

There are two main research objectives in this paper:

1) This paper is going to present technology transfer and spillovers of technology and knowledge as one of the main factors for MNC to execute M&A.

2) The second objective is to see potential progress, possibilities, and factors which influence on companies to apply M&A strategy and to make technology transfer and spillover effect.

1.1 Background of the study

Theoretical background of the technology transfer and spillover will give us better understanding of these subjects. Technology diffusion may rely on transfers or spillovers. (Keller, 2004) Technology transfer refers

to any process by which one party gains access to a second parity's information, and successfully learns and adsorbs it into his or her production function. Taschler and Chappelow defined technology transfer as the interpersonal, managed, and systematic process of passing control of a technology from one party to its adoption by another party. (Journal of Technology Transfer, 1999)

Research and development spillovers have been a major topic in the productivity, growth, and industrial organization literature for many decades. Technology transfer and spillover effect are happening in many situations but for us, the most interesting is when a company does M&A. What is a merger and what is an acquisition? The merger is when two companies join to create a new entity. In an acquisition, one company acquires sufficient shares to gain control of the other company. (Evans et. al. 2011) There are three types of M&A: horizontal, vertical, and conglomerate. Horizontal M&A are companies in the same line of business, often competitors. Vertical M&A means that companies are in the same line of production e.g., supplier or customer. Conglomerate merger refers to companies that are making M&A in unrelated lines and types of business, which are often motivated by acquired company's growth. (Clayman et al., 2008)

2. PROBLEM IDENTIFICATION

While many empirical studies appear to support the presence of technology spillovers, there remains a major problem at the heart of the literature. This arises from the fact that R&D generates, at least, two distinct types of "spillover" effects. The first is knowledge (or technology) spillovers that may increase the productivity of other company that operate in similar technology industry. The second type of spillover is the product market rivalry effect of research and development. Technology spillovers are beneficial to other companies, but R&D operations by product market rivals have a negative effect on a firm's value due to business stealing. Despite much theoretical research on product market rivalry effects of R&D, there has been little econometric work on such effects, in large part because it is difficult to distinguish the two types of spillovers using existing practical strategies. (Bloom, Schankerman, and Reenen, 2010)

The decentralization of R&D by multinational enterprises, for example the establishment of laboratories outside the parent company's home country, or the acquisition by foreign firms of R&D laboratories belonging to companies which were controlled by residents, are clearly not new phenomena. So far decentralized R&D has already been underpinned in some cases and accompanied by the tendency of shifting the relocate production. While the growth of this phenomenon is recognized, there is a need to assess the significance of that growth and its impact on different countries' technological and innovative capacity of MNC. The main question to prove that technology transfer is one of the main factors for company's decision to do M&A is: what is the growth of R&D in correlation with M&A arrangements and how far does it extend? (OECD, 2005)

With increasing competition at today's global markets, many firms and MNC choose to merge with one another to be able to compete internationally. M&A occur on all the markets and in all the types of industries, and that's why it's so interesting subject for discussion. In such competitive market there are a lot of questions, concerns, and problems and on some of them, we will give answers. Furthermore, we want to get insight into factors that contributed in increased cross-border M&A and technology transfer spillover. Managing mergers and identifying transformational value opportunities that stretch a company's capabilities in new ways require a dramatic change from the traditional approach to integration that has emerged as a best practice over the past 10-20 years. Companies were using templates, checklists, strong process management, and other methods to avoid risk but even now, this approach produces 66-75 percent of M&A failure rates. (McKinsey & Company, 2010)

3. CRITICAL ANALYSIS

Mergers and acquisitions are a popular mode of investment for firms wishing to consolidate, protect, and advance their global competitive positions, by acquiring strategic assets that enhance their competitiveness and selling off divisions that fall outside the scope of their core competence. For those firms, the "ownership" assets acquired from another firm, such as established brand names, technical competence, and existing distribution systems, and supplier networks can be put to immediate use towards better serving global customers, expanding market share, enhancing profits, and increasing corporate competitiveness by employing international production networks more efficiently. Most large-scale cross-border M&A have taken place in the energy distribution, pharmaceuticals telecommunications, and financial services industries. Small and medium-sized firms appear to have played a significant role in the growth of cross-border M&As

as well, particularly in the electronics, business services, personal services, distribution, healthcare, engineering industries and construction. (UNCTAD, 1996)

Growth of the main R&D sectors in the OECD area

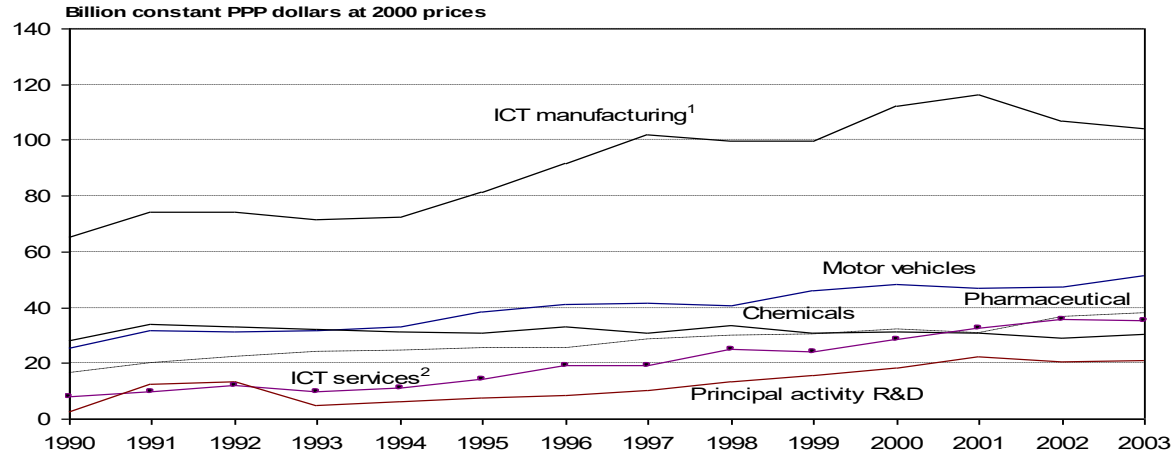

Figure 1: (OECD et al., 2005)

We can see from the table that there are big changes during the years in R&D, and we can notice that it matches with another literature in this paper and R&D rise is expected in the future too because of technology transfer and spillover that foreign companies bring in the host country. Furthermore, we will take a look into another table where is shown an inward cross-border M&A where we could get better insight into extending of technology transfer and spillover effect.

