

Ekonomika preduzeća



**Serbian Association of Economists
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accelerated expansion of new technologies and business models triggered by the Industry 4.0 and omnipresent global mega trends has so far inspired an array of papers dedicated to emerging challenges in micromanagement and macro-management. This edition of *Ekonomika preduzeća* starts with the Introductory paper by *J. Prašnikar* and *T. Redek*, who explore the effects of new technologies on productivity growth in emerging economies and propose a policy approach that stimulates companies to adopt Industry 4.0 technologies.

In the *Accounting and Auditing* section, *S. Vučković Milutinović* analyzes auditors' opinions expressed in independent auditors' reports for the 2015-2017 period for listed companies in Serbia. The author showed that the percentage of modified audit opinions was well above the level in the developed countries, confirming weak market and regulatory incentives to improving financial reporting practices. The analysis also revealed that the impairment of assets is the main reason for auditors' modifications, reflecting unfavorable economic reality of many companies. In the second paper in this section, *Lj. Tanasić* analyzes instruments of transfer pricing taxation in former Yugoslav countries. The author shows that there are large oscillations in tax approach to the control of implementation of transfer pricing when conducting transactions between related legal entities, and that these differences are conditioned on the level of development and structure of legal regulations.

In the *Finance* section, a duo of authors, *I. Janković* and *B. Živković*, explore the possibilities of FX risk management for Serbian corporations. The authors argue that standardized instruments for FX risk hedging have not been developed, while non-standardized contracts are modestly used. In these circumstances, appreciation of foreign currencies relative to RSD may create significant systemic consequences through spillover of FX risk into credit risk and other related risk categories.

In the *Law and Taxes* section, *M. Perović* offers an overview of the key distinguishing features of regulations governing commercial contracts in Serbian law. This highly informative paper presents the general legal framework relevant to commercial contracts in the Serbian legal system and analyzes the main specific features of commercial contracts, as well as certain rules on the right of pledge applicable to commercial contracts.

In the *Transition and Restructuring* section, we have been committed to industrial policy and new growth-stimulating policy framework for many years. In this edition, *Lj. Savić* and *M. Lutovac* analyze the factors most affected by state aid in 72 successfully completed projects for attracting investments in the industry of Serbia from the beginning of 2006 to March 2017.

D. Borovčanin, M. Knežević and S. Čerović analyze revenue management in hospitality industry in Serbia in the Tourism section. Besides time management in pricing strategy, the research shows that the price is dominantly influenced by room supply, which is, as it was shown in the research, very static in comparison to demand. Furthermore, research results reveal that the market is witnessing a strong decrease in average daily rate. In the second paper in this section, *I. Kovačević, B. Zečević and B. Hristov Stančić* explore the meetings industry from the perspective of destination development. The authors have shown that in 2017 the international association meetings market generated impact of \$12 billion, while only in Serbia this market generated over \$26 million, signaling vast but unused economic potential.

The last paper in this edition belongs to the *Information Technology* section. *Z. Sagić, Lj. Diković, Lj. Trumbulović and S. Vujović* present the significance of intellectual capital and information technology for modern business and society.

Prof. Dragan Đuričin, Editor in Chief



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INDUSTRY 4.0 AS AN ANSWER TO THE PRODUCTIVITY GAP IN EUROPEAN CATCHING- UP ECONOMIES?

Industrija 4.0 kao odgovor na jaz u produktivnosti u evropskim zemljama u razvoju?

Abstract

The recent productivity growth slowdown, experienced both in developed as well as in emerging EU economies, has become a major worry for both companies and policy makers. The emerging technologies of Industry 4.0, spurring the fourth industrial revolution, are expected to slow down the decline and improve productivity trends. However, the implementation of new technologies in Europe is slower than desirable, with significant differences across countries, sectors, company sizes, and export orientation. This paper explores the effects of new technologies on productivity growth in emerging economies and proposes a comprehensive policy approach that would stimulate companies to adopt Industry 4.0 technologies. It must be built on the analytical-diagnostic approach, taking into account the already achieved levels of development and the specifics of a country. It should consider domestic and foreign experiences (i.e., have an eclectic view) as well as tit-for-tat (carrot and stick) strategies.

Keywords: *economic development, catching-up, strategy for Industry 4.0 development.*

Sažetak

Nedavno usporevanje rasta produktivnosti, kako u razvijenim, tako i u zemljama u razvoju u EU, postalo je glavna briga i za kompanije i za kreatore politike. Očekuje se da će nove tehnologije Industrije 4.0, koje označavaju četvrtu industrijsku revoluciju, usporiti pad i poboljšati trendove produktivnosti. Međutim, implementacija novih tehnologija u Evropi je sporija nego što je poželjno, sa značajnim razlikama između zemalja, sektora, veličine preduzeća i izvozne orijentacije. Ovaj rad istražuje ulogu novih tehnologija u rastu produktivnosti u ekonomijama u razvoju i predlaže sveobuhvatan pristup politika koji bi stimulisao kompanije da usvoje tehnologije Industrije 4.0. On mora da bude zasnovan na analitičko-dijagnostičkom pristupu (da uzme u obzir postignuti nivo razvoja i specifikne pojedinih zemalja). Treba da uključuje iskustva svoje zemlje i iskustva drugih zemalja (tj. da bude eklektičan) i mora da se bazira na „tit-for-tat“ strategijama (princip štapa i šargarepe).

Ključne reči: *ekonomski razvoj, države u razvoju, strategija razvoja Industrije 4.0.*

Introduction

European emerging economies have made a significant leap forward since 1990, especially those that were additionally hampered by the transitional decline. Despite the successful catch-up process, especially just before the crisis, when economic growth in these economies reached even beyond 10%, today, the countries in question are facing similar problems as the “old, developed” Europe, i.e., the EU15: a slowdown in productivity growth and a still wide productivity gap, not just relative to the developed EU member states but, similarly as the developed EU15, also relative to the US (Figure 1).

Besides the wide gap between European and the U.S. productivity, another threat to the living standards in the old continent in the long run is the continuously declining productivity growth in both the EU28 and the Euro 19 (Figure 2), which has been systematic since the mid-1990s. The post-crisis productivity growth was weak, although the recovery was job-rich according to McKinsey [52].

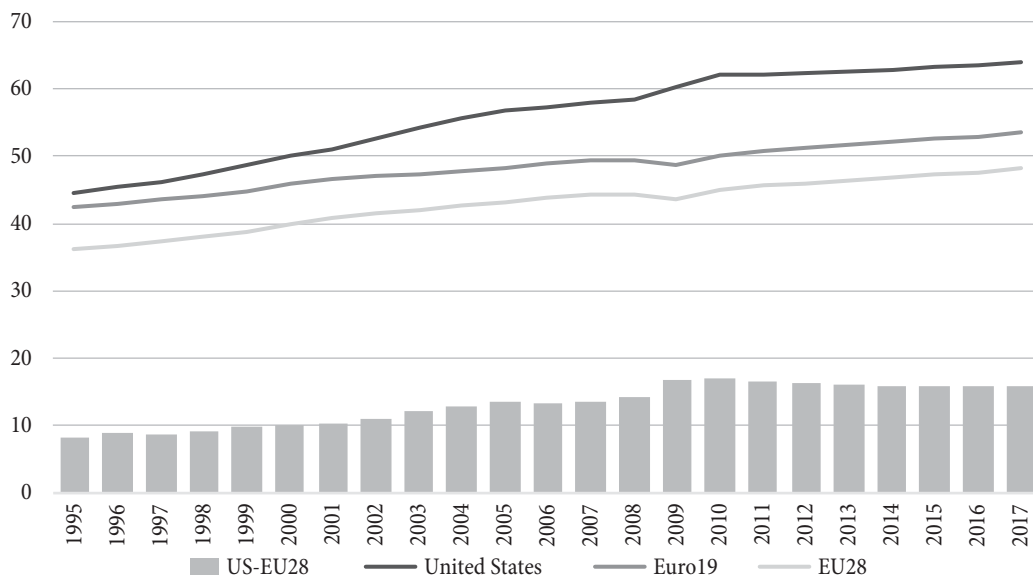
In general, economic growth in smaller, very open catching-up economies followed a similar pattern of export-led growth, which, besides facilitating demand and the subsequent manufacturing growth, also enabled technological transfer, knowledge spillover, and the inclusion of companies from emerging economies in strong global

value chains, which supported their development and competitiveness [59], [62], [66].

Moreover, as Ribeiro et al. [62] claim, export is an important source of growth. On a sample of 26 EU economies, they show that high growth is in fact facilitated by export specialization, focusing on high value-added products, especially in manufacturing and advanced technologies, and also by export diversification across partners. It is important to concentrate on export, primarily to higher-growth countries.

Research also shows that economic growth becomes increasingly dependent on total factor productivity growth, which depends mostly on technology. For example, according to Chadha [16], about two thirds of all growth since the first industrial revolution (between 1760 and 2015) can be attributed to total factor productivity growth. According to his findings, the same is true also of the period from 1938 to 2018, with total factor productivity growth amounting to 1.48 percentage points of the 2.38 percent yearly total average growth, representing about two thirds of the total. Atkinson’s [5] findings add to this discussion another important notion, namely that “The lion’s share of productivity growth in most nations comes not from changing the sectoral mix to higher-productivity industries, but from all industries, even low-productivity ones, boosting their productivity”. The developed economies

Figure 1: GDP per hours worked in US \$ and the gap between the US and the EU28 GDP per hour in US \$(grey columns) (constant 2010 prices)



Source: [56].

as well as the developing ones are currently putting a lot of hope in the impact of Industry 4.0 and digitalization on a productivity boost [60], which is expected to once again increase productivity growth and help offset the negative impacts of an ageing population and the lack of a labor force on future growth.

In this paper we discuss the potentials of Industry 4.0 in boosting productivity levels and competitive strengths in Europe in general, in some better developed European countries (which serve as a benchmark), and with particular emphasis on small European catching-up economies. A case study of Slovenia will be presented.

Industry 4.0: drivers and impacts

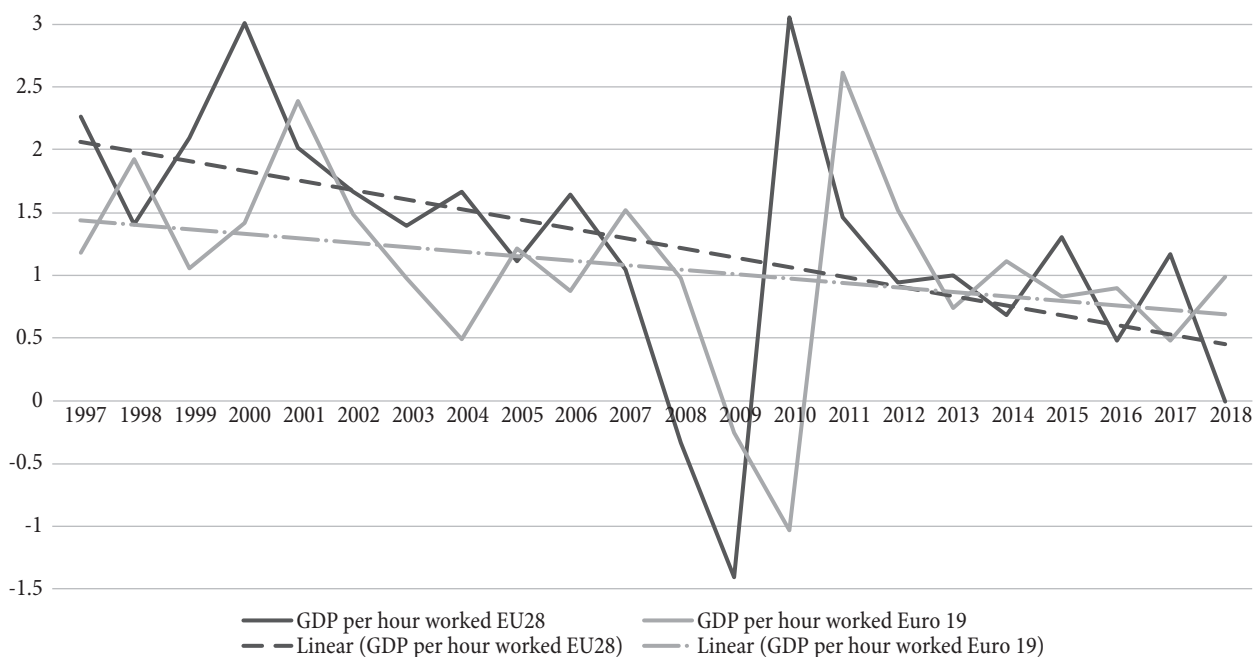
The fourth industrial revolution

Since the first industrial revolution, the nature of production has changed immensely. The first industrial revolution was marked by the invention of the first mechanical loom. Technological progress continued with the general introduction of steam power, which, among other things, transformed transportation. Industrialization led to mass urbanization and increased the need for rationalization and the division of labor due to large-scale production. In

1870, the first production line was introduced, marking the beginning of the second industrial revolution. Soon, electricity and internal combustion engines were in widespread use, and productivity continued to increase before and primarily after the Second World War, accompanied by the emergence of the consumer society. The third industrial revolution dates back to 1969, with the development of Modicon, the first programmable logistic controller [40], which further helped increase productivity in manufacturing and services, transportation, and other. In the 1990s, this third industrial revolution was accompanied by the rise of the knowledge economy [3], [4], [6], which boosted productivity growth in the US, as well as caused a more pronounced lag between the US and the EU. The knowledge-based economy also gave rise to the importance of intangible investment for growth, stressing innovation and economic competencies as well as computerized information, all closely linked to knowledge, technology, and digitalization. Again, the US and the UK were the most successful at intangible investment, which can contribute to productivity up to a third [17], [55].

The emergence of a more pronounced difference in productivity growth between the EU and the US, amplified further by the marked and prolonged impact of the crisis,

Figure 2: Productivity growth slowdown in the EU (percentage change in real GDP per hour)



Source: [56].

and a general global productivity slowdown coincided with the beginning of the most recent, the fourth industrial revolution. If the third industrial revolution was marked by computerization and automation, the fourth industrial revolution merges the technological, the physical, and the biological into cyber-physical systems. The term, coined by Klaus Schwab in 2011 [65], describes new technologies which are at the moment most evidently present in the manufacturing and service sector with robots, but include also technologies such as the Internet of Things, artificial intelligence, 3D printing, additive manufacturing, big data, customization, nanotechnology, autonomous machines, and many others [60], [65], [72].

According to Schwab [65], the drivers of the fourth industrial revolution can be classified into three large groups: physical, digital, and biological. The physical drivers comprise autonomous vehicles, 3D printing, advanced robotics, and new materials. Autonomous vehicles are most often considered to refer to cars, although they also include trucks, drones, aircraft, and boats. Accompanied by smart sensors and artificial intelligence, these technologies will markedly change production and our daily lives. 3D printing has numerous potentials for use in manufacturing and life-improvement (e.g., medical devices, implants), and is already being upgraded into 4D printing, expected to generate self-adaptable products, which will be able to adapt to changes in the environment. Robotics, one of the dominant features of Industry 4.0, is also becoming smarter, more adaptive, accompanied by artificial intelligence and being endowed with a more “biologically inspired” design. Humanoid robots or robots with smart sensors and artificial intelligence (AI) in general are expected to be able to adapt to their environment and carry out a number of tasks (instead of humans). These new technologies have been accompanied, but also largely stimulated, by the emergence of new materials. With broader use, these are becoming cheaper to produce, consequently speeding up the technological loop. There are numerous digital drivers according to Schwab [65], the most prominent among them being the Internet of Things, a bridge “between the physical and digital application.” Sensors, remote monitoring, blockchain technologies, big data, and others are allowing rationalization, customization, and the emergence of

the on-demand economy (e.g., the sharing economy, the Uber model, etc.). In terms of biological drivers, Schwab [65] stresses particularly the role of genetics in the recent past, while a lot is expected from synthetic biology, which should further improve healthcare. Combined with 3D manufacturing, it is expected to give rise to bioprinting to generate tissues and organs.

The expected impact of new technologies on business performance and productivity growth

Industry 4.0 is expected to both boost productivity and have wider positive impacts due to a number of reasons. Xu et al. [72] claim that these will result from: 1) lower barriers between inventors and markets, which implies a faster commercialization of innovations, 2) the stronger role of artificial intelligence, 3) the fusion of different technologies, 4) connected life through the Internet of Things (IoT), and 5) the wider use of robots, which will improve production and our lives. Schwab [65] maintains that the impact on the “economy, business, governments and countries, society and individuals” will be evident, and predicts that the extent of the “disruption that the fourth industrial revolution will have on existing political, economic and social models will therefore require (...) collaborative forms of interaction to succeed.”

Generally, companies introduce new technologies for a number of reasons, classified into push and pull factors (Table 1). On the push side, companies desire to benefit from new technologies due to higher revenue and turnover growth, the increase in market shares, and the opening of new markets. Additionally, the introduction of new products and services, alongside organizational and process innovation as well as stronger integration along value chains, can reasonably be strong motivators for the implementation of a given technology due to competitiveness and productivity impacts. Something similar is true of pull factors, which encompass the productivity and efficiency increase resulting from process standardization, quality increase, better data use, etc. Rationalization and customization facilitated by new technologies are further expected to boost productivity.

In terms of economic impacts, the biggest positive impact is expected in the productivity boom of the fourth industrial revolution once technologies are used at a larger scale, offsetting the negative impacts of crisis stagnation and the waning impact of the third industrial revolution. Moreover, it is also expected to offset the problem of labor availability as the effect of an ageing population. For example, firms in Slovenia have been reporting labor shortage as one of the key reasons for the introduction of robots [60].

With regard to developed countries as well as catching-up economies, it is important to keep in mind the need to remain competitive, strive for the highest possible quality, and innovate products at a low cost also due to increasing global competition and entrants from emerging markets. For companies in emerging EU economies, the fourth industrial revolution is an opportunity to follow, learn, and increase their productivity.

Europe is lagging behind the most developed economies in the use of modern technologies

Despite the widespread discussions about the possibilities of Industry 4.0, at the moment, the data shows that its implementation is strongest in robotics, while other technologies have not been implemented fast enough and have not been used to their fullest potential. For example, the most recent data from the International Federation of Robotics for 2018 show that 2.4 million robots are in use, which is about 15% more than in 2017 and more than 20% than in 2016. By 2021, the number of robots in use is expected to reach 3.7 million [41].

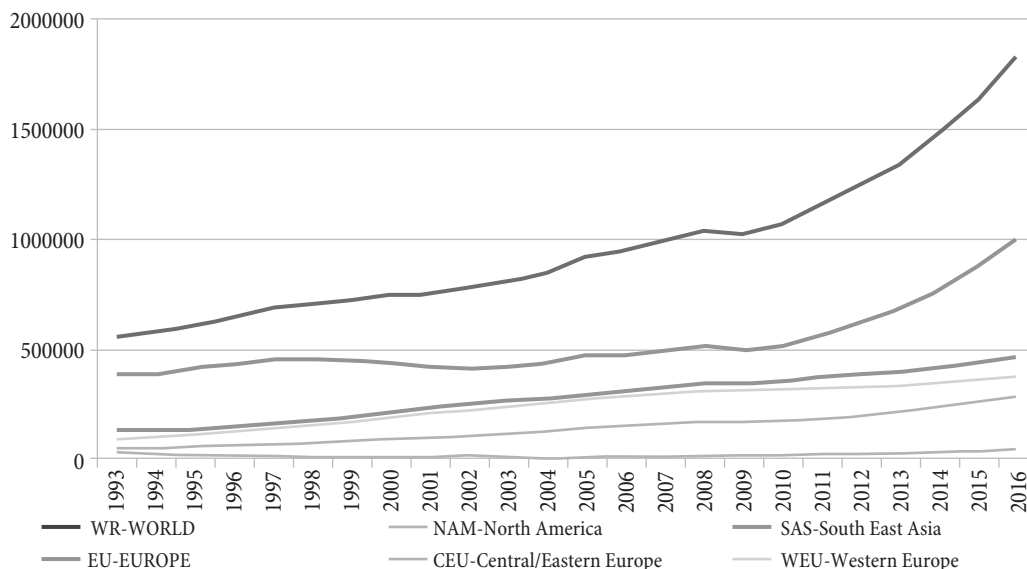
Figure 3 depicts the increase in the number of robots used. According to the data by IFR [41], the operational stock of robots has been increasing by an average of 10% per year. This growth was faster primarily in fast-growing regions with lagging robotization. Between 2011

Table 1: Push and pull factors in introducing new technologies

PUSH	OVERLAP	PULL
Revenue, turnover growth	Customer satisfaction	Productivity and efficiency increase
Market share increase	Understanding market requirements	Process standardization
New markets	Flexibility and customization	Quality increase
New products/services	Prioritization	Shorter delivery times
Compliance	Reduction of employment	Data analysis (and monitoring)
Horizontal and vertical integration		Better process insights
Improving management		Legislation adaptation
Complexity of processes and products		Consumer power
Government support		Employee satisfaction

Source: [14].

Figure 3: Operational stock of robots in manufacturing, measured in number of robots



Source: [41].

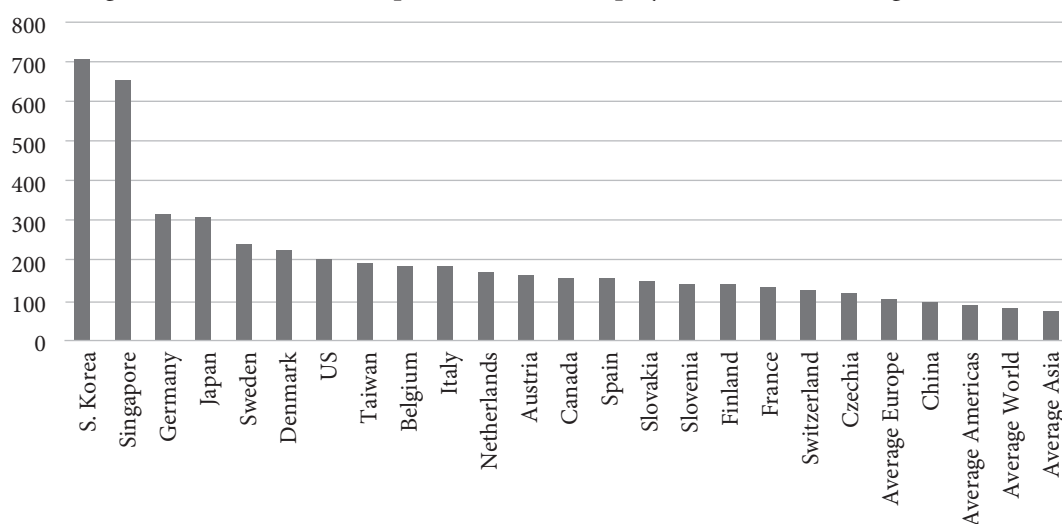
and 2016, the volume of robots in China was increasing at an average rate of 36%, and in 2016 China became the country with the highest total number of robots (340 thousand). In the same period, the operational stock of robots was fast increasing also in Central and Eastern European countries, by about 19% per year. Europe in general exhibited a slower increase in the number of robots (see Figure 3 for how the gap between Europe as a whole and Western Europe has widened).

The country which has implemented robots into manufacturing most successfully is South Korea, with 710 robots per 10 thousand employees in manufacturing in 2017. It is closely followed by Singapore and less closely, behind by over 300 robots, by Germany and Japan. In

general, European economies had 106 robots per 10 thousand employees in manufacturing (Figure 4).

The pace of the implementation of robots depends also on the industrial structure of an economy. Robots are predominantly used in manufacturing (Table 2) – in 2016, 86% of all robots were used there. The key driver of the increased use of robots was the automotive sector, followed by the suppliers to the automotive sector. The automotive sector itself uses around 50% of all robots, in some countries even more (e.g., the Czech Republic, 60% in 2016). However, other industries are following fast. In 2016, robot sales to the electrical/electronics industry increased by 41%, accounting for a third of the total supply in 2016. In the rubber and plastics industry, sales

Figure 4: Number of robots per 10 thousand employees in manufacturing in 2017



Source: [41].

Table 2: Structure of robot use in % in selected EU economies

	DE-Germany	CZ-Czech R.	SL-Slovenia
Total operational stock (number of robots)	189270	13049	2452
Structure by industry (% of total), selected industries			
D-Manufacturing	85.2	91.5	88.9
10-12-Food and beverages	3.6	1.3	3.8
19-22-Plastic and chemical products	10.7	14.8	14.1
22-Rubber and plastic products (nonautomotive)	9.5	14.6	13.4
24-28-Metal	13	12.2	14.2
25-Metal products (nonautomotive)	6.8	8.1	8.5
28-Industrial machinery	4.9	3.3	4.6
26-27-Electrical/Electronics	4.5	1.8	5.3
29-Automotive	49.5	58.6	48.3
291-Motor vehicles, engines and bodies	32.6	24.4	16.2
293-Automotive parts	16.6	34.1	31.5
2931-Metal (Auto parts)	6.4	14.3	13.1
2932-Rubber and plastic (Auto parts)	2.3	8.3	5.1

Source: [42].

increased by 9% on average per year between 2011 and 2016. Robot sales to the pharmaceutical and cosmetics industries substantially increased as well [42].

Industry 4.0 is, of course, marked by several other technologies, but their use in Europe is still weak. Table 3 presents data on the use of some of the recent technologies, which represent the process of digitalization and are further more necessary for stronger automation and rationalization. Even at the EU15 level, the use of CRM (customer relationship management) and ERP (enterprise resource planning) software, which are most widespread,

is weak, with only around a third of companies using it in the EU15. The use of RFID (radio frequency identification) is even sparser, and the technology is primarily used in its simplest application, which is for identification, although it offers significantly more.

E-commerce, another feature of digitalization, is still developing, but is not yet widely used (Table 4). Although the vast majority of enterprises do have internet access (97%), only 77% have a website. The use of websites is often limited to providing product information (56% of companies), while only 42% use social networks or

Table 3: Software and technologies used in European companies, % of all companies in 2017

	Enterprises using RFID technologies (as of 2014)	Enterprises with ERP to share information between different functions	Enterprises using software solutions such as CRM	Enterprises using CRM to analyze information about clients for marketing purposes	Enterprises using CRM to capture, store, make available client information to other business functions
EU15	13	36	37	23	35
EU28	12	34	33	21	32
Euro area	14	39	37	23	36
Austria	19	40	43	27	43
Croatia	14	26	20	12	19
Czech R.	8	28	19	16	18
Denmark	9	40	36	23	36
Estonia	12	28	24	15	23
Finland	23	39	39	23	37
Germany	16	38	47	26	46
Lithuania	10	47	33	24	33
Luxembourg	18	41	39	23	39
Poland	9	26	23	16	23
Slovakia	18	31	24	17	22
Slovenia	15	30	25	13	25
Sweden	12	31	35	20	34
UK	8	19	32	21	31

Source: [38].

Table 4: Infrastructural characteristics in the EU in 2016 and 2017 (where stated)

	EU28
Enterprises with Internet access	97
Enterprises with a website	77
Enterprises with a website providing product catalogs or price lists	56
Enterprises with a website providing online ordering, reservation or booking, e.g., a shopping cart	18
Enterprises with a website providing online order tracking	8
Use of the enterprise's blog or microblogs (e.g. Twitter, Present.ly, etc.)	14
Use of multimedia content sharing websites (e.g., YouTube, Flickr, Picasa, SlideShare, etc.)	15
<i>Enterprises using the Internet and web pages to:</i>	
Develop the enterprise's image or market products (2017)	40
Obtain or respond to customer opinions, reviews, questions (2017)	27
Involve customers in the development or innovation of goods or services (2017)	12
Collaborate with business partners or others (2017)	12
Recruit employees (2017)	23
Exchange views, opinions, or knowledge within the enterprise online (2017)	13
Use social media for any purpose (2017)	45

Source: [38].

multimedia websites (YouTube) to promote their products. Online ordering is provided by 18% of companies.

The digital environment in many countries remains deficient and does not translate the benefits of new technologies into tangible and inclusive trade and growth opportunities. Moreover, poor infrastructure and a lack of economies of scale, due to fragmented cross-border markets, substantially affect the ability of micro, small and medium-sized enterprises to participate in digital marketplaces and global value chains. The European Union monitors the digital readiness and the state of development of its economies using the DESI indicator¹ [19]. DESI summarizes the countries' digital performance and monitors progress in digital competitiveness. The index studies the following aspects: connectivity development, human capital development, the use of Internet services, and digital public services. The data (Figure 5) show that digital readiness and the use of new technologies are most intense in Northern Europe, while the Mediterranean economies and the new EU members are mostly ranked below the EU average, with some exceptions, such as Estonia, Spain, Malta, and Lithuania.

1 The DESI indicator monitors the following: 1) connectivity development, i.e., fixed broadband, mobile broadband, broadband speed and prices; 2) human capital development and the presence of skills, i.e., Internet use, basic and advanced digital skills; 3) the use of Internet services in the country, i.e., the citizens' use of content, communication, and online transactions; 4) the integration of digital technology, i.e., business digitization and e-commerce; 5) digital public services, i.e., e-Government.

Based on the data, there are two trends that are currently observable regarding Industry 4.0 in Europe: 1) the overall decline in the growth of productivity is associated with weak adoption of new technologies; 2) the gap between core European countries and Europe's catching-up economies is large.

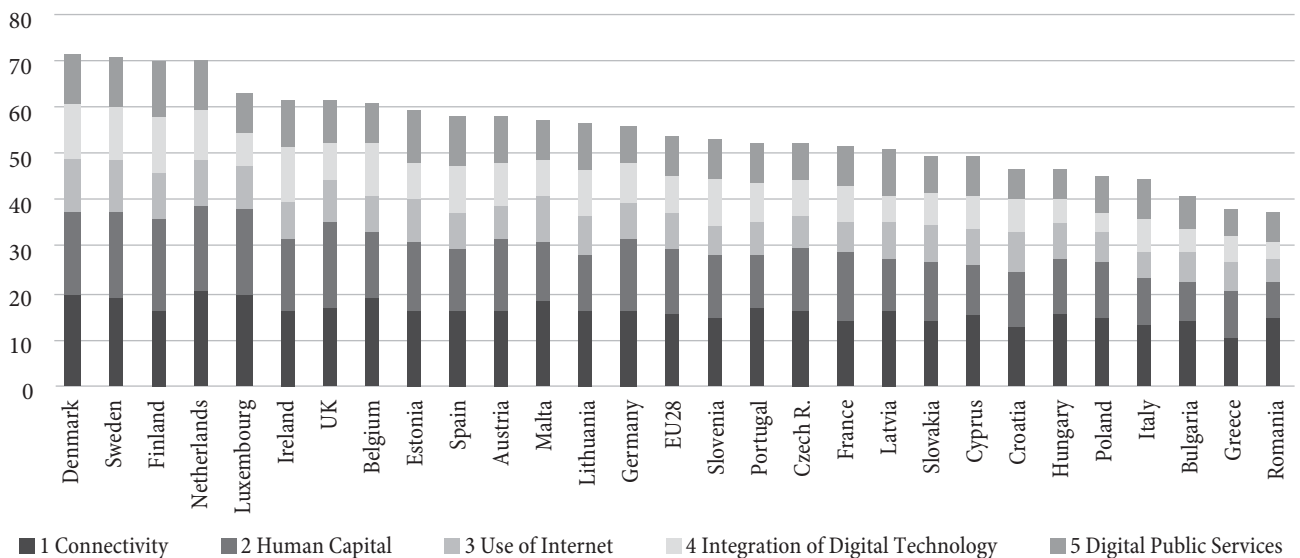
Policies to speed up the development of Industry 4.0 in Europe

A general perspective

To boost the productivity of the European economy, the European Commission (EC) initiated different policies in order to speed up the development of Industry 4.0 and digitalization. Table 5 summarizes the central policies related to digitalization and Industry 4.0 in the European Union.

The first major area is the area of "skills for industry" [35], where two major goals are set. The first is the goal of increasing the talent pool, and the second is to reskill and upskill individuals to fit the needs of the advancing industries. Within this context, several initiatives have been developed. Upskilling and reskilling are also important due to technology-induced unemployment and the consequent change of needs and skills [35]. In addition to upskilling and reskilling, it is very important that the EU promotes sectoral cooperation in the field of

Figure 5: DESI Index in European Union countries, 2017



Source: [19].

skills development [25]. Moreover, special attention is placed on the development of digital skills and e-skills, which are promoted via several mechanisms [20], [68]. Special attention is also given to IT professionals and KETS skills (key enabling technologies related skills²) as well as leadership skills, where both standardization and strategies on how to promote skill development, including new curricula, are being developed [35].

The second major policy area is digital transformation. Here, the European Commission stresses that European businesses are not yet taking full advantage of technologies, especially those that rely on the collaborative economy [33]. As previously mentioned, significant focus is placed on the development of digital skills, upskilling, and the development of smart cities, which will facilitate the achievement of sustainable development goals [33]. To promote digital development, several initiatives have been launched, and a number of projects are being financed promoting the development and adoption of new technologies. These are primarily H2020 projects, the COSME program, and programs such as the European Innovation Partnership on Smart Cities and Communities, fostering SMEs' growth through digital transformation.

ICT standardization across European economies is crucial for faster adoption, better cross-country collaboration,

² These are considered to be "strong technical background, strong business sense and strategic vision" [35].

and internal market efficiency as it will lower transaction costs [31]. To promote standardization, the EU supports the work of three European standardization organizations, with a view to achieving standardization in five priority areas, essential for wider EU competitiveness: 5G, the Internet of Things, cloud computing, cyber security, and data technologies [31]. Several other initiatives have been launched, from the Digital Transformation Monitor to the Strategic Policy Forum on Digital Entrepreneurship [32].

Future development in the field of digitalization depends largely on how successful the EU will be at developing new technologies. The Commission identified six key enabling technologies or KETs: micro- and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics, and advanced manufacturing technologies [34]. These technologies can be used in a number of industries, they can support solving major social challenges, and help create "advanced and sustainable economies". These technologies are also key to innovation, which is why the EU additionally promotes their development directly through smart specialization platforms and Horizon 2020 projects, which stimulate cross-cutting KETs in particular, and European structural and investment funds (EISF), allows state aid to be granted to important projects of common European interest (IPCEIs), and helps improve the accessibility of loans to KET projects in cooperation with the European Investment Bank [30].

Table 5: Summary of the main policies related to digitalization and promoting Industry 4.0

Policy area	Purpose/goal	Measures and documents
Skills for industry	Ensure workforce is properly educated and skilled to meet the needs of technologically advanced industries	New Skills Agenda for Europe (2016, upskilling), Blueprint for Sectoral Cooperation on Skills (2018, high-tech sectors), Digital Skills and Jobs Coalition (2016), IT skills development and development of the e-competence framework, KETs and STEM competence development and leadership skills;
Digital transformation	Digital B2B platforms and data-driven business models Digital cities and smart cities Smart use of ICT for SMEs	Digital Single Market Strategy, Big Data public-private partnership, H2020 projects, COSME, European Innovation Partnership on Smart Cities and Communities, fostering SMEs' growth through digital transformation;
ICT standardization	Unified ICT standards for achieving the interoperability of new technologies	Communication on ICT Standardization Priorities, European Multi Stakeholder Platform on ICT Standardization, 2018 Rolling Plan for ICT Standardization;
Key enabling technologies*	Applications in multiple industries address economic and societal challenges, stimulate growth and competitiveness	2012 Communication on KETs, supporting investments in KETs, KETs Observatory, helping SMEs get KET technology platforms, activities on trade, skills, facilitation of large industrial projects.
Clusters	Promote cluster development as the core of industrial development	The European Cluster Observatory, Cluster Excellence; Cluster Internationalization, Clusters in Emerging Industries.

KETs: micro- and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics, and advanced manufacturing technologies.
Source: adapted from text and [33], [34], [35], [36], [37]

The European Commission is also well aware of the importance of clusters. In the EU, there are about 2000 clusters, 150 of them world leaders stimulating development and job growth [29]. Clusters are being recognized as particularly important for promoting not only the growth of SMEs and innovation but also collaboration among sectors and across borders, which is crucial for small EU members, especially those with a granulated enterprise structure (e.g., Slovenian firms with less than 10 employees generate over 10% of export). The clusters are being directly supported through H2020 projects, small business acts, entrepreneurship action plans, promoting also cluster internationalization and focusing on clusters in emerging sectors.

To achieve the stated development goals, the European Commission has numerous policy instruments at its disposal, from financial instruments and direct funding to several major development funds. These are: the European Regional Development Fund, the European Social Fund, both available to all countries, the Cohesion Fund, which is available only to less developed countries, the European Agricultural Fund for Rural Development (EAFRD), and the European Maritime and Fisheries Fund (EMFF). Besides these major funds, the EU also has an EU Solidarity Fund, which offers support in major disasters, and the Instrument for Pre-Accession Assistance (IPA) [36]. It should be mentioned, however, that none of the funds currently focuses on the acceleration of first technological lines of enterprises, but rather on the catching-up of technologically least developed lines. In the future (2021–2027), the main goals will be developing (1) a smarter Europe, (2) a greener and carbon-free Europe, (3) a better connected Europe, and (4) a more social Europe, which will be (5) closer to its citizens by promoting locally-led development strategies [37].

An assessment of European policies

The ambitious European Union program of Industry 4.0 development does not yet deliver the expected results (as shown in the previous section). The fact is that the program is activist in nature, and is based on some of the EU's fundamental principles: 1) the EU functions mainly

as a facilitator of the Industry 4.0 platform, where the main responsibility (including major investments) lies with the member states and companies (i.e., to become more productive and competitive); 2) the formation of a digital single market is an aspiration which goes hand in hand with the principles of the European single market, proclaimed as the main engine of the European economy. "Competition is not the curse but the cure to European falling competitiveness", maintained Gunee and Erixon [46] after a failing merger of Alstom and Siemens, advocated by French and German governments in order to defend incumbent firms against Chinese competition in Europe. The EU does not support the champions building industrial policy (picking the winner), and even in the case of sectoral industrial policies it prefers horizontal measures and not subsidies targeted to particular firms [22]; 3) concerning the divide between the core and the (super) periphery, Table 5 does not validate specific policies favoring catching-up economies. It confirms the dominant European doctrine of economic convergence, i.e., the strategy of reducing income disparities between the developed European countries and the catching-up countries, where the main role belongs to the free movement of capital from the more developed to the catching-up countries based on the claim of the higher marginal productivity of capital in catching-up countries. Accordingly, in the view of its advocates, knocking down regulatory barriers between EU countries represents the main challenge in achieving a digital single market in the EU [27].³

However, many factors that hold back Europe's digital transformation or Industry 4.0 are not solely specific to this industry. They are about the general conditions to do business across borders in Europe. Moreover, in small, open catching-up economies, they have an even more

³ The last two principles are questionable. This was shown before the recent financial crisis as the foreign capital in catching-up economies was not focused on activities with high marginal product of capital, but on activities with low marginal product of capital (banking, retail, real estate, [58]). The financial crisis was therefore transmitted from core to (super) periphery countries (external factor of amplification) which together with strong internal factors of amplification due to the less developed financial systems (which are typical bank-based) brought to enormous social costs of the crisis in "catching-up" economies [8], [9]. On the other hand, due to the EU strict policy on state aids (not allowing subsidies), EU state spending measures during the crisis were almost five times lower than in the US and more than six times lower than in Australia [7].

important role because of the development gap. Let us elaborate a few of them: 1) financing, 2) human capital development, and 3) government capacities.

