

# Ekonomika preduzeća



**Serbian Association of Economists  
Journal of Business Economics and Management**

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# EP **Ekonomika preduzeća**

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*Ekonomika Preduzeća* has addressed the importance of investments for the completion of transition many times. In the *Introductory paper* of this issue, a duo of authors, *I. Nikolić* and *M. Kovačević*, acknowledged the importance of investment efficiency for the aforesaid issue. Based on an empirical test of investment efficiency, the authors claim that sustainability of fiscal balance comes not from investments in infrastructure and real economy, but from investments in services. Although overstated, that view is well founded. The remarkable results of this analysis could force some experts from the field to change their opinion.

In the *Transition and Restructuring* section, we published two articles. A duo of authors, *V. Milovanović* and *S. Janošević*, analyzed quality management as a tool for value creation. Until recently researchers have concentrated on operational and tactical aspects of the analyzed problem. The specificity of this empirical study is its focus on the strategic perspective. The authors confirmed that in this field questions matter more than answers. In the second article from this section, a trio of authors led by *V. Lukić* used factor analysis followed by regression analysis to explore mobile banking in the segment of young adults.

The *Finance and Investment* section also comprises two articles. In her paper, *M. Pantelić* presents an empirical test of implementation of fair value accounting in Serbia. The analysis was structured according to the size of companies pursuant to the Law on Accounting (large, medium-sized and small). *B. Čegar's* research topic was the comparative analysis of legal settings for interim financial reporting in case of Southeast Europe. The comparison between IAS 34 and US ASC 270 is particularly important.

In the *Marketing* section, a trio of authors led by *K. Radosavljević* discussed the role of marketing channels in the field of agri-food products. International benchmarking with empirical justification of key performance indicators was conducted with the help of the Minitab software. The last article in this issue written by *S. Mašić et al.* is dedicated to consumers' proclivity towards posting online reviews in hospitality industry as one of the fastest growing industries in the global economy.

**Prof. Dragan Đurićin, Editor in Chief**



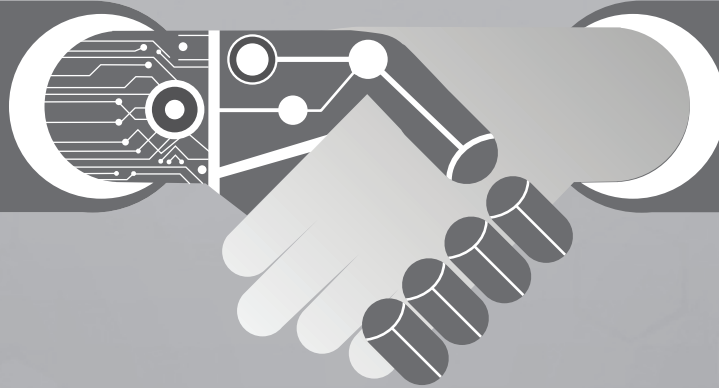
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- Education for Full Employment
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- Chosen Themes of Interest for Future Education



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# PROSPECTS AND LIMITS TO GROWTH: THE IMPORTANCE OF INVESTMENT EFFICIENCY?

Perspektive i ograničenja rasta - značaj efikasnosti  
ulaganja?

## Abstract

Investment management is one of the key challenges for policy makers. In the paper we present the findings confirming the hypothesis that for a more dynamic economic growth, apart from a mere increase in the investment rate, it is much more important to invest in the right things, with desired effect. In order to recognize new potentials for growth and development in addition to explicit calculation of the impact of investments on the GDP real growth rate of Serbia and European countries, we provide an exhaustive overview of the trends in the efficiency coefficient of investment in the key sectors and areas of Serbia's economy from 2006 to the present. While doing so, we also show that the investment rate can be sustainably raised to the desired level, firstly, with the expansion of dwelling construction.

**Keywords:** *growth, investment, efficiency, dwellings.*

## Sažetak

Upravljanje investicijama jedan je od najvećih izazova za kreatore ekonomske politike. U radu iznosimo nalaze koji potvrđuju hipotezu da je za dinamičniji privredni rast, osim pukog uvećanja stope ulaganja, mnogo važnije ulagati u prave stvari, na pravi način. U cilju prepoznavanja novih potencijala za rast i razvoj, pored eksplicitnog izračunavanja uticaja investicija na stopu realnog rasta BDP-a Srbije i evropskih zemalja, pružamo iscrpan pregled kretanja koeficijenta efikasnosti ulaganja po ključnim sektorima i oblastima privrede Srbije od 2006. godine do danas. Pri tome, pokazujemo i da je stopu investiranja moguće održivo podići na željeni nivo, najpre širenjem stanogradnje.

**Ključne reči:** *rast, investicije, efikasnost, stanogradnja.*

## Introduction

As the lever of the decisive significance for dynamic economic development we recognize investments in all their quantitative, but also qualitative practical manifestations, since the investment level in itself cannot be regarded as a measure of development, however this being the contribution to production that results from the increased production capacities. Due to the relative shortage of capital assets, as well as because of the limits to the supposed social and economic readiness to invest, the rational and economical, i.e., cost-effective allocation of investments is a prerequisite for the successful implementation of the anticipated macroeconomic objectives. However, investment management is seen as a major challenge for economic policy makers, taking into account the exquisite sensitiveness of this aggregate to the economic flows' fluctuations. On the other hand, it is the dynamics of versatile national investment activities that stands as the starting assumption for achieving the satisfactory economic growth rates and for the proper economic directing.

Apart from the explicitly calculated impact of investments by economic sections to the GDP real growth rate, for the purpose of anticipating and taking economic decisions it is appreciated to test also the extent of profitability/cost-

effectiveness of capital investments and thereby recognize the new growth and development capacities.

The basic indicators of successful investing are capital coefficient and economic investment efficiency, both in their average and marginal form. However, the economic investment efficiency is changing in time. Namely, the dynamics of capital investments and production growth resulting from these investments are not the same. To certain extent this is the result of transferring the investment effects to the forthcoming period, but is mainly caused by the fluctuations in the economic and technical structure of investments. As the prevailing factors of investment changes over the last decade expressive are the global economic trends, especially the destructive impact of the financial and economic crisis in 2009, then the specific investment policies practiced by the leading economic subjects from various economic domains, as well as the discretion decisions of economic policy makers.

In order to recognize new potentials for growth and development in addition to explicit calculation of the impact of investments on the GDP real growth rate of Serbia and European countries, we provide an exhaustive overview of the trends in the efficiency coefficient of investment in the key sectors and areas of Serbia's economy from 2006 to the present.

The economic growth is undoubtedly attributed to capital formation traditionally and has been discussed frequently by the classical, neo-classical and modern growth model postulates. Swan [24] goes through the classical and neoclassical views of economists that give an account of the capital accumulation. An important contribution to research into the incremental capital-output ratio (ICOR) linkage and economic growth has also been provided by Leibanstein, H. [11, pp. 20-27]. Lucas [13] points out that economic growth has traditionally been attributed to the accumulation of human and physical capital, and increased productivity arising from technological innovation. In empirical analysis, Kormendi and Meguire [10], Barro [4], Levine and Renelt [12] conclude that the rate of physical capital formation influences the rate of a country's economic growth.

Blomstorm et al. [5] also note a one way causal relationship between fixed investment and economic

growth. They conclude that changes in capital formation rates do not have any significant influence on future growth rates. On the other hand, Ghali and Al-Mutawa [8] apply time series analysis on G-7 countries and report that the causality between fixed investment and economic growth is country specific and may run in both directions.

ICOR has been used since the 1950s, and is still used by the World Bank and other international organizations, for instance, to measure the investment required to reach the targeted GDP growth (for more information, see [6], [19], [14]).

## Methodology

The incremental capital-output ratio (ICOR) is a summary expression for the existing technical conditions and structural configuration of the economy which captures the relationship between investment and additional productive capacity. ICOR is commonly measured as the ratio of investment rate to growth rate for a particular period. Some of the standard assumptions in the traditional Harrod-Domar framework [2] of calculating ICOR include, inter alia, the following: (a) the economy is on a steady growth path, (b) there is no lag between investment and setting up of additional capacity, i.e., investment instantaneously translates into additional productive capacity, (c) there is a full capacity utilization, (d) unchanging production structure within a sector. While these assumptions overlook the rigidities as well as flexibilities in the real world, the overall framework is a reasonable tool for providing overall benchmarks for assessing investment requirements [20].

Hence, the so-called 'law of motion of the capital-to-output ratio' is given as:

$$\begin{aligned} \frac{\partial \left( \frac{K_t}{GDP_t} \right)}{\partial t} &= \frac{\frac{\partial K_t}{\partial t} GDP_t - \frac{\partial GDP_t}{\partial t} K_t}{GDP_t^2} = \\ &= \frac{\dot{K}}{GDP_t} - \frac{GDP}{GDP_t} \frac{K_t}{GDP_t} = \frac{I_t}{GDP_t} - g \frac{K_t}{GDP_t} - \partial \frac{K_t}{GDP_t} \end{aligned}$$

Where  $I$  denotes gross investment,  $g$  growth rate of GDP and, in the last part of the equation, it is assumed that capital depreciates at a rate denoted by  $K = I - \delta K$ . The time change of the capital-to-output ratio can thus be

written as a function of the investment rate  $I/GDP$  and the present capital-output ratio:

$$\frac{\partial \left( \frac{K_t}{GDP_t} \right)}{I''} = \frac{I_t}{GDP_t} - (\delta + g) \frac{K_t}{GDP_t}$$

This implies that one can compute the capital-output ratio at the steady state as a simple ratio:

$$\frac{K_t}{GDP_t} \Big|_{ss} = \frac{I_t}{(\delta + g)}$$

and that the ratio of investment to GDP that keeps the K/GDP ratio constant is given by:

$$\left[ \frac{I_t}{GDP_t} \right]_{ss} = (\delta + g) \left[ \frac{K_t}{GDP_t} \right]_{ss}$$

where the subscript *ss* denotes steady state variables<sup>5</sup>. A higher capital stock should lead to higher output. If one takes this consideration into account, the link between growth and the investment rate will be affected by the ICOR or more generally the marginal productivity of capital. The ICOR calculation will be performed separately for the public and private sectors.

Despite the fact that we did not address the impact of depopulation in this paper, it could be posited that output growth is a function of the capital stock and a remainder that conflates TFP and population growth:

$$GDP = \varphi K + g$$

This implies that the first equation can be rewritten as:

$$\begin{aligned} \frac{\partial \left( \frac{I_t}{GDP_t} \right)}{\partial t} &= \frac{\dot{K}}{GDP_t} - \frac{(\varphi K + g) K_t}{GDP_t^2} = \\ &= \frac{I_t}{GDP_t} \left[ 1 - \varphi \left( \frac{K_t}{GDP_t} \right) \right] - (\delta + g) \frac{K_t}{GDP_t} \end{aligned}$$

Where  $I$  denotes as before gross investment and now represents no longer overall GDP growth, but the sum of TFP and population growth (the other exogenous growth factors).

The investment rate which will keep the output ratio constant will thus be given by:

$$\left[ \frac{I_t}{GDP_t} \right]_{ss} = (\delta + g) \left\{ \left[ \frac{K_t}{GDP_t} \right]_{ss}^{-1} - \varphi \right\}_{-1}$$

A higher value of  $\varphi$ , i.e., a higher ICOR will increase the steady-state investment rate because for any given investment rate it increases the growth rate of GDP.

If it were possible to increase the ICOR by some policy measures one could thus justify a lasting increase in the investment rate. The problem is that it is difficult to find simple and easily enforceable policy measure that would have this impact.

## Results

### Investment rate and recommended structure

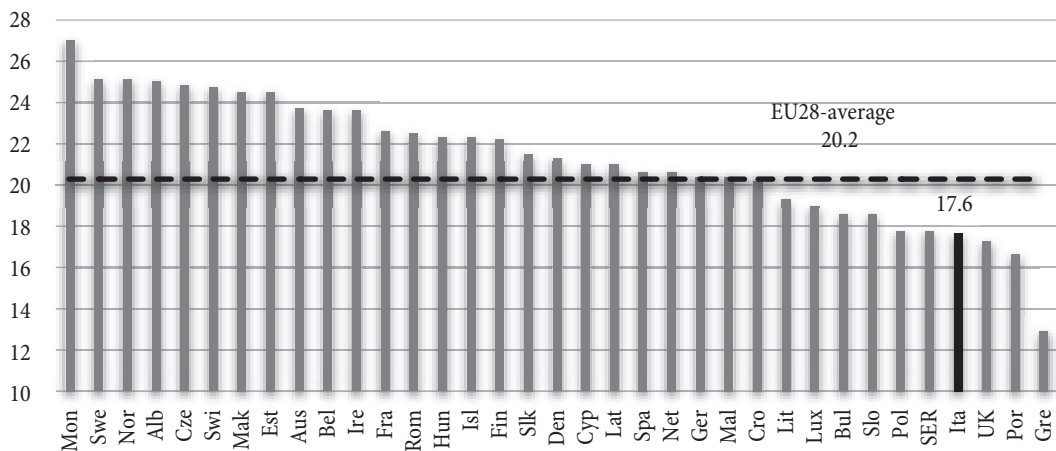
The difference between the fast-growing, prosperous countries in comparison to those less progressive is reflected not in the quantity, i.e., volume of investments, but in their quality<sup>6</sup>. Naturally, assumed are also all other factors that starting from the classic theory of economic growth up to the present day have been described by the production function that includes the quantity and quality of labour force, i.e., human capital, technological progress, institutions, etc., which are here assumed *ceteris paribus*; namely, those other variables are considered unchanged.

It is an undoubted fact that for a dynamic economic growth, more investment is required. However, this is an anticipated, but not a sufficient prerequisite. The attainment of high and sustainable GDP growth rates is related to large volume investment only when investment is directed properly and carried out in an appropriate manner; namely, if investment is effective and efficient.

5 Given that analysts usually take that  $K/Y$  for the euro area is close to 2.5, assuming a fall in growth from 2% to 1% would imply a fall in the steady state investment rate from 20% to 17.5% [9, p. 12].

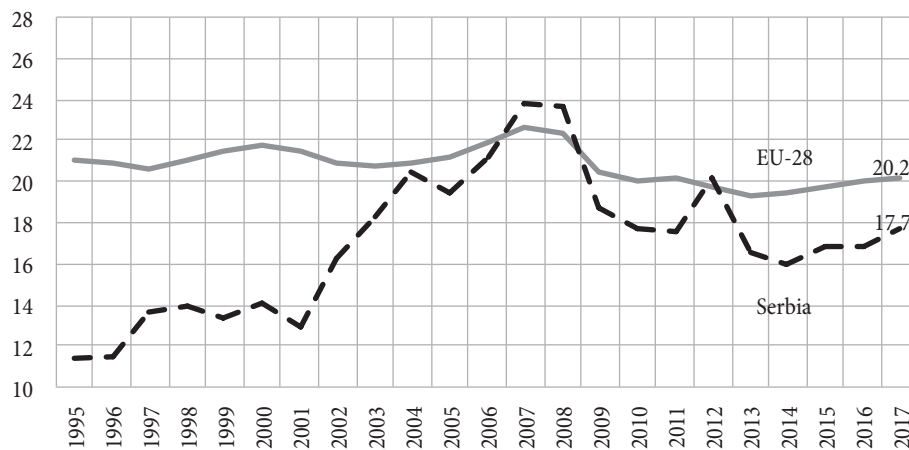
6 The most expressive indicator of the problems characterizing the pre-transition system of the former SFRY is low investment efficiency. For several decades (starting from the '50 of the 20th century) this efficiency had been declining and entered the negative zone during the '80. The development was relied on the strategy: energy, raw materials and food, which required more intensive investment and formidable foreign debts. The fixed investments in 1979 recorded the share of 38.4% of the social product, while about 40% of industrial production was directed to the investment demand (equipment and construction material and raw materials for equipment production). Already in mid-'80 the fixed investments fell to only 15-16% of the social product, their structure deteriorated as regards the technological renewal, while their efficiency became negative, i.e., the dinar invested had not been returning through increased social product [23].

Figure 1: Gross fixed capital formation (% of GDP), in 2017



Source: Authors' calculation; data provided by Eurostat.

Figure 2: Gross fixed capital formation (% of GDP), changes recorded from 1995



Source: Authors' calculation; data provided by Eurostat.

Otherwise, our neighbouring countries Montenegro, North Macedonia and Albania would hold the European records as regards the GDP growth. In the last ten years all three countries were stable in recording the investment rate above 25%. In 2017, for Montenegro and North Macedonia expressive was gross capital formation above 30% of GDP. The average inter-annual economic growth rate in this period was 2.1%, 2.4% and 3.1%, respectively. In 2017, North Macedonia was practically stagnating, with GDP growth of merely 0.2%.

However, before we proceed to a more detailed elaboration of the phenomenon of efficiency, it is of importance to define the structure of investment we tend to achieve. Namely, as regards technical characteristics, gross fixed capital formation is usually distinct as investment into: (a) buildings and other constructions (dwelling construction and other construction, such as

infrastructure and commercial objects); (b) machinery and equipment; (c) cultivated biological resources; and (d) intellectual property. The volume of investments and their efficiency determine the dynamics of GDP.

Gross fixed capital formation (GFCF) needs to be distributed on an equal basis to: construction, on one side, and investments in machinery, equipment and other, on the other side. Within a short time, due to different developing priorities, it is possible that this ratio is distributed in whichever direction of the two. On long-term basis, the quotient tends to converge to 1, i.e., the ratio 50:50. Even at this point it is easy to understand the importance of construction for economic growth, and why the developed countries take efforts at all costs that construction is never neglected.

The results of the implemented international comparative survey of investments by technical structure

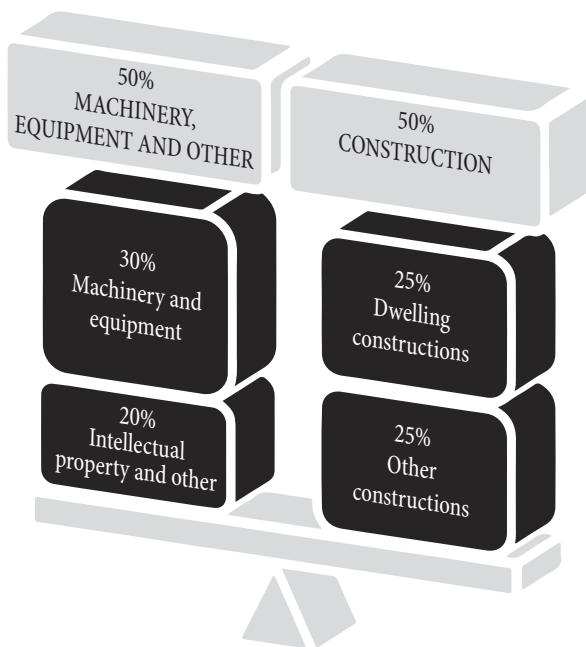


indicate another important ruling proportion. Construction works, regarded in total, on a long-term basis are equally generated by:

- A. dwelling construction, i.e., buildings, and
- B. other constructions, such as infrastructure works, as well as commercial buildings and objects.

Therefrom we can conclude that on a long-term basis the sustainable GDP growth can be achieved only with sound construction activity, where one quarter of GFCF comes from dwelling construction.

Figure 3: GFCF: proper structure



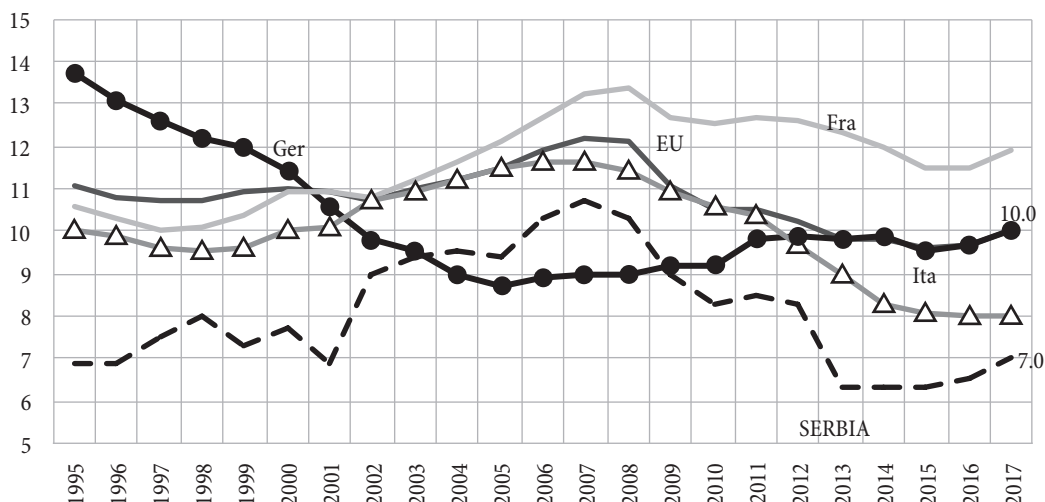
Source: [16].

In the last three decades Serbia achieved the desired share of constructions works in GFCF only at the dawn of the world economic crisis (Figure 2 and Figure 3). Then it equalled about 48% of the GFCF which came as a consequence of the massive programme of dwelling loans subventions. Resulting from the expedient actions of narrowing the fiscal space and also the public debt escalation, these active dwelling policy measures gave place to savings. Soon, in 2012 the share of construction works was reduced to 40.2% of the GFCF, in 2013 to 37.1%, and at this level, with negligible oscillations, it has remained until the present day. Here it is worthwhile stressing that the declining results of the construction activity came owing to dwelling construction; however the other construction activity, even from the mid-'90, has been sustained at the level of about one-third of gross investments.

In 2017, investment in dwelling construction equalled only 7.3% of the GFCF. Relative observations indicate that among the EU Member States only Greece makes less investment into dwelling construction than Serbia. The disadvantage of 3.5 to 4 percentage points of the Serbian GDP in comparison to the EU average is at the same time the key discrepancy between the actual and the desired share of the GFCF in GDP.

Seemingly, the trends have achieved positive direction, since in the last two years the growth of the GFCF was accelerated. According to our estimations, at the end of 2018 the investment in dwelling construction and other

Figure 4: Share of construction activity investment in GDP, %



Source: Authors' calculation; data provided by Eurostat.

construction activity will reach the share equal to 42.1% of the GFCF; this can be regarded as a positive sign, however still far from the desired and needed structure where construction activity would generate one half of all investments.

It is not advisable to estimate the share of dwelling constructions here, since no reliable indicators are at disposal for doing that. However, we are on the safe side to say that also in 2018 the share of dwelling construction remained low. The construction activity is mainly relied on erecting infrastructure objects and commercial premises [16].

Simultaneously with the needed restructuring, a lot of work has to be done in order to upgrade the investment efficiency. ICOR stands for over two-thirds of variations of the real economic growth of the European countries in transition on mid-term basis [15].

It soon becomes clear why Macedonia, in spite of the high investment rate, cannot achieve a considerable GDP dynamics. This comes as a consequence of the extremely low investment efficiency. On the other side we find Romania, which in the period 2014 – 2017 recorded the average inter-annual GDP growth of 4.8%; in 2017 it equalled even 7.0%. Serbia with the average share of gross investments in GDP features below average investment efficiency, and within the observed set of countries is ranked side by side with Macedonia.

The obtained results indicate the fact that total ICOR in Serbia in the period 2014 – 2017 was on average by 29.1% lower in comparison to the EU countries. According to the

weighted average of the observed fast-growing EU countries, the Serbian investment efficiency is lower by even 54%.

From the equation of ICOR it is easy to calculate the percentage share of GDP that needs to be invested in order to achieve certain targeted GDP growth rate, while assuming the present investment efficiency. For example, the attainment of the long-term economic growth of 3% annually, under the present investment efficiency implies the increased investment rate from the present 20% approximately to 39.5% of GDP; however, to achieve the growth of 4%, the required investment rate equals precisely 52.6% of GDP.

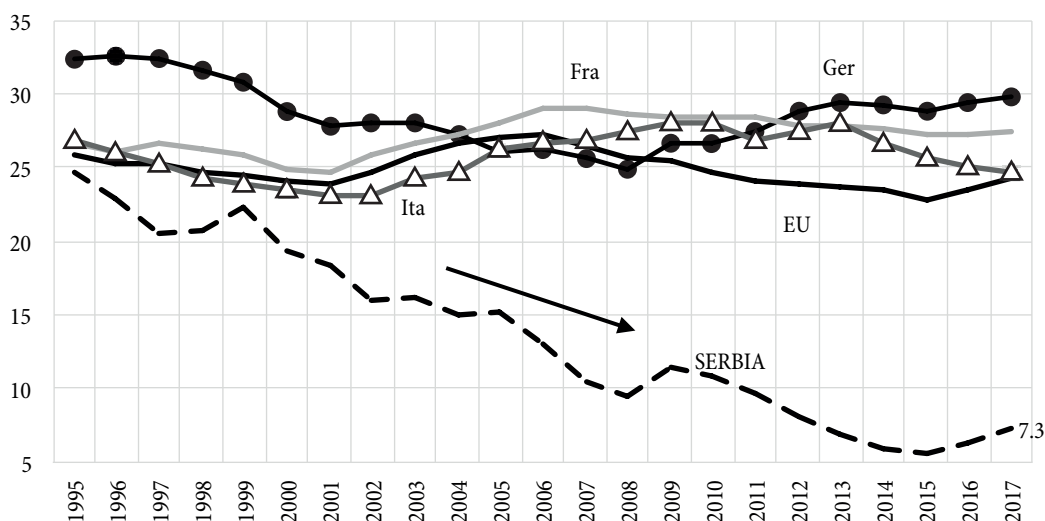
Since this is unattainable, a sustainable economic growth has to be relied on much more efficient utilization of the existing capital assets. Besides, if we consider the

Table 1: ICOR, for the period 2014-2017

	Total	Public sector	Private sector
Macedonia	0.072	0.561	0.082
Serbia	0.076	0.507	0.089
Croatia	0.108	0.675	0.129
Estonia	0.128	0.641	0.160
Latvia	0.131	0.659	0.163
Czech Republic	0.140	0.882	0.166
Slovakia	0.143	0.733	0.178
Cyprus	0.153	1.036	0.179
Bulgaria	0.159	0.678	0.208
Hungary	0.160	0.711	0.206
Lithuania	0.160	0.866	0.196
Slovenia	0.169	0.761	0.218
Poland	0.187	0.910	0.236
Romania	0.197	1.090	0.241
Weighted regional average	0.165	0.857	0.205

Source: Authors' calculation; data provided by Eurostat as of 15/01/2019 [7].

Figure 5: Share of dwelling construction in the GFCF



Source: Authors' calculation; data provided by Eurostat.

restrictions concerning the physical volume of labour force (the problem of depopulation and therefore reduced working active population [17]), it is an unavoidable conclusion that increased dynamics is achievable only through technological progress, innovations and creative approach to production.

Table 1 presents the investment efficiency of the public and the private sector. In the last three years, the average investment efficiency in the public sector has been by 30.9% lower than in the EU, and in comparison to the group of the observed countries (new and potential EU Member States) by considerable 40.8%. On the other side, the private sector investment efficiency is lower by 18.6%, i.e., 56.4%, respectively. The worse relative results of Serbia when compared to the subset of new EU Member States resulted from their more dynamic economic growth in relation to the EU average.

How to interpret these results? It is known that investment efficiency depends on the economic and technical structure. A larger part of investment directed towards the capital-intensive economic sections (transport infrastructure, energy, etc.) would lead to the increased value of marginal capital coefficient, namely, lower investment efficiency on the overall economic level. The Serbian investments are to the considerable extent directed just towards the mentioned economic sections (transport infrastructure is constructed and modernized: roads, railways, etc.). This is a suitable practical explanation of the relatively poor results of the investment efficiency of the Serbian public sector.

However, the question is what lies hidden behind the low efficiency of private investment. Firstly, observed was the period 2014 – 2017, which coincides with the severe restrictions of demand as a consequence of the implemented measures of fiscal consolidation. In the circumstances like these it is impossible to make true the full effect of investment in expanding economic activity, and exports could only partly compensate for the subject restrictions. Higher GDP growth rates are sustainable on a long-term basis only if we utilize all three growth sources: net exports, investments and final consumption. By no means should final consumption be the key point; however, it is indispensable.

For example, in the period 2014–2017, Romania recorded the average annual GDP real growth of 4.8%, but while expressing the final consumption growth of 6.2%, i.e., of household final consumption expenditure equalling 7.1% annually. In the same period, the inter-annual real growth of final consumption in Serbia equalled 0.6% only. In relation to the level noted in 2013, household final consumption expenditure in Romania at the end of 2017 increased by 31.5%, and in Serbia by 2.6%. Regarded on a cumulative basis, during this period Romania recorded household final consumption expenditure increased by 54.5% more than the economic activity. On the contrary, an inadequate policy was led in the past in Serbia and this was paid by severe deprivations, through the fiscal policy of saving, namely, resulting in the cumulative real stoppage of household final consumption expenditure in relation to the GDP dynamics by 54.1%.