Inward cross-border mergers and acquisitions to G7 countries, (1995-2004)

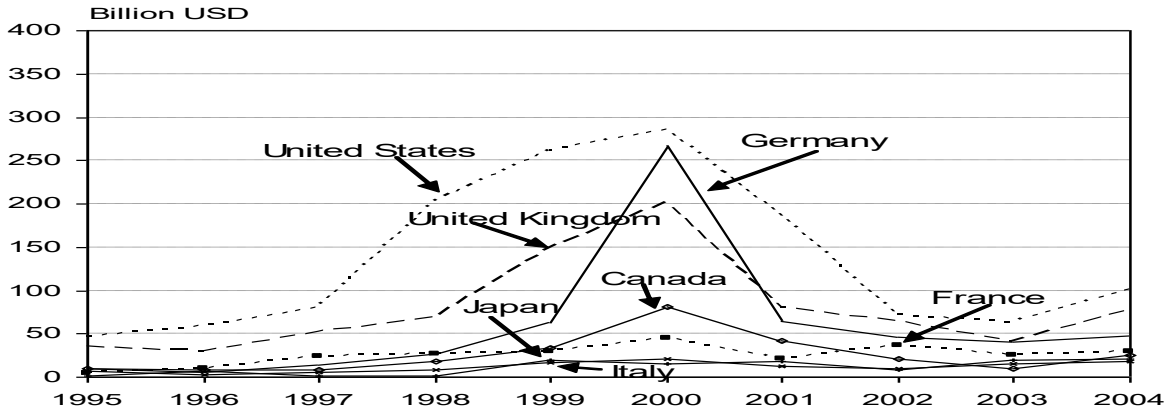

Figure 2: (OECD et al., 2005)

We can notice that these industry sectors were mentioned in the previous figure of R&D industries sectors which means that these trends were connected. From these facts, we can conclude that there is a big correlation between International M&A and technology transfer which confirms our first thesis.

3.1 Examples of successful and failed M&A

Disney-Pixar

The example of the successful merger is Disney-Pixar. The merger of legendary Walt Disney and Pixar was very good move from both sides. Disney acquired Pixar for 7.4 billion dollars in 2006 which made Disney largest shareholder. With the merger, the two companies could collaborate easily and freely. Pixar was American computer animation film studio based in California and after transaction they had produced many films that were very successful. Pixar has certainly gained the expert advice from Disney when it comes to

advertising and merchandising. When it comes to marketing to children, no one does it better than Disney. (Ruesink, 2009)

We can say that this project was quite conditioned by the technological superiority of both companies that manage to use this merger for filling gaps in their value chain because both parties were lacking some part of the business and that's why this merger was successful.

DaimlerChrysler

In 1998 Daimler bought Chrysler for $37 billion and idea was to form Trans-Atlantic Company which would dominate in the market, but in 2007, Daimler Benz sold Chrysler to the Cerberus Capital Management firm, which specializes in restructuring troubled companies, for $7 billion. Chrysler was nowhere near the league of high-end Daimler Benz. (Ruesink, 2009)

The plan was for Chrysler to use Daimler components, parts, and even car architecture to reduce sharply the cost to produce future automobiles. But problems surfaced when Daimler's Mercedes-Benz luxury division, whose components Chrysler would use, was unwilling to share with its mass market partner. In the end, Chrysler got only some steering and suspension components, a diesel engine, a transmission, and some purchasing deals. In return, Daimler had expected that Chrysler would dramatically increase its footprint in the promised land of auto sales in North America. But thanks in large part to stiff competition from Asian auto-makers, Chrysler fell short. Billed as a "merger of equals," the $36 billion deal turned out to be anything but, professionals said. Soon, control of the combined corporation fell to Daimler. (Mateja, 2007) This is perhaps one of the best examples of how problems can arise due to the motives of companies to improve their technological base by technology transfer.

4. CASE STUDY EXAMPLE OF TECHNOLOGY TRANSFER IN M&A

4.1 The rise of chip design in Asia: Case Study

Chip design is a good example to illustrate the complex interaction of factors currently favoring the expansion of innovative R&D in developing countries. Chip design not only creates the greatest value in the ICT industry while requiring highly complex knowledge, but it also involves a generic technology that affects a large number of user industries, including high-value services. Chip design has recently moved from centers of excellence in the Europe, United States, and Japan to sites in some developing countries, notably in South-East and East Asia. South-East and East Asia are now the fastest growing markets for electronic design automation tools, expanding by 36% in the first quarter of 2004 compared to 5% for North America, 4% for Europe, and -2 % for Japan. (EDA Consortium 2004)

This section explores the main drivers behind the technology transfer of chip design, drawing on interviews with 60 companies and 15 research institutions in the United States and Asia involved in designing integrated circuits, as well as systems. The Case Study includes global and regional carriers of chip design in Asia, including specialized research institutes and nine strategic groups of firms that participate in global design networks. The expansion of chip design and huge technology transfer and spillover in Asia has been the result of the synergistic effects of pull factors, policy factors, push factors and enabling factors.

Pull Factor- The cost of employing a chip design engineer in Asia is much lower than in the United States. MNCs need to locate design department near the rapidly growing Asian markets for computing, communications, and digital consumer equipment to interact with the lead users of new products. Furthermore, most of the equipment is produced in China, and the country has become the world's third biggest market for semiconductors, generating considerable demand for chip design.