First, the European model is focused on bank financing, although data show that the share of bank vs. non-bank financing has shifted to a smaller emphasis on bank financing – from 70% of financing from banks in 2008 to 55% now [23]. This is still high compared to the USA, where the share is unchanged at 1/3 of total financing. On the other hand, the role of market finance in the euro area is growing, particularly through the reduction of the share of the banking system and the increase of non-regulated finance (investment funds). Enhancing market-based finance, including financing SMEs and the delivery of the early-stage finance, is an open issue in the entirety of Europe, and in particular in catching-up economies. Meanwhile, capital inflows into catching-up economies have started to recover, and there is a question whether the next Minsky moment could happen if the bank financing of Industry 4.0 investments based on excessive external (wholesale) borrowing prevailed again [9].

Second, labor market restrictions represent another limitation factor which is not related solely to the development of Industry 4.0 and is of particularly high importance in catching-up economies. The key element of adopting advanced Industry 4.0 technologies is, namely, complementarity. Improving labor market functioning through mobility and recruitment practices to upgrade managerial and skill capabilities represents one part of the solution. While there is considerable uncertainty about what skills exactly will be needed in the future, an adaptable education system, on-the-job training, and flexible labor markets represent ways to facilitate adjustment. The critical role, here, belongs to the tertiary education system. To help those entering the market, higher cooperation between businesses and higher education institutions is required, adapting higher education programs to follow technological trends and their applications is a necessity, teaching life-long learning as a value and a skill is needed, and creating an education-to-employment system integrator to coordinate and integrate activities, as well as monitor outcomes, becomes a target. In addition, to help those already working, reskilling opportunities

must be made available. The lack of adequate institutional and organizational settings in the labor market presents, therefore, a real challenge.

Third, the government has an important role in developing the Industry 4.0 society. As a response to the Great Recession, Australian total fiscal expenditures reached as high as 5.2% of GDP in the 2008–2010 period, cumulatively (in Europe, this share amounted to 3.0%). Out of this, around 60% (3% of GDP, cumulatively) was invested in Industry 4.0 infrastructure, whilst in Europe this was true of only 0.01% of GDP [7]. Catching-up economies are even more affected due to the severe financial crisis and the post-crisis amplification. Much more investment is currently needed in broadband coverage, which is still lacking in many areas. High-speed internet connections and educational training are lacking in many countries as well. Next, many governments in catching-up economies need to ensure an increase in the basic factors of productivity (facilitate trade, encourage FDI and the mobility of skilled labor, knowledge sharing, improved access to human and financial capital, etc.). Additionally, a transformation into Industry 4.0 requires investment in the education system, the health system, culture, etc. If learning spillovers are to occur, regional collaboration and lower income inequalities are important as well. Furthermore, Industry 4.0 can cause the obsolescence of certain industries and completely reshape others. However, the room for maneuver regarding fiscal expenditures in individual European catching-up economies differs significantly. Besides, what works in one country may not work in the other. For example, government subsidies to accelerate digital collaboration among firms in the automotive cluster in Slovenia may not lead to the expected results as there are missing firms on top of the value chain. The majority of existing firms are suppliers, positioned lower in the value chain, often competing with each other in the same market. Their willingness to collaborate is not very high [49]. In some economies, an additional problem lies in the shallow understanding of the meaning of state subsidies. The receivers of subsidies are often not interested in the effect of externalities. Also, the state is frequently incapable of monitoring its investments due to severe operational inefficiencies, and corruption could be a severe problem.

It is also true that European countries started their Industry 4.0 transformations at different stages of development. For example, robotization in Denmark has progressed in line with the bottom-up approach through organic development in the Odense cluster. The success of the Odense-based robotics cluster, which was a failing start-up in 2008, inspired the development of an entire robotics society consisting of several strong robotics clusters, robotics manufacturers, and innovation networks supported by educational programs [70]. Denmark is currently one of the most developed European countries in terms of digitalization (see Figure 5) and automation [49]. However, the development of the next generation of digital infrastructure in Denmark may require a more top-down approach in the future [51].

In Austria, the major incentives for automation and robotization used to come from the corporate sector, especially in the automotive industry [49]. In contrast to Denmark, they were more fragmented, and the government decided to run a big campaign for Industry 4.0. Austria is a front runner in the implementation of Industry 4.0 according to an assessment based on a report by Roland Berger [63]. Austria's approach can be characterized as much more top-down than Denmark's and is similar to Germany with the government assuming an active role in the promotion of Industry 4.0 [63].

The German federal government sees Industry 4.0 as a major opportunity for Germany to establish itself as an integrated industry lead market and provider. This strategy is based on two goals: (1) Germany to become one of the world's most competitive and innovative manufacturers, and (2) Germany as a technological leader in industrial production research and development [44]. However, despite investments made by Germany's largest companies, other businesses have not responded to the challenge, with SMEs (the so-called "Mittelstand") proving particularly problematic in terms of awareness and readiness [48].

Alternatively, the government of the Netherlands tried to define the country's key economy sectors and the specific needs to be addressed in the future.⁴ The sector-driven approach is based on the identification of sectors

in which the Netherlands has existing well-established competitive advantages, which can be developed further. The main emphasis fell on digitalization, entrepreneurship, and entrepreneurial initiatives. Dedicated funds are provided by the government to address specific problems in key sectors. The state is seen as a moderator between external knowledge carriers (education, training, and research) and internal knowledge carriers to address the key sectors' needs. The usage of state funds should create positive externalities for the society as whole.

A pragmatic Slovenian solution

Slovenia in the past experienced a few attempts to build an industrial policy as the core of its strategic development. In the first period after independence (1990–1999), industrial policy was mainly aimed at stabilizing the economy and bank rehabilitation in the new market environment. In 1999, the Ministry of the Economy formulated a new concept of industrial policy [12]. The goal was to encourage entrepreneurship and corporate growth in an improved business environment. Policies focused on developing social capital by promoting partnerships between companies, universities, and research institutions. Between 2004 and 2009, Slovenia supported the emergence of competency centers and centers of excellence. Regardless of the fact that Slovenia established strong "basic research" units, there was an obvious lack of transfer to practical use by applying their findings in practice [11], [47].

Next, Slovenia's industrial policy is shaped by the Smart Specialization Strategy (S4).⁵ It is structured into two pillars: 1) the business and innovation ecosystem, 2) chain and value networks. The first relates to the promotion of entrepreneurship and innovation. It calls for a consistent (i.e., at all stages of company growth) and integrated support (i.e., including finance, content, promotion, and infrastructure) of the business and innovation ecosystem, which is based on a systematic collection of actions under the programs Dynamic Slovenia (with the subprograms (1) Start-up Slovenia and (2) Knowledge and technology transfer) and Creative Slovenia (with the subprograms

4 Ministry of Economic Affairs, Agriculture and Innovation, Government of the Netherlands [53].

5 It was initiated by the Slovenian government office for development and European cohesion policy in 2014.

(1) Young Slovenia and (2) Design Slovenia). The second highlights the comparative advantages of Slovenia in some industries (the chemical industry, pharmaceuticals and medical devices, the manufacturing of metal and metal products, the electronics and electric power industries, ICT, engineering, and the automotive and marine industries),⁶ and the need for the networking of companies to create five priority areas (smart specialization): 1) smart factories, 2) smart buildings and homes, 3) smart cities and communities, 4) the rational use of resources, 5) and health. For each area a package of measures is presented, which are to be implemented in particular through the

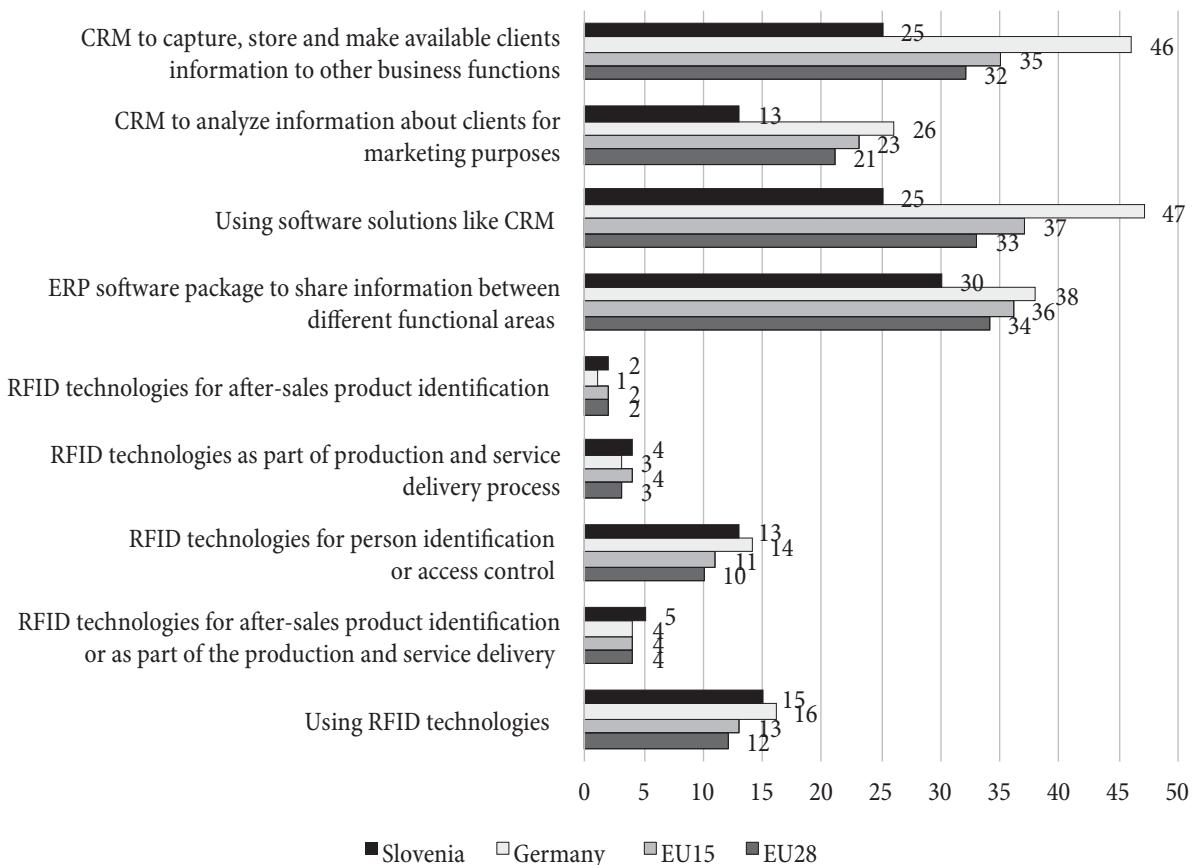
6 The idea of preferred sectors can be “vague”, especially in small catching-up economies. Take, for example, the ICT industry in Slovenia. The contribution draft for the Smart Specialization Strategy by the Chamber of Commerce of Slovenia [45], which is the basis for the sectoral approach presented in the Smart Specialization Strategy, describes the ICT industry as promising, with a large number of innovative small businesses conquering the global niche markets and entering the international global chain. However, the analysis of value added reveals that the IT services sector accounts for only 56% of the average value added in the EU27 [50].

system of development centers (the centers of excellence and competency centers), funded primarily through the European structural funds.

This structural approach now faces severe criticism. Some proponents claim that its practical validity is poor. Others are striving for a bigger role of the basic sciences. Building a new government strategy is therefore already on the horizon. However, what really matters in small, open catching-up economies is how productive the economy is, and whether the new productive Industry 4.0 methods are used to improve its position among the global competition. In addition, being at the top may not be the most important aspect – it may be surpassed by a focus on the distribution of firms and reasonable productivity increases (Figure 6).

Slovenia has made significant progress in the implementation of new technologies in the past two decades, especially in the past decade. In 2004, Slovenian companies employed a total of 391 robots, whereas in 2008

Figure 6: The share of enterprises using new technologies in Slovenia and the EU in 2017 (% of all companies that use a specific technology)*



*RFID: Radio Frequency identification, CRM: Customer Relationship Management, ERP: Electronic Resource Planning
Source: [38]

Table 6: The use of new technologies in Slovenia in 2017 (% of all companies that use a specific technology, financial sector excluded)

	All enterprises, (10 persons or more)	Small enterprises (10–49 persons)	Medium enterprises (50–249 persons)	Large enterprises (250 persons employed or more)
Enterprises using RFID technologies (as of 2014)	15	10	33	54
Enterprises using RFID technologies for after-sales product identification or as part of the production and service delivery	5	3	11	17
Enterprises using RFID technologies for person identification or access control (as of 2014)	13	8	30	50
Enterprises using RFID technologies as part of the production and service delivery process (as of 2014)	4	3	9	12
Enterprises using RFID technologies for after-sales product identification (as of 2014)	2	1	6	9
Enterprises which have an ERP software package to share information among different functional areas	30	22	58	93
Enterprises using software solutions such as CRM	25	21	39	68
Enterprises using CRM to analyze information about clients for marketing purposes	13	11	21	40
Enterprises using CRM to capture, store and make available client information to other business functions	25	21	39	68

Source: [38].

this number was already 852 robots, and in 2016 it reached 2500 robots. While in the past decade robotization and new technologies were implemented mainly in the automotive sector, today the electrical, chemical, and pharmaceutical industries are following suit very quickly [41].

Slovenia is also quickly implementing other new technologies. Recent data [61] show that around 40% of companies are using cloud computing and smart mobile devices, around 30% have systems such as CRM, ERP, and RFID, 20–30% also have linked processes and some automation in production, and around 20% of companies reported using the Internet of Things. In using some of the more complex technologies, especially considering technologies used in manufacturing in larger companies (RFID), Slovenia could be compared to European averages (Figure 6).

However, big disparities can be identified by company size. Large enterprises are much more advanced in the use of new technologies (Table 6). While, for example, radio frequency identification (RFID) is used by 15% of all companies on average, more than a half of the large companies use it. Over 90% of large companies use enterprise resource planning (ERP) software, but only a third of small ones. Similarly, big differences can be identified in the use of other technologies (Table 6).

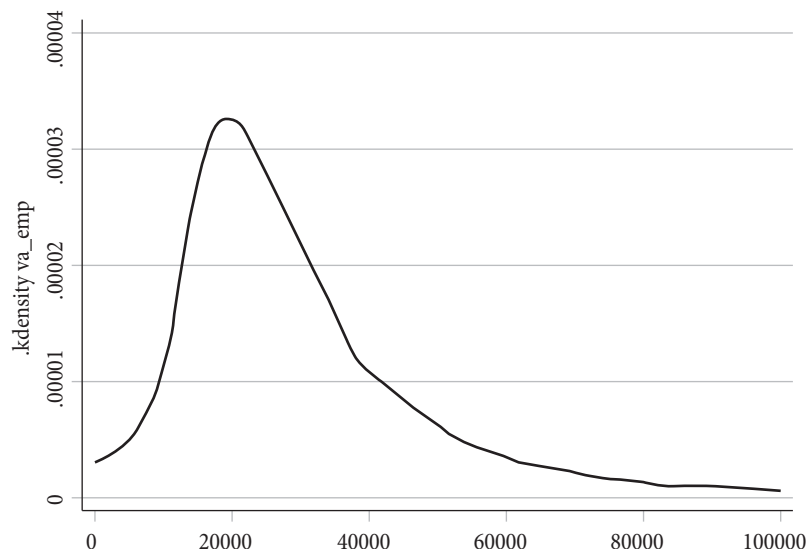
A very strong influence on the implementation of new technologies comes from exporting markets, where primarily larger Slovenian companies represent important parts. An investigation into the behavior of large Slovenian companies [59] showed that Slovenian companies can be divided into four sub-groups by two dimensions: final market orientation (exports vs. domestic) and sector (manufacturing and services). The results showed that those companies that are strongly oriented towards the most demanding global markets and are primarily from higher value-added sectors (these are primarily B2B companies, many in the automotive, metal, electrical, and plastics industries) are strongly investing into the continuous development of their competencies (including technological); innovation and R&D are an important source of competitive advantage and are thus strategically important for these companies. As a consequence, the vast majority of them invest more than 3% into R&D and are very innovative – more than half of the companies introduced globally new products. They are also driven by the competition as well as their partners to remain competitive, and new technologies (as was shown in recent research) are very important in this context. For example, Slovenian partners in automotive chains, such as the companies TPV and Kolektor, are also some of the most robotized, to the point that they even

built a smart factory [60]. The other three groups are less propulsive, but also operate in more traditional industries, or in industries producing for the final consumer (B2C). In these sectors, the focus on R&D and innovation is weaker, and the companies lag behind in the implementation of new technologies [41], [61]. As opposed to the first, most export-oriented group, they do not perceive innovation and R&D to be strategically as important, and they also invest less in human capital development (training). With companies that are oriented mostly towards the domestic market, again, the drive toward innovation is weaker, they invest less in R&D [59], and they have fewer new technologies in production if, for example, measured by the number of robots [41]. The literature also confirms the importance of presence in exports as one of the key determinants of corporate behavior, learning, innovation, technological change, R&D, and productivity growth [1], [54], [57].

From the perspective of economic development, technology, knowledge, innovation, and related concepts are important primarily because technologically more advanced products or production processes increase the value added, which is the primary goal of economic development as it allows for the improvement of the standard of living. The distribution of value added in Slovenia shows that the firms are asymmetrically distributed. To raise the standard of living, the distribution should shift right.

Two important conclusions should be made based on the above figures: 1) Industry 4.0 has already touched Slovenian firms to a certain degree; 2) the frontier/laggard divide in Slovenia is huge as most firms are concentrated around the lower values of value added (the median in 2016 was 23.3 thousand, while the mean was 34.1 thousand), and consequently the distribution is skewed to the right. This means that the majority of firms need to be reshaped towards the right by following the direction of the more advanced and productive firms. Praet [58], for example, claims that in such circumstances, it is possible to boost productivity by reallocating resources both across sectors and within sectors towards the most productive firms. However, Slovenia does not possess world class companies such as Amazon, Facebook, Google, and Alibaba. It does have, as mentioned, some large firms, in foreign and domestic ownership, in manufacturing and in services, which are internationally competitive and quite advanced in using new technologies. Robotics and automation, for example, have a long tradition in Slovenia. The Slovenian robotics industry is mainly developed from the bottom-up, especially through collaborations between educational institutions, the Jožef Stefan Institute, and companies. Similar to the Austrian experience, the automotive industry can be considered a key driver. Besides the firms in the automotive industry (e.g., Revoz Novo mesto, Kolektor Idrija, TPV Novo mesto, Hidria Idrija, Mahle Letrika

Figure 7: Distribution of firm-level value added per employee (va_emp) in euros (axis x) in Slovenia, 2016



Source: [2].

Šempeter pri Novi Gorici, KTL Ljubno, Magna-Steyr Maribor, etc.), other progressive companies in the field of robotics and automation, such as Knauf Insulation Škofja Loka, Danfoss Ljubljana, BSH Hausgeräte GmbH Nazarje, Eti Izlake, Instrumentation Technologies Solkan, Gorenje Velenje, Unior Zreče, Domel Železniki, Krka Novo mesto, Lek-Novartis Ljubljana, Lama automation Dekani, Akrapovič Ivančna Gorica, Pipistrel Ajdovščina, and others can be found in Slovenia. There are also a number of enterprises that specialize in the production of components used in robots, robot work-cells, as well as automated production lines for the domestic industry and exports (i.e., Zarja Elektronika) – some of them are global players. In addition, Yaskawa, a global robot producer is located in Slovenia. It built a new plant in Kočevje, and it also opened its own robotics R&D center in Slovenia. One of the main aims of Yaskawa is to help customers adopt new technologies. Whenever a customer comes to Yaskawa for help, the R&D department develops new or improves older products, which makes them more competitive. Such an investment represents the potential for further local development and new jobs. The Ministry of Education, Science and Sport has already confirmed that there will be an additional mechanical engineering program at the local education center in Kočevje to meet the demand for trained professionals in that area. Knowledge spillovers are therefore expected to appear in the region and beyond. Work on the railway line has begun, with trains set to run to Kočevje again after a gap of 46 years [13]. Next, the Jožef Stefan Institute (IJS) in Ljubljana, the leading Slovenian research organization, has also been intensively involved in promoting technological and economic development in Slovenia, both by educating personnel as well as supporting R&D activities. In order to foster knowledge transfer, which is necessary to reduce the technology gap, the IJS Technology Park has been established. By bringing together research-oriented companies, the Institute aims to create such conditions as to enable young research talent and innovators to contribute to the transfer of knowledge and modern technology into the economy [49].

The aforementioned companies, including some companies from the service sector (i.e., Petrol Ljubljana, BTC Ljubljana, etc.), are a good presentation of foreign

and domestic-owned organizations with their own R&D departments, representing potential hubs for regional cluster developments involving small and medium-sized companies. However, three observations should be made regarding SME development in Slovenia: 1) Even in normal times, the banks' lending to SMEs is limited due to information asymmetry. Banks are limited in assessing new entrepreneurs, which is one of the reasons that governments in many countries (including the United States) have government-funded programs to encourage lending to small and medium-sized enterprises [67]. After the crisis, the Slovenian government reacted to this issue by activating the SID bank (SID – Slovenska izvozna in razvojna banka), which is 100% owned by the Republic of Slovenia, to provide loans to micro companies and SMEs. At the time, some complaints on the limited sizes of credits and operational (in)efficiency of the SID Bank appeared [71]. Now, there is a new policy oriented towards providing commercial banks (selected by tender) with a bigger role in providing credits for R&D activities to SMEs and other firms, by using European cohesion funds, whilst the SID bank is managing these processes; 2) As previously mentioned, a special problem in European countries is the delivery of early stage finance to technologically innovative firms. Many questions on how to achieve a Silicon Valley type of technological start-up development are currently debated in Slovenia (as in many other countries), and many different actions are being undertaken (including attempts at state (co) financing, venture capital financing by some domestic and a larger number of foreign capitalists, angel financing, Kickstarter, crowdsourcing and crowdfunding, etc.). However, investments in technological start-ups in Slovenia are low, and most of them are registered abroad, as is the ownership of innovations. It is therefore too early to evaluate the real potential of technological start-ups in Slovenia as their success depends on many factors, including the development of financial systems as discussed in the section on the assessment of European policies; 3) Since spontaneous SME development represents an important factor of the robust growth of the Slovenian economy in recent years [10], and since, as our data show, there is a huge gap between large, advanced companies

and SMEs using advanced technology, one possible addition in stimulating the use of new Industry 4.0 technologies is to develop an advanced voucher system, with the aim to (co)finance the early development of the Industry 4.0 transformation of SMEs in connection with advanced, large companies at home and abroad. Many times, a possible Industry 4.0 transformation of an SME is stopped already at the initial stage, in the preparation of a feasibility study. By utilizing a voucher, an advanced and licensed large company could provide an SME with a plan of future development with calculations and influences on future cash flows, as well as the involved risks. It could also be involved in the SME's talks with possible external investors. Government officials should be present from the beginning by accurately evaluating both the receiver of the voucher (the SME) and the receiver of government money (the advanced organization). If they do not act according to the rules, the first loses the right to any further subsidy, and the second does not receive the payment or even loses its license ("the carrot and stick method").

All in all, there are many players of Industry 4.0 transformation in catching-up economies. For Slovenia, as shown in the paper, the most important ones are: 1) the government – we put the government first since its tasks are numerous, and because the government is probably faced with the most difficult task: how to shift from a proclaimed and ideological value system towards analytical-diagnostic value system; factors elaborated in the section discussing the assessment of European policies (i.e., financing, human capital development, and government capacities) are also of crucial importance for digital transformation in Slovenia; 2) advanced larger firms – an interesting occurrence in Slovenia is that they represent a good mix of foreign-owned and domestic-owned firms, and that they are regionally well distributed, which is why they can eventually be built as centers of Industry 4.0 regional cluster development with profound knowledge spillovers; 3) small and medium-sized companies – an advanced voucher system, developed on a tit-for-tat (carrot and stick) principle, between advanced large companies, SMEs, and the government can help to make steps forward.

Conclusion

Successful economic development, which results in increasing the standard of living, requires continuous productivity growth. This can be stimulated, taking into account that productivity is value added per employee, by increasing sales, lowering costs, or lowering employment. New technologies of Industry 4.0 can support the growth of sales (i.e., improved quality, innovation, increase prices...), lower costs (due to better efficiency, speed, accuracy, etc.), and boost productivity growth. Very importantly, implementing new technologies allows companies to maintain their competitive position in global value chains, which spurs learning, competence building, and technology transfer, building into a positive growth loop. However, boosting Industry 4.0 technologies is not an easy task that would tolerate copy-paste strategies. It must be built on the analytical-diagnostic approach (taking into account the already achieved levels of development and the specifics of a country). It should consider its own experiences and the experiences of others (i.e., have an eclectic view; see, for example, [39] and tit-for-tat (carrot and stick) strategies between the government and its main providers (firms).

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ANALYSIS OF MODIFICATIONS TO AUDITOR'S OPINION ON FINANCIAL STATEMENTS OF LISTED COMPANIES IN SERBIA

Analiza modifikacija revizorskog mišljenja o finansijskim
izveštajima listiranih kompanija u Srbiji

Abstract

In this study we shed light on the quality of financial statements of listed companies in Serbia by analyzing auditors' opinions expressed in independent auditors' reports for the 2015-2017 period. We revealed that the percentage of modified audit opinions was well above the level in developed countries, confirming weak market and regulatory incentives to improving financial reporting practices. We analyzed the propensity of different audit firms to issue modified audit opinions, as well as underlying financial reporting matters that led to modifications. The analysis revealed that the impairment of assets is the main reason for auditors' modifications, reflecting unfavorable economic reality of many companies. By expanding our analysis to the emphasis of matter paragraph in audit reports with modified, as well as unmodified audit opinion, we also provided a complete insight into the extent of appearance of the going concern issue among the listed companies.

Keywords: *auditor's report, modified audit opinion, emphasis of matter, listed companies.*

Sažetak

U ovom istraživanju smo ukazali na kvalitet finansijskih izveštaja listiranih kompanija u Srbiji putem analize revizorskih mišljenja iskazanih u revizorskim izveštajima za period od 2015. do 2017. godine. Identifikovali smo da je procenat modifikovanih mišljenja značajno iznad nivoa karakterističnog za razvijene zemlje, što potvrđuje da su tržišni i regulatorni podsticaji ka unapređenju praksi finansijskog izveštavanja nedovoljni. Analizirali smo sklonost različitih revizorskih firmi ka izdavanju modifikovanog mišljenja kao i relevantna pitanja u finansijskom izveštavanju koja su uzrok modifikacijama. Otkrili smo da je obezvređenje sredstava pojedinačno najzastupljeniji razlog za modifikacije revizorskog mišljenja, što je refleksija nepovoljne ekonomske realnosti mnogih kompanija. Šireći analizu na pasus skretanja pažnje u revizorskim izveštajima sa modifikovanim, kao i nedomifikovanim mišljenjem, pružili smo kompletnu sliku prisutnosti pitanja vezanih za nastavak poslovanja u doglednoj budućnosti.

Ključne reči: *revizorski izveštaj, modifikovano revizorsko mišljenje, skretanje pažnje, listirane kompanije.*

Introduction

External audit is accepted worldwide as an integral part of the financial reporting system, providing all stakeholders with the necessary assurance that financial statements are fairly presented. Although the process of auditing requires considerable efforts, the final and only outcome of auditing that is available to external users of financial statements is the auditor's report. Not surprisingly, the accounting profession, as well as regulators, pay special attention to the form and content of the auditor's report. There are a lot of desirable attributes that this report is expected to achieve, but it is not easy to balance them all and some trade-offs are unavoidable. Concise and standardized auditor's report has for years been seen as the most advantageous, since it prevented misunderstandings and contributed to comparability and consistency. However, communicative value of auditor's report was not sufficiently exploited, leaving its users dissatisfied with the content of the report. This has induced radical changes in the audit report model resulting in a more relevant report, primarily as a consequence of introducing the key audit matter paragraph which provides additional information to the intended users of financial statements and consequently reduces information asymmetry between auditors and users. The benefits of the auditor's report that is less standardized and more tailored to the specifics of engagement are expected to overcome the costs related to its implementation. Yet the new model has only recently been applied and its value still has to be confirmed in practice.

Although the latest change in the auditor's report is very important, its key part has always been the auditor's opinion. In case of unmodified opinion, however, additional information expressed through key audit matters increase usefulness of auditor's report to a great extent. In his survey that preceded the introduction of key audit matters, Carcello found that 91% of respondents, representatives of different investment organizations, did not even read the unmodified auditor's report [2, p. 24]. The situation is completely different when modified opinion is expressed by auditors, since this is a clear signal of deterioration of the quality of financial statements. Auditors issue a modified audit opinion (MAO) when they identify

material misstatements in financial statements or when, due to a limitation of the scope of the audit, they cannot conclude that financial statements are free from material misstatements. According to the International Standards on Auditing (ISAs), there are three types of MAOs: qualified, adverse and disclaimers of opinion.

Unlike developed countries, where MAOs are treated seriously by both investors and regulators and, consequently, appear relatively rare in practice, the frequency of MAOs in emerging economies is not low. That does not come as a surprise, since unreliable financial reporting is often an issue in emerging economies. In those circumstances, external auditing came to the fore as the most important mechanism to communicate to the public whether financial statements presented the financial position and performance of the reporting entity (un)fairly. For these countries, examination of trends in auditor reporting and of the nature of issued modifications, coupled with underlying reasons for their incidence, could help to illuminate the state of and gaps in good financial reporting practices. We examine in this paper auditor reporting on financial statements of listed companies in Serbia, focusing on MAOs, with the intention to reveal their frequency, issuance by different audit firms, and financial reporting issues that were the main drivers of modifications. Besides modifications, we also examine what type of matters auditors commonly emphasize in their reports.

Incidence of MAOs

The credibility of financial reporting is extremely important for public interest entities (PIEs), since these entities are characterized by "a large number and wide range of stakeholders" [10, p. 119]. Although the determination of PIEs varies across countries, the listed companies are undisputedly part of PIEs worldwide. However, it is also common that large entities and some regulated entities (e.g. banks, pension funds) are treated as PIEs. According to the new EU Audit Directive, the definition of PIEs includes entities whose securities are traded on a regulated market, credit institutions and insurance undertakings, but also provides for the possibility for member states to designate other entities as PIEs, considering primarily the

nature of their business or their size [6, Article 2, Point 13]. External audit of financial statements is mandatory for PIEs, since it provides an independent and competent assurance that financial statements present the financial position and performance of the audited entity fairly, which leads to lower exposure of stakeholders relying on these financial statements in making their decisions to information risk.

It is, however, of great concern if a PIE receives a MAO, which means that its financial statements contain a material misstatement or that auditors could not obtain evidence that financial statements were free of material misstatements. In any of these cases, the reliability of financial statements is seriously undermined, as well as the investor's confidence in financial statements, which could lead to unfavorable consequences for the audited entity, primarily in terms of availability and financing cost. Due to their role in ensuring stability, regulatory authorities also have a keen interest in PIEs regulated by them not receiving MAOs. It is to be expected then that MAOs are not frequent in the segment of PIEs, which is confirmed in many developed economies. In the USA, the regulation of listed companies imposes tough requirements in respect of the preparation of financial statements, treating financial statements which are not in accordance with the generally accepted accounting principles as misleading or inaccurate. Consequently, the Securities and Exchange Commission (SEC) does not accept financial statements regarding which auditors express MAOs [16, E2]. In an earlier research in the UK, Lennox found that only 2.96% of listed companies received MAOs. It should be noted that he also included clean opinions in MAOs if they were accompanied by auditors' emphasis of some accounting issues; hence, the proportion of real MAOs was actually under 2% [13, p. 328]. Gassen and Skaife explored MAOs in public listed companies in Germany, Austria, Switzerland, France and the UK. During the 1999-2000 period the average modified audit opinion rate for these countries was only 1.23% [7, p. 873]. Carson et al. show that in Australia the percentage of MAOs for listed companies increased from 2.3% to 4.8% in the 2005-2010 period and then reduced to 3.4% in 2013 [3, p. 233].

The situation is completely different in the emerging markets where market forces and regulatory infrastructure are still not strong enough to sufficiently stimulate improvement in the quality of financial reporting and auditing. Lin et al. researched MAOs in listed companies in China over the 1992-2009 period and found that the average proportion of MAOs (including clean opinions with emphasis of matter) was 11%, reaching a peak of 19.9% in 1999 [15, p. 137]. In Croatia, the proportion of listed companies receiving MAOs during the 2008-2014 period was 28 percent on average [1, p. 789]. In our study we wanted to reveal the frequency of MAOs in listed companies in Serbia. The initial sample consisted of all companies included in the regulated market at the Belgrade Stock Exchange over a three-year period from 2015 to 2017. This market comprises prime listing, standard listing and open market. For each year we eliminated from the sample those companies that delisted from the regulated market before December 31st that year, since they did not present part of this market at the year end and did not need to prepare financial statements following the rules for listed companies.

We collected audit reports of targeted companies from the database of financial statements maintained by the Serbian Business Registers Agency. The total of 112 audit reports were hand-collected. Table 1 presents the frequency of different types of audit opinions that the listed companies received. It is clear that the proportion of MAOs is very high. It was above 20% in 2015, increasing to a peak of 42.4% in 2016, after which it reduced to 32.3% in 2017. The average in the given period was 30.4%. What is even more striking, there are a few adverse opinions issued for the companies in the regulated market. These results indicate that the regulation framework is not stringent with regard to the quality of financial reporting. According to the Belgrade Stock Exchange rules, it is allowed for a company to receive a qualified opinion and still be on prime or standard listing, while no requirement is imposed in relation to the type of audit opinion for companies included in the open market, making it possible for them to receive adverse opinion.

It is generally considered that the issuing of MAOs depends primarily on two factors: the presence of material

Table 1: Distribution of different types of audit opinions in the Serbian regulated market in 2015-2017

	2015		2016		2017	
	Number	%	Number	%	Number	%
Unmodified opinion	38	79.2	19	57.6	21	67.7
Modified opinion	10	20.8	14	42.4	10	32.3
Qualified opinion	7	14.6	14	42.4	8	25.8
Adverse opinion	3	6.2	0	0	2	6.5
Total	48	100.0	33	100.0	31	100.0

misstatements in financial statements and audit quality, the latter representing the ability of auditors to detect a misstatement and their willingness to report it [15, p. 136]. Higher proportion of MAOs in the Serbian regulated market in comparison with developed and even some emerging economies could not be explained by a better quality of auditing. Although the quality of external auditing is an everlasting issue worldwide, the situation in Serbia regarding audit quality is more troublesome and, according to the report of the World Bank, in some instances it is reflected in “selling audit reports rather than audit services” [19, viii]. This unfavorable situation could be attributed to both weak market forces and weak regulatory environment. Contrary to developed economies, market forces of demand and supply in emerging markets are not strong enough to induce a high audit quality [4, p. 173]. That is also the case with Serbia where capital market is still thin and not sufficiently developed to create stronger demand for auditing services. On the supply side, scarce resources coupled with low balling practices also hinder the quality of audit service. It is certain that in these circumstances regulatory environment could play an important role in ensuring the audit quality. However, for many years Serbian audit market has been characterized by absence of any external quality control and consequent disciplinary actions for malpractices, as well as by low risk of auditors’ exposure to legal liabilities. Only in 2013 did the new Auditing Law introduce public oversight of external auditing. However, although external quality control was eventually established and the first disciplinary sanctions were imposed on external auditors in the last few years, we still have a long way to go to develop robust regulatory ambience which could enhance and safeguard quality in providing auditing services.

A better explanation for the high proportion of MAOs could be the low quality of financial reporting. Specifically,

it can be argued that financial statements in Serbia often do not present the financial position and performance of the relevant entities fairly. Moreover, since many auditors’ modifications could be avoided if companies corrected the identified misstatements, it seems that companies find that the benefits of making their financial statements look better surpass the costs of receiving MAO. It should also be noted that the lack of effective monitoring by regulators and weak legal enforcement with regard to the quality of financial reporting create a suitable environment for accounting manipulations. Even in the case of public companies, the Securities Commission does not contribute sufficiently to the integrity of the financial reporting system. Table 2 presents an interesting finding: some regulated companies repeatedly received MAOs, which reveals the absence of any pressure on them to align their financial statements with the financial reporting standards. Our analysis has shown that this behavior is not isolated, since out of the total number of MAOs in our sample only 4 (12%) were not repeated. Out of the companies that received MAOs 77% received it more than once, more than a half of companies received it twice, while 4 companies received a MAO each year in the given period. This also called into question the quality of corporate governance, especially audit committees, which are mandatory for public companies and expected to monitor the financial reporting process and contribute to its integrity.

Unwillingness of companies to correct their financial statements must be related to incentives for accounting

Table 2: Repeating MAOs in the Serbian regulated market in 2015-2017

Number of Received MAOs	Number of companies	% of companies
One	4	23.5
Two	9	53.0
Three	4	23.5
Total	17	100.0

manipulations. Similarly to other countries in continental Europe, companies in Serbia do not have diffused ownership, which means no emphasized agency problem between managers and owners. On the other hand, they intensively rely on funding from banks, which makes banks the most prominent users of financial statements. In their survey in Croatia, which is characterized by similar institutional settings, Barać et al. found that accounting manipulations were primarily directed toward three groups of users: suppliers, tax authorities and creditors [1, p. 800]. However, auditing is meaningful if MAOs have economic consequences. Thus, it should be expected that if manipulations are followed by a MAO, the intended effects of manipulations will be diminished.