Another reason for low efficiency of private investment in Serbia is related to structural economic problems that are mainly characteristic for the divisions with low value added. The low technological level of production simply cannot generate the growth that may keep pace with fast growing economies. Namely, this is not the issue of wrong allocation of resources, but the existing production structure, the change of which takes time. Possibly we may consider the above phenomenon only applied on certain cases of foreign direct investment supported by the government; however, even this needs to be examined in detail. Therefore, we should rather stick to the previously expressed viewpoint that subsidies for employment, i.e., opening new jobs are not to be included among the determinants of growing investment that would create a competitive economy; however, to this effect they may be counterproductive [18].

### Investment efficiency: Manufacturing

Within the existing investment capacities, the searching for the best solution how to direct the Serbian growth and development can be based on the information on the values of the ICOR in various economic domains. The existing correlation between the subject indicator and the real growth rates is a mechanism ensuring that

investments become a strategic instrument for attaining the projected macroeconomic objectives. Interdependence of investments and economic growth can be illustrated by significant compliance of the relevant economic indicators in the divisions of manufacturing.

Certain expressive deviation, noted only in the division 29 – *Manufacture of motor vehicles, trailers and semitrailers*, was caused by intensive capitalization in the car industry that occurred in the observed period midterm.

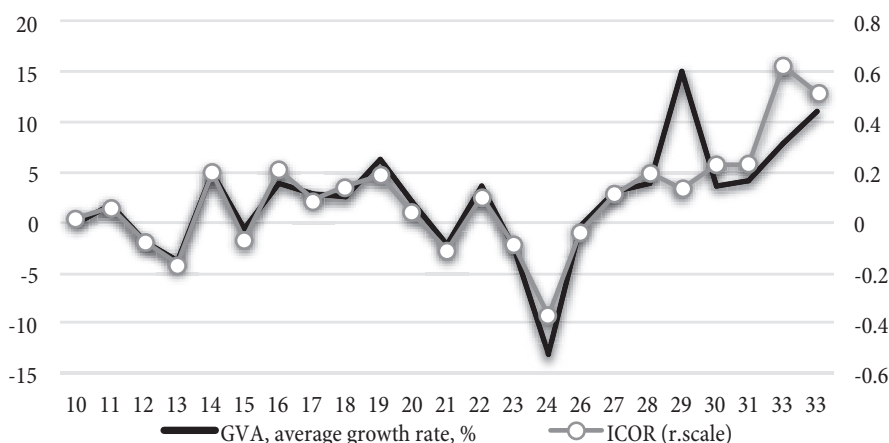
By opting for investment in machinery, equipment, software, etc., the production capacities of a country are increased, while, e.g., investment in transport infrastructure, dwelling and other constructions, etc. will increase the social wealth and is seen as prerequisite for the efficiency of all other investment categories on a long-term basis (less expensive and efficient transport, better communications, developed and reliable information systems, etc.). By directing resources to capital-intensive economic sections (heavy industry, energy, transportation) or manufacturing and service activities, which require less capital investment, we can influence the extent of investment efficiency within the overall economy. The capital relocation through investment can lead to economic restructuring aimed at achieving economic optimization.

The investment in the industry sector generates relatively less GVA in comparison to the section of services – in the period observed, on average 40% of all capital investments produce less than 30% of GVA. In spite of this, the analysis of economic processes on lower

activity level tends to indicate that certain activities of this section, with the existing level of technical capacities, may significantly add to the GVA growth with anticipated minimal investment. This is especially applicable to certain divisions of *Manufacturing, while the sections of Mining and quarrying, electricity, gas, steam and air-conditioning supply, and Water supply, sewerage, waste management and remediation activities* record above average values of the ICOR. Low investment efficiency in the manufacturing industry is primarily the result of being directed to large infrastructure projects, energy and other capital-intensive activities that are characteristic of this section. However, despite the low investment cost-effectiveness, the implicit contribution of the manufacturing section is far-reaching; the leading national investors belong to this section and they not only model the investment activity, but also direct the overall economic development.

The existing versatility of the economic activities of manufacturing contains in itself the potentials for spurring the economy to faster growth. With the same volume of capital formation, it is possible to suppose their varying composition, which results in different production growth. By considering the variations of investment efficiency by certain manufacturing divisions ensured is a sound starting point for economical and effective investment. Since the production efficiency, at least on a short-term basis, does not tend to change, by taking into account the relevant empirical results on the capital capacities of the Serbian economy it is possible, by relocating the

**Figure 6: ICOR vs. value added (GVA) growth rate, by economic divisions of manufacturing, average for period 2006-2016\***



Note: \*x-axis: NACE Rev. 2 – Manufacturing divisions  
 Source: Authors' calculation; data provided by the Statistical Office of the Republic of Serbia (SORS) [22].

development resources into the divisions with low ICOR, to spur the GDP dynamics.

In order to develop a more efficient model of sectoral specification, the manufacturing divisions were ranked by the extent of investment efficiency, calculated for the period 2006 – 2016<sup>7</sup>.

Production effects of invested capital are most expressive in the divisions *Repair and installation of machinery and equipment*, *Other manufacturing*, and *Manufacture of fabricated metal products*. The extension of their production capacities with minimal investment and increased relative significance in manufacturing would create a substantial value added and result in growing economic investment efficiency on the overall economic level.

A specific challenge for economic policy creators are activities with (marked) negative investment efficiency, i.e., those where invested assets do not return through increased GVA, but, on the contrary, induce its decreasing movements (manufacture of computers, textiles, tobacco, leather and fabricated metal products). The potential factors causing the falling investment efficiency in these industries are transition changes, the great financial crisis in 2009 and/or, eventually, wrong decision making, investment failures and irrational spending above economic criteria or real needs, etc.

With the existing level of technological progress, investment decisions, led by pure economic reasons, need to be directed to propulsive industries from the point of capital assets efficiency. However, it is not always possible to ignore the social and economic development interest for certain divisions, which despite the low efficiency on a long-term basis, bear the national strategic importance (e.g., pharmaceutical industry in some economies). In this case, only the strategic economic policy makers on the national level could undertake the role of development

directing through long-term anticipations of real and sustainable progress, which is hard to conceive from a micro aspect.

Taking into account that the rational usage is a priority with limited resources, when allocating capital assets it is necessary to observe the relationship between capital equipment and actual growth rates. By the means of referent coefficients, it is possible to make the reliable anticipations as regards the percentage share of production to be invested in certain industries in order to create 1% of their growth.

If as an indicator of efficiency of capital assets observed is the movement of the ICOR, i.e., its increase in the period 2001 – 2016, then we may assume that the manufacturing section, on the overall level expresses a growing investment efficiency (0.11 in the period 2011 – 2016 in comparison to 0.09 in the period 2006 – 2016).

For the needs of an efficient and optimal direction of economic relocation of fixed assets, offered is a comparative review of the manufacturing divisions ranked by investment efficiency in the two observed periods:

Regarding the share in manufacturing, *Manufacture of food products* is far above all other divisions (21.8%), however it is at the bottom of the list by investment efficiency (coefficient equals 0.02), which considerably affects the sector efficiency as a whole. *Manufacture of basic metals*, *manufacture of tobacco products* and *manufacture of basic pharmaceutical products* had their average shares in the manufacturing section decreased by one-third in the post-crisis period when related to the whole period observed, which came as a consequence of rather low efficiency, i.e., negative investment efficiency. In similar cases, the movements of the ICOR can be regarded as an indicator of severe problems in which certain economic activity is found. In the process of transition, *Manufacture of basic pharmaceutical products* was displaced in the international division of labour, and its new start requires extreme efforts and the government interventions. Basically the development of this industry requires the readiness for large volume investments in research and development potentials (which produce no immediate effects) and the stoppage in the outflow of human resources, namely, the employment on a long-term basis of high professional

<sup>7</sup> For practical reasons, investments and the respective production growth were observed in the same period, i.e., calculated was the respective ICOR. Following the ratio of the relevant aggregates on long-term basis, partly neutralized were the delayed effects resulting from the time gap between the realization and activation of certain investment types, so that technological marginal coefficient was not taken into account. The time difference, i.e., gap between the period of an investment implementation or construction and the moment of its transformation into active production assets is characteristic of the activities with dominant construction works in the investment technical structure

**Table 2: Comparative review of the Serbian manufacturing divisions ranked by investment efficiency in the two observed periods**

Divisions	2006-2016			2011-2016		
	Rank by investment efficiency	ICOR	Share in GVA of manufacturing, %	Rank by investment efficiency	ICOR	Share in GVA of manufacturing, %
<b>C Manufacturing</b>		<b>0.09</b>	<b>100</b>		<b>0.11</b>	<b>100</b>
10 Manufacture of food products	17	0.02	21.8	15	0.02	21.4
11 Manufacture of beverages	15	0.06	5.6	18	-0.19	5.1
12 Manufacture of tobacco products	20	-0.08	1.3	23	-0.32	0.8
13 Manufacture of textiles	23	-0.16	1.2	21	-0.28	1.1
14 Manufacture of wearing apparel	8	0.20	3.8	3	0.47	4.1
15 Manufacture of leather and related products	19	-0.07	1.5	20	-0.26	1.5
16 Manufacture of wood and products of wood and cork, except furniture	6	0.21	2.1	14	0.03	2.3
17 Manufacture of paper and paper products	14	0.09	2.5	8	0.15	2.5
18 Press and audio and video recording	10	0.15	2.1	5	0.38	1.9
19 Manufacture of coke and refined petroleum products	9	0.19	9.1	9	0.15	10.5
20 Manufacture of chemicals and chemical products	16	0.04	4.0	2	0.47	4.8
21 Manufacture of basic pharmaceutical products	22	-0.11	3.2	16	0.02	2.4
22 Manufacture of rubber and plastic products	13	0.10	6.6	10	0.12	7.0
23 Manufacture of other non-metallic mineral products	21	-0.09	5.1	22	-0.29	4.3
24 Manufacture of basic metals	24	-0.37	3.3	24	-0.36	2.3
25 Manufacture of fabricated metal products except machinery	3	0.26	8.4	12	0.09	8.5
26 Manufacture of computer, electronic and optical products	18	-0.04	2.7	17	-0.18	2.4
27 Manufacture of electrical equipment	12	0.11	2.9	11	0.10	2.8
28 Manufacture of machinery and equipment, n.e.c.	7	0.20	3.8	6	0.22	3.9
29 Manufacture of motor vehicles, trailers and semi-trailers	11	0.14	3.6	7	0.19	5.1
30 Manufacture of other transport equipment	4	0.23	0.5	19	-0.21	0.4
31 Manufacture of furniture	5	0.23	2.2	13	0.05	2.1
32 Other manufacturing	2	0.52	1.4	1	0.53	1.4
33 Repair and installation of machinery and equipment	1	0.62	1.1	4	0.40	1.3

Source: Authors' calculation; data provided by SORS.

research staff. Simultaneously, *Manufacture of chemicals and chemical products* considerably upgraded investment efficiency and thereby this division was ranked second in the last period observed (in relation to the place 16 when regarding the whole period observed) and its share was increased by 21.7%. The increased share and a large step forward – the third place as regards the attained level of capital profitability within the section - was achieved by *Manufacture of wearing apparel*. Considering the investment efficiency, *Manufacture of textiles* and *Manufacture of wearing apparel*, even though seemingly closely related, indicate quite opposite trends regarding the economic indicators. In difference to *Manufacture of wearing apparel*, *Manufacture of textiles* is stagnating and experiencing severe difficulties (negative efficiency coefficient, -0.28), which is reflected in, among other things, the reduced

share in the manufacturing value added. *Car industry (Manufacture of motor vehicles, trailers and semitrailers)*, as a result of the large volume capitalization implemented in the post-crisis period, upgraded the investment efficiency and almost doubled its share in the section.

### Investment efficiency: Services

The modern economic flows are characterized by all-encompassing structural processes aimed at strengthening the dominant status of service activities. Apart from the new trends causing these movements (economic market changes, breakthrough of new technologies, rising living standards, life style changes), a key cause for the expansion of the services sector lies in the high productivity of its business operations. Having in mind

**Table 3: GDP Sectorial structure in 2016, %**

	Services	Industry	Agriculture
Luxembourg	86.8	12.9	0.3
Cyprus	86.6	11.3	2.1
Malta	85.1	13.7	1.2
Greece	79.7	16.3	4.0
United Kingdom	79.6	19.8	0.7
France	78.7	19.7	1.6
Netherlands	78.3	19.7	2.0
Belgium	77.1	22.2	0.7
Denmark	75.6	23.5	0.9
Portugal	75.5	22.3	2.2
Latvia	74.7	21.3	3.9
Sweden	74.2	24.5	1.3
Italy	74.0	23.9	2.1
Spain	73.8	23.5	2.8
<b>European Union</b>	<b>73.7</b>	<b>24.8</b>	<b>1.5</b>
Switzerland	73.5	25.8	0.7
Montenegro	71.8	19.1	9.0
Iceland	71.8	22.4	5.8
Austria	71.0	27.7	1.2
Estonia	70.5	26.9	2.6
Finland	70.2	27.1	2.7
Croatia	69.6	26.6	3.8
Germany	68.9	30.5	0.6
Lithuania	68.0	28.7	3.3
Bulgaria	67.0	28.3	4.7
Norway	65.6	32.0	2.4
Slovenia	65.5	32.3	2.2
Bosnia and Herzegovina	65.3	27.3	7.5
Hungary	65.1	30.5	4.4
Poland	63.8	33.5	2.7
Romania	61.8	33.7	4.6
Slovakia	61.5	34.8	3.7
North Macedonia	61.1	28.4	10.5
Turkey	61.0	32.0	7.0
<b>Serbia</b>	<b>60.8</b>	<b>31.3</b>	<b>7.9</b>
Czech Republic	59.9	37.6	2.5
Ireland	59.7	39.3	1.0
Albania	53.2	24.1	22.7

Source: Authors' calculation; data provided by Eurostat [7].

that services ensure the basic economic, financial, business and social infrastructure, they may be regarded also as a generator of the overall economic development nowadays. By ensuring the necessary inputs for production and adequate human resources, they considerably determine the flows of the primary and secondary sector, at the same time exceeding their values in the summarized amount in the GDP creation.

As a global phenomenon, the Serbian economy also has been overcome by the process of deindustrialization, however not to the extent as seen in the developed world economies.

In 2016, the share of the services sector in the GDP creation equalled 60.8%, which is by 12.9 percentage points less than the EU average. However, regardless of the mentioned low ranking, the Serbian sector of services gradually becomes more competitive and creates an expressive surplus in external trade. In the last decade, the share of exports of services in GDP has increased by 6.4 percentage points and reached 14.2% in 2017, while the resumed increase of relative importance is expected.

As a result of the real need to find new sources for growth and attain more favourable position within the international division of labour, the intensive structural alignment of the national economy is in progress, led by directing capital into profitable branches of the services sector. It is a known fact that an active investment policy can influence the structure and volume of macroeconomic aggregates. Namely, the validation of investment activity success is expressed through the economic growth dynamics. The functional relationship between investments and economic growth is determined and measured by the means of conventional macroeconomic indicators, which, essentially, follow the ratio between the invested capital and its productive effects.

Based on these measures we have come to an empirical confirmation that also within the Serbian economic circumstances the services sector is achieving profitability above the average of the overall economy. The allocation of investments to the aggregated sectors of economic activity and their economic efficiency are given in the following table:

**Table 4: Economic indicators by economic sectors (A3<sup>8</sup>) of the Republic of Serbia, average for the period 2006 – 2016**

	Average investment structure, %	GVA average structure	Capital-output ratio	ICOR
Total	100	100	15.1	0.07
Agriculture	3.2	9.6	21.6	0.05
Industry	40.3	29.8	18.9	0.05
Services	56.5	60.5	12.8	0.08

Source: Authors' calculation; data provided by SORS.

8 A3 represents the aggregation of economic activities in three sectors: agriculture (A), industry (B, C, D, E, F) and services (G, H, I, J, K, L, M, N, O, P, Q, R, S, T).

In the Republic of Serbia and when the period observed is regarded, on average the largest share of investments were effected in the services sector, 56.5%, and the smallest in the sector of agriculture, 3.2%. Simultaneously, the average structure of GVA is not in compliance with the investment in these sectors, mainly due to the existing production structure, however also because of the variations of capital productive effects in various economic activities.

Considering the fact that lower values of the ICOR indicate higher capital productivity and technological progress, we may suppose that, on this aggregation level, investment in the services sector will make relatively most significant effects on the overall economy (ICOR noted for this sector equals 12.8). Compared to the services sector, the investment in the sector of industry generates relatively lower GVA, primarily since its considerable part is directed to large infrastructure projects, energy and other capital-intensive industries that are characteristic of this sector.

Surprisingly, apart from the obviously highest investment efficiency, in the period observed the dynamics of investment in the services sector was less expressive. Also regarding the same period, the real growth of gross investment equalled in total 9.9%, and the most significant positive changes of the investment level were noted for the sector of agriculture, 38.1%. The sectors of industry and services recorded growth of 14.0% and 5.8%, respectively; however, on average the investment in the sector of industry was on annual basis more intensive by 2.4 percentage points (average annual real growth rate of 3.8%) in relation to the inter-annual growth of the services sector.

Essentially, apart from the direct contribution of the investment in the services sector to the GDP growth, as its integrating part from the point of demand, for the purpose of anticipating and making economic decisions it is of more importance to examine the extent of profitability of this investment and thereby differentiate the new development potentials. The investment level in itself cannot represent the measure of development, but this is the contribution to production that results from the increased production capacities. Due to the relative lack of capital assets, as well as because of the limited supposed social and economic readiness to invest, their rational and cost-effective allocation

is a prerequisite for the successful implementation of the anticipated macroeconomic objectives.

Within the available investment capacities, the searching for the best solution how to direct the growth and development in Serbia can be based on the information on the values of ICOR in various economic domains. The existing relation between the subject indicator and the real growth rates is a mechanism that ensures that investment is seen as a practical instrument for upgrading the economic activity to the higher level. The interdependence of investment and economic growth is illustrated by a notable correlation of the relative economic indicators by economic divisions within the services sector.

By having inspection into the variations concerning investment efficiency by certain divisions of services it is possible to establish a good starting point for more cost-effective and efficient investment. Bearing in mind that the efficiency of production capacities does not change, at least on a short-term basis, and with the observance of the respective empirical results concerning capital assets of the national economy, by directing the development resources to the divisions marked by low marginal capital coefficient it is possible to spur GDP to faster growth.

The productive effects of the invested capital are most expressive in the divisions of *Employment activities; Legal and accounting activities; Computer programming, consultancy and related activities; Insurance, reinsurance and pension funding; Gambling and betting activities; Advertising and market research; Education; Scientific research and development, etc.* The extension of their fixed capacities and relative importance within the services sector would create, with minor investments, a considerable GVA and would influence the investment efficiency on the overall economic level. On the bottom of the table are found the service activities where the invested assets are not returned through the increased value added, but, on the contrary, induce its decrease. The negative mark of the investment efficiency indicate that certain divisions experience serious developing difficulties caused by economic crisis, transition changes, irrational spending above economic criteria and real needs, or some other negative trends. In cases like these, of vital importance is the society's response to overcoming the limitations of



**Table 5: Services sector – divisions by economic investment efficiency,<sup>5</sup> Republic of Serbia, average for the period 2006-2016**

Divisions	ICOR	Share in GVA – services sector, %	GVA average real growth rate, %
78 Employment activities	1.71	0.1	44.0
80 Security and investigation activities	1.63	0.8	3.8
69 Legal and accounting activities	1.05	1.6	1.2
62 Computer programming, consultancy and related activities	1.04	1.4	15.8
63 Information service activities	0.72	0.2	5.0
92 Gambling and betting activities	0.71	0.5	16.4
65 Insurance, reinsurance and pension funding, except compulsory social security	0.68	0.9	7.0
73 Advertising and market research	0.56	0.7	5.5
94 Activities of membership organizations	0.42	0.6	2.4
85 Education	0.40	6.5	1.9
72 Scientific research and development	0.31	0.7	4.1
66 Activities auxiliary to financial services and insurance activities	0.30	0.2	5.0
70 Activities of head offices; management consultancy activities	0.26	1.6	4.8
46 Wholesale trade, except of motor vehicles and motorcycles	0.24	10.2	4.4
68 Real estate activities	0.24	17.4	0.7
64 Financial service activities except insurance and pension f.	0.22	4.8	4.3
45 Wholesale and retail trade and repair of motor vehicles	0.22	1.5	3.1
82 Office administrative, office support and other business sup.	0.18	0.5	3.0
52 Warehousing and support activities for transportation	0.17	1.9	3.5
87 Residential care activities	0.16	0.8	1.4
49 Land transport and transport via pipelines	0.16	5.5	3.6
75 Veterinary activities	0.14	0.2	1.0
77 Rental and leasing activities	0.13	0.4	13.2
61 Telecommunications	0.11	5.0	5.0
81 Services to buildings and landscape activities	0.07	0.6	1.4
86 Human health activities	0.06	7.7	0.4
53 Postal and courier activities	0.06	1.1	0.7
55 Accommodation	0.05	0.9	1.2
84 Public administration and defence; compulsory social security	0.02	7.5	0.6
71 Architectural and engineering activities; technical testing & analysis	0.02	1.3	1.6
47 Retail trade, except motor vehicles and motorcycles	-0.03	8.0	-0.5
74 Other professional, scientific and technical activities	-0.03	0.3	-1.8
56 Food and beverage service activities	-0.11	1.4	-0.5
91 Libraries, archives, museums and other cultural activities	-0.11	0.2	-3.1
50 Water transport	-0.13	0.1	-5.6
93 Sports, amusement and recreation activities	-0.13	1.0	-4.3
90 Creative, arts and entertainment activities	-0.23	0.3	-3.0
60 Programming and broadcasting activities	-0.30	0.7	-15.1
59 Recording and music publishing activities	-0.33	0.2	-5.8
58 Publishing activities	-0.34	0.7	-2.3
79 Travel agency, tour operator and other reservation service	-0.92	0.3	-5.2
95 Repair of computers and personal and household goods	-1.11	0.4	-2.9
88 Social work activities w/o accommodation	-1.17	1.6	-6.8
96 Other personal service activities	-3.51	1.9	-2.1
51 Air transport	...	0.1	...

Source: Authors' calculation; data provided by SORS.

5 The data on investments on the level of divisions of economic activities are provided from *the Annual report on investments in fixed assets of the Republic of Serbia* that covers only legal entities. For practical reasons, the investments and the respective production growth are observed within the same period, i.e., the simultaneous marginal capital coefficient is calculated. By following the ratio of the respective aggregates for a longer period, partly neutralized are the postponed effects resulting from the time gap between the implementation and activation of certain types of investment, so the technological marginal coefficient was not taken into account. The time gap between the period when an investment is implemented or constructed and the moment of its transformation into active production assets is characteristic of the activities with dominant construction works in the investment technical structure.

long-term stagnation. A disregarding approach or missing to respond appropriately may lead the endangered activity to the edge of survival.

The tabular review of the qualitative indicators concerning the service sector functioning in the last decade offers the guidelines for directing business operations, and can be also variously utilized in accordance with the current economic strategy. At the core of all macroeconomic analyses and decisions taken by economic policy creators found is the search for the optimal way how to achieve a sustainable growth of GVA. The management of investments, being the dominant variable of economic development, directs the movements in compliance with the investment economic and technical structure.

The anticipations of the future investment assets and the cost-effectiveness of the implemented investments can be reliably estimated by quantifying the interdependence of investment and economic growth. Naturally, the investment optimum is determined by various priorities of economic policy – higher employment rate, increasing consumption, but usually the focus of our interests is placed on economic growth. The modalities of intensifying the growth of the services sector from the point of ICOR can correspond to any of the proposed scenarios for increasing GVA:

*1. Increased investment rate, i.e., increased volume of capital investments with the given level of technological progress* – Usually, as the first solution for spurring the economy to faster growth we encounter the idea of intensifying investment activity, so that through capital growth the increased production can be achieved in future. Through the referent capital coefficients, it is possible to reliably anticipate the percentage of new created value in certain economic divisions that needs to be invested in order to achieve 1% of the respective growth. The starting assumption for this solution is to have the determined ICOR, which is calculated for a longer period by positioning the ratio of the average percentage share of economic divisions' investment in the respective GVA, and the real growth rate of the new created value in the observed activity.

According to these relations and the determined values of investment parameters, the example of NACE division 52, *Warehousing*, can be indicative of the investment volume required to ensure the anticipated

growth rates. In the period 2006 – 2016, investment in this division equalled on average 20.5% of the actual GDP, which resulted in the inter-annual real growth of 3.5%. The investment efficiency was expressed by the capital-output ratio values of 5.8 units and the ICOR of 0.17. In order to induce the growth by one percentage point, the equivalent of 5.8% of the GDP value is required to be directed in new investments (by definition, marginal capital coefficient indicates the share of production needed to be invested so to ensure the growth rate by 1 percentage point). This implies that at the current production level, the required share of investment in GDP should equal 26.3% (20.5% + 5.8%), and if a more dynamic growth is anticipated, i.e., by 2.2 percentage points, for capital creation it is needed to allocate 32.1% (26.3% + 5.8%) of the new created value.

Put into perspective, forcing the growth in this way could not be sustainable, since it results from the increased input, and not higher productivity. The mechanism of compensating extensive development by increasing accumulation rate is of limited effect and also fast exhaustive. Additional investment efforts, expressed in quantity rather than quality of investment, could possibly postpone and partly alleviate the stagnation, however, thereby the long-term development perspective is closed. Namely, it is not worthwhile to have an isolated view to the relationship between the ICOR and the GVA growth.

*2. Optimal economic allocation of available capital assets* – Another choice for achieving higher growth rates is relied directly on the determined ICOR values, i.e., on the established differences of capital efficiency in various economic areas. Considering the fact that with limited resources the priority is their rational utilization, when allocating capital assets it is necessary to take into account the existent links between the capital equipment and the achieved growth rates. In this case the ICOR is an effective mechanism for the policy of new investments. By changing the economic structure and adopting strategic orientation to profitable services, the appearing dynamic interactions would be transferred to the forthcoming period, thereby ensuring more favourable development performances, not only as an immediate effect, but also in future.

Since this reallocation of fixed assets presents a changed qualitative investment composition, in this

way attained growth can be stable on a long-term basis, but with certain limitations as regards the applicability and social justification under the real circumstances. At the current level of technological progress, the opting for investment, led by purely economic reasons, needs to go in the direction of propulsive industries from the point of capital assets efficiency. However, it could be counterproductive to ignore the social and economic development interest for certain services that, in spite of low efficiency on a long-term basis, require further investment (e.g., investment in preschool institutions, even though the division of *Social work activities w/o accommodation* is found in the negative zone of capital efficiency).

In case we take again the example of NACE division 52, *Warehousing*, in order to select the most favourable production alternative by this approach, the fixed assets from this division should be relocated, for example, to NACE division 46, *Wholesale trade*, which on the scale of capital efficiency has better standing, producing by 0.8 percentage points higher growth rate. By allocating capacities in this manner, in a relatively short time and with the same investment volume it is possible to ensure more profits. An alternative for increasing the GVA of the sector of services would be also the relocation of investment assets from a low efficiency division, e.g., *Postal and courier activities* (NACE 53) and/or *Accommodation* (NACE 55) to the division *Warehousing and support activities for transportation*, which in comparison features three times higher efficiency, so the same added capital would in this way also produce larger profits.

These movements are however usual; the empirical research confirmed the gradually increasing structural share of the activities operating at a higher level of technological progress. With the aim to attain the acceleration of already existing positive trends in certain economic divisions and make use of favourable conditions for producing the maximum GVA with minimum investment, apart from surrendering to the economic rules, the capital assets flows need to be directed also by the adequate economic policy tools, so to lead economic restructuring towards attaining increased investment profitability on the overall economic level.

3. *Increased production efficiency* – Efficiency is a fundamental economic topic, since eventually the quality of all forms of social activities depend on it. It is focused on the effectiveness of utilizing production capacities. In this study we laid particular stress on fixed productive assets. In itself, to force the input quantities cannot be a long-term growth strategy, since it is contrary to the fundamental assumption that the economic growth rates depend upon its quality. Extensive investment cannot maintain the desirable growth rate; however, the context of developing processes necessarily needs to include the profitability of investment capacities.

The interdependence of the quality of investment activity and the GVA real growth in the observed divisions of services can be explained by the linear regression model:  $y = 20.251x - 0.2981$ . The parameters of this linear equation represent valuable information on the phenomena observed, on the basis of which estimated are the required conditions for reaching the desired growth rates. The actual quantitative ratio between the variations of these indicators can be presented in the following manner: if the ICOR is increased by one unit, the GVA growth rate in the observed economic divisions can be expected to increase by 20.251 percentage points, and *vice versa*, if we desire to increase the mentioned growth rate by 1 percentage point, the investment efficiency need to be increased by 0.06 units.

When comparing the changes that were expressive in the two observed periods, it can be noted that in practice the division *Warehousing and support activities for transportation* registered an increased efficiency in the last years; i.e., actually implemented was the third scenario of spurring the GVA rate, where the intensive growth factors were dominant over those extensive. In the example given, the ICOR increased (the ICOR was up by 0.04 units), which resulted in the growth rate rising by 0.62 percentage points (the deviation of the empirical growth rate from the growth rate projected by this model is less than 5%). Even though they are not distinguished in the regression model, i.e., they are not grouped on the capital efficiency axis as the majority of divisions of the observed sectors, the features of the considered activity do not deviate from the established regression line.