Table 2: (UNCTAD 2005) Annual cost of employing a chip design engineer, including salary, benefits, equipment, office space and other infrastructure, 2002 (Dollars)

Location	Annual cost
United States (Silicon Valley)	300 000

Canada	150 000
Ireland	75 000
The Republic of Korea	65 000
Taiwan Province of Chine	60 000
India	30 000
Chine (Shanghai)	28 000
Chine (Suzhou)	24 000

Policy factor- Policies cover a wide range of factors, such as regulations, incentives, education and infrastructure they were all designed to attract R&D and other MNC innovative activities, including chip design, to particular locations. The progress in chip design has owed much too concerted efforts by both leading companies and governments to establish new sources of global standards and innovation.

Push factors- Some factors in developed countries are also greatly contributing to pushing firms to expand chip design in Asia. Three such push factors can be distinguished:

- Changes in the organization and methodology of chip design; since the mid-1990s growing pressures to improve design productivity, combined with increasingly demanding performance features of electronic systems, have produced turbulence in chip design methodology.

- Changing skills requirements; the expansion of chip design in Asia appears also to have been influenced by a perceived inflexibility on the part of design engineers in the United States and Europe to adapt to a better work organization (termed “innovation factory”) and more structured (“automated”). MNCs have also searched for lower design costs by increasing the workloads and decreasing the design engineers’ salaries, which rose rapidly.

- More outsourcing and multiple design interfaces because before companies system and integrated device makers did almost all their chip design in-house.

Enabling factors- Finally, new IT Companies facilitate the internationalization of chip design. Coordinating specialized design networks in Asia vertically can involve high communication costs (education systems, labor markets, corporate governance, regulatory and legal systems as well as Intellectual Property Rights protection). A second enabling factor is a spread of “transnational knowledge communities”, such as professional and skilled staff. (UNCTAD, 2005)

Table 3: (UNCTAD, 2005)

In sum, in the case of chip design, a combination of pull, push, policy and enabling factors is creating a compelling case for MNCs to shift more of their design work to Asia. The trend is still at an early stage but is set to deepen. Over the past few years, all interviewed MNCs made substantial investments in chip design in Asia and were planning further expansion.

5. RESEARCH RESULTS AND ANALYSIS OF FINDINGS

5.1 Benefits from technology transfer

The internationalization of technology may help host countries move up the value chain and enhance competitiveness. Industrial competitiveness involves four interrelated types of upgrading: process upgrading, product upgrading, functional upgrading (new mix of activities or different activities in the value chain) and chain upgrading (moving to a new value chain in products of higher technology intensity) (UNCTAD, 2005). The home countries of MNCs face benefits and costs when their firms expand R&D abroad. The benefits are that R&D abroad may lead to reverse technology transfers, lower costs and, therefore, increased R&D, leading to improved competitiveness of the MNCs (which can also benefit other firms in the home country). However, such a reverse transfers are likely to be significant only if the host country is technologically advanced.

Improved overall R&D efficiency-R&D grows more complex, companies tend to use a more diverse set of information, skills, and knowledge. The availability of research workforce or a knowledge base abroad can accelerate new product development. Lower costs in developing countries can also make R&D more

economical. (UNCTAD, 2005) From the literature, we can conclude that the role of technology deals can expand company's competitive advantage, and there is also the advantage of co-funded programs with regarding strong incentives. This will also help to utilize the full potential advantage for public & private needs. Technology transfer creates a new market and also develops the needs of the consumer. Technology transfer can be effective for sustainable economic growth in the future development as well as the commercialization of new technologies.

5.2 Drawbacks of technology transfer

When MNC invest enough money and start operating in a foreign country after some time, it can make big problems that the company may not be able to control. For instance, the movement of labor from MNC to a domestic firm may enable the letter to benefit from the training and knowledge that the employee would have acquired from their time spent at the MNC and also a level of awareness about the knowledge that the MNC possesses is transferred. (Jones, Wren et al. 2007)

There is a big financial risk involved because licenses agreement can generate income, but patent applications that did not get licensed out will just cost money and in the case of MNC and International Business the extend of these loses could be huge. Especially if we take into account the ruthless competition that would try to use their weakness.

The controlling of the cost is the difficult and challenging task. MNC is exposing its know-how and technological abilities in M&A arrangements which mean that they are vulnerable to the pressures of competition that implies that they have easier access to market information. There is also the probability of high industry losses as well as inconsistent profits availability that could be major disadvantage. Technology transfer activities may put shareholders, companies, managers, and researchers in conflict of interest situations because each of them could strive for their benefits, especially when transfer involves M&A or creation of a spin-off company. Institutions should be aware of these possible dangers and anticipate them by elaborating a detailed conflict of interest policy. (Inzelt, Hilton, et al. 1998)

6. CONCLUSION

The purpose of this thesis was to explain international technology transfer and spillovers in M&A arrangements and to identify factors, problems, and reasons why companies use these strategies for improvement. Summing up various statements of different authors and considering best practice examples, it is needless to say that technology transfer represents modern trend that helped many companies to gain significant revenue and to expand their business worldwide. We gave recommendations based on problems and critical analysis which should help MNC to make better M&A in future.

We also found a huge correlation between international technology transfer and M&A strategies that are more numerous, regardless of their not-so-great percentage of success. The internationalization of R&D by MNCs opens up new opportunities for developing countries with strong skills and a technological base to enhance the development of their innovative capabilities. MNC will always search for a better place to deploy their technology, to use local technological know-how, and to decrease their expenditures and that could be the chance for developing countries. The work of this thesis has covered an interesting field of research, and there is a lot more we wish we were able to discuss. This topic will also be valid in the future in business life and the subject of many studies because it has great potential and opportunities for development.