Nevertheless, it seems that in Serbia, similarly to Croatia, MAOs have limited effects, which means that the companies with MAOs do not face increasing financial costs and constraints. It is interesting that banks, which should be considered sophisticated users, often ignored auditors' modifications, at least in lending decisions with lower exposures. Without banks' practices of adjusting financial statements with respect to identified misstatements (or raising financing costs in case of potential misstatements), companies derive more benefits if they do not correct their financial statements according to auditors' suggestions. In case of state-owned enterprises (SOEs) MAOs are even more harmless, since these entities mostly face soft budget constraints and count on government support and interventions in case of financial difficulties. Empirical evidence confirms that ignoring MAOs can result in extreme situations where SOEs distributed profits although they would have operated with a loss if they had followed auditors' modifications [19, p. x].

Since expectations with regard to financial reporting of public companies are generally the highest, unfavorable

situation on the Serbian regulated market represented in a high ratio of MAOs raises serious concerns about the quality of financial statements of other companies. In order to get insight into audit opinions for other companies, we decided to expand our research to 100 largest companies in Serbia. These companies are also PIEs due to their size, so the quality of their financial statements is very important. We used the list of the largest companies according to the level of their revenues, prepared by the Serbian Business Registers Agency for 2017. Since 5 of these companies have already been included in our previous sample as part of the regulated market, the final sample of large companies is 95. For three companies audit reports were not available for 2015, so 282 audit reports were analyzed in total. Table 3 reveals the distribution of different types of auditor's opinions among these companies.

In the study period, the percentage of MAOs was stable at around 21% to 22%. It is an undoubtedly high ratio, but surprisingly, with the exception of 2015 when the ratio of MAOs was at a similar level for both analyzed groups of companies, in 2016 and 2017 the ratio of MAOs was significantly higher for regulated companies. One of the possible explanations lies in the quality of audit, since greater scrutiny by auditors is generally expected for public companies owing to greater business risk faced by auditors in engagements performed for entities with public status. Although in Serbia this risk (e.g. loss from litigation, adverse publicity) is not as high as in developed countries, it is reasonable to assume that public companies are considered more demanding. Furthermore, more effort is needed when auditing public companies since, according to the Law on the Capital Market, the scope of auditing is extended for public companies and includes reporting to the board of directors and Securities Commission on the efficiency

Table 3: Distribution of different types of audit opinions for the largest companies in Serbia in 2015-2017

	2015		2016		2017	
	Number	%	Number	%	Number	%
Unmodified opinion	72	78.3	74	77.9	75	78.9
Modified opinion	20	21.7	21	22.1	20	21.1
Qualified opinion	14	15.2	16	16.8	14	14.8
Disclaimer of opinion	6	6.5	3	3.2	4	4.2
Adverse opinion	0	0	2	2.1	2	2.1
Total	92	100.0	95	100.0	95	100.0

of functioning of the internal audit, the systems of risk management and internal control [12, article 54].

Another factor contributing to the audit quality may be related to the mandatory criteria auditors must meet to be authorized to audit public companies. In the next section, we shall try to shed some light on the facts about audit firms included in the auditing of regulated market companies.

Analysis of MAOs with regard to audit firms

The Securities Commission is in charge of setting forth higher criteria for the audit of public companies in addition to general requirements imposed by the Law on Auditing. By determining additional criteria and producing a shortened list of auditors, the Commission intends to ensure that only auditors capable of performing demanding audits of public companies are included in such engagements. Table 4 shows audit firms with regard to their involvement in audit engagements on the regulated market.

An upward trend can be noticed in the number of audit firms. At the end of 2015, there were 63 audit firms, but until the end of 2017 Serbia had 69 registered audit firms. However, the number of audit firms authorized to audit regulated companies remained unchanged in 2016

Table 4: Involvement of audit firms in the regulated market

	2015	2016	2017
Number of registered audit firms in Serbia	63	67	69
Number of audit firms authorized to audit financial statements of companies in the regulated market (% of all audit firms)	25 (39.7)	25 (37.3)	19 (27.5)
Number of audit firms engaged in auditing financial statements of companies in the regulated market (% of authorized firms)	18 (72.0)	14 (56.0)	16 (84.2)

in comparison to 2015, but showed a relatively large drop in 2017. That should be related to the fact that the number of companies in the regulated market also decreased throughout the period. This especially refers to 2016, yet the effect of this shrinking of the regulated market was reflected in the number of auditors in 2017. It can also be seen that there was a very high proportion of authorized audit firms (44%) which did not have audit engagements in the regulated market in 2016. However, due to their leaving the market, in 2017 the proportion of engaged audit firms rose to 84%.

In order to get further insight into the characteristics of authorized firms, we examined the eligibility criteria for obtaining authorization stipulated by the Securities Commission. These criteria are primarily based on the size of the audit firm expressed in the minimum number of certified auditors and other employees in the audit department. It can be argued that such criteria are not stringent enough because they do not include some other aspects important for performing a high-quality audit in public companies, such as experience of auditors, longevity of the audit firm, its financial capabilities and, particularly, good results of the quality control reviews. In China, for example, audit firms must meet a comprehensive list of criteria which, among other things, includes the requirement of absence of any penalty or violation record in the last 3 years [20, p. 6]. In Serbia, however, as the result of deficiencies discovered after the Chamber of Authorized Auditors' quality control reviews, we discovered that specific sanctions (according to the Register of imposed sanctions) were imposed on four audit firms included in the regulated market without any effect on their eligibility for this market.

We also analyzed the propensity of different audit firms to issue MAOs. For this analysis, we took into consideration whether MAOs are issued by the Big 4 or other audit firms (non-Big 4). Table 5 presents the distribution of MAOs by audit firm type.

Table 5: Distribution of MAOs by audit firm type in 2015-2017

	2015			2016			2017		
	No. of audit reports (%)	No. of MAOs	% of MAOs	No. of audit reports (%)	No. of MAOs	% of MAOs	No. of audit reports (%)	No. of MAOs	% of MAOs
Big 4	16 (33)	1	6	12 (36)	4	33	7 (23)	0	0
Non-Big 4	32 (67)	9	28	21 (64)	10	48	24 (77)	10	42
Total	48 (100)	10	-	33 (100)	14	-	31 (100)	10	-

Two important findings can be observed from the statistics provided in Table 5. Firstly, the Big 4 audit firms accounted for a significantly lower number of clients on the regulated market than it is common in the developed countries. The research by Le Vourch and Morand shows that there is a difference between EU countries with regard to the market share of the Big 4 audit firms when considering the overall market for audit firms. However, as regards the listed companies, the 4 biggest audit firms maintain domination in most EU Member States [14, p. 110]. According to the report of the European Commission, the Big 4 have an average market share of almost 70% in the number of statutory audits of listed companies at the EU level [5, p. 9]. In Slovenia, all listed companies are audited by the Big 4 [17, p. 8]. In contrast, we find that in the Serbian regulated market only about one third of companies were audit clients of the Big 4 in 2015 and 2016, with decline to less than one fourth of companies in 2017, because of the falling mandates of KPMG, which had the highest market share of all the members of the Big 4.

The second finding is related to the share of MAOs in the total number of audit opinions issued by the Big 4 and non-Big 4 audit firms. In the study period, the percentage of MAOs issued by the Big 4 audit firms is lower than the percentage of MAOs issued by the non-Big 4. In 2017, the Big 4 did not issue any MAOs, but in 2015 and 2016 they issued 1 and 4, respectively. The non-Big 4 issued a vast majority of MAOs in the regulated market and a relatively high percentage of their clients received MAOs, ranging from 31% to 48%. At first glance, this result could be surprising. A lot of empirical studies, mainly concerning developed markets, show a strong positive association between the Big N affiliation and MAOs, which is explained by audits of higher quality performed by the Big N audit firms [8, p. 208]. However, lower propensity of the Big 4 to issue MAOs could be explained by their strategy to avoid riskier clients. Preferences for such an approach to clients' portfolios are consistent with the theory that large audit firms avoid risk because they suffer more than smaller firms in case of audit failure, taking into account damaged reputation and litigation concerns [11, p. 667]. Some research studies found evidence that support this theory. In Australia, Xu et al. revealed systematic differences with regard to the

issuance of MAOs, with the Big Four auditors issuing a significantly lower percentage of MAOs relative to non-Big Four auditors, which is related to their clients being, on average, larger and less risky [18, p. 27]. Also, in the Serbian regulated market the Big 4 are mostly oriented toward large companies. Moreover, since a number of listed companies had poor performance, it could be argued that this contributes to a lower market share of the Big 4. Due to avoiding risk, they tend to get engagements with companies characterized by better performance.

In order to understand client-specific financial reporting issues that lead auditors to modify their opinions, we conducted content analysis of audit reports with MAOs.

Financial reporting issues giving rise to MAOs

According to their professional standards, auditors must follow the prescribed form and content of auditor's report. When auditors express a modified opinion, they have to explain the underlying reason(s) for modification in a separate paragraph named Basis for Opinion. Thanks to these explanations we were able to reveal the background of MAOs in the Serbian regulated market. Figure 6 outlines the troublesome issues in financial reporting of regulated companies for the analyzed 2015-2017 period.

Our analysis has revealed that in 34 audit reports with modified opinion issued for 2015-2017, the total number of reasons for modification was 100, since in most cases companies that received MAOs actually had multiple failures in their financial statements. The average number of the matters giving rise to the modification is 2.9 per auditor's report with MAO.

Since public companies in Serbia prepare their financial statements in accordance with the International Financial Reporting Standards (IFRS), auditors use the recognition, measurement, presentation, classification and disclosure principles prescribed by this set of standards as relevant criteria for evaluating the truthfulness and fairness of the view presented in companies' financial statements. When explaining the modification, it is expected that auditors explicitly specify the standard violated by the client, which led to a misstatement in its financial statement or, in case of the limitation of audit scope, the standard which was

not supported by audit evidence. As presented in Figure 1, the highest percentage of reasons for MAOs (37%) is related to impairment of assets, revealing violation of requirements of IAS 2, IAS 36 and IAS 39. The majority of clients did not show willingness to calculate recoverable amounts of their assets, although there were strong indications of their impairment. Unfortunately, this finding suggests that regulated companies tend to overstate their assets and avoid timely recognition of impairment loss. Further analysis shows that many of these impairment cases (27%) are connected with inappropriate accounting policies related to allowances for uncollectible accounts receivables. The second place concerning overstatements is occupied by inventory account (22%), since companies ignored inventory obsolescence and needed a write-down of inventories to their net realizable value. Equal percentage of cases (16%) was caused by impairment of property, plant and equipment (PPE) and by intangibles. The remaining issues were related to impairment of other assets (e.g. investment in subsidiaries, short-term and long-term financial assets).

According to IFRS, a number of disclosures are required in financial statements in order to ensure their transparency. It is then possible that a material misstatement of financial statements could stem from an omission or inadequate disclosure. As it can be seen from Figure 1, issues related to disclosures accounted for 16% of reasons for MAOs in the observed sample. The majority of them (44%) concerned a disclosure of material uncertainty connected with the going concern. Around 19% of all issues were violations of disclosure requirements of IAS 37, dealing with provisions and contingent liabilities. Other noncompliance with disclosure requirements was related to many different standards (e.g. IFRS 7, IFRS 13, IAS 16).

The inability of auditors to obtain sufficient and appropriate audit evidence represents 14% of reasons for MAOs. Such inability was mainly caused by the circumstances where auditor was unable to observe the counting of physical inventories, to confirm receivables or liabilities due to the lack of responses to confirmation requests, to obtain evidence related to opening balances, or owing to inappropriate accounting records of clients. However, these limitations of the scope of the audit were

not so severe to trigger disclaimer of opinions, but rather qualified opinions.

PPE-related issues, other than impairment, led to MAOs mainly because of misapplication of selected accounting policies. More than a half of misstatements resulted from the misapplication of revaluation model for subsequent measurement of PPE. The main problem was that companies did not carry out revaluations regularly, which caused the carrying amount of PPE to materially differ from its fair value. Additionally, in some cases revaluation was not reasonable. There were also a few reasons for modification related to the application of the cost model, including depreciation policy and unreasonable estimation of residual value. Other cases include different issues (e.g. misclassification of assets), but it is interesting that in one case company disclosed the use of the cost model, although it actually implemented the revaluation model.

Our content analysis shows that auditors also find misstatements in assertions regarding liabilities and provisions, which accounted for 11% of all reasons for modifications. In most cases (73%), managers disagreed with auditors in recognizing provisions in accordance with the requirements of IAS 37 and IAS 19, specifically provisions related to litigations and termination benefits. Additionally, classification of liabilities into current and non-current is not fairly presented in some cases, since IAS 1 requires that the company treats as current liabilities all non-current liabilities that have become payable on creditors' demand because the company has breached covenants under a long-term agreement. Misstatement leading to the understatement of liabilities appeared only in one case.

Other reasons for MAOs include inappropriate use of the going concern assumption due to assessed inability of the client to continue its operations in the foreseeable future, misstatements related to the recognition of revenues and some other matters that appeared only once, namely improper measurement of non-current assets held for sale, ignoring adjusting events after the reporting period and misstatement related to deferred tax assets and liabilities.

To summarize, we find that most reasons for MAOs lie in the fact that financial statements contained material misstatements rather than in limitation of the scope of the

audit. According to the results presented here, material misstatements in financial statements mainly arose as a result of the choice of inappropriate or misapplication of selected accounting policies, while in a lower percentage they were caused by the lack of disclosures or inadequate disclosures. Interestingly, revenues were misstated only in few cases, although it is commonly held and empirically confirmed that revenues are a prominent area of manipulation in developed countries. On the other hand, PPE came to the fore as the most troublesome single item. It should also be noted that our findings reflect economic reality in Serbia, which is why it is not surprising that impairment of assets is the biggest problem since companies are faced with serious difficulties regarding collection of their receivables, obsolete inventories and insufficiently used PPE. Companies were obviously trying to artificially present a more favorable picture of their financial position through overstatement of assets and understatement of liabilities, at the same time avoiding income decline through non-recognition of impairment losses and other expenses. Auditors did not, however, make a quantification of the financial effects of misstatements in most of the cases, thus reducing the usefulness of the audit report for users who were not in the position to realize the extent of misstatements and adjust financial statements to their needs accordingly.

Matters emphasized by auditors

If auditors consider some matters that have already been adequately disclosed in financial statements important for the users' understanding of financial statements, they can draw their attention to these matters in the audit report by using the emphasis of matter (EoM) paragraph. This paragraph does not present the modification of the audit opinion or a substitute for modification. It is, nevertheless, important since it gives auditors the possibility to broaden

their communication with users to include relevant matters. Although for a long time investors and other users of financial statements and audit report were unsatisfied with the content of the audit report, demanding much more information from auditors, it was evident according to the International Auditing and Assurance Standards Board that, except for the circumstances for which emphasis of matter was explicitly required by the relevant standard (International Standard on Auditing 706 - ISA 706), auditors rarely used this paragraph in practice [9, p. 22].

We examined the frequency of use of EoM paragraph in audit reports on the regulated market in Serbia, as well as the nature of matters that are emphasized. Table 6 presents our findings about the inclusion of EoM paragraph in auditor's reports.

We concluded that the use of EoM paragraph by auditors in Serbia could not be described as rare, but quite the opposite. For the 2015-2017 period, about 41% of all audit reports contained an EoM paragraph, although this rate has slightly declined throughout the period. When comparing the frequency of the use of EoM paragraph in reports with modified and unmodified opinions, we found that auditors included this paragraph more frequently in reports with MAOs, even at the level of 80% in 2017. This result could indicate the propensity of auditors to exercise more caution with clients with lower quality of financial statements, thus warning users on multiple issues and risks that appeared with regard to these clients. Nevertheless, the ratio of EoM paragraph in reports with unmodified opinions could not be considered low. However, a downward trend is evident in this ratio, mainly as a consequence of delisting of companies which had an unmodified audit opinion with EoM paragraph.

An in-depth analysis of EoM paragraphs illuminates the nature of matters that were emphasized by auditors. Although a number of different issues appeared, the going concern issue was the most prominent item in EoM

Table 6: Frequency of EoM paragraph in audit reports on the regulated market in 2015-2017

	2015			2016			2017		
	Total	EoM	% EoM	Total	EoM	% EoM	Total	EoM	% EoM
Unmodified opinions	38	14	36.8	19	5	26.3	21	4	19.0
Modified opinions	10	7	70.0	14	8	57.1	10	8	80.0
Total	48	21	43.8	33	13	39.4	31	12	38.7

paragraphs coupled with MAOs. According to the Conceptual Framework of IFRS, these standards are appropriate for preparing financial statements if the reporting entity is able to continue its operation in the foreseeable future, which is why the going concern assumption is satisfied. If there is, however, material uncertainty related to the going concern assumption, although this assumption is still considered appropriate, the reporting entity must disclose this uncertainty. If disclosure is adequate, the auditor expresses unmodified opinion, but due to the importance of this matter for users of financial statements, the auditor is required to communicate it to the users. EoM paragraph was used for this purpose, but the latest changes in the model of audit report introduced a separate paragraph devoted to emphasizing material uncertainties related to the going concern. Therefore, this matter is not part of the EoM paragraph anymore. In Serbia, however, failure to timely translate ISAs results in a delay in their application, which is why for the whole analyzed period EoM paragraph included pointing out to material uncertainties related to the going concern if they existed.

Over the three-year study period, out of 23 MAOs with EoM paragraph in total, as much as 48% drew attention to disclosure about material uncertainties in relation to GC (going concern). The percentage of unmodified opinions with EoM for GC is 13%. In order to present the complete picture of GC issue in financial statements of regulated companies, we summarized all cases where GC was relevant, leading to EoM or modification. Table 7 shows GC-related figures.

For the 2015-2017 period, the average rate of GC-related audit reports in all issued reports was 21.4%, which indicates that more than one fifth of companies were faced with uncertainties to continue as a going concern. The highest rate was in 2016 when about 27% companies received GC-related reports. Auditors often specified several

reasons indicating GC problems, such as operation with loss, current liabilities above current assets, heavy debts and violation of loan covenants, followed by difficulties of raising additional capital for meeting related liabilities. It is also evident that, owing to the financial crisis, even developed countries experienced an increasing rate of GC-related reports, although these reports were mainly unmodified with EoM for GC. Carson et al. revealed that in Australia over the 2008–2010 period, the ratio of unmodified opinions with EoM on GC increased to around 19%, corresponding to the occurrence of the global financial crisis. However, the increasing trend regarding this ratio continued in the 2011–2013 period and reached 31% in 2013. Nevertheless, modifications on GC were still very rare [3, p. 233].

Auditors should consider whether GC assumption is appropriate and whether material uncertainties related to GC exist and are adequately disclosed. If GC assumption is not appropriate for the client who used it in their financial statements, the auditor must issue adverse opinion. When GC assumption is appropriate, but disclosures by the client are inadequate, the auditor shall also modify their opinion as qualified or adverse. EoM on GC is a case when disclosures are adequate. As presented in Table 7, auditors in Serbia generally issued EoM more often than modification in relation to GC. However, in our observed sample, all adverse opinions, as the most serious part of MAOs, were based solely or mainly on the GC issue.

Besides the GC issue, auditors found some other matters sufficiently important to be emphasized in the EoM paragraph. Those were assets pledged as security for liabilities, as well as uncertainties about the future outcome of litigations, tax effects of related parties' transactions and non-compliance with laws and regulations. According to ISA 706, there are additional issues that could lead to EoMs, but they are rarely observed in our sample in the study period (e.g. significant subsequent events). Content analysis, however, revealed that in some cases identification of matters emphasized, as well as their description, was not adequate. It seems that EoM is sometimes misused instead of modification. On the other hand, EoM paragraph is quite overburdened with issues which are not fundamental for users' understanding of financial statements. Furthermore,

Table 7: Proportion of GC-related audit reports in 2015-2017

	2015	2016	2017
Unmodified opinions with EoM on GC	4.2	3.0	0
MAOs with EoM on GC	6.3	15.2	9.7
MAOs with modification on GC	8.3	9.1	9.7

the description of matters is often excessive, since these matters should already have been disclosed in financial statements and the main purpose of EoM is only to direct users to these disclosures and prevent them from overlooking important information.

Conclusion

Audit reports present valuable information support to users of financial statements by disclosing independent audit opinion on fair presentation of financial statements. In case of audit reports with MAOs, auditors clearly warn users of financial statements of the area of financial reporting that contains or could contain material and even pervasive misstatements. It is, however, of great concern if a large number of companies in a country receive MAOs, especially if some PIEs are among them. In Serbia, in the 2015-2017 period the proportion of companies included in the regulated market on the Belgrade Stock Exchange that received MAOs was 30.4% on average. This result indicates serious problems in the whole system of financial reporting. Inappropriate normative and regulative framework, including weak monitoring and enforcement activities, has resulted in the lack of discipline in the process of financial reporting.

As our study reveals, the majority of modifications were related to misstatements in financial statements, reflected in overstatements of assets and understatements of liabilities, which generally led to a false presentation of the entity's financial position, as well as earnings. Such a situation makes it difficult for the users of financial statements to make investment decisions using information from the financial statements and has far-reaching negative consequences for the functioning of capital market. What is more striking, the average number of observed misstatements per audit report with MAOs is 2.9 and out of the companies that received MAOs, 77% received it more than once. This is the reflection of the lack of incentives for the correction of financial statements. It seems that, besides the weak regulatory environment, market forces also do not produce sufficient pressure in terms of financial constraints on companies with MAOs. The explanation could be the still undeveloped capital market in Serbia,

insufficient use of audit reports by banks and soft budget constraints related to state-owned enterprises. Only with extensive changes in the business climate and improvement of financial reporting quality may it be possible to cause a decrease in the ratio of companies that receive MAOs. In the meantime, MAOs enable insights into material deviations from the financial reporting framework, directing interested parties toward problematic areas of financial statements of reporting entities. It is also important to stress that the quality of auditing in Serbia has not yet reached a satisfactory level, which is why enhancement of audit quality could contribute to identifying even more issues in financial statements.

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COMPARATIVE ANALYSIS OF TRANSFER PRICING TAXATION IN FORMER YUGOSLAVIAN COUNTRIES

Komparativna analiza poreske regulacije transfernih cena
u zemljama bivše SFR Jugoslavije

Abstract

Transfer pricing, as a potential instrument for avoiding real tax liability, is one of the growing tax issues of the 21st century. In an effort to shed light on the negative effects of transfer pricing application on local tax budgets and identify certain mechanisms for efficient tax control, the paper discusses basic implications of transfer pricing misuse in terms of taxation, as well as some instruments of taxation thereof. Also, in order to determine the awareness of the seriousness of this issue in former Yugoslavian countries, the presentation and analysis of the representation of certain instruments of transfer pricing taxation in these countries were carried out in the context of supranational regulations. The analysis showed that there are large oscillations in the tax approach to the control of implementation of transfer pricing when conducting transactions between related legal entities, and that these differences are conditioned on the level of development and structure of legal regulations.

Keywords: *transfer pricing, taxation of transfer prices, former Yugoslavian countries.*

Sažetak

Transferne cene, kao potencijalni instrument za izbegavanje prave poreske obaveze, predstavljaju jedno od rastućih poreskih problema 21. veka. U nastojanju da se rasvetle negativni efekti primene transfernih cena na lokalne poreske budžete i identifikuju određeni mehanizmi efikasne poreske kontrole, u radu su sagledane osnovne poreske implikacije zloupotrebe transfernih cena, kao i pojedini instrumenti njihove poreske regulacije. Takođe, s ciljem utvrđivanja osveštenosti zemalja bivše SFR Jugoslavije u pogledu ozbiljnosti odnosno tematike, dat je prikaz i analiza zastupljenosti instrumenata poreske regulacije transfernih cena u tim zemljama u kontekstu nadnacionalnih regulativa. Analiza je pokazala da između razmatranih zemalja postoje velike oscilacije u uobičajavanju poreskog pristupa nadzoru primene transfernih cena pri obavljanju transakcija između povezanih pravnih lica, te da su te razlike uslovljene stepenom razvijenosti i izgrađenosti samih zakonskih propisa.

Ključne reči: *transferne cene, poresko regulisanje transfernih cena, zemlje bivše SFR Jugoslavije.*

Introduction

In conventional accounting literature, transfer pricing is defined as a technique for optimal allocation of costs and revenues between related legal entities. At first glance, this definition does not indicate the possibility of misuse, but the fact is that transfer pricing applied through the creation of an adequate cost and revenue structure, in accordance with the interests of a group of related legal entities, is a potential means of increasing wealth of that group. Namely, the application of transfer pricing allows the “migration” of capital between related legal entities in order to reduce tax liability in accordance with the advantages of certain tax environments, which, in parallel, leads to an increase in the group’s final profit. That kind of business is called aggressive tax planning. Acceptable tax planning is related to business transactions and the way in which these transactions are made, which means that they must have an economic goal. On the other hand, aggressive tax planning aims to reduce tax liability according to applicable legal acts, but the taxpayer’s intention is contrary to the legislator’s goal.

As a part of aggressive tax planning, transfer prices have assumed their true form through the intensification of business at an international level, brought forth by globalization. Exempt from the restrictions of territorial jurisdiction, companies have been granted the freedom to expand their business abroad, with the possibility of using low tax rates and various forms of tax subsidies in different tax jurisdictions. The scope, power and complexity of globalization pose a challenge to the conventional way of thinking about transfer pricing and the possibilities of monitoring thereof in these complex production and exchange networks. In this way, domestic companies were allowed to become multinational, and, by establishing new companies through joint ventures with local companies or through other business arrangements, foreign companies became part of the domestic business scene.

With the increase in the number of multinational companies, the volume of commercial transactions at an international level within one company has also increased, and it is estimated that somewhere around two-thirds of all business transactions in the world are being

performed precisely within multinational companies or groups of related legal entities. By using the benefits of the globalization process, multinational companies have been able to maximize their profits by reducing their tax liability through their own international channels for the transfer of funds (relying on transfer prices) and, in essence, they have become a law unto themselves because the legislative framework could not monitor the rate of growth of their international power, leaving their activities largely outside of legal control.

In the past few years, in order to clarify and detect the use of transfer pricing as a means of misusing different national tax regulations in a timely manner, tax authorities in developed countries have resorted to aggressive audits and legal actions. Engaging an additional number of employees in tax control bodies ensured more detailed studies of the related legal entities’ corporate policies. In this way, tax authorities in developed countries seek to reveal inadequate application of transfer pricing in a timely manner (before significant consequences for the business sector, local budget and society arise) and, in accordance with existing legal procedures, take the necessary safeguard measures.

On the other hand, developing countries, such as the former Yugoslavian countries, are much more vulnerable to abuse of transfer pricing for the purpose of reducing tax liability. Their handicap is reflected primarily in the absence of adequate and comprehensive tax regulations in this area, absence of an appropriate control mechanism and insufficiently trained professional staff for a more detailed study of the related legal entities corporate policy on the application of transfer pricing. For this reason, transfer prices pose a unique challenge for these countries and present an unidentified potential source of domestic capital outflow.

Tax implications of transfer pricing

The possibility of “moving” profit from one country to another, in order to obtain tax benefits, arises from each country’s freedom to determine transfer pricing (based on subjectivity in determining costs and their allocation), as well as differences in profit tax rates (because each country independently decides on the level of tax rates).

Since the goal of every business is to create long-term value for equity holders, one way to do this is to minimize tax liability by using the following mechanisms:

- international allocation of accounting profits through the arrangement of a financial structure by members within a group or by branch offices within a multinational company (financing through loans at higher interest rates in members operating in high income tax jurisdictions leads to minimizing total tax liability at the group level),
- reallocation of common costs (research and development costs, marketing costs and the like) to countries with high income tax rates reduces taxable profits in members of the group or branches operating in those countries,
- the use of transfer pricing for transferring profits from countries with high profit tax rates to countries with low or zero tax burden (maximizing costs in the first and income in the second), which leads to minimization of tax liability and maximization of profit after taxation at the level of the group as a whole.

The process of globalization opened the way for the growth of multinational business entities and particularly contributed to the ways of avoiding genuine tax obligations. Transfer pricing soon transformed from an accounting technique into a method of resource allocation, which had significant consequences on the distribution of income, domestic well-being and domestic prosperity and the quality of life in individual countries.

Addressing the question of transfer pricing in avoiding tax liability, many countries have adopted legal solutions that allow tax authorities to subsequently correct taxpayer's financial statements in the event of incorrect implementation of transfer pricing and, therefore, to collect additional tax.

However, developing countries generally avoid the introduction of any control over the use of transfer pricing, fearing the negative impact on the inflow of direct foreign investment. Also, as a rule, those countries do not have experience in implementing control mechanisms and procedures that would prevent arbitrary use of transfer pricing and very often they do not have adequate and comprehensive laws on corporate income tax.

By consciously or unconsciously creating the conditions for the legal avoidance or reduction of tax liability of taxpayers operating within a group of related entities or as a part of multinational companies, developing countries are becoming fully exposed to the risk of erosion of the taxable base through the transfer of profits to other tax jurisdictions.

Although the problem of transfer pricing basically relates to the transactional relationships between related entities located in different tax jurisdictions, the issue of the transfer pricing effects is a significant tax issue even in cases of operations of related entities within the same tax jurisdiction. Namely, when related entities are located in the same jurisdiction where one set of tax rules applies to all taxpayers, the issue of transfer pricing is reduced to the level of tax incentives and tax exemptions which lead to the reduction of calculated tax or reduction of the tax base. By applying transfer pricing, a related entity may transfer part of the tax base to another related entity within the same jurisdiction, which, based on certain grounds, is entitled to different benefits (e.g. entity exempt from tax in the first couple of years has the right to reduce the tax base due to employment, investment, export activities, etc.), thus reducing the overall tax liability in a legal way.

Accordingly, the negative effects of taxation on transactions between domestic taxpayers can particularly be seen in the domain of jurisdictions that seek to stimulate the development of certain activities and certain areas and reduce the unemployment rate through appropriate privileged tax treatment. In this case, competent tax authorities should pay considerable attention to the balancing of economic interests on the one hand and, on the other, to consequently created losses of tax revenues. Also, it is necessary to strengthen the tax control mechanism for applying transfer pricing among domestic taxpayers, which requires adequate and comprehensive legal regulations, multifunctional tax teams and good databases.

Basic instruments of transfer pricing taxation

With the process of globalization, transfer pricing, as an instrument of multinational business entities used for the controlled flow of taxable profit, jeopardized objectivity

and fairness in taxation, thus becoming one of the main subjects of interest among national tax institutions and various international organizations.

In an effort to ensure a balanced and satisfactory taxation framework for the proper use of transfer pricing in the process of conducting controlled transactions, appropriate documents were adopted at an international level, thus establishing key solutions for overcoming the challenges of applying transfer pricing between different national tax jurisdictions.

OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, issued by the Organization for Economic Co-operation and Development (OECD), became an internationally recognized document in the field of regulating transactional relations of multinational companies and groups of related legal entities. The first version of this document was issued in 1995, after which it went through several modifications and was amended by additional instructions related to international services, intangible assets, advance pricing agreements, comparability analysis, necessary documentation, etc.

The aforementioned document defines the arm's length principle as a basis for determining transfer prices. The essence of this principle is based on the use of a price that can be achieved between completely independent business entities for certain goods or services in the conditions of free competition. Traditional transaction methods (comparable uncontrolled price method, resale price method, cost plus method) and transactional profit methods (transactional net margin method, transactional profit split method) are listed as approved methods. Also, instructions are given for the implementation of reliable comparability analysis, as well as the rules and recommendations for the collection of transfer pricing documentation and recommendations and instructions related to other segments in relation to the application of transfer pricing (transfer of intangible assets, special fees for services within the group, resolution of disputes on transfer pricing and business restructuring issues).

The OECD Guidelines are closely linked to Article 9 of the Model Tax Convention on Income and on Capital, which sets out authoritative principles of the arm's length

principle, as the basis for bilateral tax treaties between OECD member countries and non-member countries.

Article 9 of the OECD Model Tax Convention constitutes the basis for conducting a comparability analysis by introducing the need:

- to compare conditions (including, but not limited to prices) agreed upon or imposed between related parties and those that would be established between unrelated parties, in order to determine the allowed balance adjustments for the purpose of calculating tax liability of related parties;
- for determination of profit that would be realized under market conditions, in order to determine the amount of correction.

The next significant publication entitled *Aligning Transfer Pricing Outcomes with Value Creation* represents the final report for actions 8-10 of the Action Plan on Base Erosion and Profit Shifting Project¹. This publication was created as the result of revising the existing OECD Transfer Pricing Guidelines in order to align transfer pricing outcomes with value creation for the following categories of transactions: intangible assets, contractual arrangements and other high-risk transactions.

Another publication within the BEPS Project related to the issue of transfer pricing is *Transfer Pricing Documentation and Country-by-Country Reporting*, issued as the final report of the Action 13 of the BEPS Action Plan. This publication includes a revision of the existing rules on the development of transfer pricing documentation in order to improve its transparency for tax administrations, as well as simplification of the rules and procedures for compiling the documentation for multinational business entities.

In accordance with this publication, transfer pricing documentation should consist of three key parts:

¹ The Base Erosion and Profit Shifting Project was launched by OECD and G-20 in 2013. It represents the concretization of basic steps to prevent erosion of the national tax base and the transfer of profits between individual tax jurisdictions. The action plan of this project consists of 15 actions whose task is to equip tax authorities with national and international instruments to solve the problem of tax avoidance, ensuring that profits are taxed in jurisdictions where economic activities generate profit and create value. All actions provide national tax authorities with the guidelines for preventing harmful tax practices of multinational business entities. Out of the 15 actions, four are related to transfer prices, specifically 8, 9, 10 and 13. For more information, see [10].

- master file – includes standardized information relevant to all members of a multinational group,
- local file – related to significant material transactions of the local taxpayer and
- Country-by-Country Report – containing specific information on the global allocation of the total profit of the multinational group and the amount of tax paid by individual countries, as well as certain indicators of the location of performing economic activity within a multinational group.

In this way, tax administrations are provided with a reliable information base for estimating the transfer pricing risk for the purpose of making decisions on implementation of a more detailed audit. It is recommended that Country-by-Country Report should be automatically distributed, according to the adopted cooperation mechanism between countries. The relevant publication also provides guidance on its implementation, in order to ensure that reports are delivered in a timely manner, to ensure their secrecy and that received information is used properly.

Taking into account the abovementioned documents, it is evident that the first step (when it comes to the basic solutions for curbing the uncontrolled implementation of transfer pricing) is to ensure the provision of comprehensive legislation on transfer pricing, with three main segments:²

- core provisions,
- administrative and procedural provisions and
- practical provisions.

Core provisions set the framework for the legislation on transfer pricing in the country. They define the scope of legislation (e.g. to which parts of tax legislation the relevant regulations are applied, which categories of taxpayers and what types of transactions will be regulated and covered), stipulate a valid reference standard (e.g. the arm's length principle) and provide the competent tax administration with the necessary legal authority to execute certain types of adjustments of transfer pricing (e.g. primary, secondary, compensation, etc.).

Administrative and procedural provisions address administrative and procedural issues, such as compliance requirements (e.g. reporting and documentation), penalties,

advance pricing agreements and the authority to issue secondary legislation.

Practical provisions direct the practical application of the arm's length principle (the mere existence of standards is usually not enough to provide the necessary level of security) and include provisions related to comparability, transfer pricing methods, the choice of the appropriate method and such.

After providing the appropriate legal basis, attention should be focused on activities that represent the basic preconditions for successful mastering of the challenges that transfer pricing puts before national tax systems:³

- staff training and development,
- improving access to information and
- settling transfer pricing disputes.

Staff training and development involves improving the knowledge and skills of national tax administration inspectors. Namely, specialized training creates an appropriate basis for the formation of independent transfer pricing teams within the competent tax authorities, structured in such a way as to represent the right mix of skills and knowledge of tax administration regulations in order to maximize the efficiency of available funds for transfer pricing.

In terms of access to information, a reliable estimation of transfer pricing risk factors requires financial data which would allow the determination of transfer pricing compliant with the arm's length principle. The simplest and most effective means to ensure public availability of relevant data (after setting up a legal framework that would obligate companies, including those in the private sector, to submit their reports and ensure that those reports are publicly available) is the Internet, or, more precisely, receiving and processing of data electronically. Over the past few years (since 2006), cloud computing has brought about a real revolution in the field of computers. Namely, cloud computing is the most convenient way to establish an adequate electronic service for receiving and publishing financial information, because it represents a low or zero-cost solution for tax administration and includes low or complete absence of engagement of governments: since there is no need for purchasing expensive applications, it

² For more information, see [1, pp. 58-112].

³ For more information, see [5, pp. 69-76].

eliminates the need for acquiring powerful computers (to support applications), minimizing the costs of maintaining hardware and software and hosting. Through this system of data access, tax administrations can monitor a wide range of reported results in the corporate sector, primarily in their own country, but in other countries as well.

Settling transfer pricing disputes implies, first and foremost, the existence of a clear and sufficiently detailed instruction regarding the compliance with and application of the arm's length principle to ensure consistency, reduce unreliability and ensure prompt and effective resolution of the arising disputes. Furthermore, the publication of guidelines on how to settle specific transfer pricing issues contributes to increasing transparency and helps participants in the business sector to proactively address potential problems related to specific intra-group transactions. In addition to this, transfer pricing disputes can be avoided by applying the concept of "shelter" or "safe harbour" or through advance pricing agreements. Such agreements usually last several years, thereby reducing the need for an audit in that period, uncertainty, risk for investors and the costs of alignment. However, given the fact that disputes will arise even when certain strategies for their avoidance are implemented, the task of the competent tax administration is to consider the ways of dealing with potential disputes about transfer pricing:⁴

- domestic dispute resolution – applied when there is no tax agreement with the country in which double taxation occurred or when the taxpayer does not want information to be shared with the other tax administration;
- international dispute resolution – when two countries have signed a tax treaty (in accordance with Article 9 of the OECD Model Tax Convention), but the taxpayer considers that certain adjustment arises from the misinterpretation of the arm's length principle by the tax administration, they have the right to submit a request for the mutual agreement procedure;
- mutual agreement procedure (MAP) – competent authorities, i.e. local governments negotiate the disputed case, while taxpayers can participate or attend these negotiations or consultations only as

observers or by providing individual clarifications (the entire procedure lasts for 24 months on average);

- arbitration – involvement of an independent party for the purpose of assessment of each contracting party and facilitation of tax relief in cases of double taxation of the taxpayer, i.e. multinational company;
- alternative dispute resolution – mediation, i.e. engagement of an expert who needs to determine the necessary factual guidelines for the dispute itself.

In an effort to show the extent to which the former Yugoslavian countries devoted themselves to the issue of taxation of transfer pricing implemented by legal entities and how indicated solutions for overcoming the challenges of transfer pricing are integrated into local tax laws and regulations, a comparative overview of tax treatment of transfer pricing in these countries is presented and analyzed in the next section of the paper.