Generally speaking, all changes to the realized rates of the new created value resulted from the variations in volume and effectiveness of the engaged capacities. For example, in the observed division the increased real growth rate by 1 percentage point can be ensured by upgrading the efficiency by 0.06 units, without additionally expanding the capital assets volume or, on the contrary, by employing additional fixed assets, which would upgrade the average investment rate from the current 20.5% (period 2006 – 2016) to the required 26.3%, i.e., by 5.8 percentage points that the ICOR equals to. Naturally, in practice it is not possible to define precisely the contribution to the growth of intensive and extensive factors, since they are constantly intermingling and coexistent. In the periods when the positive synergy of the both factors existed, the most intensive effect was produced; this is a valuable guideline for the economic policy conception.

The most worthwhile modality of growth and development can be determined by an integral approach and systematic analysis. By comparing and confronting the presumed effects, distinguished are the solutions that at the moment may render the best positive influence on the dynamics of the sustainable economic growth rate. Economic specialization and redirecting capital flows can often generate long-term positive effects, relatively promptly and with the minimum restrictions. However, the mentioned approach, as well as an extensive capital input increasing, eventually may reach the boundaries of the existing production capacities; therefore the only solution for overcoming the potential stagnation could be to establish the production process on a higher extent of technological progress. The prerequisite for this is the openness towards new ideas, the social orientation to innovations and the acceptance of the global ambience that within the national frames could encourage modern methods of rendering effective services. Also, the unsatisfactory values of the qualitative efficiency indicators in comparison to the developed economies clearly indicate the decelerated economic flows, so it is necessary to turn towards an alternative macroeconomic strategy. Anyway, social and economic responsibility is of utmost importance, since the selection of certain growth modality at the moment is reflected on the potentials of the economic progress dynamics in future.

For analytical purposes we should consider the fact that an important aspect of the capital coefficients is their extensiveness over time, because their values are not always relevant for a significant analytical utilization if they are calculated in short time intervals. When calculating the capital indicators it is necessary to take into account the average quantitative relations between the relevant economic indicators within a relatively long time span, since it is assumed that investment efficiency is generally invariant on short-time basis (except, e.g., in cases of intensive capitalization when the ICOR may be increased over certain period, but then gets stable again on a lower level, i.e., on a higher extent of investment efficiency, etc.). However, we cannot neglect the negative effects of the global economic crisis of 2008 and 2009 on the macroeconomic flows, therefore on the ICOR. The dramatic decreasing of the share of investment in GVA was followed by even more significant slowdown of the GVA real growth rates, which resulted in the higher values of ICOR and decreased investment efficiency. During the crisis time, for the ICOR of services, as noted for other economic divisions, expressive was a sudden jump and it still has not come back to the average value from the time before the crisis. However, on a long-term basis recession is not expected to have a decisive impact on investment efficiency (fall is notable for the rates of all economic indicators), but exclusively capitalization that brings out the changed level of technical progress. In the last three-year period, the aggregated values of capital coefficients indicate the trend of returning to the level before the economic crisis, and the efficiency on certain lower aggregation levels has even surpassed that from the period before the crisis.

With the aim to isolate the direct effect of recession and ensure a clear overview of the changes to the economic investment efficiency over time, we calculated the capital indicators for the years immediately before and after the economic crisis (2006 – 2010), as well as for the period when the first results of the economic recovery were noted (2011 – 2016). In order to find out the efficient and optimal direction of economic relocation of fixed assets, here below given is the comparative overview of the services sector divisions by investment efficiency in the two periods:

Table 6: Comparative overview: Services sector – divisions ranked by investment efficiency

Economic activities (NACE Rev. 2)	2006-2010			2011-2016		
	Rank by investment efficiency	ICOR	Share in GVA – services sector, %	Rank by investment efficiency	ICOR	Share in GVA – services sector, %
SERVICES SECTOR	-	0.12	100	-	0.04	100
G Wholesale and retail trade; repair of motor vehicles and motorcycles	-	0.13	19.5	-	0.12	19.7
45 Wholesale and retail trade and repair of motor vehicles and motorcycles	13	0.38	1.5	24	0.04	1.4
46 Wholesale trade, except motor vehicles and motorcycles	19	0.27	9.9	18	0.19	10.4
47 Retail trade, except motor vehicles and motorcycles	33	-0.10	8.0	23	0.04	7.9
H Transportation and storage	-	0.24	8.9	-	0.06	8.3
49 Land transport and transport via pipelines transport	15	0.32	6.0	27	0.03	5.1
50 Water transport	34	-0.17	0.1	26	0.03	0.1
51 Air transport	...	-0.02	0.1	...	...	0.0
52 Warehousing and support activities for transportation	24	0.13	1.6	17	0.21	2.1
53 Postal and courier activities	26	0.07	1.0	22	0.04	1.1
I Accommodation and food service activities	-	-0.07	2.4	-	0.11	2.2
55 Accommodation	31	-0.02	0.9	19	0.12	0.8
56 Food and beverage service activities	36	-0.20	1.5	30	0.00	1.3
J Information and communication	-	0.24	7.7	-	0.05	8.8
58 Publishing activities	38	-0.36	0.8	40	-0.30	0.7
59 Motion picture, video and television programme production, sound recording and music publishing activities	43	-1.68	0.3	16	0.22	0.2
60 Programming and broadcasting activities	3	1.84	0.8	41	-0.47	0.6
61 Telecommunications	22	0.18	4.8	21	0.05	5.2
62 Computer programming, consultancy and related activities	4	1.74	0.7	11	0.65	1.9
63 Information service activities	9	0.58	0.2	7	0.89	0.2
K Financial and insurance activities	-	0.60	5.8	-	-0.22	6.0
64 Financial service activities except insurance and pension funding	10	0.57	4.7	37	-0.23	4.8
65 Insurance, reinsurance and pension funding, except compulsory social security	6	1.13	0.9	38	-0.26	1.0
66 Activities auxiliary to financial services and insurance activities	21	0.19	0.2	2	2.17	0.2
L Real estate activities	-	0.22	17.0	-	0.35	17.7
68 Real estate activities	20	0.22	17.0	15	0.35	17.7
M Professional, scientific and technical activities	-	0.15	6.0	-	0.05	6.3
69 Legal and accounting activities	5	1.50	1.5	10	0.67	1.6
70 Activities of head offices; management consultancy activities	11	0.49	1.4	35	-0.17	1.6
71 Architectural and engineering activities; technical testing and analysis	28	0.01	1.4	29	0.02	1.2
72 Scientific research and development	25	0.13	0.6	9	0.78	0.7
73 Advertising and market research	18	0.28	0.7	5	1.07	0.7
74 Other professional, scientific and technical activities	40	-0.60	0.3	31	0.00	0.2
75 Veterinary activities	12	0.44	0.2	33	-0.09	0.2
N Administrative and support service activities	-	0.21	2.5	-	0.04	3.0
77 Rental and leasing activities	17	0.30	0.4	34	-0.16	0.4
78 Employment activities	7	0.95	0.0	1	4.54	0.2
79 Travel agency, tour operator and other reservation services	44	-2.37	0.2	4	1.13	0.3
80 Security and investigation activities	2	2.62	0.7	8	0.82	0.9
81 Services to buildings and landscape activities	23	0.18	0.7	39	-0.28	0.6
82 Office administrative, office support and other business support activities	1	5.17	0.5	32	-0.03	0.5
O Public administration and defence; compulsory social security	-	0.00	7.7	-	0.04	7.4
84 Public administration and defence; compulsory social security	29	0.00	7.7	25	0.04	7.4
P Education	-	0.37	6.6	-	0.43	6.4
85 Education	14	0.37	6.6	13	0.43	6.4
Q Human health and social work activities	-	-0.15	10.8	-	0.15	9.6
86 Human health activities	27	0.03	8.3	20	0.09	7.2
87 Residential care activities	37	-0.36	0.9	3	1.36	0.7

Economic activities (NACE Rev. 2)	2006-2010			2011-2016		
	Rank by investment efficiency	ICOR	Share in GVA – services sector, %	Rank by investment efficiency	ICOR	Share in GVA – services sector, %
88 Social work activities w/o accommodation	41	-1.34	1.6	43	-0.67	1.6
R Arts, entertainment and recreation	-	-0.04	2.0	-	0.00	2.0
90 Creative, arts and entertainment activities	39	-0.45	0.3	14	0.38	0.3
91 Libraries, archives, museums and other cultural activities	35	-0.19	0.3	28	0.02	0.2
92 Gambling and betting activities	8	0.67	0.3	6	0.95	0.6
93 Sports, amusement and recreation activities	32	-0.07	1.1	36	-0.20	0.9
S Other service activities	-	-1.05	3.1	-	-0.46	2.7
94 Activities of membership organizations	16	0.30	0.6	12	0.51	0.6
95 Repair of computers and personal and household goods	42	-1.42	0.4	42	-0.66	0.3
96 Other personal service activities	45	-3.59	2.1	44	-3.45	1.8

Source: Authors' calculation; data provided by SORS.

If as an indicator of capital assets efficiency observed are the movements of the ICOR, namely its rising in the post-crisis period, then we may conclude that increasing investment efficiency in the post-crisis period was notable for the following economic divisions: *Scientific research and development; Advertising and market research; Other professional, scientific and technical activities; Motion picture, video and television programme production; Creative, arts and entertainment activities; Activities auxiliary to financial services and insurance activities; Residential care activities; Employment activities; Travel agency, tour operator and other reservation services.*

On the other side, we found out that the visible results of recovery were missing for the activities that passed to the negative economic zone as regards efficiency: *Rental and leasing activities; Office administrative, office support and other business support activities; Activities of head offices; management consultancy activities; Programming and broadcasting activities; Financial service activities; Insurance, reinsurance and pension funding, except compulsory social security; Services to buildings and landscape activities; Veterinary activities, etc.* In these cases the movements of the ICOR can usually be regarded as an indicator of severe difficulties that certain economic activity of a country experiences in its progress.

As regards the relative share in total investment, the section of *Wholesale and retail trade; repair of motor vehicles and motorcycles* is leading (about 20%), however it was on the average level in the period 2006 – 2010 in the view of fixed assets efficiency. Since the intensive modernization and the establishment of developed information system

as the function of its distributive activities were opted for, the trade profitability (in difference to many other service activities) had not drastically decreased, so in the post-crisis period, as regards capital efficiency, this section was triple the services average, with by 0.7 percentage points more dynamic inter-annual real growth rate (1.4%). In the post-crisis period *Retail trade* left the negative economic zone, and that along with continual real growth rate resulted in the upgraded rank by 10 places. The progress of trade economic section, especially of retail trade, renders the direct and indirect impact on all other economic domains; considering its considerable share and relatively good qualitative economic indicators, we may count on trade becoming an ever more active factor of production development.

By the relative significance, the trade sector is followed by *Real estate activities* (share of 17.7%), which, by upgrading investment efficiency in the post-crisis period by 60%, went five standings up in the sector of services divisions. In difference to *Real estate activities*, the section/division of *Financial service activities* experienced drastic decreasing of its efficiency, which was reflected through negative growth rates, on average down by even 17.2 percentage points in the post-crisis years. An exception here is *Activities auxiliary to financial services and insurance activities* that expressed considerably decreased investment profitability, followed by a significant real growth. Even so, in the last three-year period the financial section activity has been revived and gradually consolidated.

The economic activities related to the growing role of tourism and catering trade have large progress potentials

in Serbia. The section of *Accommodation and food service activities* has left the period of long-term stagnation and recently the results have been on the increase. An immense rising trend has been noted for the division of *Food and beverage service activities*, which managed to upgrade its efficiency from the negative zone to a respectable rank; therefore, with the average value of the ICOR of 1.86 units in the period 2014 – 2016, this division is found among the most profitable in the services sector.

*Transportation and storage (H)* activities in the post-crisis years produced positive growth rates; however, generally the sector as a whole has not attained the economic profitability level registered before 2009. The increased marginal capital coefficient (from 7 to 18 units), and the fall of the section (H) capital efficiency resulted in its decreased share in GVA of the services sector by almost 20% (one-fifth), as well as in the decreased real growth rate by 7.0 percentage points in comparison to the period before the crisis (2006 – 2008). Since the section of *Transportation* is an important strategic factor of progress and economic optimization, this deceleration in growth can be regarded as a worrying signal. However, an impressive turn happened in *Water transport* which, by increasing its efficiency, overcame the two-digit negative rates of economic activity and in the period 2014 – 2016 produced the average real growth of 8.8%, while expressing potentials for further progress.

Within the section of *Administrative and support service activities* two divisions are notable that, by considerably increasing their efficiency (each by 3.5 units), were ranked at the first (*Employment activities*) and the fourth place (*Travel agency, tour operator and other reservation services*) in the services sector. *Travel agency, tour operator and other reservation services* made clearly the best progress among the observed divisions (from the near bottom standing appeared almost at the top), completed consolidation, and from the very low profitability in the negative economic zone (two-digit negative growth rates) reached the efficiency marked by the ICOR of 1.13 units. The expressive recovery and upgraded standing by 40 places indicate that expectedly this division can be a significant source of GVA growth in the forthcoming period.

The sections of *Arts, entertainment and recreation* and *Other service activities* made slower recovery from the negative recession consequences, so regarded as aggregated, in the both periods observed, were found in the negative zone of investment efficiency, which was reflected in their reduced share in the services sector. An exception here is the expanded share of the division of *Gambling and betting activities* (increased by 74%) where, along with the two-digit economic growth, marked was top capital efficiency in the entire sector of services in the last three-year period (ICOR of 1.1).

Generally, the measures of active economic policy in the post-crisis period resulted in the fact that all divisions of the sections *Public administration, Education* and *Human health* had their ranking upgraded as regards the measures of qualitative indicators, and they run with positive economic performances.

The fastest growing capital efficiency, not only within the sector of services, but on the overall economic level, was noted for the divisions *Information and communication* and *Professional, scientific and technical activities*. These activities are primarily related to knowledge and expertise, and their key elements are creativity, originality and innovation. The very concept of growth and progress has been changing nowadays, and the modern allocation of investments is fast going in the direction of increased share of intellectual property in the structure of fixed assets. These trends express strong effect of spurring the activities for which these resources (primarily software and R&D) are relatively more important and thereby represented. *Computer programming, consultancy and related activities*, and *Scientific research and development* in certain time intervals reach the values of the ICOR equalling almost 1, namely they generate high growth rates of GVA, and potentially are the major sources of economic progress. Besides, as an integrating element for many other economic divisions, these activities indirectly provide a stable platform for the overall economic progress in future. In the context of potential profits, the investment in these economic segments is usually relatively small and acceptable. However, further efforts are required in order to ensure the establishing and alignment of legislation that will be able to follow and support the current positive processes in this domain.

Considering the fact that the mentioned activities have been already producing two-digit growth rates, with the envisaged rising of their exports output, by all respective measures they are seen as most prosperous economic industries in Serbia. Therefore, the strategic anticipations need to be aimed at attaining the adequate level of investment in this domain of advanced technologies, where the investment achievements get recognizable, and their influence on economic growth becomes even more expressive. Information technologies, along with education and development, in the recent years have been acknowledged by the state authorities as a major segment of the social and economic progress.

The empirical data, systematized in the above given tables and figures, could serve as the basis for identifying and prioritizing the areas of investment activity in the context of defined strategy. By mapping the economic potentials within the services sector, quantitative analysis clearly indicate where the dynamic progress is envisaged and where, on the existing level of technological development, more GVA is produced with the same amount of investment. Then, by channelling the resources in a worthwhile manner it is possible to implement economic restructuring and achieve economic optimization.

In addition, by applying comparative analyses of the tables it is possible to identify potentially burning issues, so to preclude the possibility of their escalation and eliminate negative effects. The movements of qualitative capital indicators may in due course indicate the serious difficulties encountered in certain economic domain, which may not be neglected in anticipations of future progress (e.g., useful tools of mobilising investments for preschool institutions that thereby left the negative economic zone).

## Conclusion

Studying the complex mechanism of growth rates interdependence and measuring capital investment macroeconomic efficiency are expected to ensure scientific grounds to opting for certain economic structure of national investments. By accenting the divisions with low ICOR ensured is the optimal allocation of resources to the areas

producing the highest profit rates, while it is necessary to observe, apart from the domestic needs, the requirements of the international division of labour as well. By stressing these determined investment priorities the development of technologically advanced sections is directly influenced, whereby produced is higher value added with the same volume of available resources and upgraded is the GDP level. The advances of economic progress directly and/or indirectly result from the implemented allocation of capital investments by types of fixed assets and economic sectors, i.e., they are the outcome of the economic and technical structure of investments.

Since numerous challenges to further economic progress are to be encountered, and with the aim to achieve convergence to more advanced economies, to find the new sources of social and economic progress and prosperity becomes an imperative for the modern society. Besides, even though certain investments do not tend to produce immediate effects, e.g., infrastructure investments, they increase the social wealth and on a long-term basis generate abundant positive outcomes. The investment in these capital-intensive economic domains should not be delayed only because of the fact that these investments do not ensure higher growth rates on a short-term basis.

The modern economic trends, dominated by globalization and severe competition terms, inevitably lead to the orientation towards attaining new knowledge and technologies, as the basic assumptions for the increased total factor productivity and achieved competition advantages. In that context, the strategic orientation of the economic policy makers shall be focused on the upgraded technological progress of the national economy, which is regarded as a key factor of the modern economic development, and thereby of the implementation of macroeconomic objectives. Since the sector of services directly and indirectly generate high rates of GVA and employment, and taking into account the indicative gap as regards its relative share in the Serbian and the EU economy (drawback of 12.9 percentage points in relation to the EU), a logic conclusion is imposed, scientifically supported and based on empirical confirmation, that services are the domain of priority in the contemporary economic flows.



Economic flexibility and cost-effectiveness, simplified usage of the world achievements and easier surpassing of boundary barriers, ensured profitable global business transactions regardless of the location, which could result in a slowed pace of undesired migration, primarily of the young population, these are only some of the comparative advantages that qualify this domain as a driving progressive force.

It is an acknowledged fact that new conceptions of progress have already taken their place in the Serbian economy; however, a prerequisite for gaining considerable profits from their implementation is the accelerated structural distribution in favour of the propulsive service activities. There are no grounds for the worry that the traditional sectors would be thereby put aside and neglected; on the contrary, it is an economic reality, in practice confirmed by numerous examples, that the strong feedback of positive trends rendered by the integrated services sector is actually the most efficient lever of the entire national economic progress.

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# TOTAL QUALITY MANAGEMENT IN THE FUNCTION OF VALUE CREATION: VIEW FROM THE STRATEGIC MANAGEMENT PERSPECTIVE

Menadžment ukupnog kvaliteta u funkciji stvaranja  
vrednosti sa stanovišta strategijskog menadžmenta

## Abstract

The contemporary business environment requires companies to be highly flexible in terms of adapting to customer requirements, to be consistent in quality and price-competitive, while the ultimate goal of the company is to create value for its owners. Therefore, in a long run, the sustainability of business is based on value creation for both customers and business owners. Total Quality Management (TQM) is a strategic approach to quality assurance that is based on continuous improvement of the quality of all activities in a company in order to achieve a sustainable competitive advantage. Competitive advantage is a consequence of creating value for customers to a degree which outperforms competitors, which results in value created for business owners, provided that the return on invested capital is greater than the invested capital cost. The subject of the research presented in this paper is the influence of TQM on creating value for customers and business owners. The empirical research was conducted on a sample of 141 companies in the Republic of Serbia that have a valid certificate of conformity of the quality management system with the requirements of ISO 9001. The relationship between the key TQM success factors and the market and financial performance was analyzed. Market performance indicators point to the value created for customers, while financial performance indicators correspond to the value created for business owners. The research results reveal a positive impact of TQM on creating value for customers and business owners, whereas the intensity of this impact varies depending on the used performance measurements.

**Keywords:** *TQM, strategic management, value creation, business performance, sustainable competitive advantage.*

## Sažetak

Savremeno poslovno okruženje zahteva od preduzeća visoku fleksibilnost u pogledu prilagođavanja zahtevima kupaca, konzistentnost u kvalitetu i cenovnu konkurentnost, dok je ultimativni cilj preduzeća stvaranje vrednosti za vlasnike. Stoga se održivost biznisa u dugom roku zasniva na stvaranju vrednosti za kupce i vlasnike preduzeća. Menadžment ukupnog kvaliteta (MUK) predstavlja strategijski pristup obezbeđenju kvaliteta koji se bazira na stalnom poboljšavanju kvaliteta svih aktivnosti u preduzeću u cilju dostizanja održive konkurentske prednosti. Konkurentska prednost nastaje kao posledica stvaranja veće vrednosti za kupce u odnosu na vrednost koju stvaraju konkurenti, a za rezultat ima stvorenu vrednost za vlasnike, pod uslovom da je prinos na investirani kapital veći od troškova kapitala. Predmet istraživanja u radu je uticaj MUK-a na stvaranje vrednosti za kupce i vlasnike preduzeća. U okviru empirijskog istraživanja na uzorku od 141 preduzeća u Republici Srbiji koja poseduju važeći sertifikat usaglašenosti sistema menadžmenta kvaliteta sa zahtevima standarda ISO 9001, analiziran je odnos ključnih faktora uspeha MUK-a i tržišnih, odnosno finansijskih performansi poslovanja preduzeća. Merila tržišnih performansi ukazuju na stvorenu vrednost za kupce, dok merila finansijskih performansi ukazuju na stvorenu vrednost za vlasnike preduzeća. Rezultati istraživanja pokazuju da postoji pozitivan uticaj MUK-a na stvaranje vrednosti za kupce i vlasnike preduzeća, s tim da se taj uticaj po intenzitetu razlikuje u zavisnosti od korišćenih merila performansi.

**Ključne reči:** *MUK, strategijski menadžment, stvaranje vrednosti, poslovne performanse, održiva konkurentska prednost.*

## Introduction

Total Quality Management (TQM) is the concept of managing a company which implies a holistic view of quality and pursuance of its continuous improvement. The term holistic refers to the effort of all employees in a company to ensure the quality of all activities, which leads to the achievement of business excellence. This approach to management creates a favorable climate for the development of intangible assets that in today's business environment play a predominant role in determining success. TQM represents a business philosophy based on the premise that the success of a company is built on quality. Market leaders usually take quality as the most important factor for achieving competitive advantage, which makes quality a strategic resource of a company. The International Organization for Standardization has formulated a group of ISO 9000 standards which contain a description, requirements and guidelines for building and improving the quality management system of a company. The latest version of the Standard incorporates all key factors for successful TQM implementation. It is therefore considered that ISO 9001 certified companies have adopted TQM as a business philosophy to a significant extent. The introduction of the Malcolm Baldrige National Quality Award by the U.S. Government in 1987 is one of the first attempts to promote successful business strategies based on quality and success metric associated not only with financial, but also with non-financial measures of success. The importance of non-financial performance measures is rooted in the growing significance of intangible assets, whose components can hardly be valued by financial performance measures only. Non-financial performance measures provide early signals of the extent to which goals are met, enabling thus a prompt reaction of decision makers. This is especially important for assessing the effects of a strategy whose financial effects can only be visible in the long term, such as the TQM concept. Non-financial performance measures are significant for evaluating both operating and market performance, which represent the drivers of future financial performance.

Competitive advantage arises from the creation of superior value for customers and, at the same time,

presents a precondition for creating value for business owners. In the commercial market, value for customers is generated by improving the quality-price ratio, while value for owners is achieved in the financial market. Since gaining competitive advantage results in business success, quality is of particular importance in the process of formulating a business strategy which is the focal point of the management process of a modern company. If a business strategy brings into conflict the interests of customers and those of owners, it is not possible to create value for one party without destroying value for the other. Only strategies that create value for both customers and business owners ensure the sustainability of the business in the long run. Therefore, strategy evaluation is of particular importance as a stage in the strategic management process. Consequently, the concept of value-based management, the basic idea of which is the continuous assessment of the strategy's effects on company's value, is gaining importance. Thus, the strategy becomes assessed on the basis of created or destroyed value for business owners. In this regard, all activities in the function of quality improvement must be reexamined in terms of their contribution to creating value for both parties.

The backbone of the TQM concept is the constant search for opportunities to add value for customers while reducing unnecessary costs. However, TQM as a complex strategic management tool is rarely properly implemented to fully realize its potential in the form of value created for owners. Since TQM is not a program or set of guidelines, but rather a business philosophy, company's management faces many challenges in the process of its implementation. First, a national culture has a significant impact on TQM, and, in some cases, it might limit its successful implementation. Besides, TQM is often seen as a quick solution to all company's problems and visible effects are expected in the short run. Being mainly oriented towards short-term profitability, managers often abandon further TQM implementation. Sometimes the causes of inefficient TQM implementation are the lack of employee motivation to reduce errors and improve quality, their resistance to change, inability to understand the potential of this approach, and the underestimation of the effort that must be put in to obtain the desired effects. Extensive research

around the world indicates that the top management commitment is of great importance for a successful TQM implementation. Inefficient implementation results in higher costs and employee dissatisfaction, consequently resulting in a diminished value for customers and business owners. Given the conflicting results in terms of contributing to business success, the impact of TQM on business performance has been explored worldwide for nearly 40 years. This impact is not yet completely clear and sufficiently explored, especially due to the influence of environmental factors. Since research of this type is scarce, usually accompanied by numerous doubts and conceptual differences, this paper seeks to fill this gap and raise a significant research question in the field of quality management. The results of an empirical study on the impact of TQM on value creation for both customers and business owners in the Republic of Serbia present a major contribution of this research. The context of TQM analysis is the concept of strategic management, the main result of which is the strategy which focuses on competitive advantage, resulting in superior business performance and, consequently, in value creation for business owners.

## The concept of TQM

TQM represents a modern paradigm of quality management. It is the last stage in the evolution of quality management and is often referred to as strategic quality management. The TQM principles provide guidance for linking activities and decisions to strategic quality goals, as well as for developing intangible resources crucial for sustainable development of a company. There are four principles underlying this strategic approach to quality assurance [21, pp. 1-2]: customer satisfaction, fact-based management, employee focus and continuous improvement. The first TQM principle refers to strengthening customer relations in order to encourage two-way communication. Obtaining the information on customer needs in a timely manner is the starting point in the process of creating superior value. As every management requires measurement, fact-based management as the second TQM principle refers to data collection, their processing and the analysis of obtained results in order to make the right decisions. Controlling

both value and cost drivers is a necessity in today's business environment. Employee focus involves empowering, motivating and encouraging employees to continually improve quality. This is achieved through trainings that raise the level of knowledge and competences for quality improvement, incorporating rewards for the improvements made in the compensation system, supporting employees, delegating authority and responsibility, as well as allocating necessary resources. Human capital represents the most significant intangible assets component, since only employees have the capacity to learn and, consequently, to develop other components of intangible assets. Therefore, employee empowerment is given special attention within the TQM philosophy. The discontinuous nature of the contemporary business environment, characterized by frequent changes in technology, and consequently by the changes in customer requirements and competing patterns, imposes the need for continuous improvement which implies a constant search for quality improvement opportunities. In such a way, quality becomes a key player in adapting a company to the changes in the environment.

Lynch [27, p. 542] describes TQM as a modern strategic approach to quality, with a threefold nature of its strategic importance. Namely, it (1) emphasizes the necessity of observing the company as a whole, (2) requires active support of top management, and (3) can significantly contribute to the achievement of competitive advantage. TQM emerges from applying the principles of quality management to all aspects of the company's business [10, p. 784]. The need for a holistic view of quality is rooted in the fact that there is no single point where quality should be incorporated into a product or service. Rather, it arises from a large number of activities. Therefore, quality management as a function must pervade all other functions within the company. Furthermore, it should not be perceived as a support function for value creation, but rather as a key one. Bearing in mind that a modern organization is driven by a strategy, TQM should be seen as a subsystem of strategic management. The companies that accept quality as the core of business strategy are able to achieve success in the global market. An empirical study conducted in Germany in 2005, involving 400 quality managers, shows that quality management is of increasing

importance in Germany and that the approach to quality is the factor which separates successful companies from less successful ones [13]. Successful companies have a holistic approach to quality management and are internally motivated to implement it, as opposed to less successful ones that are externally motivated. Internal motivation refers to the desire for improving the quality of business, while external motivation is primarily based on satisfying customer requirements and regulations regarding the existence of a formal quality management function.

Exploring the strategies of successful companies and leaders in the world market, Simon [34, pp. 154-155] concludes that in most cases successful strategies are aimed at creating high value for customers based on quality. However, when the focus of the competitive strategy of the observed companies is cost reduction, this objective is achieved by increasing the process efficiency, which means that the issue of quality is headlined again. Giebel [13] states that in the modern business conditions all business activities have to prove their ability to add value, which is also the case with quality management practices. Identifying the mechanism of value creation through quality management creates the basis for effective management of this process. While the concept of value-based management focuses more on financial value, other concepts such as the EFQM Excellence Model or the Balanced Scorecard indicate the values that underlie and drive future financial success.