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OVERVIEW OF AIRLINE FLEET OWNERSHIP STRUCTURE

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Abstract: *Airlines have recorded a significant increase in aircraft leases in recent years. In order to respond to market changes and offer corresponding capacity as promptly as possible airlines need flexible fleet. Flexibility which aircraft leases provide has motivated the authors to analyse fleet ownership structure. This paper gives an overview of airline fleet ownership structure, underlining differences that depend on business model, geographic distribution and alliance membership of large (more than 100 aircraft), medium (from 50 to 99 aircraft) and small (less than 50 aircraft) airlines. The analysis has shown that large airlines have a small percentage of leased aircraft, and vice versa, small airlines have a large percentage of leased aircraft. Moreover, it is noted that North American airlines have, in general, a smaller percentage of leased aircraft, and that membership in an alliance does not affect the fleet ownership structure.*

Keywords*: aircraft lease, low-cost airlines, full service airlines, geographic distribution, alliance membership*

1. INTRODUCTION

Constantly changing global airline market forces airlines to improve their levels of service in order to retain or even to strengthen the existing position. Nonetheless, airlines need to consider both passengers' and their own interests. They also need to satisfy different operational requirements and to make profit. Whereas the growth in air travel passenger demand (according to the International Air Transport Association – IATA) is expected to more than double in the next two decades with a 3.8% average annual growth (2014 baseline year), airlines need to adjust the capacity they offer. In order to accommodate rising demand, changes in fleet size/structure are needed. Therefore, airlines may need to acquire an aircraft.

According to Holloway (2008), there are two main reasons for aircraft acquisition: replacement of existing capacity and capacity growth. An aircraft should be replaced because of inappropriate characteristics, and more effective aircraft which will have the same mission should be placed in the fleet. Capacity growth could be growth within the existing network driven by the increase of demand. Moreover, growth could be induced by introducing a new service such as, for example, long haul or ultra-long haul routes. An airline can use different sources to finance an aircraft acquisition. Aircraft acquisition can be financed from the airline's own internal funds, or mixed internal funds and debt; furthermore, leasing options, which are the focus of this paper, could be used.

Air travel demand is directly affected by permanently varying conditions in the airline market. In order to respond to these changes and offer corresponding capacity as promptly as possible airlines need flexible fleet. With flexibility being an important issue, aircraft lease appears to be a suitable option for airlines. Whereas decisions related to aircraft lease are financial and connected to the airline policy, it is not surprising that appropriate data are, usually, unavailable. The airlines' reluctance to share their data limited our work to an overview, rather than modelling. Hence, the purpose of this paper is to review and analyse airline fleet ownership structure, namely to indicate the share of owned and leased aircraft in the airlines' fleet. Airlines included in the analysis are seated in different regions and have different business models. We distinguished between low-cost and full service airlines on the European and American market. Whereas most airlines tend to join an alliance, we found it reasonable to analyse fleets of member airlines.

After the introduction, literature review and the main definitions are given. The third section presents an overview of leased fleet depending on airline business model and geographic distribution. Finally, the last section points out concluding remarks and paper contributions.

2. LITERATURE REVIEW

Although available airline data related to financial information is rather limited, certain researches have been conducted and presented in the academic literature. Vargas and Saaty (1981) apply the Analytic Hierarchy

Process (AHP) to structure the problem and decide whether to lease or buy fleet in industry as a whole (not specifically for the airline industry). They suggest that, apart from economic factors that affect the final decision, non-economic factors such as company image, comfort and performance need to be considered because of their impact on the final decision. Oum et al. (2000) focus on operational effects of aircraft leasing rather than on financial implications. They indicate that for an airline which needs additional capacity leasing of aircraft represents a better option than buying, because a large leasing company can provide aircraft in short time periods and at lower prices than the manufacturers. Furthermore, they point out that an operating lease gives airlines the flexibility to accommodate their fleet as air travel demand changes, in order to adjust their capacity and demand. The authors develop a model which offers optimal share of owned-leased aircraft in the fleet, considering that air travel demand is uncertain and cyclical. Empirical results based on the data from 23 leading airlines indicate that optimal share of leased aircraft would be in the range between 40% and 60%. Gibson and Morrell (2004) indicate the advantages of operating lease over purchasing of an aircraft and, also, emphasize the issue of fleet flexibility provided by operating leases. They observe that airlines use operating leases for flexibility when adopting a new aircraft type.

Financial decisions should be made depending on airline's finances, its credit rating, as well as market conditions and global economy. In downturns of the economy, aircraft lease is a better option compared to buying the aircraft (Vasigh et al., 2012). However, financial decisions are not subject to long-term planning and should be made when acquisition procedure starts. It is noticeable that airlines operating the same market with the same business model have different shares of leased and owned aircraft (Mancilla, 2010), i.e. the ownership structure is not dependant on the fact whether the airline is full service or low-cost, as well as on geographic distribution.

Different researchers deal with optimization problems in order to help airlines make the right decision at the right time. They answer the question when an airline should be purchased, leased or retired. Hsu et al. (2011) propose a stochastic dynamic programming approach to aircraft replacement scheduling. The model is used to optimise airline's decisions related to purchasing, leasing or disposing of aircraft over time. The model was applied to an airline in Taiwan, and showed a growing interest for leasing over buying, especially in the time of severe demand fluctuations. Bazargan and Hartman (2012) propose a binary-integer programming model that minimizes total discounted costs over the planning horizon. The model is used for strategic fleet planning to help airline planners decide how many aircraft should be bought, leased and sold in the time period considered. After applying the model to two US airlines with different business models (full service and low cost) and after analysing the results obtained, the authors conclude that the solutions are similar for both business models. The recommendations they arrive at are the following: a new aircraft is favoured both for leasing and buying, short term leases are preferable, aircraft older than 12 years should be sold, fleet diversity is not encouraged, and leasing is a preferable option in comparison with buying. Analysis of airlines also shows that low-cost carriers have greater percentage of leased aircraft in comparison with the full service airlines, which is in contrast to previous research (Mancilla, 2010).