Tax treatment of transfer pricing in former Yugoslavian countries – comparative overview

Tables 1, 2 and 3 summarize the presentation of the transfer pricing tax regime in former Yugoslavian countries. Starting from the fact that the European Union (EU) represents the largest and the most integrated group of countries in the world and that countries that fall under the same category, as a rule, have legal regulations developed almost to the same degree, the classification of those countries according to their EU member status is performed in order to provide an adequate comparative basis.

In this regard, the paper compares tax regulations of Slovenia and Croatia (the member countries of the EU), followed by tax regulations of Serbia, Montenegro and FYR Macedonia (candidate countries for EU membership) and, finally, it contains an analysis of tax regulations of Bosnia and Herzegovina (potential candidate for EU membership), classified by tax jurisdictions: Republic of Srpska, Federation of Bosnia and Herzegovina and Brčko District.

By observing Slovenia and Croatia, as the only former Yugoslavian countries that now have the status of EU members, it becomes evident that considerable attention has been devoted to regulating transfer pricing issues in Slovenian tax regulations.

⁴ For more information, see [1, pp. 326-337].

Table 1: Tax regime of transfer pricing in the former Yugoslavian countries with the EU membership status

	Slovenia	Croatia
Profit tax rates	19%	18%
Type of regulation	OECD Guidelines	OECD Guidelines
Status of related legal entities	Direct or indirect possession of at least 25% of the capital or stocks or control rights or voting rights in managing another legal entity.	Direct or indirect participation in the capital, control or management of another legal entity, without specific thresholds defined.
Transfer pricing methods	All methods listed in the OECD Guidelines; the application of other methods is not allowed.	All methods listed in the OECD Guidelines; the application of other methods is not allowed.
Transfer pricing documentation	Yes.	Yes.
Requirements for annual preparation of documentation	With the annual tax return.	With the annual tax return (but this is not explicitly stated in legal regulations).
Submission deadline upon request by tax authorities	30-90 days.	Not regulated.
Tax penalties for untimely delivery of transfer pricing documentation	For legal entities from 1,200.00 € to 30,000.00 €. For the person responsible from 600.00 € to 4,000.00 €.	Not regulated.
Tax penalties for underestimation of tax base based on the use of transfer pricing	For legal entities 30-45% of underestimated tax liability. For the person responsible from 700.00 € to 5,000.00 €.	From 2,000.00 HRK to 200,000.00 HRK, along with the payment of tax on profits on the established taxable difference at the standard tax rate (including a default interest rate of 12% per annum).
Legal limitation for assessing tax based on the adjustment of transfer pricing	5 years (from the date when the tax obligation should have been calculated).	3 years (from the year following the year in which the tax return should have been filed).
Tax dispute resolution	Internal options: appeal to the Ministry of Finance and appeal to the Administrative Court. International options: mutual agreement under the EU Arbitration Convention and bilateral tax treaties.	Internal options: appeal to an independent second-instance body within the Ministry of Finance and appeal to the Administrative Court. International options: not regulated.
International agreements for the avoidance of double taxation	54 contracts.	61 contracts.
Transfer Pricing Unit	Yes.	No.
Databases for comparing controlled and uncontrolled transactions	"Amadeus", "Orbis" and "ktMINE".	"Amadeus" and "Orbis".
Advance pricing arrangements	Yes (unilateral, bilateral and multilateral).	No (but legal requirements for their conclusion are provided).
Action Plan on BEPS	Embedded in legal regulations.	Not embedded in legal regulations.

Source: Author's overview based on applicable legal regulations.

Slovenia has a higher profit tax rate than Croatia. The main transfer pricing regulation is OECD Guidelines, although Croatia is not the member of OECD, while Slovenia has been its member since 2010. Unlike in Croatia, in Slovenia there is a specific participation percentage threshold in determining the status of a related legal entity. Also, the deadline for periodic submission of documentation on transfer pricing is clearly legally defined, as well as the deadline for submission of documents at the request of competent tax authorities, along with appropriate tax penalties for failure to comply with the deadline. In Croatia, there is no legal obligation of disclosing information about

transactions to related parties on an annual basis, that is, there is no obligation to deliver that information to the tax administration along with the tax return. Also, the deadline for submitting documentation at the request of competent tax authorities has not been defined. However, in practice, in case of large taxpayers, the tax administration requires the transfer pricing documentation to be delivered when submitting the annual tax return. For this reason, there are no clearly defined penalties for untimely delivery of documentation. Regarding the legal limitation for tax assessment based on the adjustment of transfer pricing, in Slovenia this period is longer than in Croatia, and also

international options for resolving tax disputes are defined in this country, while Croatia defined only internal options. Slovenia showed great progress in the field of regulating transfer pricing issues by establishing a separate unit within the tax administration with 15-20 internationally trained auditors in the field of controlling transfer pricing application. Also, the Tax Administration of Slovenia uses specialized software for accessing several databases to check the justifiability of the conditions under which transactions between related legal entities are carried out. In Croatia, there is no requirement regarding the use of a particular database for the comparison of the controlled transactions and the conditions of uncontrolled transactions, but Croatian Tax Administration uses specialized software to access almost all databases that Slovenia can access. Tax regulations and tax practices in Slovenia support the application of advance pricing arrangements and the Action Plan on BEPS, while in Croatia the legislation envisages the conclusion of advance pricing arrangements, but it is not used in practice, while the BEPS Action Plan is not incorporated into its legislation.

As regards transparency, as one of the basic conditions for efficient taxation of related legal entities profits, the official website of the Financial Administration of the Republic of Slovenia within the Ministry of Finance lists all laws, regulations, instructions and forms for calculation and reporting of corporate income tax and provides an overview of all the necessary data for the application of transfer prices and the regulation of business and tax relations of related legal entities. Accordingly, the Guide for Transfer Pricing Control announces that in the period from 2010 to 2016, based on 452 audits of transfer prices, Slovenia additionally collected EUR 77.1 million of budget revenue [2, p. 4], which emphasizes the importance and usefulness of more precise legal regulation of the issue concerned.

Also, from the transparency point of view, the Tax Administration of the Republic of Croatia, within the Ministry of Finance, published on its official website all the legal regulations, rules and forms related to the preparation and submission of annual tax return in the field of application of transfer pricing and regulation of loans between related legal entities.

The following table presents an overview of transfer pricing tax regime in the former Yugoslavian countries that have met the conditions for obtaining the status of candidate for EU membership.

By observing the level of profit tax rate in the former Yugoslavian countries with the status of candidate for EU membership, it can be concluded that Serbia has the highest tax rate, while Montenegro has the lowest. Although the transfer pricing rules have been present for more than a decade in the corporate tax legislation of Serbia, the Ministry of Finance did not publish concrete and detailed regulations on the application of these rules until 2013. In doing so, efforts were made to harmonize local rules and practices with established international guidelines. Regarding Montenegro, the rules on transfer pricing have been incorporated into legal regulations for more than a decade (with exceptionally low reliance on international guidelines), but the Ministry of Finance did not publish specific and detailed regulations on the application of these rules. However, when determining transfer prices, it is recommended that taxpayers generally respect the rules on transfer pricing (at least to the extent they are specified by legal regulations), since tax authorities have a legal option to retroactively change their current practice. On the other hand, Macedonian tax legislation does not contain explicit provisions on transfer pricing. The existing provisions on transfer pricing are general and mostly refer to the situation when a taxpayer, at the request of competent tax authority, needs to provide information and evidence that will confirm that the transfer prices were formed in accordance with the arm's length principle. Characteristic legal rules and regulations that are (minimally) related to transfer pricing are based exclusively on national regulations, not relying on the OECD Guidelines whatsoever.

In Serbia, it is permissible to apply all five methods specified in the OECD Guidelines. The most appropriate method for the circumstances of the specific case has priority and, if necessary, it is possible to use a combination of several methods. It is also possible to apply other methods apart from the prescribed ones if they seem more appropriate or if the application of the prescribed methods is not possible. In Montenegro, traditional transaction methods are the

Table 2: Tax regime of transfer prices in the former Yugoslavian countries with the status of candidate for EU membership

	Serbia	Montenegro	Macedonia
Profit tax rates	15%	9%	10%
Type of regulation	National regulations (based on the OECD Guidelines).	National regulations (poorly supported by the OECD Guidelines).	National regulations.
Status of related legal entities	Direct or indirect possession of at least 25% of stocks, stake or votes in the taxpayer's management bodies, which entails the possibility of control over or significant influence on business decisions. In case of tax consolidation, there is direct or indirect control over more than 75% of stocks or stake.	Special relationships that may have a direct or indirect impact on the conditions or economic results of transactions between those legal entities. In case of tax consolidation, there is direct or indirect control over more than 75% of stocks or stake.	Direct or indirect control over or influence on the business decisions of the taxpayer based on the possession of at least 20% of stocks, stake or voting rights or on the basis of certain agreements and contracts.
Transfer pricing methods	All methods listed in the OECD Guidelines, with the possibility of applying other methods if the application of the first five is not possible.	Traditional transaction methods (preference is given to comparable uncontrolled price method).	Comparable uncontrolled price method and cost plus method.
Transfer pricing documentation	Yes.	Yes.	Yes.
Requirements for annual preparation of documentation	With the annual tax return.	With the annual tax return.	Not regulated.
Submission deadline upon request by tax authorities	30-90 days.	Not regulated.	Not regulated (according to the assessment of competent tax authorities).
Tax penalties for untimely delivery of transfer pricing documentation	100,000.00 RSD – 2,000,000.00 RSD.	Not regulated.	2,500.00 € – 3,000.00 € or suspension of business activities for 3 to 30 days.
Tax penalties for underestimated tax base based on the use of transfer pricing	30% of the value of additional tax liability (but not less than 200,000.00 RSD).	Not regulated.	3,000.00 € with default interest of 0.03% on the amount of additional tax liability for each day of delay.
Legal limitation for assessing tax based on the adjustment of transfer pricing	5 years from the end of the year in which the tax obligation should have been calculated (but this is not explicitly stated in legal regulations).	5 years from the end of the year in which the tax obligation should have been calculated (but this is not explicitly stated in legal regulations).	Not regulated.
Tax dispute resolution	Internal options: process of complaint to the competent tax authority and appeal to the Administrative Court. International options: not regulated.	Internal options: process of complaint to the competent tax authority and appeal to the Administrative Court. International options: not regulated.	Internal options: not regulated. International options: not regulated.
International agreements for the avoidance of double taxation	58 contracts.	41 contracts.	44 contracts.
Transfer Pricing Unit	No.	No.	No.
Databases for comparing controlled and uncontrolled transactions	None are applied.	None are applied.	None are applied.
Advance pricing arrangements	No.	No.	No.
Action Plan on BEPS	Not embedded in legal regulations.	Not embedded in legal regulations.	Not embedded in legal regulations.

Source: Author's overview based on applicable legal regulations.

only legally permitted, where preference is given to the comparable uncontrolled price method, while Macedonian tax legislation supports the application of only two methods. Annual submission of documentation on transfer prices, with the annual submission of the tax return, is mandatory both in Serbia and Montenegro. However, the deadline for submitting the relevant documentation at the request of

competent authorities is defined only in Serbia. Accordingly, Serbian tax legislation has also stipulated tax penalties for untimely delivery of documentation and underestimation of tax base based on the use of transfer pricing, while there are no penalties in Montenegrin tax legislation. In Macedonian tax legislation, there is no defined deadline for submitting documentation on transfer pricing, but

there are specified tax penalties for absence of necessary documentation or underestimation of the tax base. In all three countries, there is no specified legal limitation for assessing tax based on the adjustment of transfer pricing, but, generally, in Serbia and Montenegro, this period is limited to five years, starting from the end of the year in which tax obligation should have been determined, while the absolute limit is ten years.

These countries do not have a separate tax unit for transfer pricing control, do not apply any database for the comparison of controlled and uncontrolled transactions (it is not mandatory by law), their tax legislation does not foresee and apply advance pricing agreements and there is no integrated Action Plan on BEPS. However, although Macedonian tax legislation does not stipulate the possibility of concluding advance pricing agreements, the taxpayer has the right to submit a request to the competent tax authority with an analysis of transfer pricing, in order to obtain an opinion on the compatibility of the methodology chosen when determining transfer prices in accordance with the requirements of domestic legislation. The main disadvantage in this procedure is the limited knowledge of the staff with regard to resolving such and similar issues related to transfer pricing, due to which the competent tax authority often provides ambiguous, i.e. insufficiently precise and clear answers or does not provide them at all, which increases the uncertainty of the taxpayer and indicates the necessity for significant legal improvement in that area.

The official website of the Tax Administration of Serbia provides all necessary information regarding the relevant laws and by-laws, forms, instructions and the most frequently asked questions of taxpayers (including the answers of competent authorities), as well as actualities regarding taxation, including the issue of transfer pricing. It also contains the rulebook regarding the contents of the tax return for the calculation of corporate income tax, as well as the rulebook regarding the list of jurisdictions with a preferential tax system, where 51 countries from the lists of offshore financial centers are identified as well. The number of countries indicated is lower than the total number of countries on those lists, and for this reason, the website of the Tax Administration of Serbia also contains links for the complete lists of offshore financial centers.

The Law on Income Tax, as well as the rulebook on and the form of the consolidated tax return, can be downloaded from the official website of the Tax Administration of Montenegro. Legal regulations related to corporate income tax, implementation of the tax procedure and regulation of customs issues and procedures can be found on the official website of the Tax Administration of Macedonia and the Customs Administration of Macedonia.

Table 3 presents the tax treatment of transfer pricing in the three tax jurisdictions in Bosnia and Herzegovina, in order to emphasize their mutual incompatibility and diversity.

Bosnia and Herzegovina consists of two territorial and administrative entities and Brčko District, which is why legal regulations are adopted separately for each jurisdiction. There are significant differences in some segments. This constitutes an aggravating circumstance for all companies operating in the entire territory of Bosnia and Herzegovina; thus, the status of Bosnia and Herzegovina, as a legally unified state, becomes violated.

Profit tax rates are harmonized in all competent jurisdictions of Bosnia and Herzegovina. The national tax regulations of the Republic of Srpska are in accordance with the OECD Guidelines. In the Federation of Bosnia and Herzegovina, they are partially relying on the existing Guidelines, while the tax regulations of the District have adopted only the methods of transfer pricing. Also, the definition of the status of a related legal entity is not mutually harmonized, which leaves considerable space for tax dilemmas if the entire territory of Bosnia and Herzegovina is viewed as a single business space. The deadline for periodic submission of transfer pricing documentation is not legally defined in the Brčko District, nor is the deadline for its submission at the request of competent tax authorities. Accordingly, penalties for untimely delivery of documentation and the reduction of the tax base based on the use of transfer pricing have not been defined. In the Republic of Srpska and the Federation of BIH, those penalties are incorporated in legal regulations, but they differ from one another. Internal options for resolving tax disputes have been established in all three tax jurisdictions, while international options are not regulated in any of them. Also, none of the three tax jurisdictions has a separate

Table 3: Tax regime of transfer pricing in the former Yugoslavian country with the status of potential candidate for EU membership

	Republic of Srpska	Federation of Bosnia and Hercegovina	Brčko District
Profit tax rates	10%	10%	10%
Type of regulation	National regulations (based on the OECD Guidelines).	National regulations (partially based on the OECD Guidelines).	National regulations (based on the OECD Guidelines only in the field of transfer pricing methods).
Status of related legal entities	Direct or indirect participation in the management, control or capital of another legal entity, owning at least 25% of stocks or stake in another legal entity with voting rights or when the entity has the factual ability to control decisions of another legal entity.	Direct or indirect possession of at least 25% of the capital, stocks or voting rights. In case of tax consolidation, there is direct or indirect control over more than 50% of stocks or stake.	Direct or indirect possession of at least 10% of stocks in a joint-stock company, or equity shares. In case of tax consolidation, a parent company owns at least 80% of the stake in a legal entity included in a group of legal entities.
Transfer pricing methods	All methods listed in the OECD Guidelines, with the possibility of applying other methods in accordance with the arm's length principle, if the first five methods cannot be applied.	All methods listed in the OECD Guidelines (priority is given to the traditional transaction methods) with the possibility of applying other methods in accordance with the arm's length principle, if the first five methods cannot be applied.	All methods listed in the OECD Guidelines.
Transfer pricing documentation	Yes.	Yes.	Yes.
Requirements for annual preparation of documentation	With the annual tax return.	With the annual tax return.	Not regulated.
Submission deadline upon request by tax authorities	30 days.	45 days.	Not regulated.
Tax penalties for untimely delivery of transfer pricing documentation	For a legal entity from 20,000.00 BAM to 60,000.00 BAM. For the person responsible from 5,000.00 BAM to 15,000.00 BAM.	For legal entities from 3,000.00 BAM to 100,000.00 BAM. For the person responsible from 2,500.00 to 10,000.00 BAM.	Not regulated.
Tax penalties for underestimating tax base based on the use of transfer pricing	Determined additional taxable profit is subject to the standard corporate income tax rate, increased by 0.03% for each day of delay in settling that obligation.	3,000.00 BAM -100,000.00 BAM. Also, the established additional taxable profit is subject to the standard corporate income tax rate, increased by 0.04% for each day of delay in settling that obligation.	Not regulated.
Legal limitation for assessing tax based on the adjustment of transfer pricing	5 years (from the date the tax return was filed or from the date of tax obligation becoming due, counting from the later date).	5 years (from the end of the year in which the tax return should have been filed).	Not regulated.
Tax dispute resolution	Internal options: complaint to the Ministry of Finance of the Republic of Srpska, as well as initiation of an administrative dispute before the relevant District Court and filing an appeal before the Supreme Court of the Republic of Srpska. International options: not regulated.	Internal options: appeal to an independent second-instance body within the Ministry of Finance of the Federation of BiH, as well as initiation of an administrative dispute before the Cantonal Court and filing an appeal before the Supreme Court of the Federation of BiH. International options: not regulated.	Internal options: appeal to the Appellate Commission, as well as initiation of an administrative dispute before the Basic Court of the Brčko District. International options: not regulated.
International agreements for the avoidance of double taxation	International agreements signed by BiH (37 contracts).	International agreements signed by BiH (37 contracts).	International agreements signed by BiH (37 contracts).
Transfer Pricing Unit	No.	No.	No.
Databases for comparing controlled and uncontrolled transactions	None are applied.	None are applied.	None are applied.
Advance pricing arrangements	No.	No.	No.
Action Plan on BEPS	Not embedded in legal regulations.	Not embedded in legal regulations.	Not embedded in legal regulations.

Source: [22, pp. 58-59].

tax unit for the supervision of transfer pricing, their tax administrations do not use any databases for comparing controlled and uncontrolled transactions, there are no advance pricing agreements and the BEPS Action Plan is not embedded in their legal regulations.

In terms of transparency, the official website of the Tax Administration of the Republic of Srpska provides complete and detailed information related to the legal regulations on corporate income tax and other relevant regulations. Detailed information on the laws, regulations, instructions, forms, etc. are published on the website of the Tax Administration of the Federation of BiH according to appropriate categories, which allows all interested users to easily find the necessary regulations.

However, the Tax Administration of the Brčko District does not have its own website. It is an integral part of the Brčko District Government website. The existing laws and regulations related to the work of the Tax Administration itself are not presented transparently and systematically.

Conclusion

The former Yugoslavian countries with the status of EU member states have a better regulated tax regime of transfer pricing, especially Slovenia which has been a member since 2004. This is completely expected, given the fact that more comprehensive legislation is one of the prerequisites for joining the EU. Also, in the last 10 years, the Tax Administration of Slovenia has seen a significant increase in transfer pricing audits, especially in the sphere of transactional relations with related foreign legal entities, putting emphasis primarily on cross-border restructuring.

However, as the youngest member of the EU, Croatia still has some undefined segments in the domain of taxation of transfer pricing. But although there are no official data on the specific, monetary benefits of more precise regulation of transfer pricing issues, in the past few years tax authorities have increased the intensity of transfer pricing audits, i.e. they focused their attention on the prices applied in transactions with related legal entities.

Out of the former Yugoslavian countries with the status of candidate for EU membership, Serbia has focused its attention on legal framework of the transfer pricing

application. However, the tax authorities in Serbia do not perform audits on a regular basis, they are usually performed every three to five years, and due to the lack of practical experience of tax inspectors, the examination of transactions with related parties is usually carried out to a somewhat limited extent.

Unlike in Serbia, in Montenegrin tax legislation the issue of transfer pricing is still not considered to be a field that deserves more attention. Audits are usually conducted once in three to five years, covering all taxes. In this phase of developing rules of transfer pricing, due to the lack of specific audit practice, there is a need for a substantial level of sophistication regarding the review of transactions between related legal entities.

In Macedonia, tax authorities have a discretionary right to initiate a tax audit in accordance with the set audit plan, where the probability of an annual audit, as well as the probability of transfer pricing being reviewed as a part of that audit, becomes reasonably high. However, the probability that the used transfer pricing methodology will be assessed as inadequate is medium.

In terms of Bosnia and Herzegovina, country with the status of a potential EU candidate, it is noted that the Republic of Srpska and the Federation of BiH have devoted more attention to the legal regulation of transfer pricing than the Brčko District, regulating certain issues in a relatively similar manner. However, a significant part of the problem remains open and unresolved, where some deadlines, thresholds and ranges of prescribed penalties for the same offenses vary between the entities. This type of mismatch and incompleteness of the laws and regulations ruins and distorts the unique approach to and success of the transfer pricing tax treatment within the same country. But what seems to be encouraging is the almost complete and systematic presentation of all relevant applicable legislation in the Republic of Srpska and the Federation of BiH, as opposed to the Brčko District.

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FX RISK HEDGING POSSIBILITIES FOR CORPORATE SECTOR IN SERBIA*

Mogućnosti zaštite od valutnog rizika za korporativni
sektor u Srbiji

Abstract

The aim of the paper is to analyze the possibilities of FX risk management for Serbian corporations. The importance of FX risk management emerges from significant borrowing in foreign currencies and FX-indexed loans. In addition, import and export activities create currency mismatch between cash inflows and outflows. In this situation, fluctuations in EUR/RSD, USD/RSD, CHF/RSD and other relevant exchange rates impose potential losses upon corporations operating in Serbian market. On the other hand, standardized instruments for FX risk hedging have not been developed, while non-standardized contracts are modestly used. In these circumstances, appreciation of foreign currencies relative to RSD may create significant systemic consequences through spillover of FX risk into credit risk and other related risk categories.

Keywords: *FX risk, hedging instruments, corporate sector, Serbia.*

Sažetak

Cilj rada jeste analiza mogućnosti za upravljanje valutnim rizikom za preduzeća u Srbiji. Značajnost upravljanja valutnim rizikom javlja se usled značajnog zaduživanja u stranim valutama i putem zajmova sa valutnom klauzulom. Dodatno, uvozne i izvozne aktivnosti kreiraju valutnu neusaglašenost između novčanih priliva i odliva preduzeća. U takvoj situaciji fluktuacije EUR/RSD, USD/RSD, CHF/RSD i drugih relevantnih deviznih kurseva nameću potencijalne gubitke preduzećima koja posluju na tržištu Srbije. Sa druge strane, standardizovani instrumenti zaštite od valutnog rizika nisu razvijeni dok se nestandardizovani instrumenti koriste u malom obimu. U takvim okolnostima aprecijacija stranih valuta u odnosu na dinar može stvoriti značajne sistemske posledice kroz prelivanje valutnog u kreditni i druge povezane kategorije rizika.

Cljučne reči: *valutni rizik, instrumenti zaštite, korporativni sektor, Srbija.*

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Introduction

The subject of analysis in this paper is predominantly management of FX risk firms are facing on the financial market in Serbia. In everyday business operations, companies face different risks: credit risk, operational risk, liquidity risk, interest rate risk, FX risk, legal and regulatory risk, systemic risk and country risk. It should be emphasized that FX risk is closely connected to other aforementioned risk categories.

Corporations would not face FX risk if operating in only one currency. This risk is a consequence of exchange rate fluctuations and the fact that local companies sell their products on international markets and import inputs from abroad, while borrowing financial resources in foreign currency or in the form of FX-indexed loans to finance their activities. Having in mind that payments or selling of goods and services abroad are done mostly in EUR and USD, corporations are at risk of exchange rate fluctuations between the local and foreign currency in the period between the moment of export/import of goods and services and the moment of payment. FX risk exposure in dual currency systems is even more complex due to the fact that it can easily spill over into credit risk. Appreciation of foreign currency in circumstances of significant indebtedness of corporate entities indexed to or denominated in that currency, while assets side of their balance sheets is expressed in the local currency, raises the risk of illiquidity, insolvency, and in extreme cases, default on obligations. The monetary system in Serbia is of dual currency nature that per se provides a form of hedging of currency exposure, predominantly for creditors and savings entities, while for debtors it may create increasing currency mismatch and debt exposure that may lead to spillover of FX risk into default risk. Standard hedging instruments and strategies face challenges to implementation on the local market due to its relative illiquidity and shallowness. So far, banks in Serbia predominantly offer non-standardized term contract in the form of forward and swap contracts, while more complex exchange-traded derivatives are not present on the local market. In addition, further regulatory compliance is required for the development of term market in Serbia.

Literature review

The FX market was formally established in the 1970s. Since then different FX regimes have taken place around the world. The shift from fixed towards more flexible FX rates led to FX rate fluctuations and their potentially adverse effects on operations, cash flows and financial results of companies. As a consequence of the rising need for protection against FX rate fluctuations, non-standardized and standardized term contracts have been developed [12]. Specificity of using derivatives for FX risk hedging is the following – for hedging strategies it is not necessary to actually own a sum of money equal to the notional amount when taking position in a contract. It is more of a scaling factor to the deal. Hence, the notional flows in the market can be very large relative to a smaller capital base. At the contract maturity, the difference between the agreed rate and the market rate is paid out, scaled by the notional amount of the deal [11].

Géczy, Minton and Schrand [10] suggest that companies use derivatives to reduce cash flow variations that might prevent them from investing in valuable growth opportunities. Firms with extensive foreign exchange rate exposure and economies of scale in hedging activities are also more likely to use currency derivatives. They stress that the source of foreign exchange rate exposure is an important factor in the choice among types of currency derivatives. Companies engaged in exports and imports are using FX derivatives more frequently, especially when FX fluctuations are larger [15].

Different authors investigated factors that predominantly led to company's sensitivity to exchange rate fluctuations. According to Parlapiano, Alexeev and Dungey [20] company exposure to exchange rate risk is primarily affected by the level of international involvement, industry, firm size and country of origin.

In addition, the benefits from hedging FX exposure of international investments from the perspective of German, Japanese, British and USA investors in the 1975-2009 period demonstrated that hedging of currency risk had substantially reduced the volatility of foreign investments [21].

According to Kuruc, Tissot and Turner [14], decreasing aggregate currency mismatches were recorded in emerging economies. Aggregate exposure is mostly reduced due to official sector foreign currency exposure reduction. After the global crisis, many economies have reduced their foreign currency liabilities, orienting themselves more towards local currency borrowing. In addition, central banks accumulated larger FX reserves. In contrast, companies are more easily borrowing on international markets and FX borrowing increased significantly in the last decade, according to Shin [22]. By 2016 net FX liabilities of emerging countries increased to 37% of exports indicating that non-financial corporations' FX liabilities significantly exceeded FX assets [14, p. 12].

According to the latest empirical results, it may be concluded that currency hedging in foreign investments and portfolio management is already very significant, but that it will become increasingly important in the future, especially for developing countries' currencies and corporate sector that reach a higher level of internationalization [5].

Overview of currency exposure of the corporate sector in Serbia

After a long period of strong inflationary expectations based on years of high inflation and, in an extreme form, hyperinflation, the transactors on the local financial market oriented themselves more towards alternative – “more stable” currencies – first Deutsche Mark, and afterwards EUR, CHF, USD. Regulatory efforts emerged to restore confidence and interest in local currency. The Memorandum on the Strategy of Dinarization of the Serbian Financial System was signed in March 2012 by the National Bank of Serbia (NBS) and the Government of the Republic of Serbia with the aim of increasing the usage of RSD in the domestic financial system [19].

The dinarization strategy is based on the following three pillars:

1. Strengthening of the macroeconomic environment: low and stable inflation, managed floating exchange rate and sustainable economic growth;
2. Development of the market for dinar denominated securities;

3. Development of instruments for protection against foreign exchange risk.

In the last six years successful results have been achieved within the first pillar:

- Low and stable inflation,
- Relatively stable exchange rate,
- Balance of payments improvement,
- Public finance management improvement,
- Significant reduction of nonperforming loans (NPLs),
- Positive assessment of the technical mission of the International Monetary Fund.

The results in the second pillar are the following:

- Extended yield curve for longer maturities (basis for valuation),
- Increased activity on the secondary market for dinar government securities,
- Preparation for inclusion in the bond index,
- Increased RSD part of the public debt (from 2.5% to 24.3% in ten years).

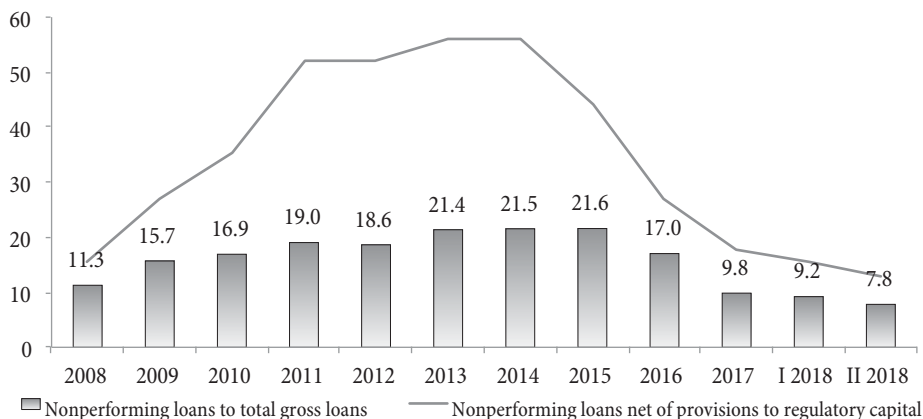
The third pillar refers to the FX risk protection and is still in the development phase.

The most important sectors in the financial system are strongly exposed to and affected by FX rate variability. Currency mismatch between revenues and costs, cash inflows and cash outflows, is present in the household, government and corporate sector. FX risk exposure increases whenever obligations of a particular entity are connected to foreign currency while revenues are generated in local currency. It occurs in the cases when foreign currency appreciates relative to RSD. The increased amount of RSD necessary for debt servicing may lead to partial or total default on a particular obligation. In that extreme case, FX risk spills over into credit risk that may further lead to illiquidity and even insolvency of the debtor. When currency mismatch is present, especially in the government and banking sector, it may have serious systemic consequences and jeopardize broader financial stability.

Macroeconomic stability in the previous period has led to a decrease of the relative share of NPLs in total loans provided by the banking sector in the local financial market.

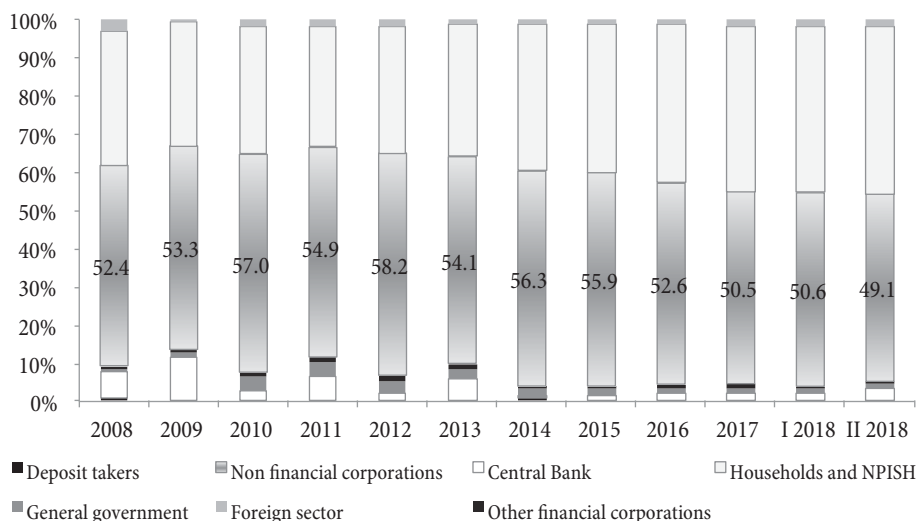
When focusing attention to sectoral distribution of bank loans, the highest percentage relates to the corporate sector, followed by households and other borrowers.

Figure 1: NPLs to total gross loans and NPLs net of provisions to regulatory capital in the Republic of Serbia, in %



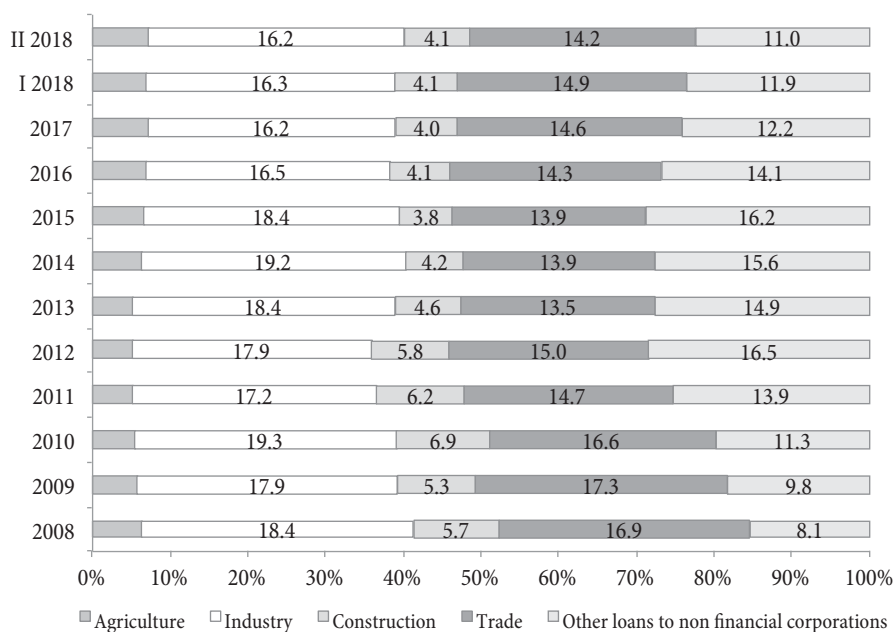
Source: Authors' presentation based on the data in [23].

Figure 2: Sectoral distribution of loans to total loans in the Republic of Serbia, in %



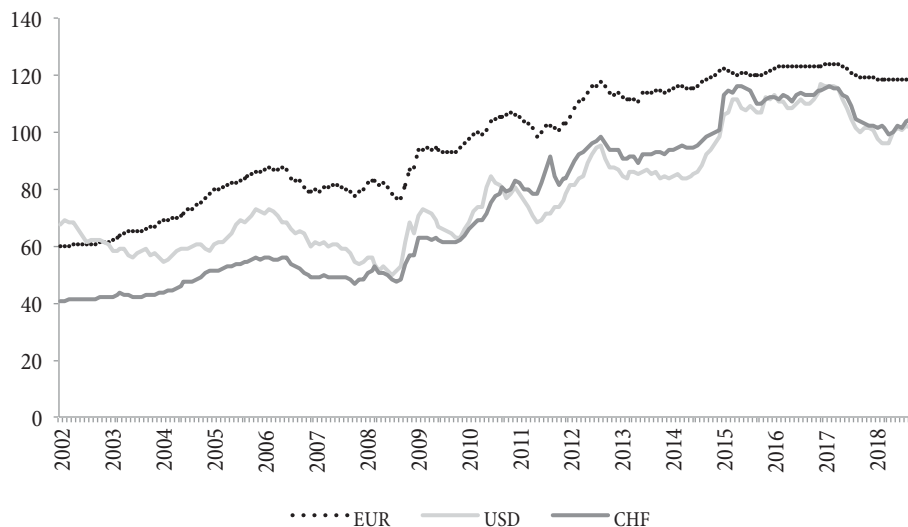
Source: Authors' presentation based on the data in [23].

Figure 3: Bank loans to nonfinancial corporations



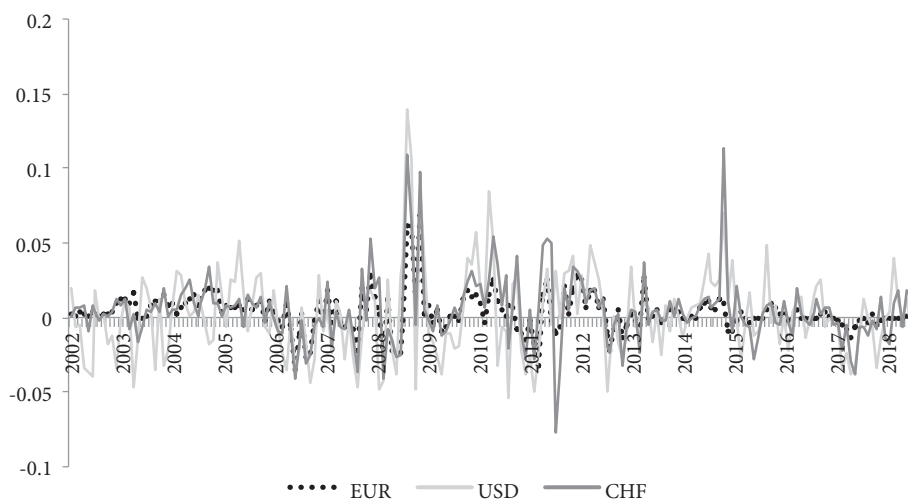
Source: Authors' presentation based on the data in [23]

Figure 4: EUR/RSD, USD/RSD and CHF/RSD FX rates in 2002-2018



Source: Authors' presentation based on the data in [23].

Figure 5: EUR/RSD, USD/RSD and CHF/RSD FX rate variability in 2002-2018



Source: Authors' calculation based on the data in [23].

Table 1: Correlation matrix of FX rate returns

	EUR/RSD	USD/RSD	CHF/RSD
EUR/RSD	1		
USD/RSD	0.586	1	
CHF/RSD	0.762	0.567	1

Source: Authors' calculation based on the data in [23].

Table 2: Descriptive statistics for FX rate returns

	EUR/RSD	USD/RSD	CHF/RSD
Variance	0.000	0.001	0.001
Standard deviation	0.013	0.028	0.022
Mean	0.003	0.002	0.005
Coefficient of variation	3.849	13.595	4.802

Source: Authors' calculation based on the data in [23].