The basic competence of a modern company is the ability to formulate an effective strategy and to implement it efficiently. TQM as a holistic approach to quality management can also be seen as a strategic management tool for formulating and implementing the strategy. TQM is a goalless race that involves a constant search for improvement opportunities, while the commitment to finding and implementing best practices represents an integral part of the strategy implementation process. Strategic management involves analyzing the environment and the position of a particular company within it, formulating the strategy as an essential planning decision, assessing the effects of the strategy, and implementing it. It is a way for a company to obtain a sustainable competitive advantage, which is a precondition for creating value for business owners [10, p.

xiii]. The importance of strategic management is reflected in the fact that it helps the company to successfully operate in a dynamic and complex environment, which imposes the need for continuous adaptation. The transformation of conventional management into strategic one involves the transformation of business function management into business process management and value-based management [10, p. xvi]. The focus is no longer on costs, but on collaboration with customers and other interest groups. Furthermore, performance is measured by value created for customers and business owners instead of using measures such as net profit and rate of return [10, p. 9]. The process of formulating goals, making and implementing different planning decisions seeks the involvement of a larger number of relevant individuals. Having been formulated, the goals must be linked, coordinated and considered from different perspectives.

Janošević et al. [20, p. 33] highlight the importance of TQM as a means of ensuring distinctive competence, which reflects the strength of a company that is not easy to imitate. Its role is reflected in the management of strategic resources through their continuous improvement and adaptation to the needs of the company. As a result, invisible relationships are created, which builds up the capacity of the company, at the same time preventing competitors from learning the secret of success. TQM strengthens the linkages both within the company and between the company and its stakeholders. The key to success lies in an integrated network, where all members of the supply chain see themselves as the beneficiaries of an overall efficient system. The TQM philosophy strives for creating value for all, rather than considering buyers and suppliers as opposing parties [35, p. 347]. TQM becomes a way of life and a part of the company's culture. Its implementation sometimes requires radical changes in organizational culture and structure, which refers to redefining connections and relationships within the company and between the company and its stakeholders. Since the change is inevitable, the starting point is the awareness of both management and employees of the need for change. The most difficult part of the TQM implementation process is changing the organizational culture and sustaining that change. Kumar and Sharma [24] maintain that TQM

is a corporate culture characterized by an increase in customer satisfaction due to a continuous improvement of quality in which all employees take an active part. They point out that, in order to attract customers in an era of hypercompetition, companies set above-average criteria for the quality of their products and services.

Brah et al. [5] argue that TQM relates not only to the management of quality, but also to the quality of management, because the largest number of errors in a company's operations emerges from inadequate planning. The quality of management is reflected in the process of strategy formulation and implementation, which often requires multiple, mutually supportive capabilities. This network of capabilities represents the strength of a company that cannot be copied [26, p. 7]. In order to ensure strategic learning across the company, employees at different levels should be involved in the strategy development process [34, p. 325]. Strategic thinking is based on learning as a vital component of knowledge generation through which superior performance is achieved [6, pp. 243-245]. Top management's ability to create a vision and promote change is at the heart of the TQM philosophy. In this regard, it is necessary that top management possess transformational leadership skills to provide the capacity for adopting this philosophy [32]. TQM requires setting long-term quality goals, assuring resources and formulating strategies to achieve the set goals, as well as an ongoing evaluation of the results achieved.

Due to the complexity of TQM as a concept and business philosophy, there are frequent examples of its inefficient implementation, causing much criticism of this concept. The reasons for the failure to implement TQM can be manifold. Some of them imply unawareness of its potential, ineffective change management and employee motivation, short-term orientation, national culture traits that conflict with key TQM principles, lack of resources, unclear strategy and conflicting goals, weak coordination, redistribution of power, etc. One of the potential solutions to overcome this problem is using strategic management tools like the Balanced Scorecard. The Balanced Scorecard has a threefold role - it serves as a performance measurement system, a strategy communication tool, and a strategic management system. It involves translating the strategy

into goals, as well as identifying the best measures for monitoring the achievement of goals. Creating the Balanced Scorecard requires involvement of employees from various functions in the company in order to set the goals properly and identify the best way to achieve them, as well as in order to define the measures that best reflect the degree of fulfillment of the set goals. In this way, all employees can better understand what is expected of them and can be able to monitor their own performance better. Thus, increasing employees' orientation to long-term results and motivation for quality improvement is in direct connection with linking the Balanced Scorecard with the compensation system and rewarding employees for quality improvement on the basis of non-financial performance measures.

### The role of TQM in the value creation process

Being at the same time a consequence of creating value for customers and a precondition for creating value for business owners, competitive advantage stems from the possession of superior resources and capabilities, as well as from the more productive exploitation of those resources [3]. As a key factor in the process of formulating and implementing a strategy, resources cannot create value on their own. Namely, they need to be supported by appropriate capabilities in a company [18]. The founders of the resource-based view in the concept of strategic management believe that no distinction should be made between resources and capabilities, because the ability to use resources successfully also represents a type of resource. It is said that a company achieves its competitive advantage when it performs strategically relevant activities more efficiently and effectively than its competitors [10, p. 398]. Most developed market economies base their competitiveness on knowledge, business innovation, strategy and sophistication of their business model, and far less on natural resources and cheap labor [19]. In this regard, it is necessary for a company to become a learning organization, which involves continuous reconsideration and experimentation in order to create and transfer knowledge. As the TQM philosophy is based on the constant search for improvement opportunities,

individuals and the organization as a whole are subjected to permanent learning.

Prajogo and Sohal [31] explain that quality creates competitive advantage through customer loyalty and reduction of their price sensitivity. A prerequisite for customer loyalty is their satisfaction, which arises as a consequence of the value created for customers in the commercial market and is an important factor for company success. This influence is reflected in the following [29, p. 6]:

- It is more cost-effective to retain the existing customers than to acquire new ones;
- The longer the customer relationship, the higher the profitability;
- A loyal customer will spend more money on the chosen company; and
- About a half of new customers come from the existing customers' referrals.

The aforementioned should be expanded to include an internal perspective where productivity gains are brought about by the improved process quality, which is reflected in problem solving, elimination of process parts that do not add value, waste reduction, and a rational use of resources. In this regard, there are two basic sources of competitive advantage, those being lower costs and a higher degree of differentiation [10, p. 398]. It is possible to make a significant cost reduction by improving the quality of the process, whereas improvement of the product or service components' quality results in differentiation. When a company intends to become a leader in terms of costs in its industry or market, it employs the cost leadership strategy. On the other hand, companies may strive to gain competitive advantage by differentiating its products and services from those of competitors, in which case the differentiation strategy becomes the appropriate choice. If the goal is to achieve competitive advantage at the chosen niche market, then the company may apply either cost focus strategy or differentiation focus strategy.

The sustainability of competitive advantage gained through TQM arises from the complexity and invisibility of the sources of the advantage. The strength of TQM is reflected in the ability to generate intangible resources, such as knowledge, information, technology, innovation potential, connectivity and a strong organizational

culture, which become company-specific and unsuitable for imitation. Đuričin and Vuksanović [11] point out that in the modern era connectivity becomes the ultimate free good with zero marginal costs, while combinatorial innovations are a key driver of growth. Competencies are based on experience and learning, while complexity arises as a result of interaction among resources. The imperfect mobility of these resources ensures the sustainable competitive advantage of the company that owns them [32]. Intangible assets, often referred to as intellectual capital, become dominant in determining the value of a company, while tangible assets play a secondary role. Consequently, the capital market highly values the growth potential of companies that base their strategy on the development and exploitation of intangible assets. TQM contributes to the development of all components of intangible assets, i.e. human capital, structural capital and relational capital. Human capital is developed by raising the level of knowledge, competences, innovation potential, motivation and enthusiasm of employees through learning, teamwork, experimentation and self-control. In terms of structural capital, as a consequence of TQM, a more flexible organizational structure and open organizational culture are created, open communication is ensured, databases are formed and key competencies are developed. Finally, by strengthening the relationships with customers and suppliers, and building a reputation for excellence, the company develops relational capital. Janošević and Dženopoljac [17] state that the value created by intangible assets is indirect, potential and contextual. Various components of intangible assets are in constant interaction, which is why its value is indirectly created and difficult to estimate, and the effects tend to be delayed and uncertain. The value created is considered to be contextual as it depends on its harmony with the strategy, since the modern business environment requires positioning the strategy at the center of the management process. Value maximization is a long-term concept that involves creating value for the existing and future business owners [23, p. 84]. Value creation and competitive advantage are two sides of the same medal, since the long-run value maximization for business owners is possible only when the competitive advantage resulting from a good strategy is achieved and



maintained [36, p. 214]. Zatzick et al. [38] conclude that the usefulness of implementing TQM in terms of improving business performance depends on internal compatibility achieved between the elements of the company as a system by applying this business philosophy.

TQM represents a strategic determination of the company to create value for customers and business owners based on quality. Value for customers stems from the usefulness to price ratio, while the value for business owners is manifested through the economic gain. Very often, customer interests and customer value are emphasized as the ultimate goal of a company. However, the relationship between customers and business owners is not a zero-sum game [10, p. 244]. It should be borne in mind that the key to success is not just price or quality, but the price to quality ratio. Therefore, the company must strive to improve this relationship, which is achieved by improving quality at the same or lower price. This imposes the need for all parts of the company to work towards achieving common goals, recognizing that each person and activity, on the one hand, influences others, whereas, on the other, suffers the influence of others. If quality and profitability are strategically linked, managers must continually improve quality to meet the changing needs of customers. Creating value for customers is a prerequisite for gaining competitive advantage, but at the same time it is necessary to realize value for business owners to ensure sustainable profitable growth. Banks, for example, show an obvious willingness to grant loans and offer better terms to companies that create higher value for business owners, thus giving them additional strength to grow and create value for customers [13]. In this way, successful companies very quickly become separated from the less successful ones which lag behind in the competitive race. The aforementioned clearly indicates the need to create value for business owners. Therefore, a successful strategy leads to a balanced realization of interests of both customers and business owners [10, p. 239].

The impact of TQM on business performance has become the subject of many empirical studies worldwide. Key factors for successful implementation of this concept and methodological frameworks have been identified and served as a basis for many papers of this kind. The

obtained results suggest the impact of TQM on financial performance [1], [4], [7], [8], [9], [12], [14], [15], [16], [22], [32], [36], market performance [25], as well as on competitive advantage [1], [29]. The analysis of the TQM impact on value creation for the customers and business owners in the Republic of Serbia, which is the subject of this paper, is based on the research conducted as a part of the doctoral thesis [28]. The following research hypotheses present the starting point in the research of the abovementioned relationship:

- H-1: The level of TQM implementation has a positive impact on creating value for customers, and
- H-2: The level of TQM implementation has a positive impact on creating value for business owners.

## Methodology

On the basis of the research models examining the relationship between TQM and business performance, used in the previous studies, eight TQM key success factors have been proposed as independent variables: customer orientation, top management commitment, employee focus, process approach, continual improvement, information and analysis, supplier relationship, and corporate social responsibility. In order to determine the level of TQM implementation, the statements related to the aforementioned factors were evaluated by the respondents using a five-point Likert scale (1 = absolutely disagree, 5 = absolutely agree). The dependent variables in the research relate to the company's market and financial performances that reflect the created value for customers and for business owners, respectively. Market share, customer satisfaction, and customer retention rate were used as indicators of the value created for customers. Respondents were asked to evaluate these market performance measures in relation to the leading competitors using a five-point Likert scale (1 = significantly lower, 2 = lower, 3 = no difference, 4 = higher, and 5 = significantly higher). In order to calculate the value created for business owners using economic performance measures, it is necessary to possess data on the cost of equity. However, this information is not published in the company's annual financial statements which are publicly available. Therefore, the following traditional

performance measures were used to determine the value created for business owners: return on assets - ROA (the ratio of operating profit to average value of business assets), return on equity - ROE (the ratio of net profit to average value of capital) and return on sales - ROS (the ratio of net profit to sales revenue). To calculate these financial performance measures, secondary data were collected from the companies' financial statements for 2015. Three control variables are included in the research model to examine their potential impact on research results. These are industry type, company size, and financial leverage. The correlation between independent and dependent variables was examined using the Pearson's correlation coefficient, while the influence of TQM factors on market and financial performance was examined by the regression analysis. Analysis of variance (ANOVA) and Pearson's correlation coefficient were used to examine the relationship between dependent and control variables. Data analysis was conducted using the Statistical Package for the Social Sciences - SPSS v 20.0.

### Sample description

The survey included 141 companies from the Republic of Serbia that are certified for their quality management system being in compliance with the ISO 9001 requirements. A vast number of empirical studies dealing with the impact of TQM on business performance usually employ either possession of the ISO 9001 certificate or a quality award as the criterion for sample identification. When taking into consideration the latest version of the ISO 9001 requirements or quality awards criteria, a very high level of compliance with the TQM principles is noted. Therefore, many authors imply that companies holding a certificate or those being the recipients of quality awards have successfully implemented TQM. Thus, the ISO 9001 certificate and quality awards represent an external, objective and formal recognition of the implementation of the TQM philosophy in a company. The companies which participated in this research operate in manufacturing, trade and service sectors. Since the intention was to achieve even regional participation of companies, the model of random sampling was employed to select the

preferred number of companies which corresponded to the size of the town where the company was located. For each company selected in this way, the possession of ISO 9001 certificate was checked, since there is no up-to-date database of certified companies, nor was it possible to obtain such information from certification bodies.

Experts were asked to provide their opinions and attitudes regarding the adequacy of the questionnaire, and certain adjustments were made accordingly. Furthermore, the questionnaire underwent additional improvement following a pre-test based on the opinions and attitudes of quality managers from six companies recognized in the market in terms of business success. Managers' constructive suggestions contributed to the increased accuracy of the questionnaire statements. The pre-testing provided the necessary basis for proving the comprehensiveness and consistency of the interpreted results. The final version of the questionnaire was sent by email to 228 quality managers who had previously been contacted by telephone and accepted to participate in the survey. Data collection took place from July 2016 to March 2017 with a response rate of 64%. Out of the 145 questionnaires received, 4 could not be used due to the lack of key data. Structure of the sample by industry type, company size and companies' headquarters are shown in Tables 1, 2 and 3, respectively.

### Results and discussion

Pearson's correlation coefficient was used to examine the statistical relationship between the level of TQM

**Table 1: Sample structure by industry type**

Industry type	Frequency	Percentage
Manufacturing	95	67.4
Trade	16	11.3
Service	30	21.3
Total	141	100.0

**Table 2: Sample structure by company size**

Company size	Frequency	Percentage
Micro	17	12.1
Small	63	44.7
Medium	40	28.4
Large	21	14.8
Total	141	100.0

Table 3: Sample structure by company headquarters

City	Frequency	Percentage
Novi Sad	37	26.24
Niš	20	14.18
Subotica	12	8.51
Gornji Milanovac	5	3.55
Pančevo	5	3.55
Šabac	5	3.55
Indija	4	2.84
Jagodina	4	2.84
Kraljevo	4	2.84
Leskovac	4	2.84
Nova Pazova	4	2.84
Aleksinac	3	2.13
Kragujevac	3	2.13
Arandjelovac	2	1.42
Bačka Palanka	2	1.42
Beograd	2	1.42
Čačak	2	1.42
Kovin	2	1.42
Total	141	100.00
Lazarevac	2	1.42
Nova Varoš	2	1.42
Vranje	2	1.42
Aleksandrovac	1	0.71
Bačka Topola	1	0.71
Bajina Bašta	1	0.71
Bečej	1	0.71
Bor	1	0.71
Kladovo	1	0.71
Kosjerić	1	0.71
Krnješevci	1	0.71
Krnjevo	1	0.71
Kruševac	1	0.71
Mionica	1	0.71
Pirot	1	0.71
Požarevac	1	0.71
Prokuplje	1	0.71
Vrnjačka Banja	1	0.71

implementation and company performance (Table 4). It points to a statistically significant positive correlation between companies' market performance and all TQM key success factors. The strength of correlation ranges from weak to medium. When it comes to the companies' financial performance, the results of the analysis indicate the following:

- ROA does not correlate with the TQM key success factors;
- ROE is positively correlated with the following TQM key success factors: employee focus, continual improvement and corporate social responsibility;

Table 4: Relationship between the TQM key success factors and business performance

TQM success factors		Market performance	ROA	ROE	ROS
Customer orientation	r	0.353**	0.119	0.081	0.176*
	p	0.000	0.173	0.366	0.043
Top management commitment	r	0.458**	0.112	0.151	0.186*
	p	0.000	0.212	0.095	0.036
Employee focus	r	0.328**	0.127	0.203*	0.162
	p	0.000	0.148	0.023	0.064
Process approach	r	0.249**	0.105	0.137	0.193*
	p	0.005	0.235	0.127	0.029
Continual improvement	r	0.331**	0.130	0.195*	0.184*
	p	0.000	0.140	0.029	0.035
Information and analysis	r	0.347**	0.140	0.141	0.195*
	p	0.000	0.110	0.115	0.025
Supplier relationship	r	0.387**	0.025	0.169	0.034
	p	0.000	0.775	0.056	0.694
Corporate social responsibility	r	0.362**	0.159	0.210*	0.174*
	p	0.000	0.067	0.017	0.044

\* Statistical significance at the level of 0.05

\*\* Statistical significance at the level of 0.01

r – Pearson's correlation coefficient

p – Statistical significance

there is no statistically significant correlation with customer orientation, top management commitment, process approach, information and analysis and supplier relationship; and

- ROS is in a statistically significant positive correlation with the following TQM key success factors: customer orientation, top management commitment, process approach, continual improvement, information and analysis, and corporate social responsibility; there is no statistically significant correlation noted with the factors of employee focus and supplier relationship.

After the correlation analysis, a regression analysis was performed in order to look into the influence of the TQM implementation level on the companies' market and financial performance (Table 5). All TQM key success factors record a statistically significant effect on the dependent variable of market performance which refers to value created for customers. Based on the obtained results, hypothesis H-1 is confirmed. When it comes to financial performance, since the correlation analysis did not establish a relationship between the TQM key success factors and ROA, this dependent variable was not included in the regression analysis. The factors contributing to the

explanation of ROE in a statistically significant way are employee focus, continual improvement, and corporate social responsibility. The individual percentage of the explained variance is low and ranges from 3% to 4%. The factors that made a statistically significant contribution to the explanation of ROS include customer orientation, top management commitment, process approach, continual improvement, information and analysis, and corporate social responsibility. The individual percentage of the explained variable is low and ranges from 2% to 3%. Based on the obtained results, the hypothesis H-2 is partially confirmed, since the influence of the TQM implementation level on one of the three dependent variables was not established.

Analysis of variance (ANOVA) was used to examine the existence of a statistically significant difference between companies belonging to different industry types (manufacturing, trade, service) in terms of market and

financial performance. The analysis found that there was no statistically significant difference (Table 6).

Regarding the statistical significance of differences between the companies of different sizes (micro, small, medium and large) in terms of market performance, the results of the analysis of variance (ANOVA) show that there is no statistically significant difference, while, as far as financial performance is concerned, there is a statistically significant difference regarding ROA between firms of different sizes (Table 7).

Multiple comparisons (Table 8) point to statistically significant differences in ROA between micro and small companies. Specifically, small companies have a higher average ROA compared to micro-companies.

According to Pearson's correlation coefficient, there is no statistically significant correlation of market performance, ROA and ROS with financial leverage, while the correlation between financial leverage and ROE is

**Table 5: Prediction of the company's business performance depending on the TQM implementation level**

Dependent variables	Independent variables	Linear regression		
		OR (95%CI)	p	R <sup>2</sup>
Market performance	Customer orientation	0.353 (0.265-0.727)	0.00	0.12
	Top management commitment	0.458 (0.365-0.753)	0.00	0.20
	Employee focus	0.328 (0.158-0.482)	0.00	0.10
	Process approach	0.249 (0.079-0.426)	0.01	0.06
	Continual improvement	0.331 (0.176-0.531)	0.00	0.10
	Information and analysis	0.347 (0.181-0.507)	0.00	0.11
	Supplier relationship	0.387 (0.291-0.703)	0.00	0.14
ROE	Corporate social responsibility	0.362 (0.203-0.530)	0.00	0.12
	Employee focus	0.203 (0.029-0.374)	0.02	0.03
	Continual improvement	0.195 (0.023-0.410)	0.03	0.03
ROS	Corporate social responsibility	0.210 (0.040-0.396)	0.02	0.04
	Customer orientation	0.176 (0.002-0.151)	0.04	0.02
	Top management commitment	0.186 (0.005-0.154)	0.04	0.03
	Process approach	0.193 (0.007-0.133)	0.03	0.03
	Continual improvement	0.184 (0.005-0.138)	0.04	0.03
	Information and analysis	0.195 (0.008-0.127)	0.03	0.03
	Corporate social responsibility	0.174 (0.002-0.124)	0.04	0.02

**Table 6: Differences in business performance depending on the industry type**

Business performance	Industry type								F	p
	Manufacturing		Trade		Service		Total			
	M	SD	M	SD	M	SD	M	SD		
Market performance	4.00	0.71	4.19	0.64	4.19	0.56	4.06	0.67	1.110	0.330
ROA	0.05	0.33	0.09	0.09	0.10	0.12	0.07	0.28	0.392	0.676
ROE	0.02	0.83	0.19	0.19	0.16	0.19	0.07	0.68	0.683	0.507
ROS	0.02	0.28	0.04	0.06	0.06	0.10	0.03	0.24	0.324	0.724

M – arithmetic mean; SD – standard deviation; F – ANOVA test; p – statistical significance.

high and statistically significantly negative (Table 9). The effect of financial leverage on ROE is determined by the difference between ROA and the net interest rate. If the difference is positive, i.e., if ROA is sufficient to cover the debt, growth in financial leverage leads to an increase in ROE. Otherwise, financial leverage has a negative effect causing the use of debt to reduce the owner's yield [23, p. 98].

### Limitations and recommendations for future research

The initial limitations of the current research relate primarily to the lack of a single database of ISO 9001 certified companies. Such a database used to be maintained by the Chamber of Commerce and Industry of Serbia, but it has not been updated for years. Certification agencies are reluctant to disclose the identity of their clients, considering it a business secret. Even at the international level, there is no database of certificates issued. In this respect, companies were selected randomly and just the ones that possessed ISO 9001 certificate were included in the research. Another significant limitation was the lack of

motivation of quality managers in the chosen companies to participate in the research. Data collection on the basis of respondents' estimations entails the problem of objectivity when evaluating the questionnaire statements. Respondents are also believed to have different perceptions, which would consequently result in one and the same phenomenon being evaluated differently.

It should be noted that it is not uncommon for a business to fail after implementing a quality management system and obtaining ISO 9001 certificate, or even winning a quality award. There are numerous examples of such a phenomenon in the Republic of Serbia. The main reason is the inability to understand the importance of quality as a strategic resource. The failures are also contributed to the lucrative motives of certification bodies which, being in competition with each other, base their business strategies on a lower degree of rigor in order to reach as many clients as possible. Besides being noticed by different authors worldwide, this phenomenon is often confirmed by quality managers who do not hide that the quality management system does not function effectively despite the companies' being certified. In view of the foregoing,

**Table 7: Differences in business performance depending on the company size**

Business performance	Company size										F	p
	Micro		Small		Medium		Large		Total			
	M	SD	M	SD	M	SD	M	SD	M	SD		
Market performance	3.92	0.68	4.16	0.59	4.00	0.68	3.84	0.86	4.04	0.67	1.428	0.238
ROA	-0.11	0.73	0.11	0.11	0.07	0.10	0.08	0.14	0.07	0.28	2.852	0.040
ROE	0.13	0.17	0.17	0.18	0.01	0.76	-0.23	1.61	0.08	0.69	1.550	0.205
ROS	-0.08	0.32	0.09	0.19	0.02	0.27	-0.02	0.20	0.03	0.24	1.672	0.060

M – arithmetic mean; SD – standard deviation; F – ANOVA test; p – statistical significance.

**Table 8: Differences in financial performance depending on the company size, multiple comparison**

Financial performance	(I) Company size	(J) Company size	Mean difference (I-J)	p
ROA	Micro	Small	-0.21882 <sup>*</sup>	0.021
		Medium	-0.17828	0.124
		Large	-0.18777	0.176
	Small	Micro	0.21882 <sup>*</sup>	0.021
		Medium	0.04054	0.892
		Large	0.03105	0.973
	Medium	Micro	0.17828	0.124
		Small	-0.04054	0.892
		Large	-0.00949	0.999
	Large	Micro	0.18777	0.176
		Small	-0.03105	0.973
		Medium	0.00949	0.999

p – statistical significance

**Table 9: Correlation between business performance and financial leverage**

Business performance		Financial leverage
Market performance	r	-0.122
	p	0.184
ROA	r	-0.093
	p	0.298
ROE	r	-0.841 <sup>**</sup>
	p	0.000
ROS	r	-0.072
	p	0.420

\* Statistical significance at the level of 0.05

\*\* Statistical significance at the level of 0.01

r – Pearson's correlation coefficient

p – Statistical significance

it seems that quality management is in the shadow in a number of companies where the requirements of ISO 9001 are implemented irregularly and without the necessary commitment. Babić [2] also noticed that there are cases where the possession of certificates has only a formal character, as standards are not properly implemented, which results in the inability to observe the expected benefits. Considering the situation from this point of view, a question arises as to how to adopt the TQM philosophy that brings quality into the very focus of strategic management. Although in most cases the familiarity with the TQM concept and its implementation is emphasized, on the basis of the conducted research authors conclude that it is practiced only in a small number of companies.

Quality management is rarely considered from a strategic management point of view, which is a major drawback, since this process is integrated into a business strategy leading to competitive advantage. The idea behind the TQM philosophy is to achieve and maintain competitive advantage and, consequently, generate value for business owners in the long run. A company can only survive and prosper if it nurtures customer and owner relationships in a balanced manner, which is in the hearth of the strategic management process. The existing literature in the field of quality management presents some tools for quality improvement. Surprisingly, they do not include a value chain which is a strategic management tool for analyzing the internal environment. Since quality is the result of all activities in the company, the use of a value chain, which breaks down processes into individual activities, enables the identification of value drivers and cost drivers. Furthermore, they can be affected by the chain configuration so as to maximize the value created for customers and consequently that for business owners. Also, the Balanced Scorecard, as a strategic management tool that ensures successful strategy implementation, is not among the offered quality management tools in the domestic professional literature. The calculation of the value created for business owners makes another specific limitation. Different rates of return used as business performance indicators do not give a complete insight into the value created for owners.

In order to improve the reliability and availability of relevant information for the future research, it is suggested to conduct a case study where researchers will independently carry out measurement, comparison and evaluation. In this way, it could be determined for each company whether it has made progress in adopting the TQM philosophy and how it has affected its business performance, primarily in terms of value created for customers and business owners.

## Conclusion

Quality is considered to be one of the most important factors that determine the long-run vitality of a business. The last stage in the evolution of quality management is known as Total Quality Management (TQM). This phase is often referred to as strategic quality management since quality management is approached from a strategic perspective, in a comprehensive manner. TQM is a quality-based strategy that promotes company-wide quality through a strong focus on customers, environment and change. The word total reflects the concern of all employees about the quality of each activity in the company and pursuit to achieve business excellence. The basic idea is to constantly look for opportunities to create more value for customers, in order to achieve and maintain competitive advantage and, consequently, create value for business owners. Since employees are the bearers of value creation for both customers and business owners, they also need to consume some of the created value in order to be motivated to continually improve quality. This can be achieved by introducing rewards for the improvements made to the compensation system.

From the strategic management point of view, the importance of TQM is reflected in the ability to ensure distinctive competence, which represents the strength of a company that can hardly be imitated. This involves developing and continuously improving key resources and adapting them to the needs of the business. Intangible assets, which include intangible resources and the relationships between them, are of particular importance as they are related to the context

of a company. Generating intangible assets is a complex and time-consuming process. They are characterized by a rise in value during use, an inability to be imitated and substituted, thereby meeting all the criteria of strategic resources that allow for the acquisition of sustainable competitive advantage. Competitive advantage arises as a result of good strategy and represents an assumption of value creation for business owners as the ultimate goal of a modern company. Based on the TQM philosophy, a family of international ISO 9000 standards has been defined to direct companies towards continuous improvement of business quality. Given that TQM is considered a kind of business philosophy, these standards represent a certain form of its materialization.

The TQM concept has attracted much attention because of the effects in terms of dramatically improved business performance. However, there are numerous criticisms of this concept related to the examples of its inefficient implementation. TQM should not be seen as a recipe for success or be mechanically adopted without the necessary adjustments and changes to the existing practices and ways of thinking. An ineffective implementation can be the result of unrealistic expectations, lack of faith in success, lack of motivation and inability to implement the change. Unclear priorities and conflicting goals of a company most often result in a negative impact on the employees' attitude towards quality. The use of the Balanced Scorecard, which is a popular strategic management tool, enables communication of the strategy, monitoring the achievement of goals and providing early feedback, which positively impacts the motivation of management and employees.

The presented empirical study on the impact of TQM on value creation for both customers and business owners in the Republic of Serbia covered 141 companies that have a certificate proving the compliance of their quality management system with the requirements of ISO 9001. Primary data were collected using a questionnaire completed by quality managers, while secondary data were obtained from the companies' annual financial statements. The results of the research show that all TQM key success factors have a statistically significant positive impact on the

market performance. Regarding the financial performance, the TQM factors of employee focus, continual improvement and corporate social responsibility showed a statistically significant positive impact on ROE, while the factors of customer orientation, top management commitment, process approach, continual improvement, information and analysis, and corporate social responsibility showed a statistically significant positive impact on ROS. The study also used three control variables, i.e., industry type, company size, and financial leverage to determine their potential impact on dependent variables. The results of the analysis show that small companies have a higher average ROA than micro-companies and that the correlation between financial leverage and ROE was statistically significantly negative and high. The achieved results point to the conclusion that the TQM implementation level positively affects company's market and financial performance, supporting thus creation of value for both customers and business owners. The results also show that, in the case of financial performance, only specific TQM key success factors show statistically significant influence. This further implies that special attention should be paid to them in order to maximize value for business owners. It should also be noted that company size and financial leverage could impact the results, as the former statistically significantly differs between small and micro-companies, while the latter shows negative correlation with ROE.