In view of the relevant literature cited above, one can conclude that aircraft lease has been playing a greater role in recent years in the airline market, which has motivated the authors to research it. Before the overview of airline fleet ownership structure is presented, it is necessary to give certain definitions related to aircraft lease and airline business models.

2.1. Main definitions

An aircraft lease will be defined as a contract whereby the owner of an aircraft (the lessor) grants to another party (the lessee) the exclusive right to the use of the aircraft for an agreed period, in return for the periodic payment of rent (the fee) (Morrell, 2013). Essentially, there are two basic forms of aircraft leasing, operating and financial. Wet, dry, cross-border and sales/lease back are forms of leasing which can be arranged through operating and finance agreements.

According to Morrell (2013), a finance or capital lease is an agreement signed for the period between 10 and 26 years, which means that it is a long term agreement. The lessee cannot cancel the financial lease or can do it only with a major penalty. In this arrangement the airline (lessee) enjoys some of the benefits and faces some of the risks of ownership. In contrast, the operating lease is a shorter term agreement (usually between one and seven years, or an average of five years), whereby the lessee can cancel the agreement and return the aircraft to the lessor without major penalty (Vasigh et al., 2012). Because of its flexibility, the operating lease is a common option for airlines. This statement is confirmed by the Boeing Capital Corporation, which indicates that the percentage of active global commercial aircraft fleet under operating leases has grown faster in recent years. Considering the period from 1980 to 2014, the increase from less than 2% in the 80s,

to approximately 40% by 2014, has been recorded. It is forecasted that operating leasing will account for 50% of the in service fleet by the end of this decade.

With regard to airline business models, in this paper we distinguish two of them: full service and low-cost. A full service airline is “an air carrier, typically a traditional national or major carrier that operates on a relatively extensive route network (thus also referred to as a network carrier) and provides a full range of services including different seating classes, in-flight entertainment, meals and beverages, on-board store, and ground facilities such as waiting lounges for premium class passengers or frequent flyer programme members” (ICAO, 2004). According to this document, a low-cost airline is defined as “an air carrier that has a relatively low-cost structure in comparison with other comparable carriers and offers low fares and rates”.

The following section gives an analysis of airline fleet ownership structure. Due to unavailability of the corresponding data, the above defined leasing forms will not be separately presented. Hence, we will analyse the ownership structure regarding the number/percentage of leased aircraft in total.

3. ANALYSIS OF AIRLINE FLEET OWNERSHIP STRUCTURE

From the supply side, lessors (leasing company) offer their aircraft (capacity) in the market, where airlines appear on the demand side as players who need additional capacity. Whereas air travel demand is mainly influenced by economic factors such as gross domestic product (GDP), and air travel demand further influences aircraft demand, it is expected that the shape of GDP curve is very similar to the shape of lease rentals of the leading leasing companies (BBAM, AerCap, AWAS). According to the World Bank’s (2016) definitions, GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products, while GDP per capita is gross domestic product divided by midyear population. Our findings (Figure 1) confirmed this statement, with significant values of coefficients of correlations between GDP and lease rentals by leasing companies BBAM, AerCap, AWAS given respectively: $r_{GDP,\ BBAM} = 0.83$, $r_{GDP,\ AerCap} = 0.72$, $r_{GDP,\ AWAS} = 0.82$.

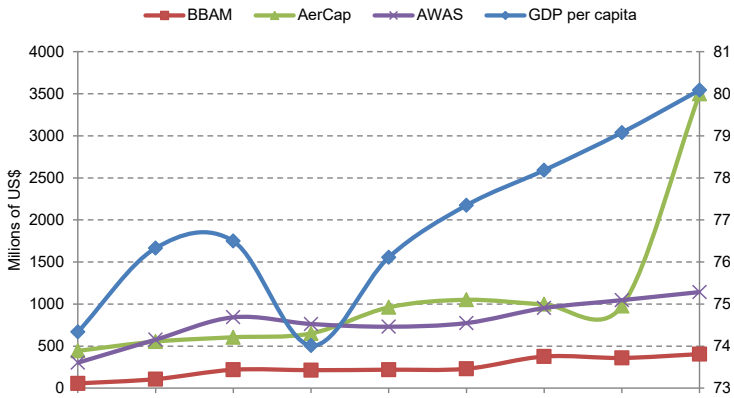

Figure 1: GDP per capita and lease rentals by leasing companies BBAM, AerCap and AWAS
(*GDP data source*: http://knoema.com/mhrzolg/gdp-statistics-from-the-world-bank?country=Europe%20%26%20Central%20Asia%20(all%20income%20levels); lease rental data source: Annual reports 2006-2014)

It should be noted that the global economic downturn characterized by the lowest value of GDP per capita in the year 2009 is not accordingly followed by lease rentals (Figure 1). This exception can be explained by the fact that aircraft lease is a preferable option for airlines in downturns of the economy (Vasigh et al., 2012) because it enables desirable flexibility. It is worth noting that lessors belong among the airline industry sector which achieved returns above the cost of capital, and they take the second place (after Computers Reservation Systems – CRS) when it comes to return of invested capital (Pearce, 2012). Also, more developed countries with higher value of GDP usually have better credit rating, which enables airlines from these countries to obtain favourable credits for buying aircraft.

3.1. Fleet ownership structure depending on airline business model

This sub-section analyses ownership structure of airline fleet depending on airline business model and geographic distribution. With regard to airline business models, as it is noted above, we analysed full service and low-cost airlines. With regards to geographic distribution, we examined European as well as North American airlines. The analysis is performed as follows.

Considering European full service airlines (35 airlines), it can be noted that airlines have different fleet sizes. In order to analyse airline fleet ownership structure, airlines were divided according to total fleet size into three categories: large (more than 100 aircraft), medium (from 50 to 99 aircraft) and small (less than 50 aircraft).