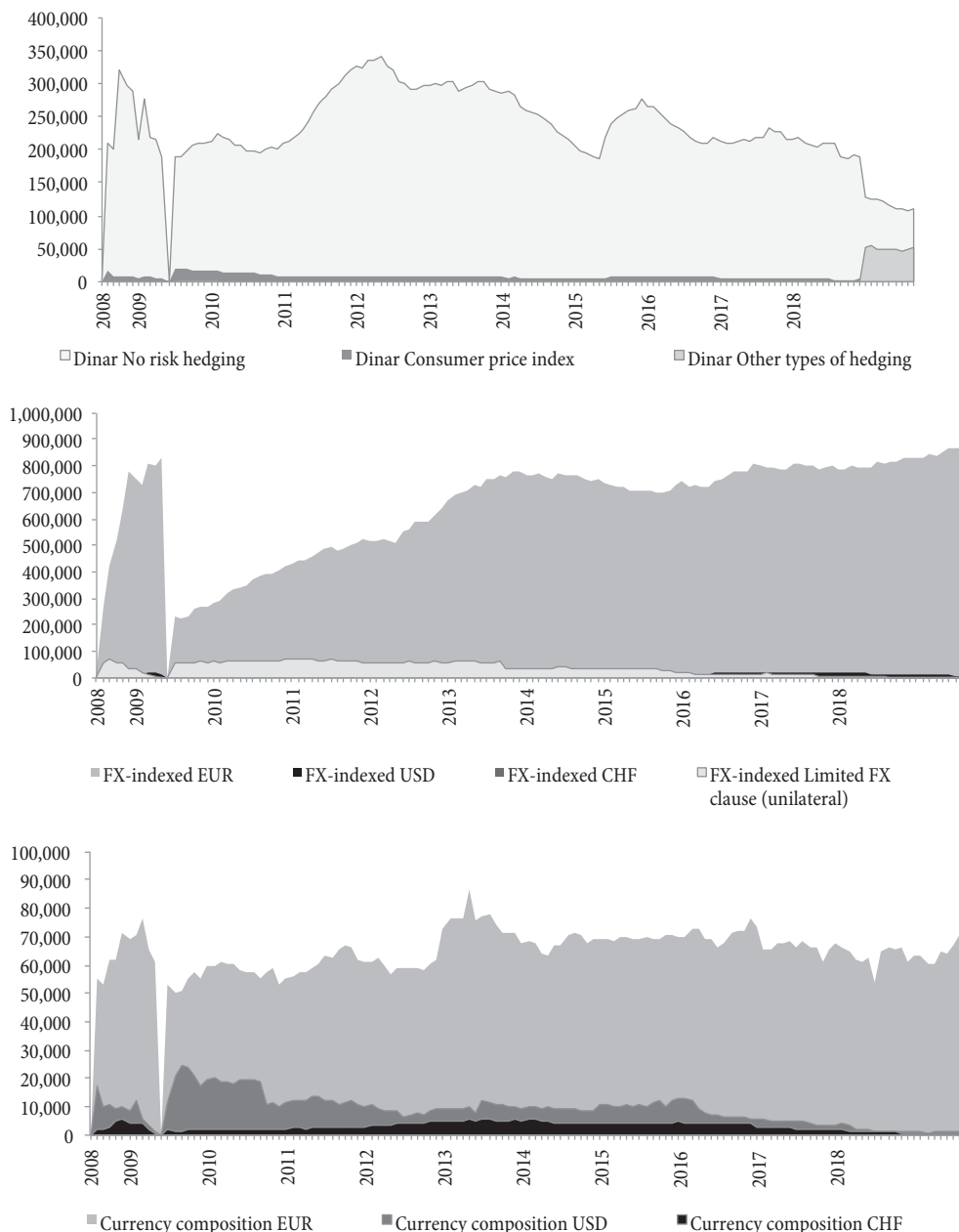
A more detailed overview indicates that the highest percentage of loans are associated with the industry and trade subsectors of the broader nonfinancial corporate sector.

FX rates predominantly represented in local and international financial transactions are EUR/RSD, USD/RSD and CHF/RSD, among others.

FX rate variability, that is generally profound in the periods of crisis, affects the exposure of indebted corporations to FX and accompanying risks.

The variability of and medium to high positive correlation between FX reference rates affects corporate sector revenues and costs, cash inflows and outflows and

Figures 6, 7 and 8: Bank claims on corporate sector by contracted hedge and currency structure



Source: Authors' presentation based on the data in [23].

debt servicing capacities increasing the FX, credit and liquidity risk exposures.

Bank claims on corporate sector reveal that most of the loans are EUR-indexed or denominated in EUR while RSD loans are mostly without risk hedging.

The currency structure of corporate sector's debt indicates a strong need for currency hedging. Despite that, derivatives market in Serbia is still underdeveloped and limited by regulatory non-compliance and illiquidity of underlying assets market.

Overview of the Serbian FX derivatives market

Most of the key sectors in Serbian economy are characterized by currency mismatch. The corporate sector is facing significant FX exposure in all the circumstances when it creates FX-indexed debt or debt denominated in foreign currency while generating revenues and cash flows in the local currency. One way to reduce the exposure would be through higher export orientation of domestic companies. This orientation is strategic in nature and

requires significant shifts in existing production and sales models and international competitiveness, which demands time and resources. Another way would be to implement FX and other derivative contracts in risk transfer and effective hedging.

The legislation covering this area includes two laws and several by-laws:

- Law on Foreign Exchange Operations [17]
- Law on the Capital Market [16].

The by-laws include:

- Decision on Terms and Manner of Performing Exchange Operations [3]
- Decision on Terms and Conditions of Performing Foreign Payment Transactions [2]
- Decision on Performance of Financial Derivative Transactions [1].

These decisions regulate FX payments and transfers based on transactions with financial derivatives. Corporations are allowed to trade derivatives on: organized and MTP markets in the country and abroad without restrictions; on the over-the-counter (OTC) market with banks and nonresidents for hedging the following risks: FX, interest rate, price risk of securities and commodities and stock exchange index risk.

Table 3: Banks in Serbia that offer instruments for FX risk hedging

ADDIKO BANK A.D. BEOGRAD
AIK BANKA A.D. BEOGRAD
BANCA INTESA AKCIONARSKO DRUŠTVO BEOGRAD
CRÉDIT AGRICOLE BANKA SRBIJA, AKCIONARSKO DRUŠTVO, NOVI SAD
ERSTE BANK A.D. NOVI SAD
FX risk hedging
Interest rate risk hedging
EXPOBANK AKCIONARSKO DRUŠTVO BEOGRAD
EUROBANK AKCIONARSKO DRUŠTVO BEOGRAD
JUBMES BANKA A.D. BEOGRAD
KOMERCIJALNA BANKA A.D. BEOGRAD
OTP BANKA SRBIJA A.D. NOVI SAD
PROCREDIT BANK A.D. BEOGRAD
RAIFFEISEN BANKA A.D. BEOGRAD
SBERBANK SERBIA
SOCIÉTÉ GÉNÉRALE BANKA SRBIJA A.D. BEOGRAD
SRPSKA BANKA A. D. BEOGRAD
UNICREDIT BANK SRBIJA A.D. BEOGRAD
VOJVOĐANSKA BANKA A.D. NOVI SAD

Source: [23].

Currently, available FX instruments for hedging FX exposure in the Serbian financial market include only non-standardized OTC contracts – special forms of forwards and swaps mostly offered by commercial banks.

FX hedging instruments available in the market are:

1. FX forwards,
2. Covered FX forwards,
3. FX swaps.

FX forwards are contracts to buy or sell foreign currency at a price expressed in RSD, on an agreed future date at a forward rate agreed in advance. Interest rates used in determination of the forward rate include the domestic BELIBOR, rate for government bills, reference rate of the NBS, and foreign currency rates: LIBOR, EURIBOR, etc.

Covered FX forwards are contracts to buy foreign currency where a company deposits a part or total of the RSD value in advance and receives foreign currency on an agreed future date. FX swaps represent simultaneous purchase and sale of two currencies at predetermined exchange rates at two different dates.

The FX forward contract most often used by corporations on the local market is a long 1 month USD/RSD based on 1 m LIBOR and 1 m EURIBOR, while forward sell transactions are much rarer and with longer maturity (6 m/1 y). Currency mostly bought forward was USD (to be able to pay for the import of energy products) and lately EUR.

Domestic companies use other foreign exchange hedging instruments (FX swaps, cross-currency swaps) insufficiently. In the January 2012 - February 2018 period, there were only 99 FX swaps (about 20 transactions per

Table 4: FX forward transactions by Serbian corporations

	Forward buy			Forward sell		
	in mill EUR	Weighted average maturity in days	% of total buy	in mill EUR	Weighted average maturity in days	% of total sell
2012	754.7	38	6.7	1.3	18	0
2013	533.8	24	5	1.4	39	0
2014	430	24	5	0.8	49	0
2015	531	16	4.8	1.5	77	0
2016	450.5	22	3.9	12.9	263	0.1
2017	388.8	37	3	17.1	349	0.2
Jan 2018	24.9	84	2.5	2.9	365	0.4
Feb 2018	10.1	61	1.1	12.2	511	1.4

Source: [23].

year on average) with the total value of the first leg of EUR 134.3 million (below EUR 22 million per year on average). In the same period, there were 60 cross-currency swaps (slightly more than 9 per year on average). Transactions with FX options were not recorded (since the NBS collects the data).

Prerequisites and recommendations for further development of the derivatives market in Serbia

Corporations in Serbia cannot benefit from the developed local term FX market, like corporations in developed economies. The primary reason lies in the legal framework that has not been fully established and the fact that the standardized market for derivatives did not come into force for any type of assets.

The domestic corporate sector has at its disposal non-standardized instruments; however, the necessary institutional framework has not been established in this market either. As a result, there are no institutional guarantees given by a clearing house or other mechanisms for securing the execution of non-standard term contracts, which is why participants in trading can only rely on personal trust in the counterparty.

According to the provided analysis, the basic precondition for improving the term FX and other derivatives market is the legal framework upgrade.

Considering the significance of the legal framework, a comparative analysis of the Serbian and EU legislations was carried out.

The Republic of Serbia is in the process of joining the EU and has the obligation to harmonize its legislation in the field of term contracts market with the EU legislation. It should be noted that after the global economic crisis, the legislative framework was harmonized at the global level. MiFID II [7] and EMIR legislative frameworks were introduced with the aim of strengthening investor protection and improving the functioning of financial markets, making them more efficient, resilient and transparent. Of particular importance is the G20 Summit held on 24-25 September 2009 in Pittsburgh, after the 2008 global economic crisis. The G20 leaders agreed that all standardized OTC derivative contracts should be cleared through a central counterparty

(CCP) by the end of 2012 and that OTC derivative contracts should be reported to trade repositories. In June 2010 in Toronto, the G20 leaders reaffirmed their commitment to accelerate the implementation of strong measures to improve transparency and regulatory oversight of OTC derivative contracts in an internationally consistent and non-discriminatory way [6, Article 5].

The guidelines for the development of organized financial and commodity markets were stipulated for 20 most developed countries, which have adopted the following important principles for the development of trading in derivative financial instruments [9]:

- Establishment of common criteria for the functioning of organized markets – stock exchange and OTCs,
- Regulation of swap transactions, through licensing of swap dealers, trade records and clearing obligations for swap trading,
- The “swap futurization” process that involves the clearing of swaps or other types of guarantees in order to improve the security of execution of trading transactions that did not include, until that moment, the obligation of providing guarantee instruments,
- Strict obligation on trade reporting,
- Introduction of general common criteria for regulatory bodies of commodity-exchange systems, as well as better coordination of cooperation of regulatory bodies.

The following table summarizes the present state of regulation of derivatives market in the EU and Serbia.

The legislative and supervisory function in the area of capital markets, including all derivatives (financial, commodity, exotic, etc.), is performed by the European Securities and Markets Authority (ESMA). The law, known as EMIR in professional milieu, entered into force in 2012 and contains similar provisions as the Dodd-Frank Act [4]. The basic EMIR provisions related to commodity exchange operations are the following: (1) compulsory clearing for both exchange and OTC trading instruments, (2) application of certain risk management techniques in trading derivative instruments, (3) reporting on trading¹,

¹ Both counterparties in trading have an obligation to report transactions within a specified time period.

Table 5: Comparative analysis of regulation of derivatives market in the EU and Serbia

	Republic of Serbia		EU	
	Current state	Regulation	Current state	Regulation
Licensing system for clearing houses	Not established	Law on the Capital Market	Established	The European Market Infrastructure Regulation (EMIR) - Regulation (EU) No 648/2012 - stipulates general conditions while each country regulates this subject in detail
Entities eligible to perform clearing house activities	Central Securities Depository	Law on the Capital Market	All licensed legal entities	The European Market Infrastructure Regulation (EMIR) - Regulation (EU) No 648/2012
Minimum capital of the Central Registry	EUR 750,000	Law on the Capital Market Article 216	EUR 7.5 million	EMIR, Article 16
The obligation of guaranteeing swap transaction execution (Futurization of swaps)	Institutional obligations for swap clearing have not been established	Law on the Capital Market	Established institutional obligations for swap clearing or other guarantees for transaction execution	EMIR
Reporting obligations for swap trading	Commercial banks that participate in derivatives trading have an obligation to report to the NBS	Decision on Performance of Financial Derivative Transactions, Official Gazette of the Republic of Serbia, No 76/2018	Participants in swap trading have an obligation to report to the trade repository	EMIR, Article 45

Source: Authors' presentation based on the analysis of the regulations of the Republic of Serbia and the EU.

(4) special requirements for the establishment and operation of clearing houses and trading platforms.

The legal requirements for trading in standardized term contracts in Serbia were created more than fifteen years ago, but stock exchange trading has not yet been established [18].

The main room for improvement of the legal framework for term contracts lies in the regulation of licensing and control of the clearing house operations [8]. Namely, the Law on the Capital Market foresees that the abovementioned activities in this market are performed by the Central Securities Depository. According to the EU legislation, the establishment and operation of clearing houses must be available to all stakeholders (clearing is considered to be a "market service"). A clearing house must be a separate legal entity, which is not the case with the Central Securities Depository, which, in addition to clearing, performs its basic function – registration of securities.²

² The purpose of the obligation to have a clearing house as a separate legal entity is to protect the Central Securities Depository in case of bankruptcy of a clearing house and vice versa, in case of bankruptcy of a related legal entity, to avoid financial problems in the clearing house.

Regarding the licensing and control of the clearing house, EMIR stipulates that the regulatory function must be performed by at least one institution, but it does not specify which one. In almost all EU countries, licensing and control of clearing house operations is done by the Securities and Exchange Commission and the Central Bank, which can also be recommended for the conditions that exist in Serbia. The harmonization of the Law on the Capital Market with the EU regulations in the area of clearing would enable the establishment of i-house clearing houses and independent clearing houses. In addition to necessary harmonization of legislation, the following effects could be achieved: the capacity of domestic exchanges to join the global exchange groups³ could be improved, the possibilities of manipulation would be reduced, which is especially significant for "shallow" markets, since large international clearing houses bring traders that are not connected with domestic traders, and the volume of trading on domestic exchange and OTC market, that

³ Up until now, when a new exchange joined the exchange group, the exchange groups did not establish a new clearing house, nor did they entrust this task to the central registry, but the existing clearing house expanded its activities to include the new exchange.

attracts the existing clients of large international clearing houses, could be increased. It should be emphasized that a clearing house registered in one member state can perform clearing operations across the EU without any additional registration [13].

Another important area of harmonization of the Law on the Capital Market is the regulation of swap trading. Regulation is needed in two areas – first, establishment of obligation on swap clearing or another type of guarantee provision for the execution of this type of contract, and second, introduction of an obligation to report on swap trading to the regulatory authority.

Harmonization of the Law on the Capital Market with the EU common rules in the area of derivative securities would have the following effects:

- Improving trading in derivative instruments for risk management through the establishment of institutional guarantees for the execution of this type of term contracts,
- Positive effect on trading in underlying securities (shares, bonds) through the process of harmonization of the Law with the EU acquis,
- Positive effect on the process of Serbia's EU accession through harmonization of the Law on the Capital Market with the EU acquis in the area of financial markets.

Of high significance for the development of FX and other derivatives markets, as well as the underlying securities market, would be the harmonization of the Law on the Capital Market with the EU regulations and the application that the Republic of Serbia would send to the European Commission and ESMA for determining the compliance of the Serbian and EU legislations. According to the procedures, the Commission may adopt decisions on the equivalence of the legal, supervisory and enforcement framework in third countries, if a number of conditions are met. The assessment that forms the basis of such decisions should not prejudice the right of a clearing counterparty established in a third country and recognized by ESMA to provide clearing services to clearing members or trading venues established in the EU [6, Article 6]. By this decision of the European Commission, the clearing houses and trade repositories established in Serbia could work in

the EU and vice versa, which could greatly enhance the development of the Serbian financial market.

Conclusions

The aim of this paper was to analyze the possibilities of the corporate sector in Serbia to perform FX risk hedging. The analysis showed that the corporate sector is exposed to FX and other related risks. The structural way of solving currency mismatch for local corporations would be to create a prerequisite for their higher export activities. The other approach assumes the development of the derivative instruments market. So far, Serbian corporations have occasionally used non-standardized OTC FX term contracts in the form of uncovered and covered forwards and FX swaps. Further development of this market segment, together with the segment of standardized FX and other derivative contracts, requires harmonization of the legislation on financial markets in the Republic of Serbia and the EU. That especially refers to the area of clearing system harmonization that would enhance further development of the local financial market and its integration with the EU and global financial systems.

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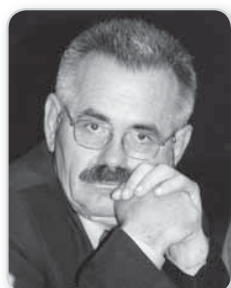
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KEY DISTINCTIONS BETWEEN COMMERCIAL AND CIVIL LAW CONTRACTS IN SERBIAN LEGISLATION

Ključna razgraničenja između privrednih i građansko-pravnih ugovora u srpskom zakonodavstvu

Abstract

Belonging to the sphere of business transactions, commercial contracts are characterised by certain specific features when compared to the classic contracts relative to the civil law – civil, non-commercial contracts. These specific features are reflected in the appropriate rules applicable to commercial contracts, irrespective of whether the given legal system adopted the concept of uniform regulation of obligation relations (a single law provides for all obligation relations regardless of the status of the parties) or the concept of separate regulations (classic obligation relations are governed by one law, while commercial relations and business transactions are governed by another). In this regard, concluding and drafting commercial contracts requires familiarity with the legal rules relevant to this category of contracts, always taking into account their specific features, as well as drawing a distinction between these contracts and the ones that do not belong to the sphere of commercial law relations. The main purpose of this paper is to offer the reader an overview of the key distinguishing features of regulations governing commercial contracts in Serbian law. To this effect, the paper first presents the general legal framework relevant to commercial contracts in the Serbian legal system and then analyses the main specific features of commercial contracts, such as: duty of a higher level of care, assumption of joint and several liability, special rules for the contract of sale, loan contract, limitation periods, as well as certain rules on the right of pledge applicable to commercial contracts.

Keywords: *commercial contracts, Law of Obligations, specific features, contract performance, contracting parties, contractual obligation.*

Sažetak

Privredni ugovori, kao ugovori koji egzistiraju u sferi poslovnog prometa, odlikuju se određenim specifičnostima u odnosu na klasične ugovore građanskog prava – civilne, vanprivredne ugovore. Ove specifičnosti svoj izraz nalaze i u odgovarajućim pravilima koja se primenjuju na privredne ugovore, bez obzira da li je u konkretnom pravnom sistemu usvojena koncepcija jedinstvene regulative obligacionih odnosa (jednim zakonom su obuhvaćeni svi obligacioni odnosi bez obzira na status njihovih učesnika) ili koncepcija posebne regulative (klasični obligacioni odnosi regulisani su jednim zakonom, a privredno-pravni odnosi drugim zakonom). U tom smislu, zaključenje privrednih ugovora i određenje njihove sadržine podrazumeva poznavanje pravnih pravila relevantnih za ovu kategoriju ugovora, uz uzimanje u obzir njihovih posebnih karakteristika, kao i njihovo razgraničenje od ugovora koji ne ulaze u sferu privredno-pravnih odnosa. Osnovni cilj ovog rada ogleda se u pružanju čitaocu opšteg pogleda na ključne specifičnosti uređenja privrednih ugovora u srpskom pravu. U tom smislu, u radu je najpre učinjen pregled opšteg pravnog okvira relevantnog za privredne ugovore u pravnom sistemu Srbije, a zatim su analizirane najznačajnije specifičnosti privrednih ugovora kao što su: dužnost pojačane pažnje, prepostavka solidarnosti, posebna pravila za ugovor o prodaji, ugovor o zajmu, rokovi zastarelosti, kao i određena pravila založnog prava koja se primenjuju na privredne ugovore.

Ključne reči: *privredni ugovori, Zakon o obligacionim odnosima, specifičnosti, ispunjenje ugovora, ugovorne strane, ugovorna obaveza.*

Introduction

In concluding commercial contracts, contracting parties approach the table from different positions, intending to secure different economic interests. It is exactly because of the disparity of these interests that a contract needs to strike a balance between the rights and obligations of contracting parties, in an effort to achieve a fair relationship between them. The principle of autonomy of will, as one of the fundamental principles of the contract law, entitles contracting parties to determine their contractual relationship by mutual consent, of their own volition.¹ This means that contracting parties can define the specific contents of their contracts and establish a set of rules adjusted to their needs and interests in any given case. This freedom, however, is not without limitations; it must always stay within the bounds of public order, mandatory rules, and good faith. These limitations are explicitly specified in the Serbian Law of Obligations (Law of Contracts and Torts), other codes in comparative law and sources of the uniform contract law which proclaim the principle of autonomy of will. It may therefore be inferred that a successful conclusion of commercial contracts lays before the contracting parties two essential requirements: 1. knowledge and proper understanding of the legal framework relevant for conclusion of the contract (the rules of both mandatory and non-mandatory character applicable to the contract unless otherwise agreed by the parties) and 2. defining the contents of the contract with the aim of protecting the best interests of the parties, within the limits of the principle of autonomy of will. These requirements must in particular be taken into consideration by businessmen who are often not familiar enough with the rules and notions of the contract law [2, p. 11].

In the nature of things, commercial contracts which belong to the sphere of business relations are characterised by certain specific features when compared to the classic civil law contracts. These specific features are traditionally manifested in business practice, regardless of whether defining the notion of commercial contract is based on the parties having the status of “merchants” or on the transaction being of commercial character. The above specificities

are also reflected in the appropriate rules applicable to commercial contracts, irrespective of whether the given legislation adopted the system of uniform regulation of obligation relations (a single law provides for all obligation relations regardless of the status of the parties) or the system of separate regulations (classic obligation relations are governed by one law, while commercial relations and business transactions are governed by another). In this regard, appropriate drafting of a commercial contract requires familiarity with the legal rules relevant to this category of contracts, always taking into account the commercial implications in each particular transaction, as well as drawing distinction between these contracts and the ones that do not belong to the sphere of business relations, such as primarily consumer contracts, governed by separate regulations.

The main purpose of this paper is to offer the reader an overview of the key distinguishing features of the regulations governing commercial contracts in Serbian law, so that they may make the most appropriate decisions in concluding contracts in each given case. To this effect, the paper will first present the general legal framework for commercial contracts in Serbian legislation. After that it will analyse the main specific features of commercial contracts, such as: duty of a higher level of care, assumption of joint and several liability, special regulations for the contract of sale, loan contract, limitation periods, as well as certain rules on the right of pledge, applicable to commercial contracts.

General legal framework for commercial contracts

In the legal system of Serbia, the primary source of contract law is the Law of Obligations, which governs obligations in full. The Law stipulates the rules about the sources of obligations – contract, causing damage, acquisition without proper grounds, unauthorised conduct of business, unilateral expression of will (public promise of award and securities), effects and termination of obligations, as well as the rules pertaining to different kinds of obligations and substitution of creditor or debtor. The fundamental principles of the Law of Obligations

1 For more details on the autonomy of will principle, see [15, pp. 156-182].

include the autonomy of will, equality of parties to obligation relation, principle of good faith and fair dealing, prohibition of abuse of rights, prohibition of creation and misuse of a monopoly position, principle of equal consideration in bilateral contracts, prohibition of causing damage, duty to perform obligations, non-mandatory nature of the provisions of the Law, application of fair business practices, etc. A special section of the Law governs contracts for the sale of goods and services, including sale, exchange, loan, lease, service contract, deposit, order, pledge, suretyship, contract of construction, warehousing, commission agency, commercial agency, forwarding, transport of persons and things, license, insurance, travel contracts, assignment, settlement of claims, as well as banking business – money deposit, lodging of securities, savings deposit, current account, safe deposit box, credit contract, letter of credit and bank guarantee. Certain contracts that are provided for in general terms of the Law of Obligations are also governed by special laws which regulate such contracts in detail, acting as *lex specialis* to the Law of Obligations (for example, insurance or transport contracts). On the other hand, there are contracts which are not covered by the Law of Obligations, but by other relevant laws, either because they are of a recent date (such as financial leasing contracts) or because by their very nature they do not regulate obligation relations (such as contracts granting concessions or memorandums of association). As regards international commercial contracts, the Law of Obligations is applied when parties have agreed to apply the Serbian substantive law or when the rules of private international law lead to the application of the Serbian substantive law, in cases when the contract does not provide for applicable law.

With regard to the rules on commercial contracts, the Law of Obligations adopts the principle of uniform regulation of obligation relations² according to which its rules are equally applicable to all transactions that take place in the sphere of trade of goods and services, regardless of the status of the parties to such transactions.³ However,

2 For the principle of uniform regulation of obligation relations, see [16, pp. 19-22], [15, pp. 50-53].

3 With regard to regulating commercial contracts, two different concepts

assuming that commercial contracts are concluded by businessmen with relevant knowledge and experience in the sphere of business, and taking into consideration some specific features of commercial contracts, in certain cases the Law of Obligations lays down special rules for commercial contracts. Thus, the Law stipulates that its provisions relating to contracts shall apply to all kinds of contracts, unless otherwise explicitly provided in respect of commercial contracts (Art 25, Para 1).

The Law of Obligations defines commercial contracts as contracts concluded by companies and other legal persons engaging in an economic activity, as well as natural persons performing an economic activity as their registered profession, in the course of performing such activity or in relation to such activity (Art 25, Para 2).⁴ In contrast to commercial contracts, there are civil law (non-commercial) contracts concluded by persons who do not have the status of an economic operator – natural persons who do not engage in an economic activity as their registered profession and legal persons who do not perform economic activities.⁵

Compared to the classic civil law contracts, the rules of the Law of Obligations relevant to commercial contracts have certain distinguishing features [7, pp. 53-61]. In general terms, some of the above-mentioned fundamental principles of the Law, such as prohibition of creation and abuse of a

prevail in comparative law. Based on one concept, the obligation relations of commercial nature and those within the sphere of classic civil law contracts are governed by different laws and subject to different legal regimes. This is the case with French law where commercial relations are governed by the Commercial Code (Code de commerce), and civil law relations by the Civil Code (Code civil), the same as in German law (German Commercial Code and German Civil Code). The other concept involves uniform regulation of both kinds of contractual relations, regardless of the status of parties. This legislative system, which happens to prevail in comparative law (for example, in the Swiss Code of Obligations, Italian Civil Code and many other national laws), is considered to be modern and better suited to regulating obligation relations. For more details, see [22, pp. 43-49].

4 For determining the notion of commercial contracts, see [22, pp. 44-47]. For commercial character of contracts from the international standpoint, see [21, p. 2], [23, pp. 4-5], [4, pp. 8-9].

5 General classification of contracts has lately come to include "consumer" contracts which, in broadest terms, may be defined as contracts concluded by a professional in the course of performing their professional activities, on the one hand, and by an individual entering into the contract not for professional reasons, but for personal, family or household use, on the other. For consumer contracts in comparative law, see [1, pp. 21-28]. For the point of view of the European Private Law, see directives relevant to this area, classified and published in [17].

monopoly position (Art 14) and the principle of application of fair business practices (Art 21), by their very nature have a bearing only on commercial contracts, while the principle of informality (consensualism) achieves its full expression and effect exactly in the domain of commercial contracts (Art 67). Furthermore, the very fact that commercial contracts are concluded in the sphere of trade and business relations in general gives rise to the assumption that these contracts are concluded as onerous contracts (gratuitous contracts as a rule do not belong to commercial contracts). Commercial contracts, depending on the manner of their conclusion, often fall into the category of contracts of adhesion, typical of companies which regularly and continuously engage in the activities involving contracts concluded en masse.

When it comes to the rules on specific contractual relations, some of the most important distinguishing features of commercial contracts include: duty of a higher level of care in commercial contracts; the assumption of joint and several liability in an obligation with multiple debtors arising from a commercial contract and the assumption of joint and several liability of a surety for an obligation under a commercial contract; certain differences in the regulations governing contracts of sale; the assumption of interest in commercial loans, as well as shorter limitation periods for the claims arising from commercial contracts. Special rules for commercial contracts are also noticeable with regard to the right of pledge, both in the Law of Obligations and other laws governing pledge. Each of the above-mentioned differences will be addressed separately.

Duty of a higher level of care

Using appropriate standards, the Law of Obligations has defined duties relative to the conduct of parties in performance of their obligations and exercise of their rights in obligation relations. These standards imply a lesser or higher level of care as a criterion for the liability of an obligor who failed to exercise appropriate care in the performance of their obligations.

Thus, the Law provides that in performing their obligations the parties to obligation relations are bound to act with the care required in legal transactions in a given type of the obligation relations – the care of a good

businessman, the care of a good master of the house and the care of a good expert (Art 18). In each case, the care is evaluated based on the type of person who acts in accordance with his/her abilities, knowledge and profession, whilst also taking into account what is typically expected from such person in a specific type of contractual relation and, more generally, obligation relation. The Law has established objective care as the standard, meaning that the individual traits of parties are not deemed to be of significance. In civil law contracts, the parties are required to perform their obligations acting with the care of a good master of the house (*bonus pater familias*), which implies a person who acts reasonably and with due care in performing their tasks, managing property and fulfilling their obligations towards other persons. On the other hand, when it comes to commercial contracts, the Law requires the care of a good businessman in performing contractual obligations (Art 18, Para 1). However, in performance of the tasks which fall within the domain of their professional activity, a party is required to act with a higher level of care, in accordance with the rules and practices of profession – the care of a good expert (Art 18, Para 2). This is a special level of care required of professionals performing obligations while pursuing their business endeavours in accordance with the rules of profession. The evaluation of the standard of a good expert is primarily based on the rules of a given profession and particular fair business practices applicable to professional performance of the given activity. It may be inferred in that regard that each party to a commercial contract is required to act with the care of a good businessman in discharging their contractual obligations. However, when it comes to the performance of an obligation stemming from the professional activity, a party must exercise a higher level of care; they must abide by the rules of profession and practices applicable to the given profession, in other words – act with the care of a good expert [22, p. 50].

The general principle of the Law concerning the duty to apply appropriate level of care is specifically reflected in a series of regulations governing particular contracts. Thus, for example, in sales contracts the Law stipulates that the seller is obliged to take care of the goods with the care of a good businessman or a good master of the house

and take necessary steps to that effect in cases when, due to the buyer's delay, the risk passes to the buyer prior to delivery of goods. The same applies to the buyer after the goods have been delivered to them, if they wish to return them to the seller either because they have cancelled the contract or demand other goods instead of those delivered (Art 520, Paras 1 and 2). By the same token, leaseholder is bound to use the goods as a good businessman or a good master of the house, depending on whether the lease contract was concluded as a commercial or civil law contract (Art 581, Para 1); a depositary is bound to store goods as their own, and if they receive a fee for the deposit, the goods should be kept with the care of a good businessman or a good master of the house (Art 714, Para 1); the person accepting an order is obliged to perform the order as instructed, with the care of a good businessman or a good master of the house, and if the orderer has not provided specific instructions concerning the transaction to be performed, the person accepting the order, while being guided by the interests of the orderer, must act as a good businessman or a good master of the house (Art 751), etc.

Since recourse to commercial agents is the easiest and the least expensive means of entering a market, particularly in international trade transactions, commercial agency contracts are frequently used in commercial transactions [2, p. 184]. Contracts with commercial agents explicitly call for the care of a good businessman.

With respect to intermediary contracts, under the Law of Obligations an intermediary is required to look for an opportunity to conclude a particular contract and to communicate such opportunity to the principal with the care of a good businessman. The intermediary cannot be held liable if, in spite of the necessary care, they fail in their endeavours (Art 818). It should be noted here that the Law provides that the intermediary is obliged to endeavour to find a person with whom a contract can be arranged and to act as a link between the principal and such person, which means that it is not intermediary's obligation, unless otherwise agreed, to actually find an appropriate person, but only to make endeavours to that effect. Therefore, if in the performance of their obligations the intermediary acts in good faith, with the care typically required in their profession, it is deemed

that they have met their obligations regardless of whether or not a contract is concluded between their principal and a third party. In contrast, if, when looking for a potential business partner for the principal, the intermediary fails to exercise due care (for example, they find an insolvent person or a person of whose incapacity to perform they were otherwise aware or should have been aware), they are deemed not to have met their contractual obligations and are liable for damages. Thus, for example, the position held in court practice is that the intermediary is to be held liable if they have directed their principal to a company which has been experiencing financial difficulties for a long time and whose giro account was blocked, of which the intermediary should have been aware (Judgement of the Supreme Court of Serbia, Gž. 4632/76 of 12 October 1977).⁶

The Law requires the care of a good businessman to be exercised by the commission agent under the commission agency contract, as well as by the commercial agent under the commercial agency contract. The commission agent is obliged to meet their contractual obligations with due care. Thus, when the commission agent receives merchandise for sale from the client or takes over the merchandise purchased on behalf of the client from a third party, they are obliged to keep it with the care of a good businessman (Act 776, Para 1). Likewise, the agent is liable to the client for losses if they sell the merchandise to a person heavily in debt, provided that they are aware or should have been aware of such a fact (Art 774). The issue of care, that the commission agent is required to exercise when performing the commission contract, has often been the subject of court rulings. For example, in one case the court held that the importer, a specialised agency, in order to protect its client's interests, was obliged to take all necessary steps to establish the state of health of the imported animals and to ensure a guarantee for material defects, without waiting for further instructions from the client (Decision of the Supreme Court of B-H, Pž. 614/88 of 30 December 1989).⁷ In the same context, the court took the position that the commission agent was liable for damages to the client if they had failed to arrange for or exercise the right to a penalty under the contract concluded on

⁶ Pravo i privreda, No. 6-78, p. 62, quoted from [8, p. 176].

⁷ Informator, No. 3783, 9 June 1990, p. 5, quoted from [8, p. 175].

client's behalf (Decision of the Supreme Court of B-H, Pž. 296/87 of 24 March 1988; Decision of the Supreme Court of B-H, Pž. 564/89 of 14 June 1990)⁸, and that the commission agent, as a specialised agency and an expert in the profession, must not act in strict compliance with the client's instructions, but instead should have warned the client if they had known that the collection from the buyer was uncertain (Decision of the Supreme Court of B-H, Pž. 65/86 dated 18 March 1987).⁹

In the same way as the intermediary and the commission agent, in all transactions undertaken by the commercial agent with regard to the interests of their principal, the commercial agent is also obliged to act with the care of a good businessman (Art 797, Para 1) and is liable for damages to their principal if they should fail to act in the described manner.

In addition to contracts with commercial agents, the Law calls for the care of a good businessman in other contracts of trade services, such as the forwarding contract where the forwarding agent is required to act in line with the interest of the principal and with the care of a good businessman at all times (Art 832), whilst being liable for the choice of the carrier (Art 834), and the contract of control of goods and services where the controller is obliged to perform the agreed control in a professional and impartial manner (Art 847, Para 1).

There are instances where the Law explicitly provides for the care of a good expert in contract performance. This is the case with transportation contracts where the carrier is liable for the losses sustained by the passenger due to delay, unless the cause of delay was impossible to eliminate by exercising the care of a good expert (Art 683, Para 2); contracts of organisation of travel where the travel organiser, even though the services are performed in accordance with the contract and applicable regulations, is liable for loss sustained by the traveller in relation to performance of such services, unless they may prove that they acted as a careful travel organiser in making their choice of persons performing such services (Art 868, Para 2); contracts of lodging securities where the bank

is obliged to ensure safekeeping of securities with the care required from the depositary against a fee and to take all actions on behalf of the depositor necessary for preserving and exercising their rights under the securities (Art 1049, Para 1), etc.

Establishing the level of care under the above standards is important for determining the obligor's liability for a breach of contract and, above all, liability for loss [13, pp. 468-479]. The party that failed to act with the required level of care may be released from liability only under the general conditions provided by the Law for obligor's release from liability. Under those provisions, the obligor is released from the liability for loss if they can prove that their non-performance, or delay in performance, was the result of the circumstances they were unable to prevent, eliminate or avoid, arising after the conclusion of the contract (Art 263). Assessment of the exercise of the required level of care in a given case is also important for a possible rescission of the contract due to a material mistake, permissible by the Law, which provides that the party entering into contract on the basis of material mistake may request rescission, unless in entering the contract it failed to act with the level of care required in the sphere of trade (Art 61, Para 2). The level of required care is also relevant for determining the degree of guilt in subjective liability for loss and other cases raising the issue of the conduct of parties to an obligation relation.

Joint and several liability

Specificities of the rules relevant to commercial contracts are particularly conspicuous in the domain of joint and several liability where the Law provides for the assumption of joint and several liability in an obligation with multiple debtors created by a commercial contract and in case of surety's liability for an obligation under a commercial contract.

The assumption of joint and several liability in an obligation with multiple debtors arising out of a commercial contract. Before the subject of the assumption of joint and several liability is dealt with, the notion of divisible obligation with multiple debtors and creditors will be outlined in general terms. The Law of Obligations defines divisible

8 Informator, No. 3660, 5 April 1989, p. 7, Privredno pravni priručnik, No. 12/90, p. 53, quoted from [8, p. 175].

9 Privredno pravni priručnik, No. 11/97, p. 65, quoted from [8, p. 175].

obligations as follows: “an obligation shall be divisible if that which is owed can be divided into and fulfilled in parts having the same properties as the whole object and if that which is divided should lose nothing in value by virtue of such division; otherwise, the obligation shall be indivisible. When multiple debtors exist in a divisible obligation, such obligation shall be divided between them in equal shares, unless a different kind of division is agreed, and each shall be liable for their share of the obligation” (Art 412, Paras 1 and 2). In contrast, indivisible obligations with multiple debtors are governed by the provisions on joint and several obligations (Art 435). This definition points to several important elements which need to exist cumulatively for an obligation to be divisible: firstly, debt can be divided (divisible obligation) or cannot be divided (indivisible obligation); secondly, parts must hold the same properties as the whole; thirdly, division does not diminish the value of the object. Such and similar definitions of divisible and indivisible obligations [11, pp. 465-481] may also be found in comparative law [14, pp. 75-87]. In other words, general rule of the law of obligations stipulates that in obligations involving multiple debtors or creditors the claims or debts between them are divided, so that each creditor can demand payment of only their part of the claim and each debtor owes only their part of the debt [5, p. 20ff]. In this kind of obligation, the entire claim or entire debt is divided into as many separate obligations as there are creditors or debtors.