Limitations of the research refer to the lack of a single database of certified companies in the Republic of Serbia, as well as to the unwillingness of certification bodies and some quality managers to cooperate. During data collection, it was found that in some cases companies did not apply the standards consistently, which is why some of them unsurprisingly experienced a downfall after the process of certification. There are also issues of respondents' subjectivity, as well as the ways of measuring created value for business owners. In order to improve the reliability of the future research results, it is recommended to conduct a case study so as to access all the relevant data for objective identification of the TQM implementation level, as well as its impact on value creation for both customers and business owners.

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## PERSPECTIVES AND ADOPTION OF MOBILE BANKING IN SERBIA: THE CASE OF YOUNG ADULTS

Prihvatanje mobilnog bankarstva i njegove perspektive u Srbiji – analiza tržišta mladih

### Abstract

This paper investigates the determinants of mobile banking adoption by the young adults in Serbia. Mobile banking is a major driver of change in retail banking globally. The pace of its adoption differs across regions and countries, with some emerging countries taking the lead. Building on a technology acceptance model and earlier studies, we define and test a model comprising five factors that we hypothesize to have an effect on the acceptance of mobile banking. The sample includes 202 respondents from the student population. In the first stage, we extract factors based on factorial analysis so as to provide a justification for the constructs and inputs used for further analysis. In the second stage, we use these factors as independent variables in a regression analysis, where the dependent variables represent behavioral intentions regarding the use of mobile banking. The results show that all five factors are positively associated with the dependent variables. Two factors, "perceived usefulness" and "perceived security", are singled out as the most prominent causes of intentions to use mobile banking, because they are statistically significant in each regression model. Our analysis suggests that "information on mobile banking" is the weakest factor, which is a surprising result having in mind its importance in other studies. We find the influence of the two remaining factors, "technological proficiency and conditions" and "perceived ease of use", to be varying.

**Keywords:** *mobile banking, innovation adoption, technology acceptance model, factor analysis, young adults.*

### Sažetak

Predmet istraživanja rada su determinante prihvatanja mobilnog bankarstva od strane mladih u Srbiji. Mobilno bankarstvo predstavlja okosnicu budućeg razvoja i promena u poslovanju banaka sa stanovništvom. Iako tempo njegovog prihvatanja i širenja varira po regionima i zemljama, opaža se da vodeću ulogu postepeno preuzimaju zemlje u razvoju. Oslanjajući se na teorijsko-metodološki model prihvatanja tehnologije i ranije studije, u radu je definisan i testiran model od pet faktora za koje je pretpostavljeno da predodređuju namere i spremnost klijenata da koriste usluge mobilnog bankarstva. Analizirani uzorak je obuhvatio 202 ispitanika iz studentske populacije. U prvoj fazi analize, izdvojeni su relevantni faktori korišćenjem faktorske analize, na osnovu faktorskih opterećenja, koji su potom korišćeni kao inputi u daljoj analizi. U drugoj fazi, ovi faktori su tretirani kao nezavisne varijable u regresionoj analizi, dok su se u ulozi zavisnih varijabli našle namere klijenata u vezi sa korišćenjem mobilnog bankarstva. Rezultati su pokazali da je svih pet faktora pozitivno korelisano sa zavisnim varijablama. Dva faktora, „percipirana korisnost“ i „percipirana bezbednost“, izdvojena su kao najuticajnija, s obzirom da su bili statistički značajni u svakoj analiziranoj regresiji. Pored toga, rezultati sugerišu da je najmanje uticajan faktor „informisanost o mobilnom bankarstvu“, što je kontroverzan zaključak imajući u vidu istaknut značaj koji je imao u drugim sličnim istraživanjima. U pogledu uticaja preostala dva faktora, „tehnološke upućenosti i uslova“ i „percipirane jednostavnosti korišćenja“, rezultati su mešoviti.

**Ključne reči:** *mobilno bankarstvo, usvajanje inovacija, model prihvatanja tehnologije, faktorska analiza, mladi.*

## Introduction

Over the last decade, the business of banking has been undergoing a continuous transformation in an effort to keep pace with requirements of the constantly changing economic environment. The direction of these changes has mainly been driven by the emergence of novel technologies. The distinct features of these changes are that they target fundamental relationships and communications between banks and their clients. They foster stronger relationships than the ones that existed earlier between the financial institutions and their clients [26, p. 329]. The use of computers and mobile phones, the development of new software applications and the popularity of social networks have fundamentally changed people's interactions with the financial system. Banking, as a service business, needs to adjust to its customers' expectations and approach them in the most suitable and appropriate way.

The advent of the internet has allowed consumers unlimited access to bank services over time, meaning that there is a 24/7 availability for some banking facilities. Still, the internet has been for a considerable period of time spatially constrained by fixed landline infrastructures. Currently, with advancements in mobile operators' infrastructures it went mobile. In Europe, penetration rates of active mobile-broadband subscriptions increased from 30.5% in 2010 to over 85% in 2017 [11], with a potential for a further increase in the near future. In essence, this has enabled banks to shift customers from in person-arranged transactions (face-to-face with bank officers) to device-arranged transactions (computer, mobile phone, and tablet). Vis-à-vis device-arranged transactions, it was predicted that online banking would step back in favor of mobile banking (m-banking) [33, p. 5].

Mobile banking, in comparison to traditional branch banking and computer-based online banking, delivers flexibility of workings, in terms of time and place, and more efficiency in banking transactions. M-banking is defined as a channel where the customer interacts with a bank via a mobile device, such as a mobile phone, tablet or personal digital assistant [3], [15]. It has emerged as a wireless service delivery channel providing increased value for customers' banking transactions [18, p. 789]. It arose and developed from a rudimentary form in which

consumers were able to retrieve information from their banks about their account balances by sending an SMS (Short Message Service) to a predetermined service number. Although the SMS access mode of m-banking still exists, augmented by WAP (Wireless Application Protocol, a browser-based system) that developed somewhat later, downloadable client applications ("apps") are now the most popular mode of accessing banking services via mobile. Perlman [24] provides a good overview of technologies that enable access to mobile financial services.

The topic of m-banking has attracted increasing attention in academic studies in the course of the last ten years and some banking journals have accordingly dedicated special issues to it [1], [23]. Mallat et al. [22] envisaged that the adoption of the next generation of mobile handsets would create opportunities for innovative mobile services, among which mobile financial services were deemed the most promising. Estimates made in the late 2000s envisaged that the number of m-banking consumers would reach more than 800 million people worldwide by 2011, a tenfold increase from a consumer base in 2007 [8]. As of today, the estimated number of users stands at 1.2 billion, and it has been forecasted that by 2019 32% of global adult population will be using this technology [12]. M-banking penetration in Europe alone has recently been estimated to be around 38% [16, p. 11].

Online banking can be conceived as a predecessor of m-banking. It prepared customers to embrace self-service delivery channels. The use of m-banking is highly compatible with online banking, because it is an innovative service consistent with users' values, beliefs, previous experiences and habits developed through the use of online banking.

Banks worldwide have been favoring the use of online banking as it enables cost reductions. Sathye [30] and Robinson [27] find that online banking is the cheapest operating delivery channel for banking products, setting aside initial investments. In the first place, it allows banks to reduce their branch network, which enables a reduction in personnel employed. While the motivation of banks to support diffusion of online banking at the expense of traditional branch banking is straightforward, it is not yet the same with m-banking, which may not deliver any

significant cost saving benefits for banks in comparison to benefits already gained through online banking [18, p. 795]. The crucial benefits of electronic channels seem already provided through online banking. However, some studies argue that the transaction costs of m-banking are half as expensive as online banking; and account for 1/13 of the costs of ATM and phone banking, and 1/43 of the costs of branch banking [16, p. 22]. In addition, one might consider the possibility of cannibalization of digital banking activity by taking business away from online towards m-banking. The prevailing rationale for development of m-banking from a bank perspective may be found in clients' preference for this delivery channel, which may translate later into a competitive edge for banks that offer it, especially in times of diminishing client loyalty.

Recent surveys highlight that penetration rates of m-banking are generally higher in developing as opposed to developed countries. For example, in China, India and South Africa, penetration rates are estimated at above 50 percent, while in Canada, France and Japan they fall below 20 percent [16, p. 11]. Globally, there is a wide variability in the adoption rates of m-banking.

Tam and Oliveira [32] point out that the evolution of delivering banking services to customers, from a focus on local-centric (branches and ATM) to place-centric (internet banking) and then to equipment-centric (accessible anywhere via device) modes, yields benefits in the form of time savings and shorter customer queues. While physical distance appears to be important for the successful placement of some products, it does not seem to have the same effect in banking. Paradoxically, an equipment-centric model brings the customer instantly to the virtual doorstep of the bank, since a sole requirement for carrying out a specific activity in this case is possession of a mobile device. If we considered using devices for pursuing banking affairs as an act of impersonalization in customer relations, then we might be prone to state that impersonalization ironically means (virtual) proximity.

Today, a wide range of services can be carried out through m-banking. Its value lies in convenience, flexibility, real-time information and enhanced feelings of control that lead to greater customer satisfaction. Bank clients can truly experience full functionality over and beyond their bank

accounts. They can check their account balance, initiate payments to third parties, transfer funds internally among their accounts, make currency exchange transactions, make buy and sell orders on stock or bond exchanges, access and receive a variety of information (like ATM and branch location), review their expenditures and financial plans, and even apply for a credit card. Laukkanen and Kiviniemi [19] claim m-banking services provide true mobility, ubiquity, and temporal and spatial flexibility to the consumption of the service and that this has not been sufficiently appreciated by customers.

Competitive banks do not consider whether or not to adopt m-banking, it is a current imperative of strategic importance. As such, it requires a clear m-banking strategy. While the best strategy for any individual bank varies with the constellation of different factors, like local market conditions, it would not come as a surprise if banks frequently corrected their strategy in line with a fast evolving market. At the extreme, these could encompass exiting the old and embracing a new strategy. Deloitte [6] identifies mobile apps as an increasingly important differentiator in attracting and retaining clients in the years to come. A crucial open issue remains the positioning of credit products in mobile banking offerings. The banks are in a quest for a balance between providing improved service for a customer and lucrative solution for themselves [21, p. 177].

## Conceptual approach

In order for m-banking to gain in importance and to become a leading distribution channel, it needs to address the fundamental issue of consumer adoption, currently perceived as a major barrier to the development of m-banking. Rogers [28] states that consumer adoption is a process conceived as comprising a sequence of steps in which consumer starts with initial knowledge about an innovation, through forming an attitude towards it, to reaching an adoption decision. The information systems acceptance model is a conceptual cornerstone for the analysis that follows.

This paper investigates prospects for m-banking in Serbia relying on the young adult population attitudes

towards using the latest delivery channel in banking. This cohort is important since it comprises a highly likely future adopters and users of m-banking. This group is technologically aware and especially familiar with the use of mobile technology. They practice a technology-driven lifestyle which stems from using mobile devices in their day-to-day activities. The mobile business is considered trendy among this population. The general setting of research develops around the technology acceptance model (TAM). The notion of TAM is that the acceptance of new technology is conditioned upon consumers' perceived usefulness and perceived ease of use. Perceived usefulness refers to the consumer's assessment whether the use of new technology will enhance his/her performance, i.e., help him/her to increase his/her ability to achieve the desired goals. Perceived ease of use refers to the degree to which the use of new technology is free from effort [5, p. 320]. In TAM, the line of reasoning starts with beliefs, in this case two underlying beliefs, that affect attitude towards the use of the system, which translates into an intention to use it and, at the end, has an impact on actual behavior.

Since the consumer is not endowed with unlimited effort capacity, he or she needs to cleverly allocate resources at the disposal concentrating on those activities that yield the highest performance. One should keep in mind that knowledge-intensive innovations frequently imply considerable learning effort on the part of a consumer. It literally imposes an observable change in individual routine of a consumer, which some of them are not prone to, and resistance to this change is a normal response. Also, an innovation may be incompatible with existing habits and workflows that set additional burdens for consumer adoption. Therefore, we expect to observe pronounced generational differences with regard to m-banking acceptance.

TAM appears to be the most widely used model among researchers of information systems [20, p. 875], and has been exploited by researchers of adoption of online banking [25], [30]. TAM draws its theoretical foundation from Fishbein and Ajzen's [7] theory of reasoned action (TRA) which deals with the determinants of consciously intended behaviors. According to TRA, consumers systematically collect and evaluate all available information, take into account the effects of their possible actions and stand ready

to act when they expect positive benefits associated with actions. Alternative research models, inter alia, encompass the innovation diffusion theory, the theory of planned behavior and the theory of perceived risk.

The original TAM model is usually extended by additional constructs in order to address the particular context in which it is applied, such as m-banking. Every construct is viewed as an important factor that drives adoption. The major additional issue and construct in m-banking adoption, according to the frequency of its citations and application in other studies, refers to the security of its usage. This concept is intertwined with the notions of trust, risk and privacy. New offerings, being products or services, can be seen as involving a high level of riskiness. Uncertainty is present concerning whether m-banking use might result in financial losses or by compromising personal data, both of which are consequences of hacking and unauthorized access to mobile apps. Trust is closely related to risk, because it comes into play only when one is faced with risky situations. It can be defined as a consumer's belief that a particular transaction will occur in a manner consistent with their confident expectations [4, p. 360]. Trust is involved with both confidence in the general environment and conditions, and in the individual institution. In terms of m-banking, a general component is related to the trust in technology employed and the related infrastructure. As regards the institutional component, consumers ordinarily rely on their bank to protect their privacy. It means they preferably perceive their bank to be a trustworthy and competent partner. From the Serbian perspective, a major challenge is the differentiation between confidence in a particular institution and confidence in the banking system as a whole, bearing in mind the painful experience from the transition period. In sum, consumers seek reliability and confidentiality in the system and in the service provider.

A prerequisite for consumers' readiness to adopt innovatory products or services is an adequate amount of information related to them. In the context of our analysis, if the consumers do not see the advantages of using m-banking, the banks would be reluctant to dedicate resources into its development, since it is unlikely to bring full benefits to the organization. The information gap

between fully knowledgeable service providers and their respective customers may take on several forms. In the nascent phase of m-banking development, a low level of general awareness might be considered the most prominent ingredient of this gap, while in a more mature phase a lack of understanding about its advantages, disadvantages and operations may hamper all-encompassing adoption. Kuisma et al. [17] argue that some non-adopters have suffered from a lack of information and training. Saaksjarvi [29] goes a step further and underlines knowledge as a viable consumer segmentation criterion that is made up of two elements – familiarity and expertise. The first one refers to the quantity of product-related experiences by the consumer, and the second to his or her ability to perform product-related tasks. These general informational considerations were taken into account in the following study in two ways. First, only those respondents who might have been potentially exposed to an m-banking experience were included in the study, i.e., those who had opened a bank account. Second, we included information on m-banking as a separate construct.

Another important construct employed in this paper is linked to consumers' technological proficiency and conditions. Familiarity with mobile technology and regular usage of mobile phones influences consumers' attitude towards m-banking in a positive way. In addition, utilization of m-banking is dependent upon access to the internet, either through a Wi-Fi or a mobile broadband connection.

Other studies point out to other relevant constructs. Pikkarainen et al. [25] incorporate perceived enjoyment, Koenig-Lewis, Palmer and Moll [14] and Luarn and Lin [20] insist on perceived costs and perceived financial costs, respectively; Govender and Sihlali [9] highlight social influence, Baptista and Oliveira [2] introduce cultural moderators. Based on previous research discussed and on our preliminary analysis, we have developed a model of m-banking acceptance consisting of the five factors described.

## Methodology

Factorial analysis is a tool for data reduction. The basic idea of the analysis is to extract a few common factors, i.e.,

linear combination of the original set of variables, so that the information power contained in the few common factors can approximate the information power in the original variables. It can be used as a confirmatory or descriptive analysis. When the aim of the research is to confirm a latent structure based on some theory or on previous papers, then factor analysis is used as a confirmatory analysis. In other cases, when the latent structure is unknown to the researcher, then factor analysis can be utilized as a descriptive tool where the tool itself can reveal the hidden structure behind the original data.

Factorial analysis can be used as a complementary tool in many analyses. For example, a multicorrelation problem in regression analysis can inflate the standard error of the model and in extreme cases make the calculation of a model impossible. Usually, the multicorrelation problem occurs when the sample size is small compared to the variable set used in the analysis. Factorial analysis can squeeze the dimensionality of the original set into a few factors which can be utilized as predictor variables in regression analysis.

## Empirical results

### Sample

The data for this study were collected by means of an online survey using convenience sampling of young adults in Serbia. A group of students carried out the data collection as part of their assignment by posting a link to an online survey on their Facebook accounts. The sample size was 202 respondents (132 females), mainly students from the University of Belgrade. For the purpose of our analysis, we filtered only those respondents who had an active bank account, so our effective sample size was 134. This was justified on the ground that results for the whole sample were not conducive for the extraction of factors. Obviously, there is a perception gap between users and non-users of banking services. It appears that students non-users do not consider seriously, or maybe at all, utilizing banking services, due to which they are even further from considering mobile banking. Favorably, it turned out that 66% of respondents were users, a proportion that favors solving the financial literacy issue

that is frequently encountered in banking affairs. We used a questionnaire that consisted of questions related to possible factors affecting the acceptance of m-banking and the use of m-banking services. Questions were based on Likert’s five-point scales ranging from “strongly agree” to “strongly disagree”. This scale was previously used in TAM research in Pikkarainen et al. [25].

**Factor analysis**

A confirmatory factor analysis was conducted on the items comprising perceived usefulness, perceived ease of use, acquaintance with m-banking, perceived security and mobile devices familiarity. We used principal component analysis as a method of factor analysis computation with varimax rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy showed a sufficient level of common variance (KMO = 0.829), indicating that the factor analysis was appropriate. Based on communality coefficients and a rotated matrix, we excluded four items because they did not fit well in our theoretical framework. Two of the removed items belonged to the “perceived usefulness” construct, and one to both “technological proficiency and conditions” and “perceived ease of use”.

The final results reveal a robust solution of five factors based on eigenvalues greater than 1 (first column in Table 1). Eigenvalues can be described as the amount of information from the original set of variables contained in each factor. Factors which have eigenvalues greater than 1 contain more information than a typical variable in the original set, and therefore the proposed solution with five factors is reliable. In the third column of Table 1 we observe that more than 70% of variance in the original set of variables is explained by the five common factors. The second column in Table 1 reveals that the variance from the original set of variables is unequally distributed. The variance ratio between the first and the fifth factor is greater than 6. Using a varimax rotation we obtain a more equally distributed variance (see Table 2), as can be seen from the second column in Table 2.

Table 3 shows the rotated matrix solution with suppressed low loading coefficients (<0.4). Loading coefficients show the correlation between the original

**Table 1: The unrotated factor analysis**

Eigenvalues	% of Variance	Cumulative %
5.866	32.588	32.588
2.180	12.109	44.698
2.069	11.497	56.194
1.497	8.315	64.509
1.023	5.681	70.190

Source: Authors’ calculations.

**Table 2: The rotated factor analysis**

Eigenvalues	% of Variance	Cumulative %
2.766	15.366	15.366
2.598	14.433	29.799
2.481	13.783	43.582
2.466	13.703	57.285
2.323	12.905	70.190

Source: Authors’ calculations.

variables and the corresponding factor. Using factor loadings we can compare how the obtained factor structure relates to the factor structure obtained in TAM research in Pikkarainen et al. [25]. Factor 1 relates to “perceived usefulness”, factor 2 to “information on m-banking”, factor 3 to “technological proficiency and conditions”, factor 4 to “perceived security” and factor 5 to “perceived ease of use”.

**Regression analysis**

After extraction of the latent factors, we now have the necessary input for a regression analysis where we can test our predictions about the relationship between the intention variables and factors from the technology acceptance model (TAM), i.e., reveal how different constructs affect user’s intentions. We denote the dependent variables about intentions as “INT”, and the predictor variables “perceived usefulness” as “PU”, “information on m-banking” as “PI”, “technological proficiency and conditions” as “TP”, “perceived security” as “PS”, and “perceived ease of use” as “PEU”. We specify our model with the following regression equation:

$$INT_i = \beta_0 + \beta_1 PU_i + \beta_2 PI_i + \beta_3 TP_i + \beta_4 PS_i + \beta_5 PEU_i + \epsilon_i \quad (1)$$

where *i* stands for individual respondent and  $\epsilon$  is the model error. Since we have three intention variables, we conduct the same number of regression analyses.

The variable “intention to be a regular user of m-banking in the future” was regressed on five TAM

**Table 3: The factor analysis rotated matrix**

Original Variables / Rotated Factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I believe I am well informed about banking services in general		.850			
I believe I am well informed about mobile banking		.924			
I believe I am well informed about the advantages of mobile banking		.858			
I frequently access the internet using my mobile phone			.832		
I have adequate access to the internet during the whole day			.580		
I like using downloadable applications on my mobile phone			.860		
I learn quickly how to use applications on my mobile phone			.686		
Conducting banking transactions using a mobile phone application contributes to cutting my banking costs	.644				
Conducting banking transactions using a mobile phone application gives me free time for doing other activities	.795				
Conducting banking transactions using a mobile phone application requires less effort compared to visiting a branch or using online banking	.871				
Conducting banking transactions using a mobile phone application is more convenient compared to visiting a branch or using online banking	.766				
Learning how to use a mobile banking application is not difficult					.787
Interaction with the bank using a mobile banking application is simple					.772
Interaction with the bank over mobile banking application is clear and understandable					.731
I consider mobile banking to be safe				.795	
I consider my personal data to be protected when using mobile banking				.839	
I consider mobile banking to be more secure than online banking				.656	
In general, I have trust in the Serbian banking system				.556	

Source: Authors' calculations.

factors. The derived model is statistically significant with a p-value close to zero and a coefficient of determination above 40% (Table 4).

**Table 4: Goodness of fit coefficients: intention to be a regular user (Model 1)**

Model No.	R	R <sup>2</sup>	Adj. R <sup>2</sup>	P-value
1	.656	.431	.409	.000

Source: Authors' calculations.

All factors, except “information on m-banking”, are statistically significant (Table 5). The variable “information on m-banking” is only marginally significant ( $p < 0.1$ ). Based on the absolute value of the t-statistic, we conclude that the variable “perceived security” has the strongest influence on the intention to be a regular user of m-banking.

**Table 5: Regression coefficients for Model 1**

	b <sub>i</sub>	Std. error	T-statistic	P-value
Constant	3.926	.062	62.883	.000
PU	.343	.063	5.475	.000
PI	.105	.063	1.682	.095
TP	.201	.063	3.214	.002
PS	.425	.063	6.789	.000
PEU	.182	.063	2.901	.004

Source: Authors' calculations.

The model with the dependent variable “intention to urge others to use m-banking” is statistically significant but has a coefficient of determination below 30% (Table 6).

**Table 6: Goodness of fit coefficients: intention to urge others to use m-banking (Model 2)**

Model No.	R	R <sup>2</sup>	Adj. R <sup>2</sup>	P-value
2	.537	.288	.261	.000

Source: Authors' calculations.

In this model, we conclude that the variables “technological proficiency and conditions” and “perceived ease of use” are not good predictors of the intention to urge others to use m-banking, as these have low p-values (Table 7). The variable “perceived security” is again the strongest predictor of the intention variable in question.

**Table 7: Regression coefficients for Model 2**

	b <sub>i</sub>	Std. error	T-statistic	P-value
Constant	3.407	.081	42.064	.000
PU	.226	.081	2.782	.006
PI	.185	.081	2.278	.024
TP	.132	.081	1.621	.107
PS	.487	.081	5.987	.000
PEU	.077	.081	.942	.348

Source: Authors' calculations.



The third model with the dependent variable “intention to do most of banking business without going to the branch” is statistically significant but has a coefficient of determination above 30% (Table 8).

**Table 8: Goodness of fit coefficients: intention to exclusively use online or m-banking in the future (Model 3)**

Model No.	R	R2	Adj. R2	P-value
3	.604	.364	.340	.000

Source: Authors' calculations.

In this third model, we conclude that the variables “technological proficiency and conditions” and “information on m-banking” are not good predictors of intention to follow a digital/virtual mode of business in dealing with banks due to the low p-values (Table 9). The variable “perceived usefulness” stands out as the most influential predictor of the dependent variable.

**Table 9: Regression coefficients for Model 3**

	b <sub>1</sub>	Std. error	T-statistic	P-value
Constant	4.081	.066	61.644	.000
PU	.431	.066	6.483	.000
PI	.052	.066	.778	.438
TP	.106	.066	1.601	.112
PS	.284	.066	4.281	.000
PEU	.214	.066	3.226	.002

Source: Authors' calculations.

All the conducted regression analyses provide relevant insights into the determinants of the market intentions of Serbian young adults concerning different aspects of m-banking. The first model explicitly checked which factors are relevant for future usage of m-banking. It also proved to give the most robust results of all three models. Interestingly, the construct “information on m-banking” turned out to be irrelevant not just in this model, but also for model exploring intentions about doing business with banks completely in a digital manner, i.e., opting for “mobile/virtual only banks”. It appears that this young adult market segment is quite well informed about m-banking, so the provision of information is not as vital for its acceptance as it was in the early stages of m-banking.

Similarly, the construct “technological proficiency and conditions” was irrelevant in two of the regressions. For the dependent variable “intention to do most of banking business without going to the branch”, this seems somewhat

counterintuitive. In general, a preference to go completely virtual in banking should be a characteristic of users who are knowledgeable about and favor mobile technology. However, users who were at first exposed to old-style retail banking seem to appreciate and understand better the improvements that have taken place in technology, while our sample consisted of young adults who lack that accumulated experience. Studies confirm that the key demographic for m-banking are people in their mid to late thirties [16, p. 6]. This population is technologically comfortable and exhibits a high level of economic activity which is a perfect match for m-banking. On the other hand, our sample falls below this age threshold and has a lower economic activity, which could explain the irrelevance of related constructs in these regressions.

The notion to connect constructs relevant for m-banking acceptance with propensity to advocate for its usage (as estimated by Model 2, please see Tables 6 and 7) is a contribution to the literature in this domain. We based this idea on the logic that a customer with a positive attitude who is inclined to become an active customer is a potential candidate to promote mobile financial services by word of mouth and urge others to use them. If we were to capture the relevant constructs for the adoption of m-banking, it would enable an additional exploration of this relationship. While the relevant estimated regression had the weakest overall performance, it nevertheless highlighted that perceived security, perceived usefulness and information on m-banking exert statistically significant influences on the variable “intention to urge others to use m-banking”. It turned out that someone’s intention to recommend m-banking is predominantly dependent upon its secure usage, tangible benefits it delivers, and awareness and knowledge about it.

In sum, “perceived security” is the most prominent construct in all three regressions. Riquelme and Rios [26] argued that security was the most important factor that motivates consumers to adopt any new technology. It is hard to pinpoint any relevant study on the matter of innovative banking technology adoption that circumvents this element [31], [13], although the magnitude of its influence is not uniform. Our study complies with this pattern and boldly emphasizes the significance of security.

## Concluding remarks

The role and impact of m-banking on a global scale can hardly be overstated. Consumers increasingly expect they can easily attain fast, convenient and compatible service on demand through a mobile phone. Yet, the assumption that it would be unconditionally accepted by all members of the society is unrealistic. This article aims to explore the determinants of the adoption of m-banking by young adults in Serbia. While young adults are presumably more receptive to new technologies than other members of society, adoption of m-banking cannot be taken for granted. A surge in m-banking development in Serbia began in 2014 with the commencement of the operations of Telenor bank. The rest of the banking sector followed rather quickly, with the main players demonstrating “catch-up” behavior, and a wide range of advanced mobile applications has since been launched by other banks.

In the light of the traditional technology acceptance model, we have distinguished and assessed five constructs relevant for adoption by means of factor analysis. To our knowledge, acceptance studies are an unexplored area of research in Serbia and the wider region. We have transposed a well-established methodology used in research about online banking into the m-banking context. We have provided an innovative contribution to the literature by formulating our own preliminary item list attached to each construct and excluded those items that did not fit well in the factor analysis. In the second step, we carried out a regression analysis through which we linked constructs and behavioral intentions, on the assumption that beliefs cause intentions. In order to determine to what extent each of the constructs contribute to explaining variation in the dependent variables, intention to use or urge others to use m-banking and intention to do most of banking business without going to the branch (branchless banking), we performed multiple regression analysis. The independent variables (constructs) were positively associated with the dependent variables without exception. Two of the constructs, “perceived usefulness” and “perceived security”, were statistically significant in each regression run. Consequently, they were marked as the most powerful antecedents of behavioral intentions. On the other hand, information on m-banking turned out

to be the weakest construct. This finding is peculiar as this construct was found to be a strong construct in earlier research work. From the managerial point of view, it seems that, to increase adoption of m-banking, a bank must accentuate its benefits and security. As regards security, the fact that Serbian media have not reported any misuse cases concerning m-banking may be a positive feature.