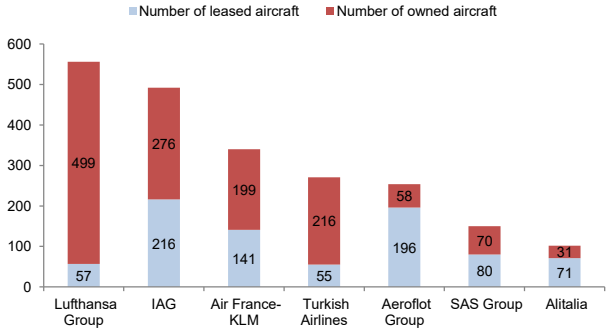

Figure 2: Fleet ownership structure: large European full service airlines
(Data source: https://www.planespotters.net/airlines)

It was determined that large airlines (seven airlines) had a smaller percentage of leased aircraft (Figure 2). The exception, i.e. large percentage of leased aircraft (77%) in the case of the Russian airline Aeroflot group, can be explained by the political situation in Russia. Namely, taxes for owning an aircraft of non-Russian production are very high. In order to avoid this payment, Aeroflot group founded a leasing company in Bermuda. This group bought and registered aircraft in Bermuda, and then, leased aircraft by itself. Alitalia is the airline with the smallest number of aircraft among these seven airlines (Figure 2) and the credit rating in Italy, according to Trading Economics, is recognized as lower medium grade, which could explain the large percentage of leased aircraft (70%). The smallest percentage of leased aircraft can be seen in the case of Lufthansa Group (10%), and it represents the policy of the Group. The total fleet of large European airlines consists of 2165 aircraft, and 38% of them are leased (on average, 45% of the fleet per airline is leased).

Among 35 European full service airlines, there are only four medium size airlines. The percentage of leased aircraft in their fleets varies from 39% to 78%. The total fleet of medium European airlines comprises of 235 aircraft, and 62% of them are leased (on average, 62% of the fleet per airline is leased).

Within small European airlines (24 airlines), as shown in Figure 3, the share of leased aircraft in total fleet is wide-ranging, from 0% to 100%. Three airlines have completely leased fleets, but there are also two airlines with completely owned fleets. Whereas Ural and Nordwind Airlines are Russian airlines, the fleets of which consist of aircraft produced by Airbus and Boeing, it is not unexpected that whole fleets are leased (the reason is the political situation, as in the case of Aeroflot). Air Malta is an airline registered in the country with lower medium grade credit rating (Trading Economics), which could be used as an explanation. The reason why TAROM has no leased aircraft in its fleet could be the majority ownership by the state. Luxair, on the other hand, is an airline from the country with a stable economy and prime credit rating (Trading Economics), hence it could afford to buy an aircraft. Total fleet of small European airlines includes 627 aircraft, and 59% of them are leased (on average, 61% of the fleet per airline is leased).

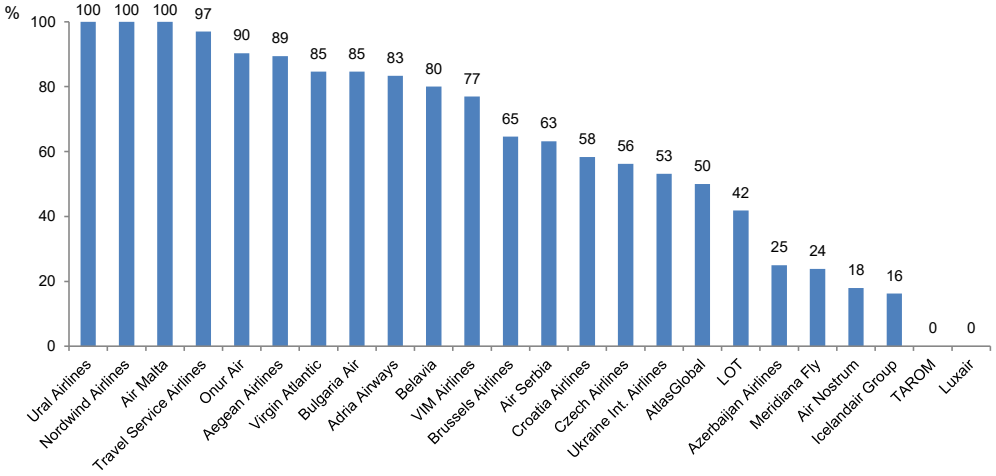

Figure 3: Percentage of leased aircraft in fleets: small European full service airlines
(Data source: https://www.planespotters.net/airlines)

Upon summarizing all leading European airlines (including small, medium and large airlines) considered in this analysis, it has been calculated that the percentage of leased aircraft ranges from 0% to 100%. Their fleets consist of 3027 aircraft in total, and 44% of them are leased (58% per airline on average).

In the case of the seven leading North American full service airlines, certain regularities can be observed. Actually, large airlines (five airlines), lease less than half of their fleet (Table 1). Total fleet comprises of 2814 aircraft, and 25% of them are leased (on average, 25% of the fleet per airline is leased). The remaining two airlines have different fleet sizes (one medium and one small fleet) and different percentages of leased aircraft in their fleets, as well.

Table 1: Fleet ownership structure – North American full service airlines

Airlines	Number of aircraft in the fleet	Number of leased aircraft	Percent of leased aircraft
American Airlines	944	397	42
Delta Air Lines	823	97	12
United Airlines	720	110	15
Air Canada	164	77	47
Alaska Airlines	163	13	8
Aeroméxico	63	45	71
Hawaiian Airlines	48	16	33

(Data source: https://www.planespotters.net/airlines)

The leading full service airlines in the world, as shown in Figure 4, own more than a half of their fleets. Hence, we can agree that these airlines do not favour leasing as an aircraft financing option. Each of these airlines (19 airlines, from different regions in the world) has a large fleet consisting of more than 100 aircraft. Their percentages of leased aircraft range from 3% (All Nippon Airlines - ANA) to 47% (Air Canada). Their fleets consist of 7137 aircraft in total, and 26% of them are leased (26% per airline on average).