However, the Law of Obligations recognises an important exception to this rule in providing for the assumption of joint and several liability in cases involving multiple debtors in a divisible obligation arising from a commercial contract. Under the Law, if multiple debtors exist in a divisible obligation arising from a commercial contract, they are jointly and severally liable to the creditor, unless the contracting parties have explicitly eliminated joint and several liability (Art 413). This is passive solidarity, with each debtor being liable to the creditor for the entire obligation (all for one, one for all) [20, pp. 920-933], [3, pp. 234-236]. Creditor may, at their option, claim full or partial payment from any debtor or all debtors together until the creditor’s claim is fully settled. When one of joint and several debtors meets the obligation in full, the obligation ceases to exist and all debtors are released. A

new debtor-creditor relation is created between the debtor who has paid off the debt in full and other joint and several debtors, where former is entitled to claim recovery of their respective shares of debt from co-debtors based on the rules of their mutual relationship. If certain shares of the joint and several debt are not agreed, nor can be determined based on the legal relations existing between debtors, the obligation is divided into equal shares. However, if the joint and several obligation of debtors was stipulated solely in the interest of one debtor, such debtor is bound to redeem the entire amount of the obligation in favour of the debtor who paid off the creditor. A share being in the charge of the debtor unable to provide recovery is distributed commensurately to the remaining debtors.¹⁰ In contrast to the solution accepted in commercial contracts, the legal assumption of joint and several liability does not exist in classic civil law contracts.

Consequently, joint and several obligations are based on the derogation of the general rule on divisibility of claims or debts. Such derogation is often achieved by the agreement of contracting parties which can provide, in each given case, that the creditors may demand collection of the claim jointly and severally (active solidarity) and that the debtors may be jointly and severally liable (passive solidarity). However, where parties to an obligation relation with multiple creditors or debtors have made no provisions as to the way the liability is discharged, the answer to the question whether creditors demand performance or whether debtors render performance of a divisible or a solidary obligation is determined by appropriate rules contained in the law or another source of law applicable to the given legal relation, and hinges primarily on the assumption of joint and several liability. It may therefore be inferred that one of the main reasons for drawing a distinction in the law between divisible and solidary obligations with multiple debtors and creditors is a response to the need to determine the way in which multiple debtors in one and the same obligation relation are liable for the fulfilment of the obligation, when parties to the obligation relation have not provided for it, i.e. when it may not be established how the debtor’s liability is to be discharged based on the nature of the transaction,

¹⁰ See Arts 413-424 of the Law of Obligations.

customs and other circumstances relevant to the case at hand. This is determined by the existence or absence of the legal assumption of joint and several liability in a passive obligation involving a plurality of debtors [14, pp. 118-119].

With regard to the assumption of joint and several liability in contractual obligations from the aspect of comparative law, national legal systems may be divided into three categories. The first category comprises those which adopted the general assumption of joint and several liability, applicable unless otherwise envisaged by the contract or law. This solution is adopted, for example, in the German Civil Code which stipulates that when more than one person jointly bind themselves by contract to render divisible performance, then, in case of doubt, they are liable as joint and several debtors.¹¹ A similar solution was adopted in the Italian law where the Civil Code stipulates that co-debtors are jointly and severally liable unless otherwise provided in the law or contract,¹² as well as in the laws of the Scandinavian countries [10, p. 65]. The second group of legal systems includes those which do not accept the assumption of joint and several liability in contractual obligations, thus, there is no joint and several liability of debtors, unless otherwise provided for. A typical example of this solution is the Spanish Civil Code, stipulating that joint and several liability is not assumed in obligations involving multiple creditors or debtors and that such liability will exist only if expressly provided for (Arts 1.137 and 1.138). Furthermore, the assumption of joint and several liability is not accepted in the Dutch Civil Code, which lays down that when performance is owed by two or more debtors jointly, each of them is liable for an equal part, unless it may be inferred from law, common practice or a judicial decision that they are liable for unequal parts and that they are jointly and severally liable (Art 6:6.1). The assumption of joint and several liability is likewise not accepted in the Swiss Code of Obligations, which explicitly sets forth that debtors become jointly and severally liable for a debt by declaring that each of them wishes to be individually liable for performance of the entire obligation; without such declaration, debtors are jointly and severally liable

only in the cases specified by the law (Art 143).¹³ Finally, the legal systems comprising the third group draw a distinction, with respect to passive solidarity, between civil law contracts and commercial contracts, acknowledging this assumption for the latter, but not for the former. Such solution, as already explained, is accepted in the Serbian Law of Obligations [14, pp. 119-121].

The above differences in solutions with regard to the existence of assumption of passive solidarity in comparative law are particularly important in legal relations of international character. When it comes to contractual liability, the way in which multiple debtors discharge liability in the same obligation relation depends primarily on what is foreseen by the contract. Only if the contract does not foresee anything to that effect or if circumstances of the case in hand or the nature of the transactions do not help to determine it will the appropriate rules of applicable law be invoked, depending on whether (and under what conditions) the assumption of passive solidarity is accepted. It is therefore necessary that the contracting parties, in concluding contracts of international character, should become carefully acquainted with the rules of the applicable law and, in case of a plurality of debtors in the same contract, devote special attention to the solutions relating to the assumption of passive solidarity; if the relevant rule of applicable law does not suit their interests in the given case, contracting parties should provide for this issue in the contract using clear, precise and unambiguous wording, leaving no room for any doubts as to the manner of discharging debtor's liability [14, pp. 124-125].

Joint and several liability of the surety. In the legislation and doctrine of comparative law, suretyship is classified as subsidiary (common) suretyship and joint and several suretyship. In subsidiary suretyship, the creditor may pursue their claim against the surety only upon default of the debtor. In this kind of suretyship, the creditor must observe the mandatory order (*beneficium ordinis*) of claim recovery, attempting first to collect from the principal debtor, and only if recourse against the debtor is ineffective, seeking to recover against the surety. Otherwise, if the creditor would attempt to seek recourse against the surety without pursuing the principal debtor

¹¹ German Civil Code, Art 427.

¹² Italian Civil Code, Art 1294.

¹³ For comment on this rule, see [19, pp. 331-332].

first, the surety could invoke *beneficium excussionis sive ordinis* and thus thwart the creditor's claim [6, pp. 359-364]. On the other hand, in joint and several suretyship, the creditor may demand satisfaction for their claim from the principal debtor or the surety or both at the same time.

The traditional view recognises subsidiary suretyship as a rule and joint and several suretyship as an exception; thus, subsidiary suretyship is assumed, as a rule, while joint and several suretyship, being an exception, must be explicitly agreed, except in commercial contracts. Accordingly, the viewpoint adopted in the greatest number of countries with civil law tradition is that suretyship is subsidiary, unless otherwise agreed. This solution has been accepted in the Austrian Civil Code,¹⁴ French Civil Code,¹⁵ German Civil Code,¹⁶ Dutch Civil Code,¹⁷ Portuguese Civil Code,¹⁸ Spanish Civil Code¹⁹, etc. Some of these legal systems draw a distinction between the cases where surety is a civil law entity, with suretyship being subsidiary, and the cases where surety is a commercial entity, with the assumption of joint and several liability.²⁰ On the other hand, the Italian Civil Code adopts the general assumption of surety's joint and several liability.²¹

The Law of Obligations belongs to the laws which recognise subsidiary suretyship as a rule. Under the Law, surety may be requested to fulfil the obligation only after the principal debtor fails to perform within the time limit specified in a written notice, unless it is obvious that fulfilment cannot be effected against the principal debtor's assets or if the principal debtor has gone bankrupt (Art 1004, Paras 1 and 2).

Still, in addition to subsidiary, the Law also recognises joint and several suretyship. Thus, the Law provides for the assumption of joint and several liability for the obligations created by commercial contracts and lays down that the surety shall be liable as a surety and payer for an obligation arising out of a commercial contract, unless otherwise

agreed (Art 1004, Paras 3 and 4). Furthermore, if the surety is bound as a surety and payer, they shall be liable to the creditor as the principal debtor for the entire obligation, and the creditor may demand performance thereof from the principal debtor or the surety or from both at once (joint and several suretyship). Joint and several liability also exists in case of co-suretyship, under the rule that several sureties to a specific debt are jointly and severally liable, irrespective of whether they undertook to stand surety jointly or each of them made an undertaking to the creditor separately, unless their liability is otherwise provided for in the contract (Art 1005). In that regard, joint and several liability of co-sureties may be created either by one joint contract of suretyship, based on which all co-sureties undertake jointly and severally to fulfil principal debtor's obligations, or by each of the sureties making an undertaking to the creditor separately. Finally, it is worth noting that the Law explicitly provides that the surety to one of multiple joint and several debtors may demand that any of them reimburse the surety for that which they had paid to the creditor, as well as the expenses (Art 1014).²²

Contract of sale, loan contract, limitation periods

Differences between commercial and civil law contracts are particularly conspicuous in the rules relevant to the contracts of sale. In this context, it is first of all necessary to draw attention to the fact that in the Serbian legal system the contracts for international sale of goods are governed by the UN Convention on Contracts for the International Sale of Goods (CISG) of 1980,²³ when conditions for application

²² For details, see [14, pp. 125-138].

²³ The former Yugoslavia signed and ratified the CISG on 11 April 1980 and 27 March 1985, respectively. On 12 March 2001, the former Federal Republic of Yugoslavia declared the following: "The Government of the Federal Republic of Yugoslavia, having considered the Convention, succeeds to the same and undertakes faithfully to perform and carry out the stipulations therein contained as from April 27, 1992, the date upon which the Federal Republic of Yugoslavia assumed responsibility for its international relations". The Constitutional Charter of the State Union of Serbia and Montenegro (4 February 2003) provided for the transmission of all the rights and obligations of former Federal Republic of Yugoslavia to the State Union of Serbia and Montenegro (Art 63). Furthermore, the Charter stated that, in case of separation of Montenegro from the Union, all international documents shall be automatically taken over by the Republic of Serbia as the successor (Art 60.4). On the basis of these rules, the CISG has been in force in the Republic of Serbia since 27 April 1992. See [12, p. 415].

¹⁴ Arts 1355, 1351, Para 1.

¹⁵ Art 2288 (following reforms of 2006).

¹⁶ Art 771.

¹⁷ Art 7:855.

¹⁸ Art 638.

¹⁹ Art 1822.

²⁰ For example, in Austrian, German, French and Portuguese laws.

²¹ Art 1944, Para 1.

as defined in the Convention are met.²⁴ Although Art 1(3) of the Convention provides that neither the nationality nor the civil or commercial character of the parties or of the contract are to be taken into consideration in determining the application of the Convention, the Convention as a rule applies to commercial contracts since the rules of the CISG are largely tailored to this type of contracts. It is highlighted in the Commentary on the Convention that, because the scope of special rules for merchants is not uniformly defined on an international level and such distinction between commercial and private contracts and special rules for merchants is unknown in a number of legal systems, it was not possible to focus on merchants [18, p. 45]. In any case, the sphere of application of the CISG is restricted by Art 2 (a) which excludes purchases for personal, family or household use (consumer sales). Because of considerable differences between the Serbian Law of Obligations and the CISG (above all in the concepts of the fundamental breach of contract and non-conformity of goods, as defined in the CISG), the understanding of the rules of the CISG is of great importance for Serbian parties in international commercial contracts and for Serbian courts in resolution of international business disputes [12, p. 416].

With respect to the contracts of sale in the sphere of domestic law, the Law of Obligations provides for special rules pertaining to commercial sale in several places.

Thus, under the Law, if a contract of commercial sale does not stipulate the price, and there is not sufficient information therein based on which it could be stipulated, the buyer must pay the price otherwise regularly charged by the seller at the time of entering into contract or a reasonable price if there is no regular charge (Art 462, Para 2). Conversely, in case of non-commercial sale, the price must be stipulated in the contract of sale or the contract must contain sufficient information based on which it could be determined. A contract of non-commercial sale which lacks these elements has no legal effect (Art 462, Para 1). The CISG, which governs commercial sale, as noted above, stipulates a rule similar to that of Art, 462, Para 2 of the Law of Obligations. Under

this rule, where a contract has been validly concluded, but does not expressly or implicitly determine or make provision for determining the price, in the absence of any indication to the contrary the parties are considered to have impliedly made reference to the price generally charged at the time of the conclusion of the contract for such goods sold under comparable circumstances in the trade concerned (Art 55).

There is another significant difference between commercial and non-commercial sale relating to the time limits allowed to the buyer to notify the seller of any material defects. The Law provides that the buyer is obliged to inspect the thing received or have it inspected in the customary manner as soon as this is possible in the usual course of things. In commercial sale, the buyer is obliged, under pain of losing their rights, to notify the seller of any patent defects without delay, while in non-commercial sale the buyer may give such notice to the seller within eight days of discovering such defect (Art 481, Para 1). Identical difference in time limits is stipulated for notices given to the seller about latent defects (Art 482, Para 1). It is worth noting that in contracts for commercial sale, the notice of defects in goods is deemed to have been given to the seller without delay only if given the same day when the defect was established or the following day. It is held in the domestic court practice that the notice of defects is not given without delay if communicated to the seller on the third day from the day of establishing the defect [15, pp. 399-404]. It may therefore be inferred that the above short time limits in the Serbian law are strictly required and interpreted in cases of commercial sale.

The Law provides for other special rules for the contracts for commercial sale. Thus, if the seller of goods of a specific type delivers to the buyer a larger quantity than the one agreed, and the buyer fails to declare their refusal of the surplus within a reasonable time limit, the buyer is deemed to have accepted the surplus and must pay the same price for it. If the buyer refuses to accept the surplus, the seller must reimburse the buyer for the damage (Art 493); in case of a sale by sample or model under a commercial contract, if the goods delivered by the seller to the buyer do not conform to the sample or model, the seller will be liable under the regulations governing

²⁴ For the CISG in general and for the sphere of its application, see [18, pp. 17-223], [9, pp. 21-207].

the seller's liability for material defects (Art 538); if the seller has concluded a contract of sale in the course of carrying out their regular economic activity, under the Law the place of delivery will be the seller's head office, unless otherwise agreed (Art 471).

In addition to contracts of sale, the Law also recognises specific rules for loan contracts and limitation periods in cases of commercial contracts. Thus, the Law provides that in commercial loan contracts the borrower owes interest even if this has not been stipulated (Art 558, Para 2). Be it noted that the domestic court practice holds that the administered default interest rate is mandatory in character and may not be changed by the contract [22, p. 67]. On the other hand, concerning the limitation periods, while the general statute-barring period is set at ten years, the Law provides for a special, shorter limitation period for claims under commercial contracts. Under the Law, mutual claims of legal persons arising out of contracts for sale of goods and services and the claims for reimbursement of expenses incurred in connection with such contracts become statute-barred after three years (Art 374, Para 1).

Pledge

Specific features of commercial contracts have a special place in the domain of pledge.²⁵ Depending on whether the security charge is a movable or immovable asset, we distinguish between the pledge on movable assets – possessory pledge, the pledge on movable assets in pledge registry – registered, non-possessory pledge and the mortgage which involves immovable assets. The right of pledge or mortgage may arise out of a legal transaction (contract or some unilateral legal transaction), court decision and the law. Thus, the legal theory differentiates between contractual, judicial and statutory pledge and mortgage. While contractual pledge and mortgage may be created only with debtor's agreement, the judicial and statutory pledge or mortgage occur independently of the debtor's will.

Statutory pledge arises directly out of operation of law. Unlike contractual pledge, whose creation requires

a valid contract, as well as an appropriate manner of acquisition (delivery of the pledged object or registering with appropriate register), statutory pledge is created automatically once the requirements envisaged by the law are met. Statutory pledge on movable assets is entirely typical of commercial transactions. Thus, for example, the Law of Obligations lays down that the carrier has the right of pledge over the things delivered to them for transport or in relation to transport, effective as long as such things are in the carrier's possession or as long as the carrier holds documentation that allows the disposal thereof, in order to secure payment for the transport and the refund of the necessary costs incurred by the transport (Art 679). Along the same lines, the Law provides for the warehouse's right of pledge on goods for the claims deriving from the contract of warehousing and other claims arising from the storage of goods (Art 736, Para 2), statutory right of pledge of the commission agent on merchandise covered by the commission contract while in their possession or in the possession of someone holding it on their behalf or while holding the documentation that allows the disposal thereof (Art 786, Para 1), agent's right of pledge (Art 809), right of pledge of the person accepting the order (Art 763), etc.

On the other hand, contractual pledge – possessory pledge, registered pledge and contractual mortgage are governed by different laws in the legal system of Serbia.

Possessory pledge is governed by the Law of Obligations (Arts 966-996), which adopts some special rules for this type of pledge when it is created by a commercial contract. Under the general rules of the Law, the pledge creditor in the possessory pledge must go to court in order to recover their claim secured under the pledge. The pledge creditor may also be settled out of court, in cases as provided by the Law. This means that, as a rule, the pledge creditor needs to file an action against the debtor in civil court and demand claim settlement, and the final and enforceable judgement of the court enjoining the debtor to pay the debt is the enforcement order based on which the pledge creditor may enforce their claim through court. As a rule, the assets are sold in a public sale in the enforcement procedure. If, however, the asset has a stock-exchange or market price, the court will not order a public sale, but

²⁵ For details of pledge and mortgage in the Serbian legal system and the comparative law, see [6, pp. 21-272].

issue an order that the asset be sold at its current price. On the other hand, if the assets were given in security against a claim arising from a commercial contract, the pledge creditor need not go to court and may sell the pledged asset in a public sale instead upon expiry of eight days' notice given to the debtor and the pledgor (when the debtor and the pledgor are not the same person). The pledge creditor must give timely notice of the date and place of sale to both persons. If pledged assets have a market or stock-exchange price, the pledge creditor may sell them at such price after eight days from sending notice to the debtor and the pledgor to that effect (Art 981).

The Law on Pledge of Movable Assets in the Pledge Registry²⁶ also adopts special rules for the pledge created by commercial contracts. In this type of pledge, the pledged asset remains in the possession of the pledgor, and the right of pledge is acquired by registering creditor's right in the Pledge Registry. In the first place, with regard to what may be stipulated in the contract, the Law provides different solutions depending on whether the pledgor is a commercial entity or a natural person. If the pledgor has capacity of a commercial entity, the pledge contract may provide that the pledgee is entitled to sell the object of pledge in an extrajudicial public sale when their claim is not settled upon maturity. If the object of pledge has a market or stock-exchange price, the pledge contract may stipulate that the pledgee is entitled to sell it or retain it at such price (Art 27). Conversely, if the pledgor is a natural person, the Law does not allow for the pledge contract to provide for a transfer of title of the pledged asset to the pledgee when their claim is not settled upon maturity or, indeed, for retention or sale of the object of pledge by the pledgee at a predetermined price - *lex commissoria* (Art 28). Furthermore, in the settlement procedure, when the pledgor is a commercial entity, the pledgee may undertake extrajudicial sale by public option, if so provided under the pledge contract. However, when the pledgor is a natural person, entering into pledge contract outside the course of carrying out their economic activity, this manner of extrajudicial sale may be agreed by the pledgee and the pledgor only at the moment of maturity of the pledgee's

claim (Art 46). By the same token, the pledgee may sell the object of pledge in extrajudicial sale at market or stock-exchange price if so provided in the pledge contract, but when the pledgor is a natural person, entering into pledge contract outside the course of carrying out their economic activity, this manner of extrajudicial sale may be agreed only at the moment of maturity of the pledgee's claim (Art 47).

Conclusion

The foregoing analysis leads to the conclusion that the key distinctions between commercial and civil law contracts in Serbian legislation are reflected in the Law of Obligations which, although embracing the principle of uniform regulation of obligation relations, recognises certain specific rules pertaining to commercial contracts. These specific features are manifested first and foremost in the context of certain fundamental principles of the Law; some of these principles, such as the prohibition of creation and abuse of a monopoly position and the principle of application of fair business practices, by their very nature have a bearing only on commercial contracts, while the principle of informality achieves its full expression and effect in the very domain of commercial contracts. Furthermore, the very fact that commercial contracts are concluded in the sphere of trade and business relations in general gives rise to the assumption that these contracts are concluded as onerous contracts. Speaking of the rules pertaining to specific contractual relations, some of the most important features of commercial contracts include: duty of a higher level of care in commercial contracts, the assumption of joint and several liability in an obligation involving multiple debtors arising from a commercial contract and the assumption of joint and several liability of a surety for an obligation under a commercial contract, certain differences in regulations governing contracts of sale, the assumption of interest in commercial loans, as well as shorter limitation periods for the claims arising from commercial contracts. Special rules for commercial contracts are also noticeable with regard to the right of pledge, both in the Law of Obligations and in other laws governing pledge.

²⁶ "Official Gazette of the Republic of Serbia", Nos. 57/2003, 61/2005, 64/2006 and 99/2011.

Although the principle of autonomy of will, as one of the fundamental principles of the contract law, entitles the contracting parties to provide for their contractual relationship by mutual consent, it is worth noting that this freedom is not without limitations; it must always stay within the bounds of public order, mandatory rules and good faith. Consequently, the conclusion of commercial contracts and their successful performance require knowledge and proper understanding of the legal framework relevant for conclusion of contracts and of both mandatory and non-mandatory rules which are applicable to the contract unless otherwise agreed by the parties. It is in this light that the specific features of commercial contracts analysed in this paper should be viewed.

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Development

INDUSTRIAL POLICY AND STATE INCENTIVES IN SERBIA

Industrijska politika i državni podsticaji u Srbiji

Abstract

Activities resulting from industrial policy are economically justified under certain circumstances. Focussing on the neoclassical case for industrial policy, a number of market failures can justifiably prompt the public sector to intervene in the process of allocating resources among economic activities or sectors. State incentives are an integral part of industrial policy and belong to the measures that the state uses to affect the market position of individual enterprises. They have to be applied very carefully, taking into account their positive and negative sides. One of the main reasons for justification of state investment incentives is their direct effect on the increase in investment volume, employment growth and the creation of a more attractive business environment for both domestic and foreign investors. The analysis in this paper is dedicated to identifying the factors most affected by state aid in 72 successfully completed projects for attracting investments in the industry of Serbia from 2006 to March 2017. The research used the Delphi method, as a technique of forming expert group opinion. After a short review of the size and structure of state incentives in the Republic of Serbia, an explanation of the detailed methodological research procedure follows.

Keywords: *industrial policy, state incentives, effects of industrial policy, Delphi method.*

Sažetak

Aktivnost industrijske politike je ekonomski opravdana pod određenim okolnostima. Fokusirajući se na neoklasični slučaj industrijske politike, u slučaju određenog broja tržišnih neuspeha intervencije javnog sektora mogu biti opravdane u procesu raspodele resursa među ekonomskim aktivnostima ili sektorima. Državni podsticaji su sastavni deo industrijske politike i jedna su od mera pomoću kojih država utiče na tržišni položaj pojedinih preduzeća. Oni se moraju primenjivati vrlo oprezno, uzimanjem u obzir njihovih pozitivnih i negativnih strana. Kao jedan od glavnih razloga za opravdanost državnih investicionih podsticaja navodi se njihov direktan efekat na povećanje obima investicija, rast zaposlenosti i stvaranje privlačnijeg poslovnog ambijenta za domaće i strane ulagače. Analiza u radu je posvećena identifikovanju efekata državne pomoći u 72 uspešno završena projekta za privlačenje investicija u industriju Srbije od 2006. do marta 2017. godine. Istraživanje ovog pitanja sprovedeno je Delfi metodom, kao tehnikom formiranja grupnog stručnog mišljenja. Nakon kratkog pregleda stanja veličine i strukture državnih podsticaja u Republici Srbiji, sledi objašnjenje detaljnog metodološkog postupka istraživanja.

Ključne reči: *industrijska politika, državni podsticaji, efekti industrijske politike, Delfi metod.*

Introduction

Experience in the conduct of industrial policy worldwide shows that in most cases it is difficult to assess whether government policies were effective in achieving specific outcomes, that is, it is impossible to prove what would have happened if the government had not intervened or if it had taken different actions. There has been a long-standing dilemma regarding whether a more active industrial policy would achieve even better results. On the other hand, industrial policy critics point out that even the experiences of countries with the most dynamic industrial development do not confirm the causal link, as perhaps growth would be even higher without the implementation of industrial policy measures, as they say.

We believe that the previous experiences can be applied to general processes of development and industrialisation, regardless of historical diversity of countries. When providing support to industrial development, Serbia should comply with the EU state aid rules, enhance the process of harmonisation with the EU industrial policy, ensure the transparency of support programmes, and continuously monitor the efficiency of their use [11, p. 6]. State aid can be justified if it really influences the increase in the volume of direct investments, that is, generates investment projects that would not be implemented without the existence of an incentive programme, and if the positive effects of realization of these projects significantly exceed the direct and indirect costs of the presence of the investment incentive programme.

The aim of the research presented in this paper is to identify the most relevant factors which state aid has influenced the most. The paper has four parts. The first part defines the concept of industrial policy. The second part of the paper explains the relationship between industrial policy and state incentives. After a brief review of the volume and structure of state incentives in the Republic of Serbia in the third part, the fourth presents a detailed explanation of the applied methodology. The research used the Delphi method, as a technique for forming expert group opinion. As participants in the research, company managers were selected from 72 investment projects successfully implemented in the period from 2006 to March 2017. The

Delphi method was applied in several Delphi rounds until a managerial consensus was reached. Specific results of each round were analysed separately. After each iteration, the measurement of the achieved consensus was done with the discussion of obtained results.

Definitions of industrial policy

There is no consensus on the definition of industrial policy other than the one that says that it is a government intervention (or “non-neutrality”) in the economy. The Japanese Ministry of Economy, Trade and Industry (METI) describes industrial policy as a vision of future industrial development. In defining industrial policy, it starts from the necessary adjustment of the industrial structure to changes in human needs and modern technology [23, pp. 5-6]. In literature on development, industrial policy is often referred to as the “industrialisation policy”. For those whose primary concern is the decline in production in OECD countries, industrial policy is identified with a production strategy. However, for others, industrial policy implies a sector-oriented policy that is not necessarily focused on the whole production. Some people link industrial policy with a set of government policies focused only on the development of the production sector. According to the definition given by the World Bank (1993), industrial policy presents “government efforts to alter industrial structure to promote productivity-based growth” [28, p. 354]. Pack (2000) defines industrial policy as a “variety of actions designed to target specific sectors to increase their productivity and their relative importance within the manufacturing sector” [6, p. 5].

Other definitions include a broad set of goals, such as productivity increase, competitiveness and overall economic growth. Lawrence (1986) argues that “industrial policy refers to all policies designed to affect the allocation of resources between and within sectors of the economy” [15, pp. 126-146]. Every country implements such a generally defined industrial policy, and there is nothing unusual about this concept. At the same time, these broader terms do not imply a clearer concept of industrial policy that was debated in the 1970s and 1980s in the United States and which is still part of the political

debate on this subject. Industrial policy is a concerted, focused, conscious effort on the part of the government to encourage and promote a specific industry or sector with an array of policy tools, including subsidies or tax reliefs, trade protection, regulation, forcible mergers, protection against foreign takeovers, etc.

The definition of Driscoll and Behrman, given in 1984, provides a good description of the notion of industrial policy. "In current use, the term "industrial policy" denotes the promotion of specific industrial sectors rather than industrialisation overall... Industrial policies are direct and selective; they are an attempt by government to influence the decision making of companies or to alter market signals; thus they are discriminating... Industrial policy has sometimes sought to support the losers, delaying or retarding their decline; in other cases the goal is to succor or catalyze maturing sectors or to stimulate advancing sectors" [27, p. 6]. Victoria Curzon-Price points out that "industrial policy may be generally defined as any government measure or set of measures to promote or prevent structural change" [26, p. 15].

Pack and Saggi (2006) define industrial policy as "any type of selective intervention or government policy that attempts to alter the structure of production toward sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention, i.e., in the market equilibrium" [19, pp. 267-297]. In this sense, industrial policy is similar to growth strategy. Warwick provides a definition that is broad enough to encompass various notions of this term. "Industrial policy is any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity toward sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention" [26, p. 16].

The European Commission defined industrial policy in the following way: "Industrial policy is horizontal in nature and aims to secure framework conditions favourable to industrial competitiveness. Its instruments aim to provide framework conditions in which entrepreneurs can take initiatives, use their ideas and upgrade their capabilities. However, it is necessary to take into account

the specific needs and characteristics of particular sectors. Industrial policy therefore, inevitably unites the basics of horizontal policy and the application of sectoral policy" [8, p. 8]. Aiginger describes a "matrix" approach to industrial policy [2, p. 308].

Given that one of the causes of structural change is international trade, industrial policies are sometimes called policies that "defy" the comparative advantage of the country and develop its "latent" advantages. It should be pointed out that these definitions include measures that are not specifically (or only) applied to industry or production. Industrial policy can be applied to other sectors of which the government expects high growth potentials, such as non-traditional agricultural products or high value added services like software development. For Rodrik, the industrial policy aims to "stimulate specific economic activities and promote structural change" [20, p. 3]. He points out that this could include agriculture and service sector, as well as production. Naude considers industrial policy to be "the process whereby governments aim to deliberately affect the structural characteristics of their economies" [18, p. 4]. Crafts defines industrial policy as "any public sector intervention aimed at changing the distribution of resources across economic sectors" [5, p. 3]. Mutual to most of the definitions used, including Rodrik's and Naude's, is a clear intention to change the economic structure by targeting individual sectors, either explicitly or not. This broad definition of industrial policy assumes inclusion of other policies. Therefore, the industrialisation policy could be understood as a form of industrial strategy with a series of specially designed policies, so that developing economies could move to the next stage of economic development by promoting the growth of the productive sector in the marketplace. Production strategy would be a set of policies designed to simplify successful development of production. Policies of support to aviation sector, defence industry and the development of new technologies could be classified as industrial policies.

The more general the goal, the larger the set of measures considered part of industrial policy. The most significant difference in definitions naturally exists between the opponents and the proponents of industrial

policy. Opponents aim to equate industrial policy with subsidies, while others see it as a way to promote innovation, education, technological spillovers, and methods to improve the institutional environment and make a favourable business environment [25, p. 177]. For example, according to Cimoli, Dosi and Stiglitz, industrial policy includes targeted industrial support, as well as policies related to trade, regulation, innovation and technology, education and skills, and sectoral competitiveness policy [3, pp. 19-39]. Combinations of these measures form different packages of industrial policies. The industrial policy model includes hard and soft industrial policies, where hard policies comprise interventions that affect price formation, while soft policies comprise activities related to coordination issues. Rodrik's approach is different because it defines industrial policy as a process that involves a "dialogue" between the state and the private sector, with the aim of generating mutual information to identify and remove development-related constraints.

State incentives as part of industrial policy

Industrial policy is not a new concept. It has been on the scene, with its ups and downs, for sixty years, as a framework for development and policy based on the direct involvement of government in research and creation of comparative advantages [7, p. 235]. Among numerous arguments in favour of industrial policy, market failures are most often highlighted. Instead of perfect and free market competition, modern economy is characterised by the dominance of oligopolies, which is why the market is less competitive and more speculative. These market imperfections do not represent isolated cases, but a phenomenon that, as a rule, follows capitalist markets and occasionally provokes very devastating crises. Investing in new industries requires substantial financial costs, but does not guarantee reliable results, which is excessively risky for potential investors. Developing countries remain poor because the markets themselves do not encourage necessary structural changes.

In a significant number of papers, there is empirical evidence which proves that market imperfections make investments more difficult. The role of a "good state" is to

generate and implement political initiatives that alleviate the consequences of market imperfections. Countries like South Korea and economies such as Taiwan and China have not suddenly developed by improving their institutions, but by implementing policies that have enabled them to overcome market barriers.

Various government interventions can prevent market failures. Two most important arguments in favour of industrial policy are related to information and coordination externalities [21, p. 104]. Market failures often occur because companies do not have adequate incentives to consider the effects of their actions on other companies. It is difficult to expect activities that are not profitable for the company, but which have positive externalities on other economic players. It is unacceptable to take actions that are profitable for the company, but negatively affect other economic players. In case of positive externalities that affect other companies, the benefits of investment can outweigh the costs and vice versa in case of negative externalities. Governments often help declining industries in order to protect jobs. This is supported by the fact that other governments also subsidise their industry.

State incentives are a form of a state intervention that encourages some economic activity, sector or company, which can weaken market competition. State intervention, especially if it is selective, hides many traps. It leads to unfair competition between subsidised and non-subsidised companies, threatening fiscal sustainability and creating problems in international trade. Furthermore, it has been shown on a large number of examples that the state was not able to effectively select "winners" and "losers", partly because of the influence of various lobby groups. The inability of the state to determine the moment when it is necessary to stop providing aid has often diminished economic efficiency. From an economic point of view, government incentives will only lead to prosperity if the positive effects of government incentives are more significant than the cost of their implementation.

The European Union is not against state incentives if they are focused on market failures [13, p. 229]. The key to the success of state incentive reforms lies in reallocation of incentives to those sectors that eliminate market failures and thus affect the increase in living standards.

Governments of many developing countries are unable to implement a selective industrial policy effectively. Although political leaders are interested in promoting economic development within industrial policy, they must impose this vision on the rest of government institutions. While in theory states are hierarchically organised, in real life demands of political leaders do not pass easily through tangled and often inefficient state administration. Moreover, implementation of industrial policy requires employees with excellent technical and administrative skills and experience in solving urgent problems while supporting the industry. The complexity of interventions and their selectivity depend on the level of bureaucratic capacity of the state.

Volume and structure of state incentives in the Republic of Serbia

State aid control in the Republic of Serbia was established by passing the Law on State Aid Control, Regulation on Rules for State Aid Granting and Regulation on Rules and Procedure for State Aid Granting [12, p. 3]. State aid is any actual or potential public expenditure or realised decrease in public revenue which confers to state aid beneficiary a more favourable market position in respect to its competitors and, as a result, causes or threatens to cause distortion of market competition. State aid grantor can be the Republic of Serbia, autonomous province and local self-government unit, through their competent bodies, and any legal person

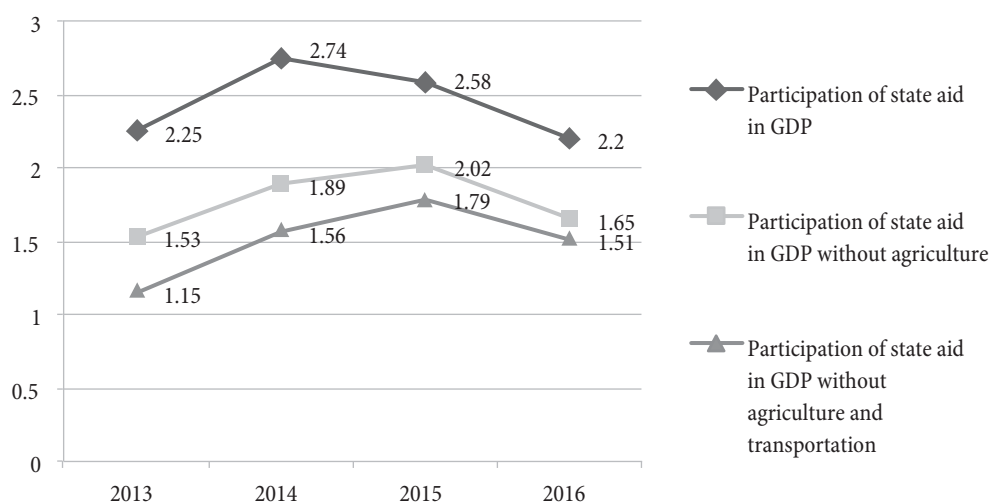
managing and/or disposing of public funds and allocating state aid in any form whatsoever [12, p. 4].

In 2016, in the Republic of Serbia state aid was allocated in the total amount of 92,399 million RSD, or 750 million EUR (average euro exchange rate in 2016 was 123.1179 RSD, source: the National Bank of Serbia). That amount was 11.3% lower than the total amount of state aid allocated in 2015 (104,202 million RSD or 863 million EUR) and 12.9% lower compared to the same parameter for 2014 (106 billion RSD or 904 million EUR). The share of state aid in gross domestic product in 2016 was 2.2%, while in 2015 and 2014 it was 2.58%, and 2.74%, respectively [12, p. 9]. This support covered the sectors of agriculture, hunting, forestry and fishing and industry and services.

In 2016, state aid granted to the industry and services sector amounted to 69,479 million RSD, i.e., 516.1 million EUR, which represents a decrease of 15% compared to 2015. The share of this aid in GDP in 2016 was 1.7% [12, p. 16]. In accordance with the European Union methodology, according to its primary goal, state aid to the industry and services sector is covered by the following categories:

- Horizontal state aid disturbs market competition the least and has the most positive effects. It focuses on research and development, training, employment, small and medium-sized enterprises, environmental protection, culture and information, damage control, restructuring, and more.
- Sectoral state aid is granted to business entities in specific sectors. The latest report of the European

Figure 1: Participation of total state aid in GDP in the 2014-2016 period



Source: Report on State Aid Granted in the Republic of Serbia in 2016. Republic of Serbia: Commission for State Aid Control, p. 11.

Commission on the granting of state aid states that the goal of each sector behind obtaining funds for support must be to achieve long-term sustainability of the sector.

- Regional state aid is allocated with the aim of stimulating economic development of underdeveloped or less developed regions, i.e., areas, primarily those in which the standard of living is meagre or in which there is high unemployment [23, pp. 5-6].

Effectiveness analysis of incentives for attracting investment in industrial Serbia in the period from 2006 to 2017

The regulation on terms and conditions for attracting direct investment regulates criteria, conditions and method of attracting direct investments to the Republic of Serbia [24, p. 1]. Incentive funds for attracting direct investments are provided from the budget of the Republic of Serbia, but part can also be provided by international development assistance. The funds can be used for financing investment projects in manufacturing and service sectors which may be subject to international sales, but cannot be used for financing investment projects in the sector of transportation, hospitality, games of chance, trade, production of synthetic fibres, coal and steel, tobacco and tobacco products, weapons and ammunition, airports, utility sector and energy sector [23, pp. 5-6].