Impact assessment of m-banking should be treated cautiously, as m-banking may have some disadvantages and may not be fit for all banking products. It could be the case that consumers prefer specific banking channels for distinct product categories [10, p. 146]. For example, in dealing with complex banking products, like mortgages and auto loans, consumers often favor visiting branches and communicating face-to-face with bank officers. On the other hand, simple and routine tasks like bill payments or checking account balances are far more conveniently executed through the m-banking channel. Besides that, from the managerial perspective, two contradicting findings are of interest. On the one hand, m-banking users are more likely to recommend their bank to a friend thanks to a positive m-banking experience. However, m-banking users are also more likely to change their bank, in pursuit of a better deal, and so are in effect less loyal, exhibiting higher price-sensitivity [16, p. 21].

This work may serve as a local benchmark for future research on m-banking acceptance. Its limitation is that findings could not be generalized to a population as a whole, since it deals only with the youth market. This segment’s attitudes to mobile banking may differ markedly from the rest of the population, supposedly inclining more in favor of it. In order to explore the issue more rigorously, additional research is needed to enhance knowledge and understanding of the mobile banking adoption in our local and regional context. Each geography has its features and dynamics of adoption, and further investigation will provide valuable insights.

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## IMPLEMENTATION OF FAIR VALUE ACCOUNTING IN SERBIA: EMPIRICAL RESEARCH

Primena računovodstva fer vrednosti u Srbiji –  
empirijsko istraživanje

### Abstract

The results of the research presented in this paper suggest a high tendency of the companies in the Republic of Serbia to apply fair value accounting. In large companies, as much as over a half of the total assets were measured at fair value. As expected, the item of financial statements most subject to fair value measurement turned out to be that of property, plant and equipment. Although fair value application is not mandatory for this item or for investment property, a large portion of property, plant and equipment in companies was measured at fair value, as well as all of the investment property. The income approach was most frequently used in the fair value measurement, performed by valuation agencies in the majority of cases.

Accountants quite firmly believe that fair value provides the most valuable and relevant information to investors, while the complexity and high costs of fair value accounting seem to be of little concern to them. Nearly three quarters of accountants view fair value as a tool for earnings management, whereas two thirds of them perceive fair value as a tool for manipulation and frauds in financial reporting. Almost a half of companies do not provide ongoing training in proper application of fair value accounting, while about two thirds of them do not perform periodic reviews of the selected models and fair value application procedures.

**Keywords:** *financial reporting, fair value accounting, fair value measurement, hybrid financial reporting model, relevance.*

### Sažetak

Rezultati istraživanja prezentovanog u ovom radu pokazali su da je sklonost preduzeća u Republici Srbiji ka primeni fer vrednosti visoka. U velikim preduzećima čak više od polovine ukupne imovine bilo je mereno po fer vrednosti. Očekivano, pojedinačno najveća stavka finansijskih izveštaja na koju je primenjivan koncept fer vrednosti su nekretnine, postrojenja i oprema. Iako kod ove pozicije, kao i kod pozicije investicionih nekretnina, primena fer vrednosti nije bila obavezna, zastupljenost vrednovanja po fer vrednosti je izuzetno visoka, dok su sve investicione nekretnine kod preduzeća u uzorku bile iskazane po fer vrednosti. Prinosni pristup je najzastupljeniji, a u dominantnom broju slučajeva odmeravanje fer vrednosti vršile su agencije za procenu.

Računovođe dosta čvrsto veruju da fer vrednost obezbeđuje najvrednije i najrelevantnije informacije za investitore, dok ih kompleksnost i visoki troškovi primene računovodstva fer vrednosti, reklo bi se, ne brinu. Skoro tri četvrtine računovođa vidi fer vrednost kao podesno sredstvo za štimovanje rezultata, a skoro dve trećine kao pogodno tlo za manipulacije i prevarne radnje u finansijskom izveštavanju. Skoro polovina preduzeća ne sprovodi kontinuirane obuke računovođa za primenu računovodstva fer vrednosti, a skoro dve trećine preduzeća ne vrši periodično preispitivanje izabranih modela i procedura procene.

**Ključne reči:** *finansijsko izveštavanje, računovodstvo fer vrednosti, merenje fer vrednosti, hibridni model finansijskog izveštavanja, relevantnost.*

## Introduction

Financial statements represent an information base necessary for their users to make business decisions. The fair value concept appeared in financial reporting as a result of the remark that substantial changes in the conditions in which businesses operate and the manifest weaknesses and deficiencies of the historical cost concept usage had severely compromised the relevance of the information presented in companies' financial statements. This gave rise to the so-called hybrid financial reporting model, which integrates both the historical cost and fair value elements, making the financial reporting process considerably more complex. Moreover, such duality in financial reporting imposed additional requirements on the users of financial statements with regard to understanding the rules for recognition and measurement of the elements of financial statements [10].

Fair value accounting is fundamentally different from historical cost accounting [12]. Fair value accounting requires that assets and liabilities be measured based on the market prices (mark-to-market) or, if in instances of inactive markets such market prices do not exist or are not representative, based on the valuation models (mark-to-model) [6]. It is believed that fair value accounting thus provides more relevant information, enabling investors to evaluate efficiency of a company's management, assess the value of a company and make investment decisions, in relation to the information resulting from historical cost accounting. However, it must be noted that the data on fair value is not equally informative for or useful to investors – due to reliability issue their utility value is significantly lower when mark-to-model measurement is used [8], [19].

Another common belief is that in crises, by reflecting the economic reality and recording adverse changes in the values of assets and liabilities, fair value accounting “sends” early warning signals and stimulates companies to proactively undertake necessary actions [9]. However, the ongoing financial crisis has reflected serious issues resulting from its implementation [2], [3], [4]. For instance, fair value accounting gives rise to greater changes in the values of assets and liabilities reported in the balance sheet and to higher volatility of the profit or loss in relation

to those resulting from historical cost accounting. Such increased volatility of financial statements is caused by market instability, errors in fair value determination, and feedback effects of the fair value procyclicality [1], [11, pp. 319-321], [20, p. 29]. Fair value accounting produces the so-called procyclical effects by promoting growth of market prices and indebtedness in the conditions of financial market growth and by causing market prices to fall in the conditions of financial market decline, which in turn leads to increased financial instability [13], [18]. In addition, fair value accounting may compromise a company's capital maintenance and continuation as a going concern due to recognition of unrealized gains. Furthermore, management's performance is assessed based on the profit reported in the statement of profit or loss (income statement), which may have a distorted influence on the behavior of the management since, in order to achieve rewards (bonuses and other privileges), managerial personnel could be prompted to actively manage the assets so as to take advantage of the opportunities (events) in the financial market by means of fair value appraisals rather than by focusing on the management of the operating activities.

Fair value accounting appeared in the financial reporting in Serbia upon adoption of the Law on Accounting and Auditing in 2002 [21, Article 19]. Yet the main problem in the implementation of fair value accounting in the financial reporting in Serbia is the absence of active and liquid markets for a number of assets and, hence, lack of the “actual” market prices as fair value indicators [5]. For instance, with regard to financial assets, trade in numerous corporate shares in Serbia is rather low in volume and rare, in as much as some shares are not even traded once a year. For example, in late August 2011 there were over 1,800 “nominally” listed companies (listed by the force of law) on the so-called off-stock exchange market, while in 2019 there have been only four companies' shares within the Prime listing and three companies' shares within the Standard listing. Excluding corporate shares of those seven companies, higher quality and more relevant mark-to-market measurement cannot be applied to any other financial assets. Over the past few years Serbian real estate market has featured dramatic changes in the market

aggregates, plummeting turnover and prices (including rentals), numerous transactions motivated by other than market factors, etc. Therefore, preparers of financial statements must focus more on the unobservable inputs and less reliable fair value measurement.

This paper presents the results of the research in fair value accounting implementation in Serbia, focusing on the identification of fair value accounting usage and views of accountants on the significance of this financial reporting concept.

## Research method

The research in fair value accounting implementation in the Republic of Serbia was conducted in the second half of 2011, in the form of a survey research based on a stratified sample of 53 companies. According to the data of the Statistical Office of the Republic of Serbia [14, p. 6], and pursuant to the provisions of the Law on Accounting and Auditing that define the criteria and limits for classification of business companies by size [22], in 2010 the predominant share in the total number of companies in Serbia was that of small-sized entities (77%), while the shares of medium-sized and large companies were 18% and 4%, respectively. Due to the fact that small-sized entities are not required to use the fair value concept in the Republic of Serbia, upon sampling we had to depart from the aforesaid percentages of shares and include a larger number of large entities in the sample. Our sample had the following structure:

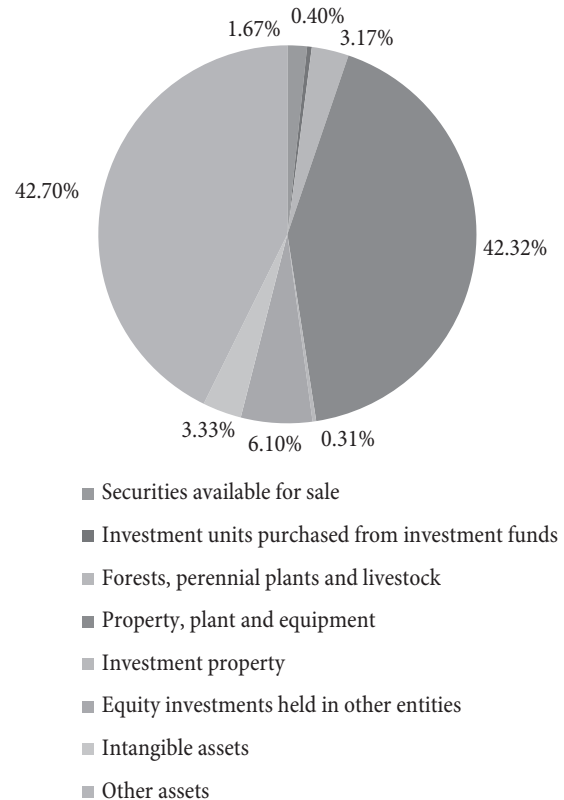
- Large companies: 42%,
- Medium-sized companies: 52%,
- Small-sized companies: 6%.

We collected data using a questionnaire that was filled in by heads of accounting. The questionnaire was structured in such a way that after the introductory part, which was used for classification of entities per size, it consisted of three major segments. Segment 1 of the questionnaire examined the optional fair value implementation. In Segment 2 companies opted for or against the fair value usage and Segment 3 enabled us to examine other important matters related to the possibilities for adequate implementation of fair value accounting.

## Research results

We will first present breakdown of the total assets of the observed companies.

Figure 1: Breakdown of total corporate assets



The above-presented chart clearly shows that fair value accounting could not be applied to 42.70% of total assets of the sampled companies. The largest share of assets measured at fair value was that of property, plant and equipment (42.32%), followed by the shares of equity investments in other entities (6.10%) and intangible assets (3.33%). Total financial assets, both non-current and current, had a share of 8.17% of which almost three quarters pertained to equity investments in other entities, while the remaining 1.67% and 0.40% referred to securities available for sale and investment units purchased from investment funds, respectively. As for the other assets that could be subject to fair value measurement according to effective regulations, the sampled companies did not possess trading securities and inventories of agricultural produce at the point of harvest. Within the aggregate fair value amount measured at the time of the research, the largest portion was accounted for by large entities (77.40%),

whereas the share of the medium-sized entities in the overall fair value equaled 22.09%. The share of small-sized entities of 0.51% was insignificant.

What follows is the analysis of the implementation of fair value measurement in relation to individual items within total assets. Out of total items that could be subject to fair value measurements, 72.70% was actually measured at fair value. The chart below presents implementation of fair value measurement with regard to items for which it was not mandatory, but optional.

All the investment property included in our sample, as well as 76.24% of the total property, plant and equipment sampled, were measured at fair value. Both equity investments held in other entities and intangible assets displayed a large extent of fair value measurement use, with the shares of 56.22% and 59.18%, respectively.<sup>1</sup>

In order to evaluate the tendency and aptitude to use the fair value concept, we measured the share of items measured at fair value in total assets. The results revealed a relatively high aptitude of companies to use fair value, since the share of items measured at fair value equaled 40%, and the aptitude increased commensurately to the size of entities, as the share was the highest in large companies (55%), gradually decreasing to 37% in medium-sized entities in order to finally drop to mere 20% in small-sized entities.

1 Moreover, the share of the fair value measurement regarding these items would have been even higher had the four largest companies in the sample not opted for measuring those at historical cost.

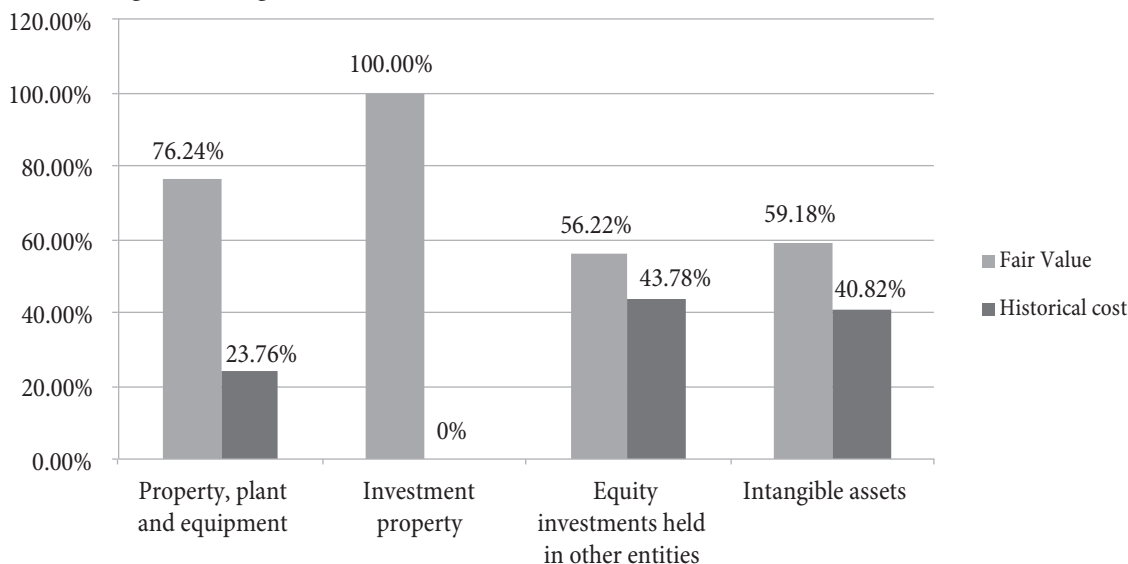
The EU-based companies which prepare financial statements in accordance with the International Financial Reporting Standards (IFRS) were much less prone to using fair value in financial reporting. In fact, there was much resistance to the fair value concept across the EU. A study conducted by the Institute of Certified Accountants of England and Wales (ICAEW) [7, pp. 119-122] revealed the following: (1) about 97% of companies measured their property, plant and equipment at historical cost, while the remaining 3% measured only property at fair value and adhered to historical cost in measurement of their plant and equipment; and (2) among companies in possession of investment properties, there were three times as many of those not using fair value for their measurement as the ones using it.

In the following passages we shall present the results of the research regarding the aptitude of the observed companies to use certain valuation techniques. Within the aggregate fair value amount measured at the time of the research, the largest portion was that of the items measured using the income approach (83%)<sup>2</sup>, whereas the shares of market approach and cost approach equaled 9% and 8%, respectively.

In as many as 91% of cases, the fair value assessment was performed by professional, qualified appraisers, while in 9% of the cases observed, the fair value was assessed

2 The examined companies predominantly used the method of discounted cash flows.

Figure 2: Usage of fair value measurement vs. historical cost measurement





by the entity's own staff. In respect of the fair value assessments performed by professionals, 72% was performed by valuation agencies and 23% by audit firms. Appraisal expert witnesses were rarely engaged, only in 6% of cases. Here, it is interesting to point out that employees or expert witnesses did not perform the fair value assessments in any of the small or medium-sized entities.

We were also interested in the views of accountants regarding the reasons that had significantly influenced their decision to choose the fair value model in financial reporting [17]. We investigated those by offering the examinees three possible responses to choose from:

- a) It provides the most valuable information to investors;
- b) Financial statements are more relevant as they reflect the economic substance; and
- c) It provides a better and clearer view of the entity's financial position and assets.

The examinees' responses to each of the above-listed questions are analyzed hereunder.

- a) Close to 90% of accountants believe that fair value model is a good choice as it provides information of the utmost significance for most investors, while merely 10% of examinees think that the informational value of this reporting concept is insignificant or almost insignificant. The results indicate that 27% of all the examined accountants hold that the fair value's informational value is extremely significant for most investors, 36% believe that it is rather significant and 27% say that it is moderately significant.

There were no significant differences between the views of the large company accountants and of those in

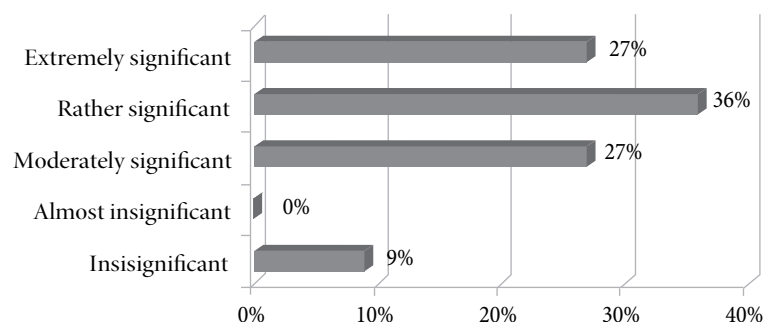
medium-sized companies. Due to a small number of small-sized entities in our sample, the views of their accountants will not be included in the comparisons presented herein.

- b) In respect of the thesis that financial statements are more relevant if the fair value concept is used in preparation thereof, because they reflect the economic substance better, all the examinees were of the opinion that it was true. A more detailed review of their responses revealed that 18% of them considered this reason for opting for the use of the fair value model moderately significant, 45% viewed it as rather significant and 36% as extremely significant.
- c) Concerning the last question, all the examined accountants agreed that the fair value provided a better and clearer view of the entity's financial position and assets. In contrast to the responses to the previous two questions, the highest percentage (49%) of all the examinees perceived this reason as extremely significant for selection of the fair value model, whereas as many as 58% of the accountants in large companies assessed this statement as extremely significant.

Responses to all three questions suggest that the accountants in the country have accepted the rationale most commonly used in promoting this concept of reporting putting the highest weight to the thesis that the fair value concept provides a better and clearer view of the entity's financial position and assets than the historical cost concept.

Given the above-presented view of European accountants on the implementation of the fair value measurement of property, plant and equipment, we asked the accountants

**Figure 3: Evaluation of the fair value concept's ability to provide the most valuable information to most investors**



in Serbia the following question: “What are the reasons for not stating property, plant and equipment at fair value?” We offered them the following responses with the same scale for evaluation of the relative significance of each response offered:

- a) It is common practice in the EU not to measure property, plant and equipment at fair value;
- b) Depreciation charge is higher and profit reported in the income statement is lower;
- c) It is not recognized for tax purposes – preparation of the tax statement (i.e., it is not possible to increase the depreciation charge when preparing the tax return and, thus, decrease the amount of the income tax payable);
- d) It gives rise to an increased risk of errors and irregularities in determining the fair value (reduced reliability of the financial statements);
- e) Fair value may be used as a means for fine-tuning of profit or loss;
- f) Fair value may be used as an instrument of fraud;
- g) The implementation of fair value accounting is an expensive procedure; and
- h) The implementation of fair value accounting is rather complex.

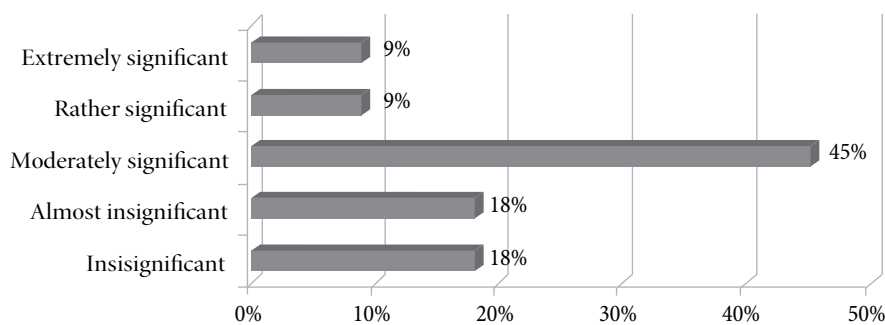
The examinees’ responses to each of the above-listed questions are analyzed hereunder.

a) 36% of accountants saw the disinclination of the European companies to use the fair value concept for measurement of their property, plant and equipment as an almost or completely insignificant reason for them not to use it in their practice of property, plant and equipment measurement. However, 64% of the examined accountants in Serbia believed that such an attitude of the European companies was not insignificant, with the largest number (45%) of them assigning it moderate significance.

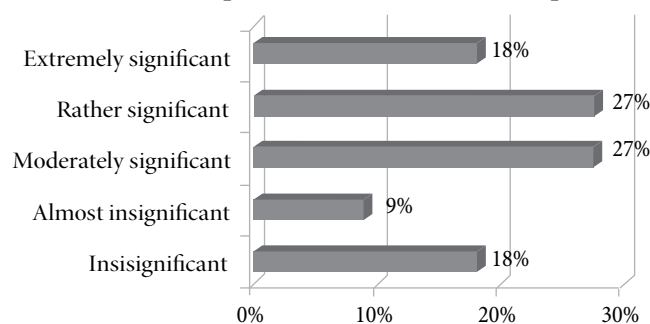
The responses given to questions b) and c) suggest that accountants may be more disinclined to apply the accounting policies that will result in lower interim profits than the alternative policies or the policies that will not lead to tax benefits or savings.

b) The fact that fair value accounting generally results in higher depreciation charge and lower interim profits was assessed by nearly one third (36%) of examinees as extremely significant for not implementing it in the valuation of property, plant and equipment. Somewhat below one

**Figure 4: Minimal use of fair value in the EU as a reason for nonacceptance of the fair value concept**



**Figure 5: Nonrecognition of full depreciation charge amounts calculated at fair value for tax purposes as a reason for nonacceptance of the fair value concept**



third of examinees (27%) found this reason to be completely insignificant and the remaining 27% perceived it as either moderately or rather significant (9% and 18%, respectively).

- c) Due to the fact that the depreciation charge exceeding the one calculated at historical cost is not a deductible expense for taxation purposes, as many as 72% of accountants/companies saw this as a significant reason to refrain from using fair value for measurement of property, plant and equipment.

An increased risk of errors and irregularities in financial reporting, more opportunities for shaping (adjusting or fine-tuning) of profit or loss to be reported and potential fraud are commonly associated with fair value accounting [15], [16]. It was interesting for us to investigate the attitudes of Serbian accountants relating to these issues.

- d) One of the reasons for resisting fair value implementation may be the increased risk of errors and irregularities in financial reporting. Interestingly, as few as 3% of the examined accountants saw this issue as extremely significant, while as many as 46% considered it insignificant (27% said it was almost insignificant, while for the

remaining 19% it was completely insignificant). Virtually no differences were identified between the medium-sized and large company accountants in respect of this issue.

- e) An overwhelming majority of accountants/companies sampled and examined believe that fair value should not be used because of greater opportunities for fine-tuning of profit or loss (72% in total, of which 18% saw this as an extremely significant reason, 27% said it was rather significant, while for another 27% it was moderately significant).

- f) Finally, 63% of accountants perceived making mistakes and irregularities deliberately to enable manipulations in the financial reporting process as a significant reason to disallow the use of fair value, 36% of which recognized it as an extremely significant reason, 3% as rather significant, and 24% as moderately significant. However, slightly over one third of examinees (36%) did not see the fair value concept as a suitable means for fraudulent action.

We then went on to examine whether the complexity and relatively high costs of fair value implementation

Figure 6: Increased risk of errors and irregularities as a reason for nonacceptance of the fair value concept

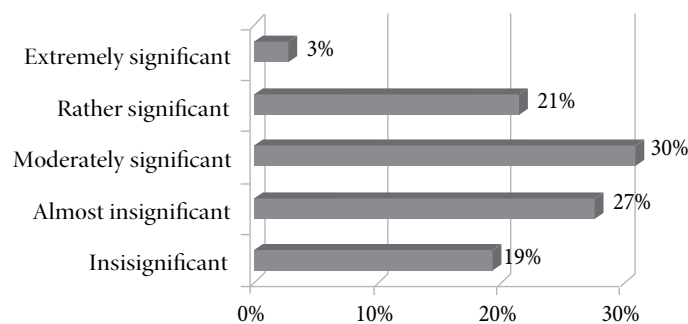
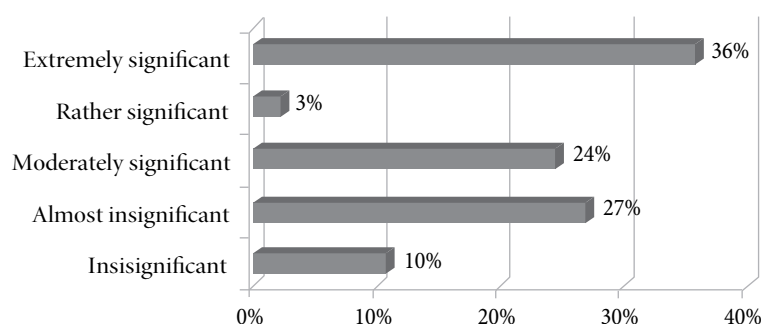


Figure 7: Fair value as an instrument of fraud as a reason for nonacceptance of the fair value concept



could be potential reasons for accountants' disinclination to use this concept.

- g) Only 4% of examinees perceived the complexity of implementation as an extremely significant reason for rejection of the fair value concept. Another 23% of accountants thought this reason was significant. Surprisingly enough, as many as 72% did not see any significant complexity in implementation of the fair value concept. This view was particularly expressed by the accountants in medium-sized entities (82% of all examinees).
- h) High costs of fair value assessment were ranked as a moderately significant reason for abandoning the use of fair value by most examinees (36%).

An interesting finding we identified is the fact that, even though companies perceived the fair value assessment as not overly complicated and expensive, an inconsequential number of the companies in the Republic of Serbia had the fair value of their assets appraised each year (0.5%), a small number every two years (24.9%), whereas the largest number had the fair value assessed every 3 to 5 years (74.7%). The only explanation for such a contradiction might be the fact that, in the opinion of accountants, the fair values of property, plant and equipment items did not undergo any significant changes in the prior period.

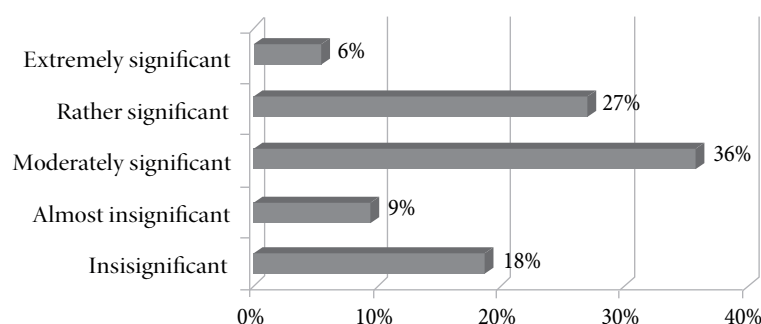
Eventually, we wanted to investigate whether business companies in the Republic of Serbia complied with certain good practices. We asked the examinees the following yes/no questions:

- a) Is your company committed to ongoing education and training of all employees involved in implementation of fair value accounting in order to ensure a high level of their technical competences?

- b) Are the responsibilities for identification and assessment of risks inherent in fair value accounting appropriately assigned?
- c) Have the external factors affecting the fair value measurement (such as decline of quoted prices in the relevant markets, emergence of new competitors, new competitor products and changes in technology) been identified and assessed?
- d) Is there a proper segregation of duties in place, such as separation and segregation of the functions determining the fair values from the functions accounting for the fair value adjustment and those reviewing the financial statements?
- e) Are the selected valuation methods (techniques) used in the fair value assessment and application thereof regularly reviewed?
- f) Has the independence of expert valuers/appraisers been verified?
- g) Have the Board of Directors/Managing Board and Audit Committee been adequately informed of and explained all the issues and procedures in fair value assessment?
- h) Are there appropriate levels of interaction among the management, employees and valuers/appraisers regarding the issues related to the fair value assessment?
- i) Does the internal audit function periodically review the financial statements focusing on the implementation of fair value accounting?