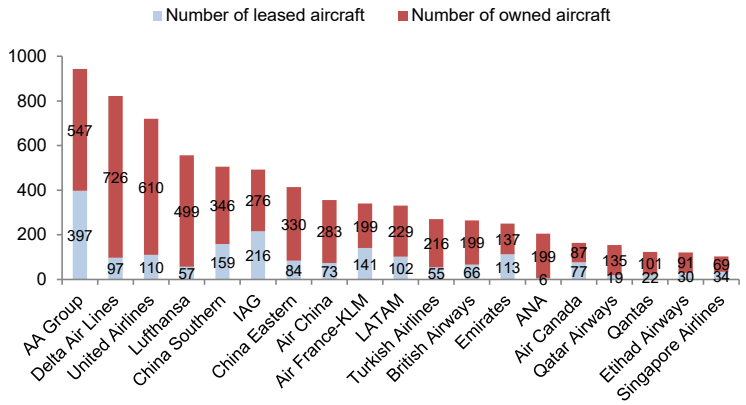

Figure 4: Fleet ownership structure: the world's leading full service airlines
(Data source: https://www.planespotters.net/airlines)

In the case of the 13 European low cost airlines (Figure 5), we can observe three large airlines. Two of them (Ryanair and EasyJet) have small percentages of leased aircraft (similar to any large airline), while this percentage in Vueling is high. This "irregularity" could be explained by the credit rating of the originating country. According to Trading Economics, the United Kingdom has the prime credit rating and Ireland has upper medium grade credit rating, which enables Ryanair and EasyJet to buy aircraft. Spain is ranked as a country with the lower medium grade credit rating, which therefore resulted in favouring lease options over buying (Vueling). Total fleet of the large low-cost airlines includes 661 aircraft, and 28% of them are leased (on average, 42% of the fleet per airline is leased). Percentages of leased aircraft in the six medium size European low-cost airlines vary from 18% to 98%. Their fleets consist of 395 aircraft in total, and 47% of them are leased (on average, 45% of the fleet per airline is leased). Small European low cost airlines lease large percentages of aircraft. Eurowings, an airline fully owned by Lufthansa, is an exception, which is expected because it is Lufthansa's policy is to buy aircraft. Their fleets include 7137 aircraft in total, and 67% of them are leased (on average, 68% of the fleet per airline is leased).

Percentage of leased aircraft in the European low-cost airlines, including small, medium and large low-cost airlines, ranges from 13% to 100%. Their fleets consist of 1156 aircraft in total, and 38% of them are leased (51% per airline on average).

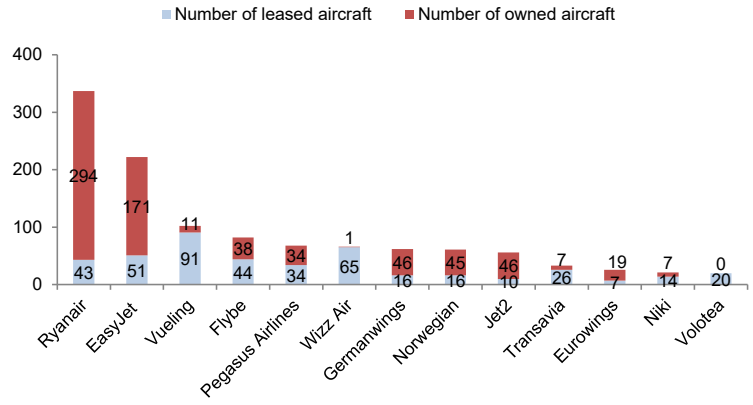

Figure 5: Fleet ownership structure: leading European low-cost airlines
(Data source: https://www.planespotters.net/airlines)

With regard to share of leased aircraft in the total fleet of low-cost carriers in North America, it is observed that large airlines have smaller percentages of leased aircraft and vice versa, small airlines have larger shares of leased aircraft (Table 2). The three large low-cost airlines have a total fleet of 1051 aircraft and 17% are leased (24% per airline on average). The six medium low-cost airlines have a fleet consisting of 403 aircraft in total and 61% are leased (on average, 64% per airline). The total fleet of the ten low-cost airlines consist of 1495 aircraft, 30% of which are leased (on average, 51% per airline).

Table 2: Fleet ownership structure – North American low cost airlines

Airlines	Number of aircraft in the fleet	Number of leased aircraft	Percent of leased aircraft
Southwest Airlines	716	86	12
JetBlue	217	54	25
WestJet	118	40	34
Allegiant Air	86	4	5
Spirit Airlines	80	57	71
Virgin America	60	50	83
Volaris	59	55	93
Frontier Airlines	59	54	92
Interjet	59	25	42
Air Canada rouge	41	22	54

(Data source: https://www.planespotters.net/airlines)

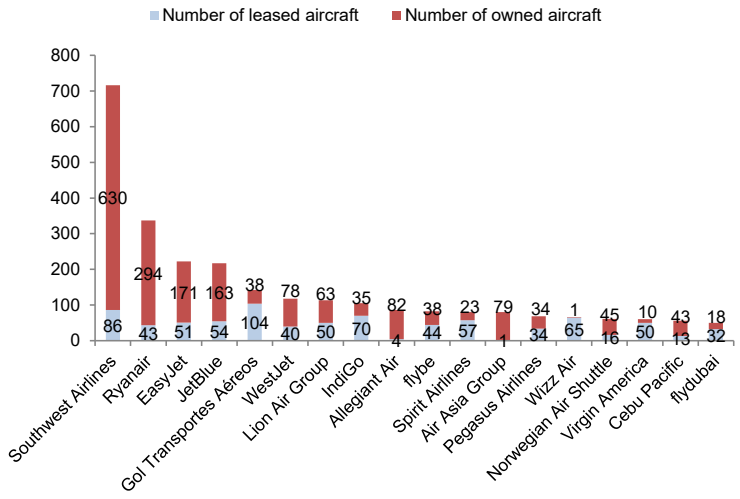

Figure 6: Fleet ownership structure: world's leading low-cost airlines
(*Data source:* https://www.planespotters.net/airlines)

We can distinguish between eight large and ten medium low-cost airlines among the leading low-cost airlines in the world, as shown in Figure 6. Percentage of leased aircraft in large airlines ranges from 12% to 73%. Their fleets consist of 1970 aircraft in total, and 25% of them are leased (on average 36% per airline). The percentage of leased aircraft in medium airlines ranges from 1% to 98%. Total fleet of medium airlines encompasses 689 aircraft and 46% of them are leased (in average per airline 48%). Bearing in mind the analysis performed, it can be noted that an airline's business model does not play a significant role in the fleet ownership structure. Both full service and low-cost airlines have similar percentages of leased fleet, which mostly depend on fleet size.