In the 2006-2017 period (until June 13, 2017), 327 incentive contracts were signed, of which 149 with domestic and 178 with foreign investors. The total value of the granted

incentives was 530,481,924 euros, out of which 301,194,315 euros were paid out. The estimated amount necessary for the realisation of all 327 projects was 2,196,773,817 euros, and the plan was to open 87,521 new jobs.

The total of 226 projects have been successfully implemented or are in the process of implementation (68 with domestic and 158 with foreign investors). For their realisation, the total amount of 458,481,245 euros was granted (23,940,932 euros to domestic and 434,540,313 euros to foreign investors), while funds were paid out in the amount of 276,271,664 euros (20,076,619 euros to domestic and 256,195,045 euros to foreign investors).

Due to investors' non-fulfilment of undertaken obligations or withdrawal from the project, 101 contracts were terminated. Most of the terminated contracts (81) were concluded with domestic, while 20 were concluded with foreign investors. The total value of incentives for terminated contracts was 72,000,679 euros (31,186,500 euros for domestic and 40,814,179 euros for foreign investors) [17, p. 1].

Empirical research

In this paper, employment was analysed in 72 successfully implemented investment projects in the period from 2006 to March 2017. These are the projects which were granted incentive funds and which were successfully implemented (investments were made, new employees were hired, the monitoring period was completed, the number of new employees was kept). Employment was increased in 55 companies (76% of completed projects) and reduced in

Table 1: Overview of investment projects accomplished in the 2006-2017 period according to the origin of the investor

Status of project	Investor's origin	Number of projects	Investment value in euros	Number of new hires	Value of incentives granted	Value of paid incentives
Early stage of realisation of the project	Domestic	68	144,123,075	5,296	23,940,932	20,076,619
	Foreign	158	1,717,853,090	64,096	434,540,313	256,195,045
	Total	226	1,861,976,165	69,392	458,481,245	276,271,664
Terminated projects	Domestic	81	246,183,518	7,457	31,186,500	10,214,85
	Foreign	20	88,614,134	10,672	40,814,179	14,707,800
	Total	101	334,797,652	18,129	72,000,679	24,922,651
Total	Domestic	149	390,306,593	12,753	55,127,432	30,291,470
	Foreign	178	1,806,467,224	74,768	475,354,492	270,902,845
	Total	327	2,196,773,817	87,521	530,481,924	301,194,315

Source: Ministry of Economy.

17 companies (24% of completed projects). Under the contract on granting incentive funds for attracting direct investments, 72 companies were obliged to employ a minimum of 12,383 new workers. After the completion of contractual obligations in terms of investment and employment (after the so-called project implementation period), these companies employed 18,524 workers, which is 6,141 workers more (50% more) than stipulated by the contract. On the date set by the contract, March 15, 2017, these 72 companies employed 39,953 workers, which is 27,570 more than the number of workers stipulated by the contract. It is 21,429 workers more than on the date set for the completion of the obligation of investment and employment according to the contract (the first day of monitoring). In companies that increased their employment after the completion of contractual obligations (55 companies), the number of workers increased by 22,563, or by 410 workers per company on average, while in companies that reduced employment (17 companies), the number of workers decreased by 1,134 or by 67 workers per company on average [17, p. 10].

The empirical analysis, or the research, was conducted in the period from April to December 2018 in the territory of the Republic of Serbia. The study lasted longer than usual for the Delphi method, given the specificity of the data and the vacation period. State aid in Serbia has been present for several decades, but so far no one has seriously analysed its effects, that is, the impact of state aid on GDP growth, employment, exports and payment of taxes and contributions to the budget of Serbia. In our analysis of the aforementioned we will use the Delphi method.

The Delphi technique is a way of obtaining collective opinion from individuals about issues where there is no or little definite evidence and where opinion is important. Implementation of the Delphi technique is a complex process, also called the Delphi study, which begins by contacting and hiring experts in the field that is the subject of research. They are asked to answer a large number of questions in writing. Answers are given anonymously; other participants do not know who the author of the answer is [14, p. 1].

The decision to analyse only finished projects was made due to the need to determine whether investment

projects implemented with the help of incentives have clear and measurable effects on the established objectives of economic and industrial development. The first step in the realisation of the research process or the Delphi study is the selection of experts that are part of the so-called panel of experts. Particularly, company managers from 72 investment projects successfully implemented in the period from 2006 to March 2017 were contacted, and they were briefly introduced to the aim of the Delphi technique and what was expected of them. Participants were told that the study was being carried out through several iterations and that in each round a separate questionnaire had to be filled in and returned.

The Delphi study was carried out through three separate iterations (Delphi rounds), which included filling out a separate questionnaire. Each of the three questionnaires was always composed of two parts. In the first part, we collected information about the managers (their gender, level of education, age, years of service, managerial level) and information about the company they were coming from (its size and type). The second part of the questionnaire differed in each iteration and was primarily supposed to identify the factors most affected by state aid and then, through a focused process, to lead to a group consensus on how to rank defined factors according to the degree of their importance.

Delphi round I

In the first Delphi round, the questionnaire was sent to 72 email addresses belonging to managers in companies where investment projects were successfully implemented. At the end of the first Delphi round, 43 managers submitted a completed questionnaire, which indicates that the initial response rate was 59.72%. The goal of the second part of the questionnaire was to identify state aid instruments that the company used (subsidies, tax incentives, favourable loans, guarantees or other). Managers also had to specify some of the factors influenced by state aid (employment, growth in production, growth of exports, growth of salaries, payment of taxes and contributions to the budget of the Republic of Serbia or other). They also had the opportunity to add the factors that were not mentioned in the questionnaire. The

advantage of such a broadly defined question is greater freedom in expressing opinion.

Figure 2 shows state aid instruments used by the companies that participated in the research. The companies mostly used subsidies, tax incentives and other instruments of the state aid. During this period, out of the total investment aid 67.4% was allocated through subsidies. The percentage of net investment aid granted through tax incentives amounted to 14%, while, in the same period, other investment incentives amounted to 16.3%.

After collecting participants' answers, their quality was analysed by sorting and categorising them and seeking similar relations between them, which is a logical next step. Following this methodology, after a detailed analysis of answers and their integration, a set of 4 factors most affected by state aid was identified. These factors are (listed without particular order): employment, production growth, export growth, wage growth and payment of taxes and contributions to the budget. The four identified factors were used as the primary input for the creation of questions in the following Delphi rounds. At this point, the first Delphi round was finished.

Delphi round II

In the second Delphi round, the questionnaire was sent to 40 email addresses of managers in the companies where investment projects were successfully implemented. At the end of the second Delphi round, 28 managers responded

with a completed questionnaire, which indicates that the initial response rate was 70%.

In the paper, we focused on the second part of the questionnaire from the second Delphi round, which was based on the information generated as the result of the first Delphi round. It has already been pointed out that in the first Delphi round four factors most affected by state aid were identified: employment, production growth, export growth, wage growth and payment of taxes and contributions to the budget.

In the second part of the questionnaire from the second Delphi round, managers were presented with these factors and asked to rank them according to their significance, from the factor most influenced by state aid (ranked as 1) to the one least influenced by state aid (ranked as 4). It was particularly emphasized that two factors cannot have the same rank. After 28 managers, participants in the second Delphi round, had ranked all factors individually, group ranking of only 4 factors that, in their opinion, were most influenced by state aid was performed using the weighted average method. According to the model of Huscroft et al., the weight is calculated according to the following formula: $(\text{lowest rank} + \text{highest rank} + (n-2) \times \text{average rank}) / n$, where n is the size of the expert panel, which in this specific case was $n=28$ [10, pp. 304-327]. Based on the group ranking of factors, employment was identified as the factor most influenced by state aid, while wage growth and payment of taxes and contributions were least influenced by state

Figure 2: State aid instruments used by the companies that participated in the research

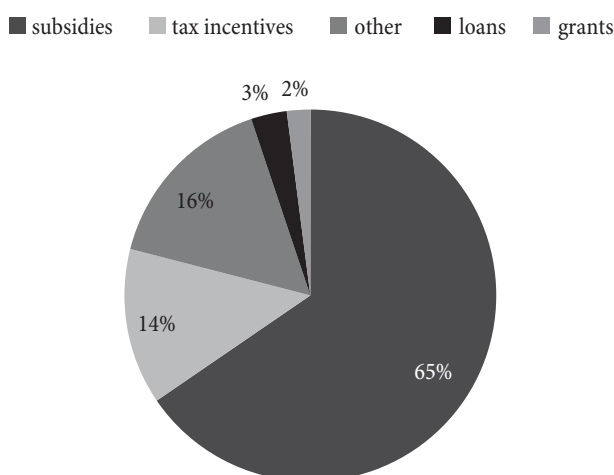
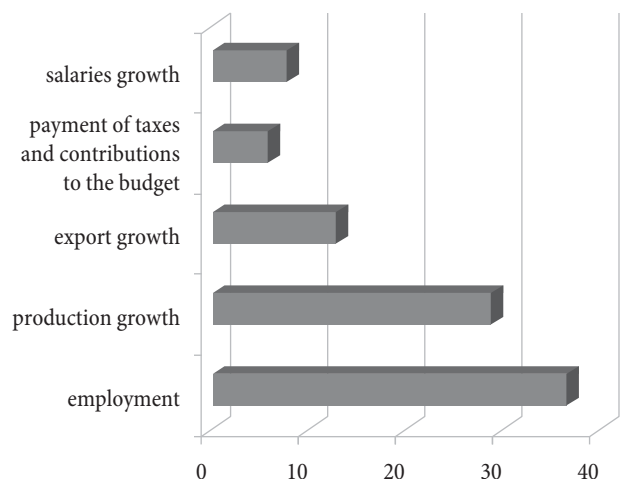


Figure 3: Factors most affected by state aid in successful projects



aid. Group ranking of factors and their weighted rank averages are presented in Table 2.

After the second Delphi round, the calculation of the achieved consensus was performed using Kendall's coefficient of concordance. This coefficient measures the degree of concordance between the ranks which, in the case of this research, have been attributed by the managers, members of the expert panel. Its values can range from 0 to 1. A value of 0 indicates that there is perfect discordance between the experts doing the ranking, while 1 suggests perfect concordance between them [1, p. 418]. Kendall's coefficient uses Cohen's guidelines for interpretation of values up to 0.1 (small effect), from 0.1 to 0.3 (medium effect) and over 0.5 (large effect) [4, pp. 20-31]. Further analysis starts with the following hypotheses:

H_0 : there is no concordance between the experts doing the ranking

H_1 : there is absolute concordance between the experts doing the ranking

Using the SPSS statistics 21.0 software package, it was examined whether there was a consensus between the managers in the second Delphi round. The result is shown below.

Since $p = 0.031$, for $\alpha = 0.05$, the decision was made to reject the zero hypothesis, concluding that there was

Table 2: Summary ranking of factors most affected by state aid in the second Delphi round

Rank (1-the most important factor, 4-the least important factor)	Factors	Weighted rank average
1	Employment	2.03
2	Production growth	2.33
3	Export growth	2.73
4	Wage growth and payment of taxes and contributions to the budget	2.90

Table 3: Obtained results on the degree of reached consensus between the managers in Delphi round II

Test Statistics	
N	28
Kendall's W ^a	.106
Chi-Square	8.871
df	3
Asymp. Sig.	.031

a. Kendall's Coefficient of Concordance

Source: output from SPSS.

concordance between the managers in the second Delphi round. If $\alpha = 0.01$ had been chosen, H_0 could not have been rejected. The obtained value of 0.106 of Kendall's W, however, indicates that only a moderate concordance between managers was obtained. Since strong concordance exists when the obtained values of these parameters are over 0.5, the same test was applied in the third Delphi round.

Delphi round III

In the third Delphi round, the questionnaire was sent to 40 email addresses of managers in the companies where investment projects were successfully implemented. At the end of the third Delphi round, 24 managers answered, which indicates that the initial response rate was 60%.

Based on aggregately ranked key factors most influenced by state aid that were presented to managers at the beginning of the third round, managers were asked to reconsider their answers and rerank the four identified factors. After 24 managers, participants in the third Delphi round, had repeated individual ranking of all factors, group ranking of only 4 factors that, in their opinion, were most influenced by state aid was performed using once again the weighted average method. The weight was calculated in the same way as in the second Delphi round. In the group ranking of factors in the third Delphi round, employment was again identified as the most important, while the least important factors were again wage growth and payment of taxes and contributions to the budget. Group ranking of the remaining two factors also remained unchanged. The final group ranking of factors and their weighted rank averages are given in the following table.

After the third Delphi round, the calculation of the achieved consensus was performed using Kendall's

Table 4: Summary ranking of the factors most affected by state aid in the second Delphi round

Rank (1-the most important factor, 4-the least important factor)	Factors	Weighted rank average
1	Employment	1.28
2	Production growth	2.04
3	Export growth	3.11
4	Payment of taxes and contributions to the budget	3.43

coefficient of concordance. The obtained result on the extent of the achieved consensus between the managers in the third Delphi round is shown below.

Table 5: Obtained results on the degree of reached consensus between the managers in Delphi round III

Test Statistics	
N	24
Kendall's W ^a	.648
Chi-Square	46.650
df	3
Asymp. Sig.	.000

a. Kendall's Coefficient of Concordance

Source: output from SPSS.

Since $p = 0.000$, a decision was made to reject the zero hypothesis for any level of significance, concluding that there was absolute concordance between the managers in the third Delphi round. The obtained value of 0.648 of Kendall's W indicates strong concordance between managers.

Based on the results of the test, it can be concluded that the Delphi study was successfully implemented and that managers reached a consensus on factors most affected by state aid. A detailed analysis of the obtained results confirms the previously mentioned effects of investment incentives on employment.

Conclusion

One of the essential reasons why investment incentives in Serbia are justified is their particular effect on creating jobs, that is, the increase in employment in the country. At the same time, their positive effects in total should outweigh the costs of approving investment incentives contained in direct transfers from the budget and unpaid tax revenues, as well as potentially harmful effects arising from possible market distortion, increased administration costs required for the grant of incentives, and costs that companies incur in the process of obtaining incentives. Moreover, the harmful effect of investment incentive programmes is reflected in the companies that qualify for the use of incentive programmes and that would still invest regardless of the existence of these programmes.

The costs of maintaining state-owned enterprises and managing investment programmes must also be kept in

mind. Industrial policy also requires other expenditures, such as the costs of implementing government controls and eliminating inconsistencies during all state aid activities. Beside expenses related to state-owned enterprises, grants and subsidies, at the same time, industrial policy generate implicit expenses caused by the creation of oligopolies (monopolies) made by state and reduced production efficiency, as a result of market fragmentation and widespread support to domestic firms [16, pp. 65-78]. Also, the public sector creates competition for the private sector and "pushes it out" from the capital market, as a stronger partner that can use different forms of financial repression, that is, implicit taxes on financial assets (the phenomenon of "extortion"). Intensive government borrowing contributes to the increase in demand for capital that raises interest. The increase in interest causes exclusion of the private sector, given that it discourages production investment and prevents entrepreneurs from reaching the capital market.

This Support Outcome-Based Contracting cannot function well without clear communication and mutual trust between the government and the private sector. Such communication and trust should be built through meetings, formation of advisory bodies and some ad hoc decisions made by the government and the companies. For all this to happen, it must be possible to "renew", i.e., change the industrial policies over time. This means that industrial policymakers can withdraw their support to specific industries or companies as the result of the ongoing industrialisation process. Governments with limited capacity to monitor effects should stick to horizontal policies. Selective industrial policy should only be implemented when the governments significantly improve their ability and effectiveness in monitoring the effects of implemented measures.

As already stated, government incentives will lead to prosperity only if the positive effects of government incentives are more significant than the costs of their implementation. In the analysis of the impact of incentives on employment in the total of 72 completed projects, it can be concluded that the most positive effects are reflected in the fact that workers remain in these companies even after the expiry of the period of control by the state, which confirms that

these were sustainable projects. Furthermore, more than 90% of companies that received support in the form of incentive funds are export-oriented, and on average 80% of their products are exported. The best recommendation for the arrival of other companies in Serbia are the good results of the work of foreign investors, some of which, using the incentive funds, reinvested the earned profits in the Serbian economy.

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DYNAMIC PRICING: THEORY OR A REALITY FOR EMERGING MARKETS CASE STUDY OF SERBIA

Dinamičko upravljanje cenama –
teorija ili stvarnost za tržišta u razvoju
Studija slučaja Srbije

Abstract

Revenue management (RM) is a technique used in hospitality for over 3 decades. North American corporate hotel chains have started to implement RM principles already in the early '80s of the last century [13]. The basic principles of RM are dynamic pricing in which demand forecasting is having a major role. Today, almost 40 years after the introduction of RM, specific markets still have not implemented successfully the RM principles in their daily operations nor on a strategic level. In this paper, the research was conducted looking at the pricing strategy of Serbian hotels from 2013 to the end of 2017. The Serbian market is a rapidly growing tourism market as it records higher growth rates than the European and global average. However, Serbia is still an emerging market concerning the overall level of tourism development. Results of the research show that Serbian hotel managers manage their rates monthly, while RM on a weekly or a daily basis is used very little. Besides time management in pricing strategy, the research shows that the price is dominantly influenced by room supply, which is, as it was shown in the research, very static in comparison to demand. Simply said, hotels in Serbia pay more attention to the room supply rather than room demand. Furthermore, results from the research reveal that the market is witnessing a strong decrease in average daily rate (ADR). However, the drop in ADR is still leading to an overall increase in total revenue. Yet, tourism demand demonstrated significant intervals of price inelasticity where potential revenue was lost due to inadequate pricing policy. Therefore, we argue that the wider application of RM principles is necessary in order to maximize favourable trends of arrivals and overnights that Serbia has been recording in the last 10 years.

Keywords: *revenue management, dynamic pricing, Serbian hotels.*

Sažetak

Revenue management (RM) je tehnika koja se u hotelijerstvu koristi više od 3 decenije. Korporativni hotelski lanci iz Severne Amerike su počeli da koriste ove principe već u ranim 80-tim godinama prošlog veka [13]. Osnovni principi RM-a nalaze se u dinamičkom upravljanju cenama u kojima predviđanje tražnje igra ključnu ulogu. Danas, gotovo 40 godina nakon pojave RM-a, pojedina tržišta još uvek nisu uspešno implementirala RM principe u svoje poslovanje, kako na operativnom, tako i na strateškom nivou. Ovo istraživanje je sprovedeno prateći cenovnu politiku srpskih hotela u periodu od 2013-2017. godine. Srpsko tržište je brzo rastuće turističko tržište koje beleži više stope rasta turističkog prometa u odnosu na evropski i svetski prosek. Ipak, Srbija je još uvek tržište u razvoju gledajući ukupan nivo razvoja turizma. Rezultati ovog istraživanja pokazuju da menadžeri hotela u Srbiji upravljaju svojim cenama na mesečnom nivou, dok se RM na nedeljnom i dnevnom nivou koristi jako malo. Pored vremenskog okvira, istraživanje pokazuje da odluke o cenama dominantno zavise od rasta ponude, koja je, kako je u istraživanju pokazano, prilično statična u odnosu na tražnju. Jednostavno rečeno, hotelijeri u Srbiji obraćaju veću pažnju na kretanja na strani ponude u odnosu na tražnju. Rezultati istraživanja takođe ukazuju da tržište karakteriše snažan pad u prosečnoj naplaćenju ceni sobe (ADR). Ipak, pad ADR-a još uvek dovodi do rasta ukupnog prihoda. Međutim, turistička tražnja pokazala je značajne intervale cenovne neelastičnosti u kojima je izgubljen potencijalni prihod zbog neadekvatne cenovne politike. Stoga, mi zagovaramo širu upotrebu RM principa kako bi se maksimizirali efekti pozitivnih trendova koje Srbija beleži u dolascima i noćenjima turista u poslednjih 10 godina.

Cljučne reči: *revenue management, dinamičko upravljanje cenama, srpski hoteli.*

Introduction

The Serbian tourism market follows international trends when it comes to the increasing number of participants in international travels. In addition, over the past 5 years, the growth rates in the tourism industry have been higher than global and European average [26, pp. 180-192], [28]. Along with the increased number in arrivals and overnight stays, a dynamic growth in the number of hotels has also been recorded, whereby corporate hotel chains stand out in particular [20, pp. 33-56]. Although growth rates indicate a rapid development of tourism in Serbia, it should be noted that contribution that travel and tourism have to the country's GDP remains low. Serbia was ranked 107th globally out of 185 countries in WTTC report for 2018. The economic impact that tourism has on the local economy was estimated at 2.3% directly to GDP and 6.7% of total contribution to GDP, which is still significantly lower than global average (direct 3.2% and total 10.7%) [31]. Yet, growth rates, and stronger competition in Serbia has led to substantial improvements in the supply, particularly when considering quality of accommodation and services [16, pp. 245-258]. However, the Serbian economy is lagging behind in digital transformation in regards to the countries of the European Union [5, pp. 19-41]. This is extremely important as information and communication technology has already been identified as the key of hotel's competitiveness, and since the new generation of travellers will have radically different requests and demands from hotels [20, pp. 33-56], [24, pp. 151-156]. Several recommendations for Serbian digital transformation have already been presented, one of which is the wider absorption and diffusion of technology [25, pp. 107-119]. Globally, hotels were one of the early adopters of technology in general, and even quicker adopters of revenue management systems in particular [30, pp. 178-190]. Yet, it remains unclear to what extent hotels in emerging markets have implemented technology in their daily operations, as well as how strongly they rely on technology as one of the keys for strategic and sustainable development. As Serbia has already been identified as an emerging market, our aim in this paper was to investigate the pricing strategy

of Serbian hotels, and the need for implementation of revenue management systems. Precisely, how efficient Serbian hotels are regarding dynamic pricing and whether they are successful at demand forecasting.

One of the first impressions, looking at the dataset, was surprising as it indicated a clear and strong decrease in average daily rate of Serbian hotels. In the long term, this could lead to a revenue decline. Apart from the financial consequences, in the long term this could also have other effects on the tourist destination itself. This trend has been recorded on the Serbian market over the past several years looking into available data. This paper explores other important hotel indicators, such as the change in room supply, room demand, demand elasticity, change in ADR and hotel revenue over the past four years.

Price decline which was noted could be justified when demand is showing significant elasticity coefficients, as well as in a situation when the overall accommodation capacity is increasing faster than the demand expressed. The paper argues that there is a need for wider application of the revenue management principles in order to maximize the effects of the positive trends for a destination to achieve a sustainable development. Given that the concept of revenue management is a broad one and that it is understood and seen differently in the literature, the literature review section discusses the concept in more details, whereas its adequacy for broader application on the Serbian market would be additionally discussed in the section presenting the results and discussion.

Literature review

The concept of revenue management has been present in the literature for over 3 decades. Pioneer papers date back to the early 1950s. One of the first papers was published in Transportation Science journal just before the infamous deregulation process happened in the airline industry [26, pp. 180-192]. Rothstein dealt with designing a model that would overcome the problem of empty seats that airlines had to resolve on a daily basis due to the cancelled reservations. The substance of the RM principle is something that has been known to economists for centuries. Robert Cross [4] states that its essentials date to the commencement of the

commerce itself. However, controlling different prices for different market segments, which is the essence of RM, has been thoroughly explained in the monopolistic third degree price discrimination by Pigou in its *Economics of Welfare* [2].

Revenue management is simply a new way of approaching the old problem, supply/demand management [4]. Most of the papers published in the seventies dealt with RM at operational level. Over time, and particularly after great shocks in the international tourism, such as 09/11, RM gained a more strategic role [19, pp. 293-305]. Since the 1970s, RM has left the purely mathematical sphere in modelling control of the reservations made and today has a strategic position in business strategy of large hotel enterprises and airlines that use information systems considerably [18, pp. 233-236]. Today almost all corporate hotel chains own a large information system used for RM [12].

In general, former research in the RM field could be divided into three sections: 1) descriptive or the ones developing concepts of the possible application of RM across the industries, 2) price-oriented, and 3) research based on capacity management [13]. Results of the research dealing with the application of the RM concept have generally been assessed as successful though some unsuccessful attempts were recorded. Today RM is recognized as a concept that most certainly contributes to better business results [30, pp. 178-190]. Interestingly, Ivanov noticed that while the basics of the RM principle could be easily understood and applied in several different areas, each activity was characterized by many particularities that could cause certain models not to function in every industry [8].

Revenue management implies the sale of available accommodation units to the “ideal” buyer at the highest price possible for the longest possible period of stay. Any lower price or shorter stay would result in the lost revenue, whereas a possible increase in price could result in the lost user. Therefore, RM implies a strong and precise segmentation of the buyers and management of distribution channels in an adequate way. More on the influence of the internet distribution systems on RM is to be found in the paper [3].

One of the commonly used definitions describes RM as a dynamic method of predicting demand and allocating

“perishable” goods by applying various pricing categories and making decisions on when, at what price, and to what extent to allow overbooking [1, pp. 502-517]. The authors define “perishable” goods as all the products and services whose sales capacities fall down to zero at some point. This is the case with the unsold rooms in a hotel at the end of the day. The unsold rooms on a certain day lose their potential and could never result in a revenue in future. Thus, potential revenue gained from these rooms is lost for good. Hotel RM was defined by several authors, but for the purpose of this paper the definition given by Vinod was accepted as the appropriate one. He says that RM in hospitality reflects the process of selective acceptance or denial to the users due to pricing policy, duration of stay and date of arrival in order for the revenues to be maximized [30, pp. 178-190].

Apart from hotel and airline industries, RM has become an ever more interesting concept for researchers and practitioners in other fields, as well. Models for the application of RM in the following industries have been developed: in the processing industry [17, pp. 2185–2201], in media planning and buying [22], in transport and air cargo industries [10, pp. 16-44], in venue management (management of congress venues or cinemas) [14, pp. 33-46], and today increasingly more in the area of restaurateurship and management of golf clubs [15, pp. 332-344].

The increased interest for the research in the field has led to the launch of special scientific journals in the field. The first one, *Journal of Revenue and Pricing Management* has been published since 2002 by Palgrave MacMillan, and five years later the journal *International Journal of Revenue Management* was first published by Inderscience Publishers [8], [9], [7].

Today users of services are more accustomed to dynamic price management. Kimes from Cornell University was among the first to research how users perceived dynamic pricing, i.e., whether users and guests considered it fair to pay a different price for the same service depending on duration of stay, reservation date, and other factors [11, pp. 22-29]. She established that purchasers consider a “reference price” when making decisions. The reference price is a set of several components: previously paid price for a similar service, previously most often paid price for

the same service, prices that other purchasers paid for the same service or other prices available for the public to see them [13]. Yet, what she discovered is that reference price is not a constant, and customers' perception about it could change. This was a major discovery that enabled businesses to implement dynamic pricing. Therefore, international travellers today understand and accept the dynamic pricing in the airline industry, even though it was not the case in its beginnings. About the same process was present at the beginning of dynamic pricing in hospitality. Guests used to static prices started protesting. Nevertheless, perception of users has changed over time and, thus, some prices that may have once seemed as unfair became "reference prices" afterwards. All these results have as their basis long-lasting work of the professor Kimes and her associates from Cornell University. It made it possible for the RM principle to be applied across numerous industries.

The fact that the average price per accommodation unit has been on a steady decrease can be worrying when considered all previously stated. Low prices become "reference prices" and this could leave lasting consequences on the destination itself.

All this raises questions how to best manage revenues in hotels in Serbia. The foundation lies in thorough knowledge of the market and objective decision-making resting on the data basis. When setting the prices, hoteliers must take into account several key parameters, such as: period of stay, duration of stay, reservations in the property management system for the given day, reservations in the system for the same day in previous years, competition prices, external and internal factors that could affect demand, weather conditions, fixed and variable costs per sold accommodation unit, etc. It is a rather significant number of indicators that hoteliers must consider. It is even more complex to decide the importance of the factors in the pricing process. In situations like this, RM software with good user interface comes in handy. It can be used by hoteliers as a personal assistant during the decision-making process. Weatherford researched satisfaction of the employees who used RM systems in the airline industry and discovered that 97% of the airlines from the sample processed their flights by using an RM system [31, pp. 323-329]. Moreover, the most common mark the employees used

to rate their satisfaction with using this software was 4 (on the scale 1 to 5) [31]. Based on the results of the research, the paper argues that implementing an RM programme would contribute to the more adequate pricing policy on the Serbian market. Sample, methodology and results of the research are given further on.

Sample and methodology

For the purpose of this research, we used the data provided by the company STR, which is a global leader in gathering data on hotels [28]. The sample size used in this paper represents almost 1/3 of the Serbian hotel market, i.e., 28.85% from June 2018 [21]. The paper considered trends, namely increase in supply included in the sample, trends in the average price per accommodation unit, as well as increase in demand, demand elasticity and its effect on total revenue. Descriptive statistics, correlation matrix and 3 regression models were developed for data processing. The results were processed in IBM SPSS 20 software. According to our knowledge, no similar analysis has been done so far in the hotel sector in Serbia. The results of the research are presented below.

Results and discussion

Table 1 shows descriptive statistics used for the average daily rate, total room supply in the sample, and the number of rooms sold in the same hotels for the period of 1,156 days from 2013 to 2017. Therefore, those are the data gathered daily for the past 3 years and 61 days.

The table indicates that the minimum charged average daily rate was RSD6,158.67, whereas maximum charged rate was RSD13,368.13. The average rate per accommodation unit for the given period accounted for RSD9,382.84. It is noticeable that coefficient of variation of this variable was 12%. On the other hand, minimum number of rooms sold was 721 accommodation units, whereas maximum was 7,847 daily. The average number of arrivals for the given period was at the level of 4,339.95, i.e., 4,340 accommodation units. High standard deviation and coefficient of variation of 36% were expected.

Finally, an increase in accommodation capacities was also evident. Minimum number of the available accommodation capacities in the sample was 7,286 whereas the maximum was 7,943. Also, a rather low coefficient of variation of 2% was observed. Table 1 indicates that the demand for the rooms in the hotels in the sample is a highly dynamic variable that significantly varies on a daily basis. On the other hand, supply of accommodation units is rather steady with small variation, whereas the average price varies daily but significantly less than demand and significantly more in comparison to the offer.

Trends in average value of each variable for the past five years are given graphically in Figures 1, 2 and 3. Figure 1 indicates decrease of the average daily rate for the analysed hotels. In 2013, the average rate accounted for RSD11,949.56, whereas the average rate of the charged room was RSD9,062.43. Figure 1 clearly indicates that the average room rate decreased by almost a quarter, i.e., by 24% over the five-year period. This indicator itself is a cause for concern, but it is even more important to discover the causes of this fall in the price and its effect on the total revenue.

Figure 2 indicates trends in the average room supply in hotels from the sample for the last five years. In 2013, there were 2,399 rooms available in the hotels from the sample. As it can be seen from the figure, the number increased every year and amounted to 2,897 rooms in 2017. The number of rooms can vary in case a new hotel is to open or some of the existing ones are to close. Apart from that, the number of rooms could also vary on a daily, monthly, or yearly level in case some of the hotels were not open throughout the year, or some rooms were not available due to various reasons (redecorating, breakdown, etc.). Even though an increase in the number of rooms was evident, the growth in percentage was slow when compared to the fall of the average rate. The average number of rooms increased for the period of 5 years by one fifth, i.e., 20% from 2013 to 2017.

Finally, Figure 3 shows an average increase in demand for the same period, i.e., 2013-2017. From 1,142,944 rooms sold in 2013, hotels from the sample reached the figure of 1,948,923 rooms sold in 2017. Moreover, the highest increase in the average number of the rooms sold was recorded for the year 2017 when compared with the previous

Table 1: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	CV	Variance	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	
ADR	1156	6158.67	13368.13	9382.8438	33.82842	1150.16613	0.12258	1322882.115
Demand	1156	721.00	7847.00	4339.9567	46.05078	1565.72655	0.36077	2451499.645
Supply	1156	7286.00	7943.00	7795.0657	5.00665	170.22605	0.02184	28976.906
Valid N (listwise)	1156							

Figure 1: Trends in the average room rate for the 2013-2017 period

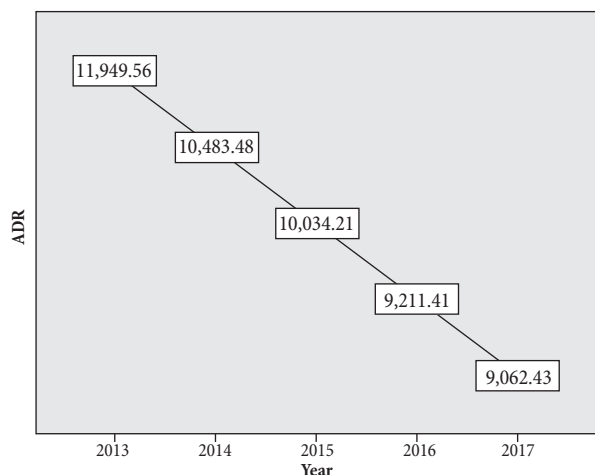
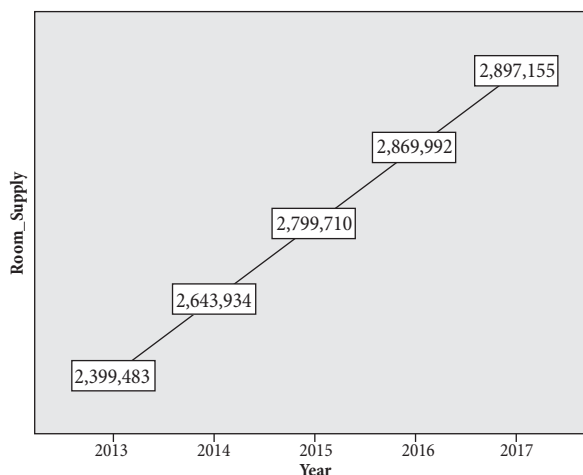


Figure 2: Trends in the average room supply for the 2013-2017 period

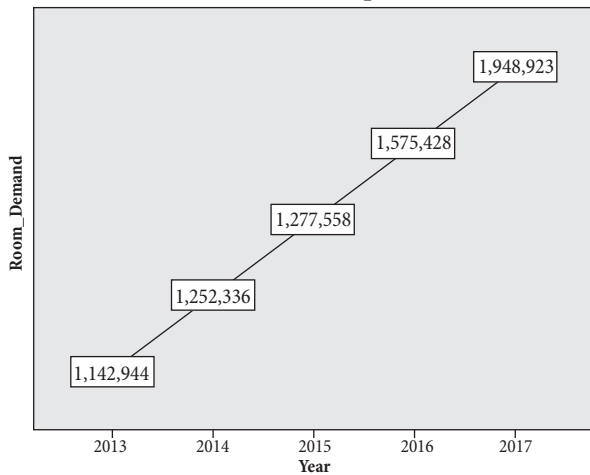


year. The total increase of the rooms sold over the period of 5 years was 70% in the year 2017 when compared to 2013. However, such a strong growth in demand did not result in a significant growth in revenue. It was even the opposite in several cases.

When demand is not showing price elasticity, then any increase in price would lead to increased revenue, while price decline would result in lower revenue. Therefore, we calculated price elasticity of demand for the given period. Price elasticity was calculated on a daily, monthly and yearly level. Figure 4 shows only periods where demand was not elastic, i.e., did not react significantly to the change in price.

Interestingly, demand was not elastic in April, May, September, October in general, then on Thursday daily, and finally, demand was not price-elastic to the overall price

Figure 3: Trends in the average room demand for the 2013-2017 period



changes in the year 2015. This leads us to a conclusion that every price decline in the periods indicated above would lead to lower revenue. Therefore, we look at the indicators of hotels performance in periods indicated above.

Tables 2, 3 and 4 show that almost all of the most significant indicators of hotel performance (RevPAR, ADR and revenue) recorded negative index points. This is especially important for total revenue, which recorded negative growth rates on all occasions except September 2016.

Total revenue represents a relation between the number of units sold and the average rate charged. If hotels could forecast successfully room demand and calculate demand price elasticity, they could better manage their revenue. In order to determine the dynamics of pricing strategy in hotels in Serbia, we developed three regression models.

Table 2: RevPAR moving average

	April	May	September	October
2014	-19.8	-5.5	-16.9	-3.1
2015	9.9	-6.2	-12.8	-24.5
2016	-7.3	-9.2	16.9	16.0

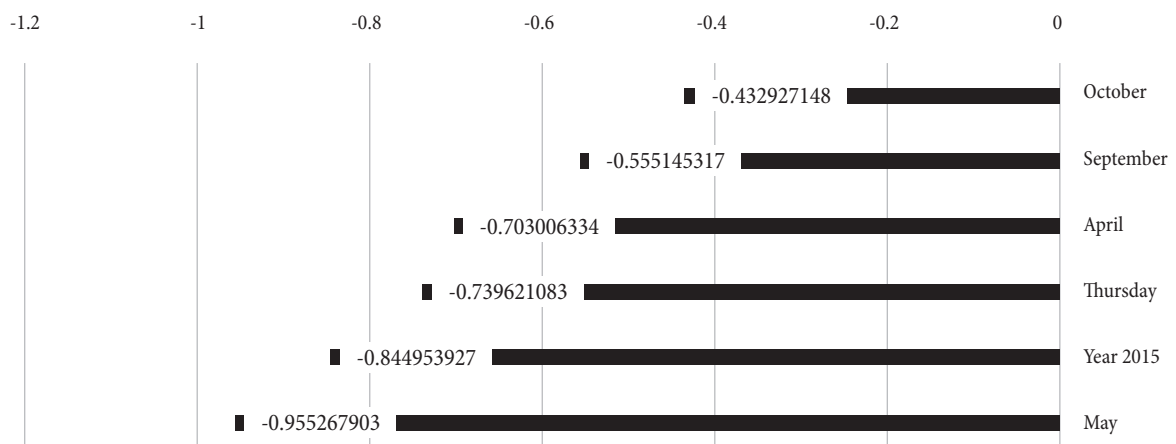
Table 3: Total revenue moving average

	April	May	September	October
2014	-11.3	4.5	-9.4	5.7
2015	14.8	-1.1	-5.6	-18.3
2016	-3.5	-6.4	18.4	17.4

Table 4: ADR moving average

	April	May	September	October
2014	-13.5	-13.7	-16.9	-7.9
2015	5.4	-8.1	-5.5	-10.4
2016	-10.2	-6.0	-6.2	-6.7

Figure 4: Price elasticity of demand



Regression model no. 1 (Table 5), where ADR was set as a dependent variable, while room supply and room demand were used as independent variables using daily data from hotels. A total of 1,156 observations were analysed in the last 5 years. As it is clearly visible, the regression model 1 done with daily data, showed that R square explained only .309 of the variance using room supply and demand as independent variables in the indicated period. Moreover, in Table 6, regression coefficients reveal that even in this relatively poorly explained model, room supply plays a more significant role than room demand.