The chart below illustrates the results of this survey. The results show that in 54% of companies there was commitment to ongoing education and trainings, as opposed to the remaining 46%, which is a rather

**Figure 8: Expensive procedure as a reason for nonacceptance of the fair value concept**

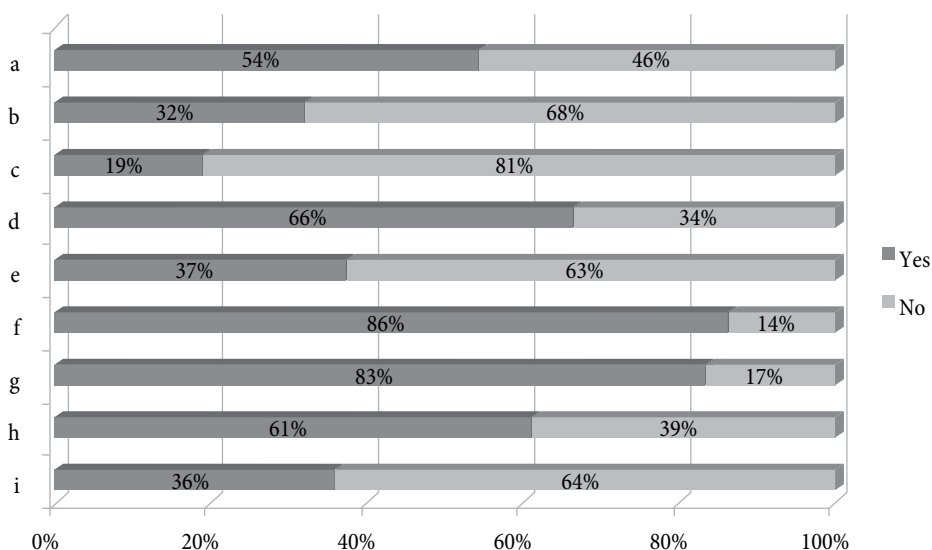


unsatisfactory finding given the complexity of the issues at hand and continuous amendments to and revisions of IFRS. Negative implications regarding the implementation may result from inadequate assignment of responsibilities for identification and assessment of risks inherent in this financial reporting concept – only 32% of examinees claimed that they had adequate and proper assignment of responsibilities. The gravest problem was observed with identification and assessment of external factors affecting the fair value measurement (question c), since the identification and assessment of such factors was performed in merely 19% of the examined companies, while the remaining 81% did not undertake such activities. The situation in respect of the segregation of duties, such as separation and segregation of the functions determining the fair values from the functions accounting for the fair value adjustment and those reviewing the financial statements (question d), was sound as 66% of the examined companies had such segregation in place. Most of the companies in the Republic of Serbia (63%) did not perform periodic reviews of the selected methods. On the other hand, a promising finding of the present study is that a vast majority of the companies in the Republic of Serbia (86%) did verify the independence of the experts hired for fair value assessment (question f), although, at the same time, we were concerned by the fact that 14% of companies failed to do so. As was the case with the previous question, the largest number of companies (83%) claimed that their Board of Directors

and Audit Committee had been adequately informed of and explained all the issues and procedures in fair value assessment (question g), which is certainly a positive finding. Not as overwhelming majority of the sampled companies (61%) confirmed that there were adequate levels of interaction among the management, employees and valuers/appraisers regarding the issues related to fair value assessment, whereas in 39% there was no such interaction. Finally, a relatively small number of employees, some 36%, confirmed that their internal audit function carried out periodic reviews of the procedures in the area of fair value accounting implementation (question i). There are two possible explanations for this finding: (i) the companies had no internal audit function in place or (ii) the companies did not realize the significance of additional confirmation of appropriateness in fair value implementation that this function can provide.

A more detailed analysis of the results performed according to the company size clearly showed that problems relating to proper implementation of fair value accounting were more apparent in medium-sized entities. Such situation probably arose from the limited number of employees for adequate education and training (43% in medium-sized against 68% in large companies), poor assignment of responsibilities for risk identification and assessment (21% in medium-sized against 41% in large companies), and ineffective functioning of the internal control system (29% in medium-sized against 50% in large companies).

Figure 9: Compliance with good practices across Serbian companies



## Conclusion

The results of the conducted research suggest a relatively high inclination of companies in Serbia to implement the fair value concept. Within total corporate assets, the largest share of assets measured at fair value is that of property, plant and equipment, followed by equity investments in other entities and intangible assets. It is interesting to note, however, that all the investment property is measured at fair value and that the fair value model is largely used for property, plant and equipment, although it is not mandatory. Fair value accounting would probably be used to a greater extent if there were no limitations to its application to financial assets; the underdeveloped financial market in the Republic of Serbia provides little opportunity for the use of mark-to-market fair value measurement of financial assets. The main problem relating to the Level 1 fair value measurement is the absence of active and liquid markets for a number of assets and, hence, lack of the “actual” market prices as fair value indicators. Trade in numerous corporate shares in Serbia is rather low in volume and rare, inasmuch as some shares are not even traded once a year. Therefore, the application of the mark-to-market measurement is in most cases impossible, excluding the four companies’ shares within the Prime listing and three companies’ shares within the Standard listing.

Fair value accounting is mostly used by large companies, where more than a half of the total assets are measured at fair value. The predominantly applied approach is the income approach. Fair value assessment using valuation models is most commonly performed by agencies, sometimes by audit firms and very rarely by appraisal court witnesses or the entity’s own staff.

The fact that it is uncommon for European companies to use fair value for their property, plant and equipment is viewed by Serbian accountants as not too important, yet not quite unimportant when deciding whether to apply the fair value concept to their own property, plant and equipment. In contrast to the foregoing, the accountants in Serbia quite firmly believe in arguments used in promoting this valuation concept – that fair value provides the most useful and relevant information to investors. The complexity and high costs of fair value accounting seem to be of little concern to them, which may result from their

insufficient understanding of IFRS. Nevertheless, in the opinion of the vast majority of Serbian accountants, the reasons that make the fair value concept unattractive are the fact that it may result in lower interim profits and the fact that companies could not get tax savings from higher depreciation charge.

Although almost a half of examinees find that the problem of increased errors and irregularities occurring upon fair value application is not really significant, nearly three quarters of accountants view fair value as a tool for management of earnings, whereas for two thirds of them the fair value concept is a tool for manipulation and fraud in financial reporting.

A finding that causes concern is the fact that about a half of the examined companies do not conduct ongoing trainings for accountants in fair value accounting and that close to two thirds of them do not carry out periodic reviews of the selected valuation models and procedures which are performed by companies’ accountants or internal auditors.

In order to prevent potential abuses in fair value implementation, the financial reporting regulators must devote considerable efforts to precisely define the qualifications for accountants, including requirements that they pass additional exams to obtain the relevant certificates and requirements regarding their continuous education. The regulators have to define the professional standards for field work, standards for quality control of the work accountants perform, sanctions for inadequate practices and criteria for granting and withdrawal of licenses. In addition, the regulators have to review the current position of the accounting profession, given that the recent legislative solutions have cast serious doubts as to its credibility.

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## COMPARATIVE ANALYSIS OF LEGAL FRAMEWORK FOR INTERIM FINANCIAL REPORTING IN SOUTHEAST EUROPE

Komparativna analiza pravnog okvira kratkoročnog  
finansijskog izveštavanja u jugoistočnoj Evropi

### Abstract

Interim financial reporting is the process of preparation, compilation and disclosure of financial statements for periods shorter than one year. The most commonly discussed are semi-annual and quarterly reporting. In many countries, interim financial reporting is compulsory for companies whose securities are traded on a regulated market and is regulated by both national capital market legislation and international regulations - this refers primarily to IAS 34 and the EU Transparency Directive. This paper analyzes the legal framework for interim financial reporting in ten Southeast European countries. Despite the ongoing process of harmonizing accounting regulations and the fact that all observed countries have adopted IAS/IFRS, the analysis has shown that differences in interim reporting persist and are significant. They are particularly prominent in non-EU countries and in segments where international regulation has left flexibility to national regulations. The results of this research may be of value to investors, regulators and future researchers looking at the quality of interim financial reporting.

**Keywords:** *interim financial reporting, legal framework, Southeast Europe, IAS, US GAAP, capital market, transparency.*

### Sažetak

Kratkoročno finansijsko izveštavanje predstavlja proces pripremanja, sastavljanja i obelodanjivanja finansijskih izveštaja za periode kraće od godinu dana. Najčešće se govori o polugodišnjem i kvartalnom izveštavanju. U mnogim državama kratkoročno finansijsko izveštavanje obavezno je za preduzeća čijim se hartijama od vrednosti trguje na organizovanom tržištu i regulisano je kako nacionalnim propisima iz oblasti tržišta kapitala, tako i međunarodnom regulativom, pre svega MRS 34 i EU Direktivom o transparentnosti. U ovom radu se analizira pravni okvir kratkoročnog finansijskog izveštavanja u deset država jugoistočne Evrope. Uprkos kontinuiranom procesu harmonizacije računovodstvenih propisa i činjenici da su sve posmatrane države prihvatile MRS/MSFI, analiza je pokazala da su razlike u pogledu kratkoročnog izveštavanja i dalje prisutne i značajne. One naročito dolaze do izražaja kod država koje nisu članice Evropske unije i u segmentima u kojim je međunarodna regulativa ostavila fleksibilnost nacionalnim propisima. Rezultati ovog istraživanja mogu da budu od značaja za investitore, regulatore i buduće istraživače koji se budu bavili kvalitetom kratkoročnog finansijskog izveštavanja.

**Ključne reči:** *kratkoročno finansijsko izveštavanje, pravni okvir, jugoistočna Evropa, MRS, US GAAP, tržište kapitala, transparentnost.*

<sup>1</sup> The views expressed in this paper are those of the author and do not necessarily represent the views of the institution in which the author is employed.



## Introduction

Financial reporting should not be observed merely as a legal obligation imposed by regulatory authorities. It is an important segment in creating trust between the reporting entity on the one hand and all other stakeholders on the other. This is especially pronounced on the capital market, as financial statements can serve to reduce information asymmetry and thus create a favorable environment for investment activities.

The rapid development of corporate business and the development of the capital market triggered by the industrial revolution have led to the development of new methods and forms of financial reporting. The separation of management from ownership function in the company and often expressed dispersion of ownership have strengthened the importance of financial reporting and increased the need to take accountability for company performance. This was accompanied by the business complexity and the changing business environment, so the period of one year became too long for stakeholders to be without information about company's operations.

Indeed, the importance of timeliness and availability of financial position information has led many countries to define, through their national laws, mandatory semi-annual reporting, and even quarterly in some cases. This should allow financial statement users to have significant and up-to-date information for making business decisions. However, despite the existence of international regulations in the field of interim financial reporting and the tendency to reach harmonization in the reporting across the countries, differences remain in national regulations, but also in their implementation. This makes reporting more difficult for entities which operate in more than one country, and for users to understand the disclosed information, as well.

With this in mind, we will analyze the legal framework for interim financial reporting in ten Southeast European countries - Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Montenegro, North Macedonia, Romania, Serbia and Slovenia, focusing on companies whose securities are traded on a regulated market.

The analysis has two objectives. First, to determine the extent to which national legislation differs among the

observed countries and second, to designate whether the national legislation is compliant with the international regulations.

The paper contains three parts. The first part gives a brief overview of the interim reporting development and its benefits for internal and external users. The second part is a presentation of the relevant international regulations, while the third part presents the results of the analysis, i.e., a review of the interim reporting requirements in Southeast Europe. Finally, the last section presents concluding remarks followed by a list of references.

## Development and benefits of interim financial reporting

The need for interim financial reporting (IFR), i.e., reporting for periods shorter than one year, first arose with internal users. Namely, improving business performance forecasting, value creation control, and identifying operational and financial risks required information that went beyond the scope of the annual financial statements.

In addition, internal users also needed information on individual profit centers, products, points of sale, and all that more often than once a year.

By accepting the changes that were inevitable, the redefinition of traditional governance systems was becoming increasingly imperative. In modern business context, performance management requires more flexibility and more qualitative indicators, in addition to the inevitable quantitative benchmarks. Moreover, creating and maintaining a competitive position in the market entails developing an early warning system and more effective control in the value creation and implementation plans. Managers were aware that rapid response to emerging business conditions is not only a prerequisite for creating a competitive advantage, but also a prerequisite for survival in the market, so they have demanded greater support from the information system. This support was reflected in more frequent reporting and in a form tailored to the needs of users and for different business segments. In that way, interim financial reporting was developing, though not legally established for the internal users' needs; the reporting form is flexible, and it usually contains relevant

non-financial information, in addition to financial. However, while the value of timely information for owners and managers is indisputable, and therefore the importance of IFR, there are also some risks that should be borne in mind, such as the possibility of managerial myopia and neglected value creation in the long term [11].

Some of the companies that have operated successfully have started voluntarily to publish their interim reports to show external users that the activities they undertake are in line with the plan and positive results. Meanwhile, investors' aspirations to minimize the information gap, relative to internal users, have also led to mandatory external interim reporting in most countries. The United States of America (USA) has the longest history of external interim reporting, where the New York Stock Exchange advocated the introduction of interim reporting in the early 20th century. The Securities and Exchange Commission (SEC) formally introduced this obligation immediately after World War II<sup>2</sup>. According to Mensah and Werner research [23], Canada has followed the United States and introduced the requirement for quarterly reports in 1971. In Europe, the London Stock Exchange was among the first that required semi-annual reporting, but the UK, like Austria, formally adopted IFR through the Accounting Standards Board only in 1997. Numerous analyses of the interim reporting benefits can be found in the existing literature, but it seems that authors have most often investigated the impact on information asymmetry and capital costs.

If we observe information asymmetry from the aspect of the capital market, through the relationship between managers and investors, then it represents a factual situation, which all participants are aware of. However, in a modern, dynamic and competitive environment, financial reporting is a way of communicating with investors and other stakeholders and has influence on company's reputation. But, that financial reporting role also carries significant risk. In the communication process, everyone wants to make a good impression to the other side, and so does the company's management on investors. This tempts reporting entities to present the real situation better than it is. This is

probably the reason due to which previous research about the impact of financial reporting frequency on information asymmetry has not led to the same conclusions. There are a number of authors who confirm the hypothesis that more frequent financial reporting reduces information asymmetry between managers and investors [3], [6], [22]. However, we should not overlook the authors who believe that more frequent financial reporting opens more space for more sophisticated investors to profit from the private information they have [14].

When it comes to the relationship between financial reporting and cost of capital, it is of great importance to reporting entities, regulators and investors themselves. Systemic risk-based capital appreciation models, such as the Capital Asset Pricing Model (CAPM) and portfolio theory, always emphasize the importance of identifying risk that can be diversified and one that cannot. With this in mind, for financial reporting researchers, it has been a challenge for years to prove whether accounting information can have an influence on costs of capital. If the cost of capital is seen as an expected return on shares [12], then it is logical to assume, in line with economic theory, that more frequent and better disclosure of information would have the effect of better assessing investment opportunities and reducing uncertainty. Numerous studies support the existence of a negative relationship between disclosure levels and cost of capital. Botosan [2] points out that more information provides higher market liquidity, thereby reducing capital costs, either by reducing transaction costs or by increasing demand for securities. In addition, he suggests that a higher degree of publication reduces the risk associated with investor ratings of return on investment. Other authors have had similar conclusions [4], [7], [14], [21]. Nevertheless, there are studies that have shown the opposite direction of nexus or the absence of interconnectedness between these variables [5], [15].

Although IFR plays a major role in protecting investors and reducing uncertainty, it should be borne in mind that these benefits are only achieved through high quality reporting, especially since the interim financial statements are not usually audited, contain considerable estimates and are subject to seasonal variations. In order

<sup>2</sup> "United States Steel" is considered as the first company in the USA that released its quarterly financial information. That was in 1902.

to minimize these risks, it is important to follow best practices and professional regulations when designing them.

### International regulation requirements in terms of interim financial reporting

The need for developing unified and generally accepted reporting standards was especially evident in the post-World War II period when there was a more intensive capital flow movement among the countries. Existence of differences in national regulations makes financial reporting more difficult and more expensive for companies that operate in different countries. However, those differences limit the analysis and represent an obstacle to foreign investors and other users of financial statements. The globalization process has accelerated the harmonization of accounting regulations. It is difficult to achieve a full harmonization, but not some general principles that would be acceptable to a larger number of countries. Because of its importance, IFR is, in addition to national regulations, regulated by international regulations, and below is a review of the most important requirements.

#### International accounting standard 34

As in the case of all other International accounting standards (IAS) and International financial reporting standards (IFRS), IAS 34 is applicable only if it is mandatory to apply IAS/IFRS under national or some other international regulations (e.g., European Directives for Member States). Furthermore, for this standard to be applicable and purposeful, it is also necessary that there is an obligation or reporting entities' will to compile and present financial statements for periods shorter than one year. Both conditions must be met.

The standard does not mandate which entities are required to prepare interim financial reports, how frequently, and in what time after the end of that period they need to disclose their reports. However, many countries have mandated interim financial reporting by their national legislation. In some countries, it is mandatory for all companies; in some it depends on the industry or the size of the company, while in almost all countries this

obligation is imposed on companies whose securities are traded on a regulated market. Bearing in mind the representation and importance of IFR, it was justified to regulate this segment of financial reporting through IAS.

The objective of IAS 34 is to prescribe the minimum content of interim financial reports and to prescribe the principles for recognition and measurement in complete or condensed financial statements for an interim period [16]. Timely and reliable interim financial reporting improves the ability of investors, creditors and other users to understand the ability of the entity to generate profit and cash flow, financial circumstances, and performances of the entities.

By this standard, the International Accounting Standards Committee encourages publicly traded companies to provide interim financial statements and [16]:

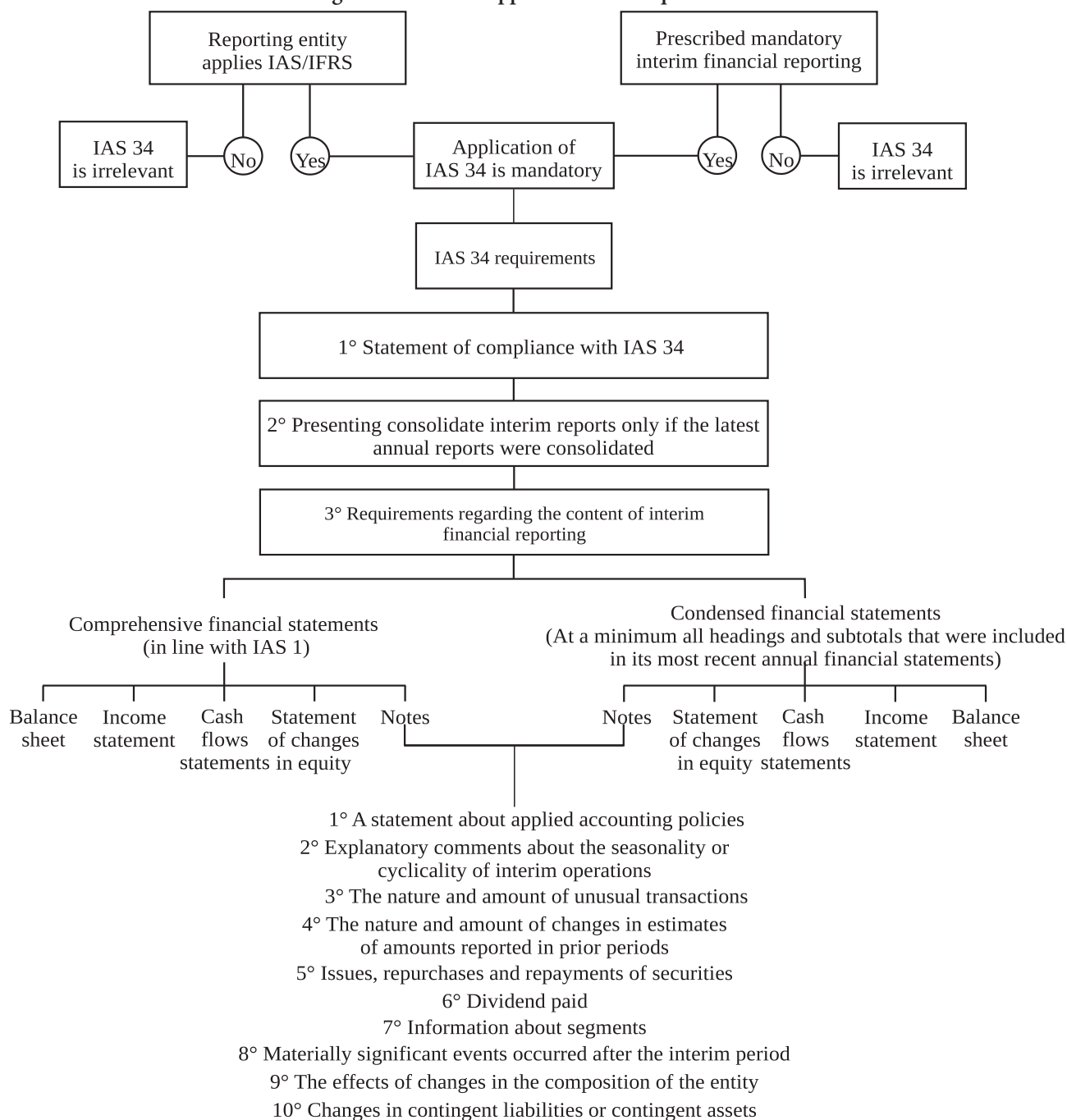
- (a) to do that at least as of the end of the first half of their financial year, and
- (b) to make their interim financial statements available not later than 60 days after the end of the interim period.

Given that the interim financial statements update the data from the last annual reports, their focus should be on the events that occurred in the observed interim period, and may contain less information than the annual reports, respecting the principle of materiality. Nevertheless, the standard sets out the requirements that interim financial statements should meet to make the declaration of compliance with the standards justified. These requirements are presented in Figure 1.

The standard leaves it as an option for national legislation and the entities themselves to choose whether to prepare and publish a complete or condensed financial statements. Thereby, regardless of which set is in place, it should include all financial statements, and the complete or condensed set refers to the level of data breakdown in each of the individual statements. Depending on the observed statement, the comparable period of the previous year may be the same interim period from the previous year or the end of the previous year.

This standard has been applied since 1999 and has so far undergone three amendments. The first was in 2010 in terms of significant transactions and events. The second

Figure 1: IAS 34 – Application and requirements



Source: Author's illustration based on IAS 34.

Table 1: The overview of comparable interim periods under IAS 34

Statement	Current year	Comparative period
Statement of financial position	As of the end of the current interim period	As of the end of the immediately preceding financial year
Statement of profit and loss and other comprehensive income	For the current interim period and cumulatively for the current financial year to date	For the comparable interim periods (current and year-to-date) of immediately preceding financial year
Statement of changes in equity	Cumulatively for the current financial year to date	Comparable year-to-date period of the immediately preceding financial year
Statement of cash flows	Cumulatively for the current financial year to date	Comparable year-to-date period of the immediately preceding financial year

Source: Author's illustration based on IAS 34.

one in 2012 was related to segment reporting, and the third was in 2014 regarding disclosure of information in IFR.

### Transparency Directive

The latest form of accounting practices harmonization is in the European Union (EU) regulations, which in addition to the EU Member States, are also applicable to Iceland, Liechtenstein and Norway, which are members of the European Economic Area. Although the preparation of European directives began in 1965, the first directives were finalized almost twenty years later.

The EU Directive, which primarily regulates the field of financial reporting, is the Directive on the annual financial statements, consolidated financial statements and related reports for certain types of enterprises [9]. With the adoption of that Directive, Directives 78/660/EEC and 83/349/EEC, better known as the Fourth and Seventh Directives ceased to be valid. Also, from the aspect of financial reporting and the application of certain directives, the Regulation on the application of international accounting standards [32] is also important. The aim of the Regulation is the adoption and application of IASs in order to harmonize the financial data that companies publish, and ensure a high degree of transparency in the comparability of financial statements, plus efficient functioning of the capital market. This Regulation prescribes the mandatory implementation of the IAS/IFRS in the preparation of consolidated financial statements, while for the unconsolidated reports this obligation is not strictly prescribed. In addition to this Directive, the Transparency Directive is of great importance and is compulsory for companies whose securities are listed on the stock market.

The Directive on the harmonization of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market was adopted on 15 December 2004 and is often referred to as the Transparency Directive [8]. This Directive aims to improve the quality of information on issuers of securities having headquarters or operating activities on the territory of the European Union. Publication of accurate, comprehensive and timely information of issuers' financial position enables the higher level of trust among the users of the reports.

In this way, users - investors and other stakeholders can evaluate and analyze operating results based on timely information. This increases both the protection and the efficiency of the market. This Directive introduces a more comprehensive half-yearly reporting for the securities' issuers, and Member States can regulate issues from the scope of this Directive by additional and more stringent requirements. In accordance with the Directive, the issuer of securities is obliged to publish semi-annual financial statements as soon as possible, and at the latest within three months from the expiry of the reporting period. As well as annual, the semi-annual statements should be available to the public for a minimum of ten years. The content of semi-annual financial statements is shown in Figure 2.

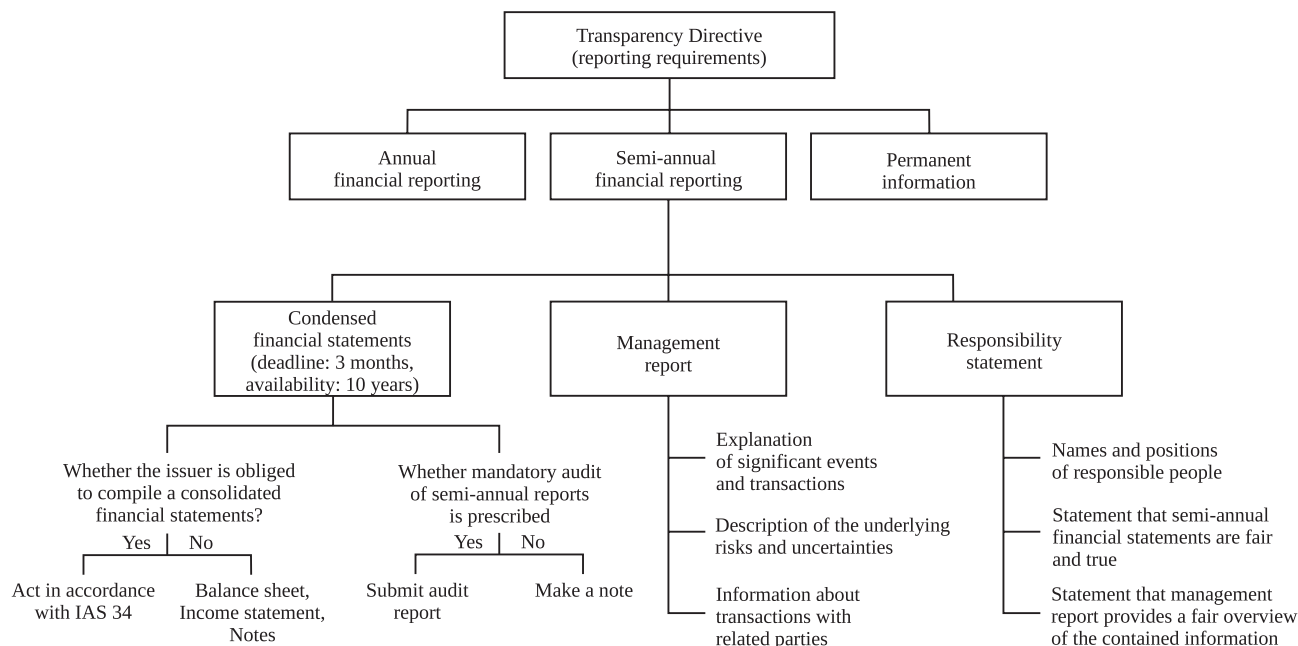
The Transparency Directive was amended in 2008 (Directive 2008/22), then in 2010 (Directives 2010/73 and 2010/78) and again in 2013 (Directive 2013/50). The amendments from 2013 include, inter alia, provisions related to interim financial reporting. The purpose of these amendments was to:

- Reduce the administrative burden on small and medium-sized enterprises - issuers, in order to improve their access to capital, and
- Improve the effectiveness of the transparency regime, in particular with regard to the disclosure of corporate information.

These amendments extend the deadline for the publication of semi-annual reports from two to three months, as well as the availability of reports to the public from five to ten years. These changes had to be incorporated into national legislation by 26 November 2015.

In addition to the Transparency Directive, the European Parliament and the Council also adopted in 2007 a Directive on the establishment of more detailed rules for the implementation of the provisions of the Transparency Directive and the harmonization of the requirements for transparency [10]. The Directive states that in cases when semi-annual financial statements are not compiled in accordance with IAS, they must not lead to misunderstanding of the assets, liabilities, financial position, and profit or loss of the issuer. The content of the reports should ensure adequate transparency to investors through a regular flow of information about the results

Figure 2: Transparency Directive requirements for interim financial reporting



Source: Author's illustration based on the Transparency Directive.

of the issuer, and this information should be presented in a way easily comparable with the information in the annual report. If the issuer publishes a condensed set of financial statements, and in the case when it is not obliged to prepare and publish them in accordance with IAS, then the condensed balance sheet and the condensed profit and loss statement (income statement) show at a minimum all headings and subtotals that were included in the latest annual financial statements. The reporting entity should include additional items if they are materially significant. The semi-annual reports must contain a comparative period data, which for the balance sheet is the end of the immediately preceding financial year, while for the income statement it is the same interim period of immediately preceding year. In addition, the condensed set should also include Notes to the financial statements to ensure the comparability of the period, and enough information that the user of the report can accurately understand all significant changes in the amount and all movements in the observed period.

### US GAAP, ASC 270 – Interim financial reporting

As noted in the first part of the paper, the USA has the longest IFR tradition. Listed companies have been required

to submit their quarterly sales reports since 1946. However, this practice was abolished in 1953, but the interruption lasted only two years, after which semi-annual reporting was introduced and the form on which companies were required to submit data was prescribed [34]. A few years later, the Stock Exchange reintroduced the requirement for quarterly reporting in the form of quarterly income statement. Shortly thereafter, the Accounting Standards Board issued an act introducing quarterly financial reporting<sup>3</sup>.