With regard to geographic distribution of airlines and all the above, slight differences between European and North American airlines can be observed. The European airlines prefer to lease aircraft more than the North American ones. In the European full service airlines' fleet, 44% of aircraft are leased compared to 26% in North American fleet, while in the European low-cost airlines' fleet 38% of aircraft are leased compared to 30% in the North American ones.

3.2. Fleet ownership structure depending on alliance membership

Whereas airlines tend to join some of the global alliances, it is interesting to analyse fleet ownership structure of airlines that are members of alliances. Star Alliance, SkyTeam and OneWorld are the largest alliances; therefore, we studied fleet ownership structure of their members.

Star alliance has 27 member airlines. The alliance's fleet comprises of 3589 aircraft in total, and 28% of the fleet is leased. Large member airlines (11 airlines) have a smaller percentage of leased aircraft (27% on average). The exception is Avianca, the Colombian national airline (60% of the fleet is leased). It could be explained by the credit rating of this country (lower medium grade). When it comes to airlines with medium size fleets (11 airlines), ownership structure is diverse. Small airlines' fleets (5 airlines) have larger percentages of leased aircraft in their fleets than the airlines with large fleets. Ownership structure of the Star Alliance member airlines fits very well with the pattern of fleet ownership structure observed in the case of European and North American airlines, as previously described. SkyTeam alliance has 18 member airlines. The alliance's fleet comprises of 2932 aircraft in total, and 36% of the fleet are leased. It is worth noting that ownership structure of these airlines does not fit well the previously described pattern of fleet ownership structure. There are three exceptions among nine airlines with a large fleet (Aeroflot, Garuda Indonesia and Alitalia). Oneworld alliance has 14 member airlines. The alliance's fleet comprises of 2575 aircraft in total, and 38% of the fleet are leased. Out of eight large member airlines, Airberlin is the one that does not fit the observed pattern.

It is worth noting that none of the airlines which are members of an alliance has a completely leased fleet. The maximum percentage of leased aircraft in their fleets is 90%. Also, it can be observed that the membership in an alliance does not affect the fleet ownership structure.

3.3. Fleet ownership structure

Apart from the analysis presented in the previous sub-sections, we extended the list of analysed airlines to airlines operating on the domestic market (Nikola Tesla Airport, Belgrade), as well as to additional leading airlines in the world (132 airlines in total). The set of 132 airlines encompasses all airlines, irrespective of their business models. In this set of airlines there are 43 large (Table 3), 37 medium, and 52 small airlines (Table 3). Summarizing all data, we established that 77% (33 airlines) of large airlines leased less than a half of the fleets; 51% (19 airlines) of medium and 69% (35 airlines) of small airlines leased more than a half of their fleets.

Table 3: Ownership structure – key indicators

Airlines' size	Number of airlines	Total number of aircraft	Total number of leased aircraft	Total percentage of leased aircraft	Average percentage of leased aircraft
Large	43	11603	3484	30	36
Medium-large	15	1244	454	36	37
Medium-small	22	1295	754	58	58
Small	52	1240	770	62	63

(Data source: https://www.planespotters.net/airlines)

Considering the set of medium size airlines, it was noticed that by dividing medium airlines into two sub-sets, medium-large (from 75 to 99 aircraft in the fleet, 15 airlines) and medium-small (from 50 to 74 aircraft in the fleet, 22 airlines), certain similarities with the small and large airlines could be observed (Table 3). Namely,

medium-large airlines have indicators similar to large airlines' indicators and they have smaller percentages of leased aircraft in their fleets, while medium-small have indicators similar to small airlines' indicators and they have larger percentages of leased aircraft in their fleets. Taking into consideration these similarities, we calculated the key indicators for large, medium-large, medium-small and small airlines (Table 3). Table 3 shows that the average percentage, as well as total percentage of leased aircraft, increases with the decrease in fleet size, thus supporting our findings from the previous sub-sections.

4. CONCLUSION

Having in mind that airline industry is highly dependent on economic cycles and that airline market is price- and time-sensitive, it is obvious that airlines need to react to market condition changes in a timely manner. The ability of an airline to respond in an appropriate way to these changes could be provided by fleet flexibility, which could be further provided by aircraft leases.

Based on the analysis of airlines from different countries and with different business models, the conclusions we arrived at are as follows:

- Airline's business model does not affect fleet ownership structure significantly;
- European airlines slightly prefer to lease aircraft compared to North American airlines;
- Small number of aircraft in an airline fleet (less than 50) implies higher percentage of leased aircraft (more than 50% of the fleet is leased);
- Larger number of aircraft in an airline fleet (more than 100) implies smaller percentage of leased aircraft (on average, approximately one third of the fleet is leased);
- Membership in an alliance does not affect fleet ownership structure; member airlines fit very well in the observed pattern of fleet ownership structure;
- Average and total percentages of leased aircraft increase with the decrease of fleet size.

The paper results in practical contributions, providing an ownership structure analysis and summarizing all data related to previous experiences of different airlines which could help an airline when considering whether to lease or buy an aircraft. Furthermore, the analysis could help not only airlines, but leasing companies as well, to define a target group of airlines to whom they could lease corresponding aircraft in appropriate time.

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