However, we ran a regression model that observed the variables on a weekly basis (Table 7). There again, we can see that ADR is now moderately explained with room supply and demand, although in Table 8 we can see that room supply coefficients still dominantly influence the ADR. More precisely, almost 4/5 of the variance in the model developed on a weekly basis is explained with room supply. Inversely, 36% of variance is explained with room demand.

Finally, model 3 was developed with monthly data. Again, ADR was used as a dependent variable, while room demand and supply were used as independent ones. As it is presented in Table 9, this model is almost perfectly explained with R square resulting in .983. Results from Tables 9 and 10 clearly show that hotels in Serbia decide on their prices mainly on a monthly basis. Even though it could indicate the poor operation of RM efficiency, what is causing even more concern is that the results of regression

Table 5: Model 1 summary - ADR daily dependence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.556 ^a	.309	.308	956.98020

Table 6: Coefficients of the regression model no. 1

Model	Unstandardised Coefficients		Standardised Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	39767.691	1397.288			28.461	.000
Supply	-4.058	.184	-.601		-22.080	.000
Demand	.287	.020	.391		14.374	.000

Table 7: Model 2 summary - ADR weekly dependence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661 ^a	.437	.430	632.30072

coefficients indisputably show that ADR is created with respect to the room supply and not room demand. In addition, this is not a result of a steady increase in room supply, as it was demonstrated before that room supply on this market is quite static, especially with respect to the room demand.

In addition, room demand has negative coefficients in the final model, which explains the drop in the ADR in the last five years. This means that Serbian hotel managers show little knowledge about demand forecast, demand price elasticity, dynamic pricing and revenue management.

Clearly, many other factors also influence hotel pricing strategy. Mainly hotel costs, and then other micro and macroeconomic factors. However, room demand is a factor that must have a bigger influence on the decision-making and pricing strategy. Therefore, in conclusion of this paper, results of the research and certain limitations will be summed up and recommendations for further research will be given.

Conclusion

Serbia has been recording a stable growth rates in international arrivals and overnight stays for the last 10 years. Yet, travel and tourism contribution to the country's GDP remains below European and global

Table 8: Model 2 regression coefficients

Model	Unstandardised Coefficients		Standardised Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	38561.863	2598.040			14.843	.000
Supply	-3.875	.347	-.786		-11.174	.000
Demand	.238	.047	.360		5.119	.000

Table 9: Model 3 summary - ADR monthly dependence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.991 ^a	.983	.982	115.68517

Table 10: Regression model 3 coefficients

Model	Unstandardised Coefficients		Standardised Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	23508.050	354.617			66.291	.000
Supply	-.004	.000	-.786		-26.622	.000
Demand	-.001	.000	-.252		-8.541	.000

average. A positive trend is recorded in total revenue as well. However, the market is witnessing a significant drop in average daily rates. Therefore, our aim was to explore the pricing strategy of Serbian hotels, i.e., how good they are in demand forecasting, dynamic pricing and finally revenue management.

Results reveal that price is dominantly explained with room supply rather than room demand. Moreover, specific periods were identified where demand did not demonstrate price elasticity and where potential revenue was lost. As it was discussed in the results section, hoteliers managed their ADR mainly on a monthly level. In addition, their decision was majorly driven by the changes in room supply rather than in room demand.

One of the major limitations of this research is the fact it was done with aggregated data. The average room number in Serbia is 50 rooms, while hotels differ significantly in size and in category, ranging from 10 rooms to 478 rooms [21]. Further research could reveal that these aggregated data are largely affected by one market category or by the hotels of similar size. This is also a recommendation for further research, i.e., exploration of key destinations in order to determine generators of such pricing strategy.

As it was mentioned earlier, it is a well-known fact that hotels can increase their revenues and profitability by using RM in order to best harmonize supply and demand on the most profitable market segments for each and every establishment [30, pp. 178-190]. Numerous tools for RM were designed so far in order to facilitate daily operations of hotel managers. As research showed limitations in pricing policy used so far, the authors argue for further and increased use of the RM system in hotels on the Serbian market, improved training of the employees in a specific field, as well as partnership approach to destination development.

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ECONOMIC IMPACT OF THE MEETINGS INDUSTRY ON A NATION'S DEVELOPMENT AND THE EXAMPLE OF SERBIA*

Ekonomski doprinos kongresnog turizma razvoju zemlje
i primer Srbije

Abstract

The meetings industry creates significant effect on destination development, on a national, regional and local level. The meetings industry market generates a strong direct, indirect and induced effect, and only the five strongest economies in Europe, generate alone over \$140 billion. However, it is necessary to understand that the measuring meetings industry impact is very complicated due to market specifics, and therefore limits are clearly defined. Research has shown that in 2017 the global international association meetings market has generated impact of \$12 billion, while this market only in Serbia generated over \$26 million. The meetings industry is an important product for Serbia and it is realistic to expect further improvements of destination performances of this sector, since the achieved multiplicative effects will fast-forward the development of Serbia.

Keywords: *meetings industry, congress tourism, economic impact, MICE.*

Sažetak

Kongresni turizam kreira značajne ekonomske efekte razvoja destinacije, kako na nacionalnom, tako i na regionalnom i lokalnom nivou. Tržište kongresnog turizma generiše snažne direktne, indirektno i indukovane efekte, a samo 5 najjačih ekonomija u Evropi, kroz kongresni turizam generiše vrednost od preko 140 milijardi dolara. Ipak, neophodno je imati u vidu da je praćenje uticaja kongresnog turizma komplikovano usled specifičnosti tržišta i limiti su jasno naznačeni. Istraživanje je pokazalo da je globalno tržište međunarodnih kongresa asocijacije u 2017. godini generisalo vrednost od preko 12 milijardi dolara, dok je ovo tržište u Srbiji generisalo preko 26 miliona dolara. Kongresni turizam predstavlja bitan proizvod Srbije i realno je očekivati dalje unapređenje performansi ovog sektora, jer ostvareni multiplikativni efekti doprinose bržem razvoju Srbije.

Gljučne reči: *kongresna industrija, kongresni turizam, ekonomski uticaj, MICE događaji.*

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Understanding the meetings industry economic impact framework

Congress tourism needs to be differentiated from leisure travel due to differences among basic motives of travel [7, p. 14]. The congress participant is staying at a destination motivated by reasons such as participation in education, trainings, sales and networking. "Congress tourism" is broadly accepted in Serbia, but on the international market the term "meeting industry" [28, p. 2] is accepted as an umbrella term to cover all complex aspects of this form of travelling.

Although a significant number of research papers are dealing with the estimation of the market size and impact of the meetings industry, inconsistency of definitions and approaches makes results unreliable and incomparable [6, p. 50]. Published data are often based on the integral view over the meetings industry, without making a difference among its product segments – congresses, meetings, exhibitions or incentive travels [8, p. 184], [6, p. 49]. At the same time, it is noted that shown data and results are most often macro data that explain national level, while at the same time micro impacts are forgotten (regional and local level). The impact of the meetings industry on the economy is a research subject of a large number of authors, since fiscal effects are more tangible and easier to monitor in comparison with the impact of destination attractiveness and regional development [20, p. 46].

To understand the cash flow and economic impact of the organization of an international event, it is necessary to observe focal expenditure points of events. The expenditure model in the meetings industry is composed of [22, p. 3]: event planning and production costs, delegates' expenditure on off-event aspects and expenditure of their accompanying persons, costs of local service providers, organization of exhibitions during the event, financial support from destination management organizations and government entities, and cost of external service providers.

The meetings industry creates significant direct and indirect economic impacts on the local economy [1, p. 14], but induced effects as well. However, we must not forget that besides economic impacts and effects, organization of international events in a country is a great opportunity

to promote the country internationally and to endorse business exchange [17, p. 75], to "export" local knowledge and expertise and to endorse local market creativity. Researches show that 70% of congress participants (congress travellers), in addition to dominant business reasons, are motivated to travel by classic leisure motives [17, p. 73], and that the meetings industry development creates return positive impact on tourism in general through the number of repeat business (conversion from business to a leisure guest), as well as increase of "mouth to mouth" marketing [23, p. 50]. Since almost 70% of congress travellers combines business and leisure motives, impact can be bigger and more important [3, p. 33], [13, p. 20].

Significant financial income for a destination coming from the meetings industry is a result of the fact that the meetings industry is considered as a high-quality product which measures big costs and big incomes and, having that in mind, is sold to clients that are ready to pay high price for that product. Positive economic impact is also the result of the fact that it is the year-round product (attractive during entire year) [4, p. 20].

Any income that is generated through organization of meetings and conferences further initiates a set of economic relations and transactions that are, again, further creating additional transactions in the national economy [3, p. 34]. Delegates (business travellers) spend more than average leisure tourists [27, p. 130]. In case a destination (or country as a macro destination) is looking at reaching the same level of economic effects and activities from the leisure travel, then for every congress delegate it needs to attract at least two leisure guests [8, p. 185]. Researches show that every dollar generated through a congress (a business event) creates a set of economic interactions that stimulate additional circulations and iterations in other sectors [3, p. 35], and can double or triple the effects [18, p. 410].

Market impact in developed economies

Analyses of individual countries show that the meetings industry generates much more direct and indirect impacts than showed in the above model that is focused on international association market. In 2012 in the USA,

U.S.-based companies alone spent \$225 billion on business trips and events, which has additionally generated 3.7 million working places, as well as \$35 billion in taxes, and it is estimated that every \$1 invested in business trips created \$9.5 ROI [31, p. 4]. In the same year, the number of directly employed in the field of the meetings industry was 1.1 million employees, while about 0.7 million were indirectly employed, and it is predicted that by 2022 the number of the meetings industry employees will rise up by 33% [30]. In 2015, the meetings industry in USA generated directly \$280 billion, and if indirect and induced effects are incorporated, then the figure goes up to \$393 billion [22].

In 2012, Germany has generated total income from both domestic and international delegates of €57.2 billion, while meetings have generated 2.9 million working places (direct and indirect), and €15.7 billion has been spent on business trips and events outside Germany [12, p. 7].

In 2011, the total impact of the UK meetings industry on GDP was £58.7 billion, total direct income of the meetings and events was £20.3 billion, the number of directly employed people in the meetings industry was 423.455, and they have earned a total of £8.3 billion gross [21, p. 340]. In 2013, France has generated \$35.7 billion from the meetings industry [24]. It is estimated that the five biggest meetings destinations in Europe (Germany, UK, France, Italy and Spain) have generated over €140 billion from the meetings industry, with Germany and UK having leading positions [25, p. 16]. The biggest growth of economic impact of the meetings industry has been registered in the region of Asia and Middle East. In 2000, China recorded income of \$32 billion, while by 2012 it

grew to \$196 billion, and by 2017 the amount should have doubled to \$375 billion [25, p. 15].

Estimated economic impact of the international association events global market

In this paper, authors accepted the definition of “international event” given by the ICCA (*International Congress and Convention Association*). According to ICCA, for an event to be categorized as “international”, the following 3 conditions need to be fulfilled [32]: it gathers over 50 participants, it is organized on a regular level and it is rotating among at least 3 countries. On the other side, according to UNWTO (World Tourism Organization), “international meeting” is any meeting that lasts for at least four hours and gathers ten or more participants [28, p. 2]. It is possible to conclude that UNWTO sets relatively relaxed criteria. Regardless of that, this approach can provide more accurate financial value and income from the meetings industry. Finally, according to the research, it is estimated that the registration expenditure per delegate represents 22% of total delegate expenditure per event [15].

Having in mind available data and using the last mentioned principle, Table 1 shows estimation of the total international association meetings market value and its economic impact on global economy – more than \$12.5 billion.

Over \$12.5 billion is direct economic contribution of the association market to economic development. To have more accurate results, it is necessary to involve impacts of corporate events, exhibitions and incentives.

Table 1: Estimation of economic impact of the international meetings market (2017)

1. Average number of delegates on an eventa	415 delegates
2. Average registration fee per delegate per eventa	\$484
3. Average expenditure per delegate per event*	\$2.200
4. Average daily registration fee per delegate**	\$134
5. Average total daily delegates expenditure*	\$670
6. Total income from registration fees per event***	\$200.860
7. Total destination income per event*	\$1.004.300
8. Total registration income for all international events in 2017****	\$2.459.114.928
9. Estimated total economic impact of international meetings market in 2017 (total global delegate expenditure) in 2017*	\$12.611.999.400

a: source of data is ICCA Statistics Report: The International Meetings Market 2017; * registration fee is 22% of total delegate expenditure per event in a destination; ** average duration of event in 2017 is 3.67 days; *** multiplying average registration fee and average number of delegates; **** multiplying total registration fee per event and number of events in 2017, which was 12.558.

Estimated economic impact of international association events for Serbia

The meetings industry in Serbia has measured strong growth in the last 11 years. On one side, the number of international clients, both association and corporate market is rising, and at the same time strong growth in infrastructure is evident. Market restructuring in a form of opening brand new or renovated 4* and 5* hotel properties with significant congress facilities made a large number of destinations attractive for meetings and events. Focusing on new tourism products – the meetings industry (congress tourism) gave Serbian destinations a clear way to establishing a year-round product and experience, moving away from highly seasoned tourism products (for example: winter and ski destination). Therefore, it is interesting to observe economic impact of the meetings industry on the Serbian economy.

Limitations of measuring economic impacts of the meetings industry

The often used model for measuring economic impact of the meetings industry on the national economy is the input-output model [5], [2], which estimates expenditure of delegates through direct transactions analyses of level of sales, local citizens salaries, taxes and similar [10, p. 325]. Challenges put in front of this research are based on determination of total direct and indirect impact of the meetings industry on each industry separately, to define the most appropriate level of economic multiplier. The model is about inter-sectorial dependance, and it shows the level of one sector output that is used and another

sector input of the same economy [19]. This method is being used in researches of larger number of authors, but in countries and economies where there is an updated economic monitoring system and input-output tables creation system [3, p. 38], [16, p. 535], [14, p. 159].

Certain authors [6, p. 50], [23, p. 50] stress that congresses and events create important impact on regional and local economies, but the research of financial impact of the meetings industry on a nation's development, or for a destination, is not yet entirely developed. There are limits to monitoring and measuring the economic impact of the meetings industry for several reasons:

- In most number of cases, data that are being analyzed are macro data (covering national level), and the questions of adoptability for regional level [29, p. 69] or single destination level can be raised
- Research and monitoring of expenditure that is generated by direct market stakeholders (delegates, exhibitors, sponsors) is very complicated and needs significant resources [16, p. 534], as well as the combination of several research methods
- The unavailability of information about market segments, especially for corporate meetings, is evident and therefore most of the figures are estimations
- Non-existing data and insufficient statistics makes it impossible to use input-output model in certain countries
- Complex classification of economic impacts per one of four major product segments (MICE – meetings, incentives, congresses and events), as well as understanding of “international” [32] category of events.

Table 2: Estimation of economic impact of international meetings market in Serbia (2017)

1. Average number of delegates on an event ^a	225 delegates
2. Average registration fee per delegate per event ^a	\$373
3. Average expenditure per delegate per event [*]	\$1.695
4. Average daily registration fee per delegate ^{**}	\$113
5. Average total daily delegates expenditure [*]	\$513
6. Total income from registration fees per event ^{***}	\$83.925
7. Total destination income per event [*]	\$381.477
8. Total registration income for all international events in 2017 ^{****}	\$5.958.675
9. Estimated total economic impact of international meetings market in 2017 (total global delegate expenditure) in 2017 [*]	\$27.084.886

a: source of data is ICCA Statistics Report: The International Meetings Market 2017; * registration fee is 22% of total delegate expenditure per event in a destination; ** average duration of event in 2017 is 3.3 days; *** multiplying average registration fee and average number of delegates; **** multiplying total registration fee per event and number of events in 2017, which was 71;

Source: ICCA Statistics Report: The International Meetings Market 2017.

Economic impacts of the meetings industry are often not seen or are hard to follow since they are hidden, being a complex structure of industry that is composed of destination management and marketing organizations, service providers, intermediaries, and different other SME companies on one side [11, p. 158], and of expenditure created by organizers, delegates, exhibitors and sponsors on the other side [16, p. 535].

In estimating the economic impact of international association events for Serbia, the authors were fully aware of limitations. First, used data are focused only on international association markets, since data for corporate events and incentives are not official and cannot be found in reliable form. The domestic market is not taken into consideration. Second, used data are focused only on international events (fulfilling ICCA criteria), since it is understood that those generate “invisible export”, international receipts and creation of added value. Third, ICCA methodology has been used (in a way that was earlier explained), since Serbia does not have official data that can be used for input-output model.

Conclusion

This research paper shows that full economic impact of the meetings industry on the national economy is hard to measure due to complexity of the industry, but also due to lack of data and common methodology. Data challenge is hard to overcome due to specificity of the market segments, and therefore most of all results will need to have estimation elements. On the other side, if only association meetings are considered, it is evident that Serbia has generated over \$27 million just in hosting 71 international association events. Market development in a form of rising congress infrastructure quality and quantity clearly shows that meetings and events represent strong development foundation for meetings industry stakeholders, and that a large number of destinations are expecting to have more congress delegates, since the multiplicative effects will be 3-4 times bigger than with leisure travellers. Further research needs to go in the direction of researching domestic association market, and that will close at least one big market segment. Regarding the corporate meetings and incentives research, due to

complete non-transparency it is not expected to proceed with this research.

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INTELLECTUAL CAPITAL AND LEADING INFORMATION TECHNOLOGY TRENDS AS COMPONENTS OF A MODERN COMPANY DEVELOPMENT¹

Intelektualni kapital i vodeći trendovi u informacionim tehnologijama kao komponente razvoja savremenog preduzeća

Abstract

The purpose of this paper is to present the significance of intellectual capital and information technology for modern business and society as a whole. The intellectual capital of an organisation is part of its total value. It consists of all intangible assets and processes. As such, it is very important for the proper functioning and survival in the market. The importance of intellectual capital has been emphasised before, but the 21st century is the time when this phenomenon is reaching its full potential. Intellectual capital is directly related to technological development and it represents the most important development resource, nowadays. It is very important to emphasise the importance of knowledge and learning, as well as the phenomenon of the learning organisation. The tendency towards globalisation generally requires open organisational forms, based on modern technology, modern knowledge and the monitoring of contemporary trends in information technology (IT). Information technology is developing faster than ever. It takes many forms and pervades many social and economic relations. That is why it is important to keep up with it, to analyse its trends, to foresee its future developments.

Keywords: *intellectual capital, knowledge, learning organisation, human capital, information technology, business.*

Sažetak

Cilj ovog rada je da prikaže značaj intelektualnog kapitala i informacionih tehnologija za savremeno poslovanje preduzeća i društvo u celini. Intelektualni kapital neke organizacije predstavlja deo njene ukupne vrednosti. Sastoji se od svih nematerijalnih sredstava i procesa. Kao takav, veoma je važan za pravilno funkcionisanje preduzeća i njegov opstanak na tržištu. Poznato je da je i ranije bio naglašen značaj intelektualnog kapitala, ali 21. vek je vreme kada ovaj fenomen dostiže svoj puni potencijal. Intelektualni kapital je u direktnoj vezi sa tehnološkim razvojem i danas predstavlja najznačajniji razvojni resurs. Autori u radu naglašavaju važnost znanja i učenja, kao i fenomena organizacije koja uči. Tendencija globalizacije generalno zahteva otvorene organizacione forme zasnovane na modernoj tehnologiji, savremenom znanju i praćenju savremenih trendova u informacionim tehnologijama (IT). Informacione tehnologije se razvijaju brže nego ikada i prožimaju mnoge društvene i ekonomske odnose. Zato je važno pratiti i analizirati trendove informacionih tehnologija u biznisu, kao i predvideti pravce budućeg razvoja.

Ključne reči: *intelektualni kapital, znanje, organizacija koja uči, ljudski kapital, informacione tehnologije, biznis.*

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Introduction

Today's business environment is very complex. In such an environment, knowledge becomes the most important development resource. Traditional factors of production (land, labour, and capital) have not disappeared, but increasingly become secondary ones. In other words, they can easily be acquired if there is a strong intellectual capital. The total value of the company is a sum of financial capital and intellectual capital. The financial capital incorporates all tangible and monetary assets, while the intellectual capital consists of all nonmaterial, intangible assets and processes of the company. The company's intangible assets include: experience, information, know-how, managers' readiness, brand, image, reputation, culture, consumer loyalty, trust, knowledge of consumer preferences and the ability to process information. Technological development is directly related to the intellectual capital i.e., the human factor, because it is the most important development resource nowadays. Investing in the intellectual capital development is a global tendency, because the 'civilisation of knowledge' is important for all countries, regardless of their development level.

Scientific and technological development and high level of employment require appropriate human potential, i.e., knowledge that can achieve the integration of economic and social development. In this millennium, the global environment has the following features: globalisation, computerisation, rapid technological obsolescence, market variability, increased customer sophistication, increased international cooperation, discontinuity and development of the postmodern culture. The turbulence of the external environment of the company is emphasised, although turbulences can be internally generated as well, primarily by innovations. Such a trend is expected in the future.

The role of knowledge and intellectual capital in the modern economy

As the first step in knowledge accumulation, the educational system has a prominent role in adapting to the development requirements. This means that education in the traditional sense is not enough. Speaking of the new concept of organisation, Drucker (1992) says 'It is the very nature of

knowledge that it changes fast and that today's certainties will be tomorrow's absurdities'. An organisation must include change management in its development strategy. In addition, innovativeness must be organised and streamlined in a modern organisation. A modern organisation consists of knowledge specialists, which means that it must be an organisation of equals, not the organisation of superiors and subordinates [6].

The power of a modern, global company is increasingly contained in the intellectual and cultural performance of the company, rather than in traditional, tangible assets. So it is true that the future belongs to those who have knowledge. A key figure in the organisation is a knowledge specialist, i.e., a modern manager who knows how to use knowledge for productive purposes [6]. The managers' knowledge is a prerequisite for the efficient use of existing and future resources. Knowledge is increasingly recognised as essential for successful implementation of the technological development strategy, for business survival and development, as well as for dealing with changes. One of the basic goals of the scientific and technological development policy is the new knowledge creation, transfer, mastering and diffusion. The purpose of learning is to increase knowledge or to achieve a higher level of existing skill. In this regard, learning relates to a relatively constant change in behaviour that arises as a result of experience or practice.

There is significant evidence that different forms of intellectual capital such as knowledge, skills, talent, enthusiasm, patents, know-how, software, databases, close customer relations, brand, unique organisational design, and corporate culture determines a company's potential for growth and generates the majority of its added value [23, p. 352].

However, in the case of 300 top performing Serbian companies in terms of export, the significant impact of intellectual capital on financial performance was not determined [22, p. 329].

The knowledge-creating company

The progression of knowledge in terms of intellectual learning is achieved through a social process that is largely

focused on maximising the collective know-how. In this regard, the current concepts are 'knowledge-creating company' and 'learning organisation'. Japanese authors point to the importance of the so-called tacit (implicit) knowledge. In their opinion, management theorists in the West see knowledge as explicit, formal and systematic. Tacit knowledge is the essence of knowledge in an organisation. It cannot be easily seen and expressed. It is very personal and difficult to communicate. This category of knowledge includes intuition, subjective insight and speculation [14]. The distinction between explicit and tacit knowledge is the key to understanding the difference between the Western and Japanese approaches to knowledge. Explicit knowledge can be easily processed by computer, electronically transferred or stored in a data bank. On the other hand, there is no systematic and logical way for transferring tacit knowledge. Therefore, it is necessary to translate tacit knowledge into words and numbers, so that everyone can understand it. Organisational knowledge is created just at the time of the conversion of tacit knowledge into explicit one, and back into the tacit knowledge. Knowledge is always the property of an individual, and in order to become organisational, internalisation is necessary. When most employees share created mental models, tacit knowledge becomes part of the organisation culture [13].

Successful companies are those which continually create new knowledge, which is rapidly expanded in the organisation and quickly emerges in new technologies and products [18]. This approach means that every employee is responsible for creating knowledge. It is important to transform personal knowledge of an individual into organisational knowledge, from which the company benefits. Thus, an organisational knowledge creation refers to the ability of the company as a whole to create new knowledge and to expand it in the organisation, which is embodied in the products, services and systems. Knowledge creation takes place in three levels: individual, group and organisational.

The market uncertainty requires searching for new knowledge that is created outside the company. The knowledge acquired externally must be quickly expanded to become the basis for the creation of new products and technologies. This is some sort of conversion from

the outside to the inside and again to the outside (in the form of new products, services and systems). The logical order is as follows: creating knowledge→continuous innovation→competitive advantage.

The learning organisation

In the beginning, the concept of learning organisation was used by some large companies in the United States. This concept is linked to the management efforts to create innovative companies. In fact, management is increasingly focusing on creating an atmosphere which stimulates learning. In complex companies there are many learning processes, and each individual and group has a knowledge base and learning abilities. In particular, such a concept is adopted by organisations wanting to keep up with current market and technology changes and perceiving the need for transformation.

Learning is a basic premise for developing the organisation's core competences. Some authors suggest three strategies for improving the organisation's ability to learn: improve learning orientations; improve facilitating factors; change both learning orientations and facilitating factors [15].

When it comes to a company, learning is both a process and an outcome. The learning organisation is a company which purposefully creates a structure and strategies and improves and maximises the learning of an organisation. Such organisations are beyond the separation between thinkers and doers. The focus is on integral thinking and actions at all levels in the organisational structure of the company [5]. Learning also involves taking time for reflection and analysis, for reviewing strategic options, exploring consumer needs, assessing the existing work system, and finding new products. In this learning process, it is necessary to stimulate the exchange of ideas through project teams and meeting with consumers (suppliers). Learning is actually investing in human resources as a part of intellectual capital i.e., intangible assets and can be incorporated into the 'goodwill' item in the balance sheet. It becomes the most important factor of achieving a relatively permanent competitive advantage in the global economy. However, it is necessary to distinguish concepts

of 'organisational learning' and 'learning organisation'. In the first case, it is about training employees in the company to acquire knowledge about interpersonal relations, above all. In the learning organisation, people acquire knowledge and expertise in their day-to-day work. In such an organisation, individuals continuously expand their capacity in order to achieve the desired results; it builds a new, more flexible way of thinking; collective aspirations are freely defined; and people continually learn how to learn together.

The learning organisation has processes for knowledge diffusion through the organisation where it is needed and for knowledge transformation into a new way of business operating [20, p. 94]. In such organisations the emphasis is on systems thinking. Systems thinking are necessary when people want to create common vision, mental models and teamwork and to enhance personal abilities. The personal influence of each individual is very important [20, p. 59].

Although the learning organisation takes place through employees, it is not just a sum of knowledge of existing employees. Learning is considered to be neither deterministic nor random. One part of learning is based on the experiment and the other one is based on the understanding of existing knowledge [11, p. 94]. In today's economy you have to learn faster than your competitors.

Intellectual capital and change management

Intellectual capital is focused on company's functioning in the changed future conditions and on seizing the external opportunities. People generate capital for the companies through their competences, attitudes and intellectual engagement. Competences as a component of human capital include: knowledge, skills, talents, and know-how of managers and employees. Particular attention should be paid to core competences development as critical and recognised strengths. In order to be characterised as core competences, resources, skills and capabilities should enable the access for the company to a wide variety of markets and customers, while at the same time being sufficiently unavailable for imitation by competitors. In the transformation process some competences can be improved, which requires additional investment. On the

other hand, some competences are abandoned to free up the necessary resources. In identifying new core competences, it is necessary to combine capabilities in the company, as well as to exchange knowledge, experience and information. In change management, the attitude of employees and their willingness to use their skills and abilities to make a change are very important. Also, the role of leaders is significant, i.e., the motivation of employees to achieve goals regardless of possible obstacles.

In order to survive and be competitive in the knowledge society, the economies need to learn how to manage their intellectual capital. Innovative companies form knowledge management teams and professional organisers hold workshops and conferences on knowledge management. 'An information society' and 'the knowledge economy' are the long-anticipated phenomena and now they are a reality. Leading management theorists argue that it is more cost-effective for a company to invest in its intellectual capital than in material resources. Often the value of the company's intellectual capital is several times higher than the value of its tangible assets. Balance sheet provides a review of the company's property at a certain moment. However, most executives would be confused if they were asked to show items representing the value of their company's intellectual capital. Earlier this value was known under a common name – goodwill. In order to realistically show the value of knowledge and skills of highly trained personnel, together with other factors such as customer relations, business reputation of the company and its information technology, a special system of indices is used. Further, it is necessary to create a diagram known as 'navigator' in order to show the relationship between company's strategic trends and the variables chosen to reflect its intellectual capital.

Techniques and tools for managing the traditional factors of production (labour, capital and land) have been progressively improved. In terms of professional tools for managing intellectual capital, virtually no progress has been made. As a consequence, companies often insufficiently use their intellectual resources. Knowledge is structurally very complex in environment in which companies operate today. The following trends are responsible for this: extremely high knowledge growth rate; the extent to

which knowledge has become fragmented; and increasing globalisation of knowledge.

Many companies perceive the increasing complexity of knowledge in the environment as a threat. However, there are many ways in which dynamic knowledge development can create new chances for the competition. In order to survive in a volatile market, a company must keep up with information technology (IT) trends.

Leading trends in information technology in business

The importance of information technology (IT) in modern business is enormous. Advanced economies accounted for 85–88% of the global top 1% in 1988–2005, falling to 77% in 2012. There was a decline in global inequality from 2005 to 2012. Global wealth data show rising participation of emerging economies in the global elite [1, p. 111]. The tendency towards globalisation generally requires open organisational forms, based on modern technology and modern knowledge [12, p. 7]. Recent research has recognised that technological factors are not the only key to the effectiveness of the Internet/e-business technologies acceptance [8, p. 9]. Research findings confirm that the basic factors of an online trust model are: website usability, privacy, security, expected product performance, loyalty, and electronic management of customer relations [19, p. 131].

The results in the study of financial performance of 594 enterprises that operate within the ICT industry in Serbia in the period of five years (2009–2013) and their dependence on ICT efficiency indicated that human capital and physical capital partially affect financial performance, which is consistent with empirical findings from other developing countries. When compared to other industries in Serbia, ICT industry demonstrated more significant impact of human capital [24, p. 348].

Artificial intelligence, machine learning, business intelligence and analytics and the Internet of Things

Business intelligence and analytics (BI&A) as a part of big data analytics has become increasingly important over the past two decades in both the academic and the

business communities. BI&A is based on data processing techniques and analytical technologies. BI&A includes business-centric practices and methodologies that analyse critical business data for a company to better run its own business and for better market positioning. Business intelligence and analytics technologies rely on business-oriented statistical analysis and data mining algorithms. In data mining algorithms, the intelligent methods are used including classification, cluster analysis techniques, statistical models, and vector networks analytics in order to extract data patterns. Statistical machine learning (ML) is based on fundamental concepts of statistics and probability and learning algorithms techniques such as Bayesian model, hidden Markov models, support vector machine, reinforcement learning, and ensemble models [3, p. 1165].

Artificial intelligence (AI) is the field of computer science designed to solve cognitive problems commonly associated with human intelligence, such as learning, problem solving, and pattern recognition. AI is defined as a system's ability to correctly interpret external data, to learn from such data, and to use learning to achieve specific goals and tasks through flexible adaptation [10]. Applications of AI in business management include: fraud detection, spam filters and prevention for online transactions, smart searches, smart business decision-making, content personalisation as a service, smart virtual personal assistants to provide real-time support to users, smart devices to predict customer, predictive customer service, estimating customer profile, data analysis and customer segmentation, dynamic price optimisation, process automation by integrating industrial robots into workflow or automatically route service requests, sales and business forecasting, social semantics, etc. [17].

ML is concerned with the development of algorithms and techniques that allow computers to learn and discern patterns and predict future outcomes based on historical data. ML has a wide spectrum of applications including: stock market analysis, detecting credit card fraud, search engines, speech and handwriting recognition, analysing various kinds of data in many areas including business and management, etc. ML is promoting some products and financial services to the best customers on the Internet like Facebook and Amazon.

Amazon.com builds its operations on IT infrastructure and machine learning-based systems, simple-to-use and powerful tools and services, thereby improving its business and creating satisfied customers around the world by reducing their operating costs. While BI focuses on reporting past business data, ML predicts future outcomes based on past trends and transactions. Successful implementation of ML in a business implies in the first phase: problem identification, data collection and model creation. In the second phase, ML model is tested and applied on a specific business system in terms of prediction of business decisions, with possible correction until the desired prediction level is reached.

The term Internet of Things (IoT) in the business segment implies the installation of various sensors and their connection, in order to obtain the function of recognition, monitoring and management in systems. There is a link between IoT and marketing today via advertisements tailored to a particular customer on social networks, where companies use social network statistics to adjust their offer. In the future every customer will be viewed as a market for himself and he will be offered a personalised promotion. In order to achieve this, it is necessary to collect all consumer activities on a daily basis. Every house-consumer would have sensors for continuous data acquisition and the central database would further generate the customer as an object for adjusting promotion. The goal is to use real-time analytics in order to enhance customer loyalty through delivering highly targeted, relevant and personalised solutions at every moment, by providing innovativeness, scalability, speed and efficiency. Protecting both private and business information collected from unauthorised users, such as current location, credit card number or any other confidential content online, will be of the greatest importance in the future for the IoT development and its further implementation in the business.

Live interactions over social media

Social networks have replaced the traditional media. Experiences from all over the world indicate the increasing role of platform use in marketing [2, p. 153]. Decision

makers try to identify ways in which firms can make profitable use of applications such as Wikipedia, YouTube, Facebook, LinkedIn and Twitter [9, p. 59].

Live streaming video content will be the emerging trend. Regardless of the great popularity of social networks, top world companies recognise the importance of live interaction between people and do not use technology to replace the need for these interactions. Smart companies use the fact that customers are connected to each other virtually through social networks, but live interaction makes business connections more valuable and stronger.

Live streaming video content is a necessary component of successful businesses. Video is the most viewed content, and live video is the most effective way to connect with the consumer in real time in a sincere and personal manner. Companies create live streaming in order to establish real-time connections with their audience, and live videos (Live stream) become an integral part of the marketing strategy for any business. Companies that plan and develop video marketing resources will dominate the future market.

Generation Z

Children of this generation (born in 1995-2012) grow up in a highly sophisticated society and computer environment. Their life is characterised by widespread use of the Internet, mobile technologies and social networks. However there is a question: whether the Generation Z is characterised by complete connectedness or absolute loneliness, caused by the expansion of the Internet and social networks?

According to the Northeastern University survey, 81% of the Generation Z believes that obtaining a degree at a university is necessary for achieving a full career potential. According to the survey, 63% of the respondents, all between the ages of 16 and 19, said they want to learn about entrepreneurship in college, including how to start a business [16].

So, Generation Z is the first generation 'born with gadgets in their hands' and totally different from previous generations. Smart companies and brands are doing serious research in order to understand members of this generation as future employees and consumers.

Social learning

Social learning theory has progressed from the initial achievement of bringing the language and data of learning theory to bear on an understanding of complex human functioning to a sophisticated application of modern information-processing concept [7, p. 776]. The success of organisations depends on their ability to design themselves as social learning systems and also to participate in broader learning systems such as an industry, a region, or a consortium [21, p. 225]. Especially when trying to understand human interactions or to predict behaviours, we shouldn't look for answers only in large volumes of data. Big Data, small data and more traditional data handling approaches can become trustworthy companions [4, p. 981].

In most organisations, social learning or informal learning is carried out through e-learning. Social learning can also be realised through collaboration tools or externally on social media networks like LinkedIn, even Facebook. Social learning is expected to become the most common form of learning. It is also expected that there will be traditional forms of learning in combination with different forms of social learning. As part of social learning, many organisations have introduced new trends: the trend of self-directed learning and self-evaluation via e-learning in 2018.

Blockchain technology

Blockchain and Bitcoins are trends that will show enormous growth in the following period. The main idea of the blockchain is decentralisation, i.e., a reliable way for decentralised storage of vital information about cryptocurrency, as well as a system for performing transactions among users. Blockchain is a database whose structure consists of smaller bases (blocks) that are interconnected, since each block contains hash of the previous block. Each block contains hash code of the previous block, root hash, one-time code and timestamp. Always after one block is closed, a new one is created. Blockchain stores information about all online transactions and takes care of their proper replication. Each party or member has a peer node in the network. A large number

of members can cooperate with each other, but they do not need to have information about each other.

Now blocks are created by high-power computers, in the process named cryptocurrency mining. By mining the Bitcoin blockchain, Bitcoin (BTC) becomes a currency. Blockchain technologies provide the infrastructure for cryptocurrencies and the basis of crypto economy. Mathematical rules, a huge amount of computer processing power, and the existence of copies of the same system on multiple computers, all make Bitcoin blockchain a completely safe database.

Blockchain technology has enabled digital information to be distributed rather than copied, thereby creating a platform for a revolutionary new version of the Internet. This technology has enormous potential in many industries especially in the financial sector, as a support of efficiency and transparency in global money transactions.

Conclusion

Today's business environment is very complex and dynamic. In order for economic and social entities to succeed and operate effectively, they have to use all available resources. Intellectual capital is one of the most important (perhaps the most important) resource for economic and social organisations. In the past centuries, more significance was attributed to tangible forms of capital, but the 21st century is the age when intellectual capital is viewed as very important.

The first step in the process of creating intellectual capital is learning, i.e., education, because knowledge is one of the most important elements of this type of capital. Therefore, an entity wanting to use this resource cannot be the only creator of this capital; the entire society must participate through a well-established system of education. Learning must be performed thoroughly and quickly, faster than competitors, if we want to achieve a competitive advantage.

In order to improve business management and positioning in the market, business and social organisations take advantage of available information technologies. IT includes not only modern hardware technology but also techniques, methods, models, platforms and processes.

BI&A, ML, AI and IoT are some of the most dynamic IT fields. The application of these modern IT forms covers a wide range of processes, ranging from fraud detection, through the future outcomes prediction, to decision-making at different levels.

Increasingly, social media are replacing the traditional ones. Their influence in the contemporary social life and business is growing. In particular, perhaps the greatest influence of social media in business is reflected in marketing. However, regardless of the increasing popularity of social platforms and networks, many authors believe that live communication, i.e., direct contact with clients cannot be replaced. Therefore, expected future trends will be towards live streaming video content. Blockchain and Bitcoin technologies are quite revolutionary, and will reach its maximum in the future. All these issues should be guidelines for future market, consumer and customer research.

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