Today, the basis for IFR in the USA is in the Standard 270, which is intended to provide guidance regarding the disclosure of interim financial statements for listed companies, although this guidance may apply to other entities that report more often than once a year.

The standard itself does not oblige companies to report more frequently, but it also suggests that the listed companies should disclose information on financial positions, results of operations and cash flows on a monthly or quarterly basis [36]. Like IAS 34, US ASC 270 permits the application of condensed balance forms for

<sup>3</sup> The Accounting Standards Board is a body within the Financial Accounting Foundation, which was established in 1973 as an independent, private and not-for-profit organization that has a mandate to issue accounting standards. Up to that point, SEC had jurisdiction over the accounting standards.

IFR, cumulatively from the beginning of the year or for each period individually, including adequate comparative data from the previous year. Also, the same accounting policies as for the last annual report are required, and any differences should be disclosed. However, there are some significant differences with respect to IAS 34 that are worth noting (Table 2).

Companies may choose to present less information in the interim financial statements than in the annual reports, but it is necessary to disclose following information [36]:

Unless a balance sheet and a cash flow statement are provided in addition to the income statement, information on changes in the position of liquid assets, net working capital, long-term liabilities and share equity is required.

However, as in European countries, in the USA, mandatory interim financial reporting is imposed by regulations relating to the capital market. In the United States, the SEC, which is under the control of Congress, is responsible for regulating, monitoring, and applying accounting and reporting rules that listed companies

must follow. The rules themselves are developed within the SEC and through oversight and cooperation with other bodies such as the Accounting Standards Board and the Emerging Issues Task Force. According to the SEC rules, quarterly reporting is mandatory for all listed companies and is done on a prescribed Form 10-Q that is not usually audited. Quarterly reports are submitted for the first three quarters, while the fourth quarter is actually an annual report. Deadlines for submitting quarterly reports are 40 or 45 days from the end of the quarter, depending on the company's public float. The form 10-Q has two parts. The first part relates to financial information and includes: a complete set of financial statements, management discussion, qualitative and quantitative market risk disclosures, and control procedures. The second part contains other information, such as legal procedures, risks, unregistered sale of the stock, etc. [37].

If the quarterly report is not submitted within the stipulated deadline, the company may submit, within 5 days, a form in which it also reports the reasons for the

**Table 2: Differences between IAS 34 and US ASC 270**

IAS 34	US ASC 270
IFR should be viewed in a discretionary manner. This means that each interim period should be presented as a separate reporting period.	An integrated approach is used, i.e., interim periods should be seen as an integrated part of annual reporting.
If an expense relates to more than one interim period, the cost should meet the definition of assets in order to be recognized as a deferred expense. In addition, accrued liabilities should be recognized as existing liabilities at the end of the interim period.	Certain expenses, which are related to several periods during the year, may be allocated to those periods to which they relate.
The standard suggests disclosure of a complete set of financial statements.	In addition to the income statement, the standard suggests disclosure of balance sheet and cash flow statement.
It does not specify how frequently to report, but it suggests at least on a semi-annual basis.	It does not specify how frequently to report, but the standards talks about quarterly, and even monthly reporting.

Source: Author's illustration based on IAS 34 and US ASC 270.

**Table 3: Disclosure in line with ASC 270**

Sales or gross revenues, provision for income taxes, and comprehensive income	Information about defined benefit pension plans and other post-retirement benefit plans
Basic and diluted earnings per share	Information about the use of fair value
Seasonal revenues, costs, or expenses	Derivative instruments information
Significant changes in estimates or provisions for income taxes	Information about investments in debt and equity securities
Unusual or infrequently occurred items	Information about other-than-temporary impairments
Contingent items	Information about the credit quality of financing receivables and credit losses
Changes in accounting principles	Changes in accumulated other comprehensive income
Significant changes in financial position	The carrying amount of foreclosed residential real estate property and the amount of loans in the process of foreclosure
Detailed information about segments	Business combination information

Source: Author's illustration based on US ASC 270.

delay (usually when it comes to business combinations, during the audit process, etc.). However, failure to submit quarterly reports in the extended period can result in deregistration from the organized market and other legal consequences.

### Comparative analysis of mandatory interim reporting for listed companies in Southeast Europe

Previous studies in the field of IFR have largely been based on an analysis of developed countries with an active capital market. Based on the literature review, it seems that there are very few that have analyzed this area in countries where capital markets are less liquid, such as Southeast Europe (SEE). Of the ten analyzed countries, six came from the breakup of Yugoslavia: Bosnia and Herzegovina, Croatia, Montenegro, North Macedonia, Serbia and Slovenia, and these countries had identical financial reporting practices until the early 1990s. However, in recent decades, the different dynamics of the economic development of these countries have also influenced different reporting requirements. In addition to these countries, the analysis also includes Albania, Bulgaria, Greece and Romania<sup>4</sup>. All these countries are characterized by the dominance of the banking sector in relation to the capital markets, so the stock market turnover is significantly lower compared to the developed European countries. The average annual turnover in these countries in 2017 was around €2 billion, which is many times lower than the daily turnover on the London or German stock exchanges. In addition, most of the observed countries are still in the category of middle-income countries and their average GDP per capita is US\$10,405<sup>5</sup>. Although they have an organized capital market, competent regulatory bodies and a regulatory framework, most SEE countries are characterized by political and macroeconomic instability, which certainly has a negative impact on the number of active investors. However, there are notable differences

between these countries in terms of capital market and economic development. For example, ignoring Albania where stock trading has not yet developed, annual capital market turnover ranges from around €47.5 million in Montenegro to €15 billion in Greece. Furthermore, five out of ten countries are EU Member States, four have candidate status and one is a potential candidate. Given the importance of data transparency on the capital market development, we will analyze below the provisions of the regulatory framework applied to IFR in each of the mentioned countries.

In SEE countries, financial reporting is primarily regulated by the law on accounting and auditing or companies' law, depending on the country. Parallel to this, if we look at listed companies, financial reporting is additionally regulated by regulations in the field of capital market.

Non-EU countries voluntarily and in accordance with the recommendations of IAS 34 oblige companies whose securities are traded on a regulated market to report for a period shorter than one year, in addition to the annual financial reporting. On the other hand, EU Member States were obliged to comply with their national regulations in the previously stated way, in accordance with the relevant EU Directives. Accordingly, IFR is prescribed in all SEE countries, and the normative framework, although at first glance looks rather harmonized, still differs significantly, and there are also discrepancies between the relevant laws within the countries individually.

Considering the companies whose securities are traded on a regulated market, in all countries subjected to the analysis, the application of IAS is mandatory, even though some of the observed countries, such as Croatia, Slovenia, Albania, Bulgaria, Romania and Greece, have developed their own national standards. However, in non-EU countries, this obligation applies to both unconsolidated and consolidated financial statements, while in EU Member States, under the Regulation [32], the application of IAS/IFRS for listed companies is mandatory when they prepare consolidated financial statements. But, Member States determine the rule for unconsolidated financial statements by their own national legislation and certain ambiguities may arise. For example, in Bulgaria, the Accountancy Act [1] stipulates

<sup>4</sup> Given that there is no universally accepted definition of Southeast Europe, the coverage of countries may differ in part from the above.

<sup>5</sup> For example, in Germany is US\$44,771, Switzerland US\$80,643 and Luxembourg US\$105,713.



that listed companies apply IAS/IFRS for annual reports and then, it is also stipulated that interim financial reports of those companies should be prepared by using the same standards as for annual statements. However, the Public Offering of Securities Act [30] leaves the possibility that individual financial statements do not comply with IAS/IFRS. In Romania, IAS/IFRS also apply to the individual financial statements of listed companies since 2012, but capital market regulation still distinguishes between consolidated and unconsolidated statements. In Greece, the Greek Accounting Standards Act [17] prescribes the mandatory application of IAS/IFRS for listed companies. Slovenia stipulates that IAS/IFRS are not mandatory for individual (unconsolidated) interim financial statements.

In some countries, regarding the content of interim financial reports, the regulation provisions are not fully precise and clear. While in the Republic of Srpska (RS) [43] the law is precise in this respect, requiring a mandatory complete set of financial statements in accordance with IAS, in the Federation of Bosnia and Herzegovina (FBiH), the Law on Securities [47] stipulates that the balance sheet and income statement have to be submitted, but in the Law on Accounting and Auditing [42] it is stipulated that all companies, including listed, have to submit a full set of financial statements (including Notes). Additionally, the regulatory body for securities in the FBiH also prescribed an obligatory form of interim financial statements, and the form envisages all five reports from the set. In Croatia, as well as in Serbia, it is stipulated that interim financial statements contain condensed financial statements in accordance with accounting standards [45], [46]. Slovenia has prescribed a condensed set of financial statements if the company is obliged to follow IAS, i.e., to consolidate the report, and if it does not follow international standards, then balance sheet, income statement and notes to the financial statements are mandatory [13]. It is similar in Bulgaria, Greece and Romania [30], [35] and [18]. In North Macedonia, it is stipulated that the interim financial statements are conducted in accordance with IAS, including all statements from the set, apart from Notes, which is contradictory, as the standard requires all five reports [20]. In Albania, the Law on Securities [19] stipulates the obligation of both semi-annual and quarterly

reporting, and it is stated that the content of the report is prescribed by a special act. However, that act has not yet been adopted or is not available, and Albania still does not have a developed stock exchange where it is possible to trade with shares.

The interim management report is not defined by IAS, but by the Transparency Directive and is mandatory for all EU Member States as a part of semi-annual reporting. Consequently, this report is not mentioned in the national legislation of some non-EU SEE countries: Albania, BIH and North Macedonia. In other observed countries, the legal obligation for compiling and submitting this report is prescribed. In Croatia, it is stipulated that the report should contain all significant business events in the observed period, the expected future development of the company, research and development activities, information on the purchase of own shares, the existence of subsidiaries, information on financial instruments of the company, the goals and policies of the company in relation to risk management, risk exposure, and comments on individual positions in the financial statements [45]. In Bulgaria, Greece, Slovenia and Romania, it is stipulated that the report should contain the main mid-year events and their impact on the outcome, a description of the main risks and uncertainties until the end of the year, and a description of transactions with related parties. In Serbia, the obligation to disclose this report has been defined by law for several years, while Montenegro, which is a candidate for EU membership as Serbia, has introduced this obligation by adopting the new Capital Market Law (end-2017), and in that way brought it closer to EU requirements. The compilation of this report for quarterly reports is on a voluntary basis, as the Directive does not require this degree of frequency.

The responsibility statement is the statement by those who are responsible for the information in the interim financial statements and interim management report that, according to their knowledge, reports are fair and true presentation of the development and results of the issuer's operations and position. The statement also includes a description of the risks and uncertainties. It is mandatory in the EU countries, which means in the five monitored SEE countries. Nevertheless, this obligation is

also prescribed for listed companies in Montenegro, North Macedonia and Serbia, but not in other SEE countries that are not EU members (Albania and BIH).

Consolidation of interim financial statements for companies that make up the group is mandatory if the last annual financial statements were consolidated. For the preparation and submission of consolidated interim financial statements, national legislation in some SEE countries prescribes somewhat longer deadlines than for semi-annual and quarterly individual financial statements. For example, in Bulgaria, the deadline for unconsolidated reports is 30 days, but for consolidated it is 60 days.

In accordance with international and domestic regulations, the audit of interim financial statements is not mandatory in SEE countries. An exception is Greece, where the Transparency Directive states that Greek-based companies submit semi-annual reports to an external auditor [35]. In all other countries, it can be done on a voluntary basis and in this case, issuers are obliged to

submit an auditor's report. Otherwise, if the reports are not audited, the issuers are required to indicate that these are non-audited financial statements. It is interesting that in the six countries of the former Yugoslavia, of all companies that make stock exchange indexes within each country (about 150 companies), there is only one company that had an auditor's report for the semi-annual reports in 2017.

The reporting frequency varies between the countries. Semi-annual reporting for listed companies is prescribed in all countries. Although quarterly reporting is required neither by IAS/IFRS nor by European Directives, it is prescribed by national legislation in eight out of ten observed countries (either for certain or for all segments of capital market). As for the observed countries, quarterly reporting is optional only in Greece, North Macedonia and Slovenia. In North Macedonia, quarterly reporting was required until 2013 when it was repealed by amendments to the law. Similarly, in Greece it was mandatory until 2016. The deadlines for submission of quarterly reports range from

**Table 4: Regulation requirements regarding IFR in SEE**

	Accepted IAS for listed companies	Semi-annual management report is mandatory	Audit of interim financial reports is mandatory	Disclosure of consolidated interim reports	Disclosure of responsibility statement
Albania	✓	X	X	✓	X
BIH - RS	✓	X	X	✓	X
BIH - FBIH	✓	X	X	✓	X
Bulgaria	✓	✓	X	✓	✓
Croatia	✓	✓	X	✓	✓
Greece	✓	✓	✓	✓	✓
North Macedonia	✓	X	X	✓	✓
Montenegro	✓	✓	X	✓	✓
Romania	✓	✓	X	✓	✓
Serbia	✓	✓	X	✓	✓
Slovenia	✓	✓	X	✓	✓

Source: Author's analysis based on the legal framework [1, 13, 17-20, 25-31, 33, 35, 38-47].

**Table 5: Frequency and reporting deadlines for IFR in SEE**

	Albania	BIH - RS	BIH - FBIH	Bulgaria	Croatia	Greece	N. Macedonia	Montenegro	Romania	Serbia	Slovenia
Reporting frequency	Quarterly	Quarterly*	Quarterly*	Quarterly**	Quarterly	Quarterly	Semi-annual	Quarterly	Quarterly**	Quarterly*	Semi-annual
Submission deadline (days)	Q - 20	Q - 30 SA - 60	Q - 30 SA - 60	Q - 30 SA - 30	Q - 30 SA - 90	SA - 90	SA - 45	Q - 30 SA - 60	Q - 45 SA - 90	Q - 45 SA - 60	SA - 90
Availability of reports (years)				Q - 5 SA - 10	Q - 5 SA - 10	SA - 10		Q - 10 SA - 10	Q - 5 SA - 10	Q - 5 SA - 5	SA - 10

Source: Author's analysis based on the legal framework [1, 13, 17-20, 25-31, 33, 35, 38-47].

Q –quarterly, SA – semi-annual

\* Obligatory for official stock exchange market segment in the RS, listing segment in FBIH, and segment of listed and regulated market in Serbia.

\*\* In Bulgaria and Romania, quarterly reporting does not include the preparation of the usual financial statements. In Bulgaria, a statement of financial conditions is required, with some explanations, and in Romania it is a review of economic and financial indicators (such as liquidity, indebtedness, etc.).

20 days in Albania to 45 in Romania and Serbia, while for semi-annual reports, in most countries, the deadline is three months, as prescribed in the Transparency Directive. This deadline in the observed EU countries was previously 60 days, but was extended by all countries, except Bulgaria, when the Directive was amended. Below is a brief overview of the frequency and timing of the interim financial report publication in SEE.

It should be noted that in the Republic of Srpska, the law [43] does not explicitly specify the deadline for submission of semi-annual reports, but the existing text leads to the conclusion that it is 30 days. However, in the Rulebook [26], the deadline is 60 days, but many companies from the Banja Luka Stock Exchange nevertheless submit reports within 30 days.

Based on the survey results, we can notice that although all countries have adopted IAS, there are still significant distinctions in regulations, but also deviations from the application of these standards. Consistent application of IAS implies disclosure of a complete set of financial statements, and from an analysis of national law provisions regarding the content of interim financial statements, we may remark that this is not the case in all countries.

These divergences in regulation suggest that there is a possible significant difference in the quality of IFR among the countries, especially if reporting practices deviate from the normative framework. This makes room for and justifies further research of the IFR quality.

Inadequate solutions in national regulations require particular caution on the part of the users of the reports and the responsibility of the regulators, since the financial statements are publicly available. In addition to the different regulation of the capital market, the unequal development of countries, the culture and the tradition of reporting, differences also exist due to the different status in the EU, i.e., the mandatory implementation of European directives.

Similar was concluded by Pervan et al. [24], who analyzed the financial reporting regulatory framework in the former Yugoslav countries in 2010, focusing on annual reports. Based on their analysis, they conclude that there are significant differences in reporting requirements, and that in addition to Slovenia (at that time the only EU Member

State from amongst the analyzed countries), Croatia and North Macedonia have more harmonized regulations with EU requirements compared to BIH, Serbia and Montenegro, where significant room for harmonization existed at the time. In the meantime, from that survey till now, we note that most countries have changed their legislation to achieve greater alignment with international regulations, especially Serbia and Montenegro. However, it should be borne in mind that the incorporation of IAS/IFRS requirements and the Directive contributes to harmonization, but this does not necessarily mean high quality, if these requirements are not applied consistently.

## Conclusion

The development of international regulation leads to a higher degree of harmonization of national regulations. However, this process is time-consuming and differences in certain segments inevitably exist. Analyzing the legal framework for interim financial reporting in Southeast Europe, we can come to the following conclusions.

First, in all analyzed countries, regardless of national accounting standards, listed companies apply IAS/IFRS. There is no doubt that consistent application of IAS 34 to interim financial statements would result in higher harmonization with regard to the content, recognition and valuation of the financial statements. However, an analysis of the real effects in Southeast Europe requires a detailed analysis of the quality of individual company reports, which is not the subject of this paper, but does provide room for further research.

Second, the Transparency Directive has led to more consistency within national regulations regarding the content and deadlines for the submission and availability of interim financial statements. Based on the analysis, we can see that in almost all EU Member States, the deadline for submitting semi-annual reports is three months and availability is ten years. In addition, it is noticeable that Serbia and Montenegro, as candidate countries, are approximating their regulations to EU requirements.

Third, significant differences exist in the segments where international regulation leaves flexibility to national legislation. An example of this is quarterly reporting. While

it is not prescribed in some countries, in others it applies to all listed companies with short reporting deadlines.

Fourth, the differences are more significant between non-EU countries. We can notice that the regulations between Albania, BIH, Macedonia and Serbia are more different than, for example, regulations between EU Member States. Furthermore, in some non-member countries, such as Bosnia and Herzegovina or North Macedonia, we notice some contradictions in regulations, e.g., with respect to the mandatory content of the interim financial statements.

Although complete harmonization of regulations is probably impossible to achieve, primarily due to differences in the size of the capital market, the degree of economic development, tradition and willingness to compromise, it should be borne in mind that the business of most securities trading companies on the regulated market beyond national borders.

The non-uniformity of reporting regulations makes reporting more difficult, but also analyzing of financial statements, especially if there are differences in the procedures for valuation and recognition of financial statement items, or in the application of different reporting standards.

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## EXPANSION OF MARKETING CHANNELS AND THEIR INFLUENCE ON TRADE IN AGRI-FOOD PRODUCTS: INTERNATIONAL EXPERIENCES

Ekspanzija kanala marketinga i njihov uticaj na trgovinu poljoprivredno-prehrambenim proizvodima – međunarodna iskustva

### Abstract

The research aims to point to the possibilities of efficient placement of agri-food products of the Republic of Serbia as one of the major strategic goals of socio-economic development. More rigorous customer demands for quality products imply an effective marketing channel design that allows fast delivery. France, as an agriculturally developed country, achieves a competitive advantage in the placement of food through the inclusion of Intertek global operator in the channel of marketing. The entire research is based on the application of several methods of modern quantitative and qualitative analysis. The result of the analysis of international experiences is the proposal of an institutional solution and sustainable development of the channel of marketing of agri-food products. Fast, flexible and vertically integrated food marketing channels play a decisive role in competitiveness in the domestic and international market of agribusiness. Increasing competitiveness at domestic, regional and international level is the outcome of the research. By examining the results of structural changes and involving Intertek operators in the food supply chain at the international level, we are pointing to the possible directions of the development of the agribusiness system in the Republic of Serbia. The way to create competitive advantages is to establish, innovate and strengthen links between the subjects of the agribusiness marketing channel as an inseparable component of the reproductive process in the agricultural and food industries.

**Keywords:** *marketing channels, agriculture, Intertek global operator, competitiveness.*

### Sažetak

Istraživanje ima za cilj da ukaže na mogućnosti efikasnog plasmana poljoprivredno-prehrambenih proizvoda Republike Srbije, kao jednog od bitnijih strateških ciljeva društveno-ekonomskog razvoja. Sve rigorozniji zahtevi potrošača za kvalitetnim proizvodima nameću efikasan dizajn kanala marketinga, koji omogućava brzu isporuku. Francuska, kao poljoprivredno razvijena zemlja, konkurentsku prednost u plasmanu hrane ostvaruje uključivanjem Intertek globalnog operatera u kanal marketinga. Istraživanje je utemeljeno na dokazima koji su izvedeni korišćenjem statističkih instrumenata i bazira se na primeni više metoda savremene kvantitativne i kvalitativne analize. Predlog institucionalnog rešenja, održivog razvoja kanala marketinga poljoprivredno-prehrambenih proizvoda, je rezultat analize međunarodnih iskustava. Brzi, prilagodljivi i vertikalno integrisani kanali marketinga hrane imaju odlučujuću ulogu u konkurentnosti na domaćem i međunarodnom tržištu agrobiznisa. Povećanje konkurentnosti na domaćem, regionalnom i međunarodnom nivou je ishod istraživanja. Sagledavanjem rezultata strukturnih promena i uključivanjem Intertek operatera u lanac snabdevanja hranom na međunarodnom nivou, ukazuje nam na moguće pravce razvoja agrobiznis sistema u Republici Srbiji. Put stvaranja konkurentskih prednosti je uspostavljanje, inoviranje i jačanje veza subjekata kanala marketinga agrobiznisa kao nerazdvojne komponente procesa reprodukcije u poljoprivrednoj i prehrambenoj industriji.

**Ključne reči:** *kanali marketinga, poljoprivreda, Intertek globalni operator, konkurentnost.*

## Introduction

A continuous supply of consumers in the food market, savings in distribution costs and productivity increase are the goals whose achievement leads to the economic growth. Well-coordinated production and consumption take strategic importance in making of business decisions. More rigorous customer demands for quality products imply an effective marketing channel design that allows fast delivery. The comparative method and statistical comparison of the world practice with the practice of the Republic of Serbia show the development, productivity and competitiveness of the agribusiness of the Republic of Serbia. An important principle of modern short supply chains is to emphasize the origin of the product. [37] This type of food chain has certain social and economic impact at regional and farm level, as well as environmental impact. France is recognizable by the distribution model, which can be translated as a short circuit or a circuit electric. Honey and vegetable producers are most engaged in this type of distribution. The type of farm distribution is the type of circuit electric used by small producers. France can serve to Serbia as an example of a well-organized and successful market on the road to future development.

## Literature review

Modern quality management is focused on linking all stages of the value creation process. In the last few decades, the procurement function has been ahead of other business functions in the company. The main goal is to provide a safe and quality product to the end consumer with cost reduction in the supply chain [17], [18]. In the 1980s, the first research that was conducted brought into the spotlight creating of additional value for more suppliers [32]. The great competitive influence of foreign companies in the European market, which is followed by internationalization and globalization of the market, contributes to the greater importance of suppliers in the domestic market [42], [46], [33]. The procurement through the inclusion of food producers in the food supply chain, along with the development of technology, is a safe way to meet the needs of demanding consumers [7], [45], [8].

The development of strategic relationships with suppliers, the exchange of information and proposals regarding the quality of goods is constantly gaining in importance [31], [15], [57]. The benefits to suppliers (growers) from intermediaries are continuity in and intimacy with local markets, and the possibility to generate efficiency through the exploitation of specialization in sorting, assorting, storing, and transporting [11]. Efficiency is important because of its effect on costs, prices and margins. To facilitate efficiency, firms reviewing channel design often find it advantageous to implement separate and unique structures to achieve basic marketing requirements [52]. It is accepted that it is an important facet of marketing channels [44], and effective communication in marketing channels is difficult enough to achieve in domestic marketing channels where culture is relatively homogeneous. But the aims of rural development lead to the question: Don't mountains and poor regions need agricultural activities [13]? Relationships within marketing channels are complicated by the presence of multiple marketing channel members.

## Role and importance of the marketing channels for agri-food products

The agricultural food market has an international and national component where there are significant opportunities for increasing the volume, quality and range of the offer, but the internal market especially opens up new opportunities. Trade in agri-food products is mainly within the states because national markets are protected by state measures from free and uncontrolled imports. Successful development of agricultural production will not give adequate results without direction through higher market price orientation and continuous structural adjustment. Lower prices will benefit consumers, and leave space for development in favor of high quality special products. The benefits to suppliers (growers) from intermediaries are continuity in and intimacy with local markets, and the possibility to generate efficiency through the exploitation of specialization in sorting, assorting, storing, and transporting [11]. Efficiency is important because of its effect on costs, prices and margins. To facilitate efficiency,

firms reviewing channel design often find it advantageous to implement separate and unique structures to achieve basic marketing requirements [52]. It is accepted that it is an important facet of marketing channels [44], and effective communication in marketing channels is difficult enough to achieve in domestic marketing channels where culture is relatively homogeneous.

Based on the perspective of long-term development factors and expected changes in the structure of nutrition, population growth, national income, income elasticity and relative prices of food products, the following data keep increasing domestic demand for basic agricultural food products.

**Table 1: Trade in food products in Serbia in retail trade**

Year	2013	2014	2015	2016
Turnover of food products (in millions of RSD)	377.776	401.266	413.520	441.472

Source: Independent processing by the author using [68].

In underdeveloped countries with the transition to a market economy, there is a decrease in agricultural production, as domestic demand decreases as a result of economic recession in the initial transition period.

The construction of the market economy model in the agrosector of transition economies starts from the necessity of realization of the following reform processes: market liberalization, restructuring of agrosectors, reform of the pre-industrial and post-industrial sector and creation of adequate market infrastructure. The demand for agricultural and food products in the international market will go towards demanding high-value, safe and environmentally reliable methods of breeding products, a lower amount of value, products without synthetic additives, products of nature, meat of animals raised in pastures. In this direction, it is necessary to orientate and look for ways of expanding the market and an efficient export channel of transport, to the advantages of agrarian resources. The developed market pays the most attention to industrial food produced for health, which improves the physical and psychological state of the organism, organic food and natural food.

Consumers are expressing interest in new products, measuring quality, cultural value and satisfaction that

food can provide them, and this will have an increasingly important place and requirements for trade and producers in proportion to income growth leading to reduction in the relative share of food costs in total household spending. Two consumer structures will be formed, those with higher income that are guided by their health needs, image of consumption, and consumers with lower income whose priorities are the amount and price of food.

The European Union has been a member of the World Trade Organization since its foundation and has accepted the GATT package, which, in addition to other agreements, includes the Agreement on Sanitary and Phytosanitary Measures, as well as the Agreement on Agriculture. The GATT deals with agricultural products in three areas:

- 1) access to market or customs concessions;
- 2) internal support (subsidies) of production; and
- 3) export subsidies.

With the agreement of the members on the enlargement of the European Union, a plan for restructuring agriculture in candidate countries was developed (Agenda 2000), which offered different instruments and a special accession program for agricultural rural development, where 520 million euros have been allocated for a six-year period. This program is designed to help candidate countries to improve their agriculture, in order to establish an adequate framework for supporting sustainable agricultural and rural development, solve problems that hamper long-term alignment of agriculture. The necessity of global integration and the level of development of the EU impose the need to include many standards of social and planning policy, with the mandatory respect for the principles of sustainability. What is primarily discussed here are regional aspects, traffic, aspects of housing and environmental protection. In order to do this, the basic planning assumptions must be changed. Therefore, CAP (Common Agricultural Policy) support, as it has been used for almost half a century, through the commodity market and prices of agricultural products, has to gradually focus on direct payments in the fields of defined cultural, regional and environmental standards.

Hence, the basic slogan of the CARPE Policy Plan (Common Agricultural and Rural Policy of Europe) is to provide economically efficient and environmentally



sustainable agriculture through the creation of conditions favoring the integral development of rural areas in the EU.

The policy advocated in this way requires the following four elements to be systematized:

1. Market stabilization – MS,
2. Environmental and cultural landscape payments – ECLP,
3. Rural development incentives – RDI,
4. Transitional adjustment assistance – TAA.

During the Uruguay Round of negotiations, due to the importance of the agricultural sector and the need for a clear regulatory framework regarding the application of the restrictions, the Agreement on Agriculture was defined. The scope of application of the agreement are agricultural products, processed foods and food products. The agreement defines specific obligations regarding the reduction of measures of domestic support and export subsidies in agriculture, as well as the protection and improvement of access to the market for agricultural products.

The rules defined in the Agreement on Agriculture relating to market access include three basic elements: the use of customs as a basic safeguard mechanism and the tariff procedure, the regulation of the use of tariff quotas and protective measures. The Common Agricultural Policy and market organization were defined in 1962, with the principles of a single market, the Union's priorities and financial solidarity.

The reduction of customs protection will apply to customs rates and according to the formula that provides higher reductions for higher customs rates. The reduction bands for developed countries will increase and will be 50% for customs rates that are currently under 20%, 57% for customs rates between 20% and 50%, 64% for customs rates in the range of 50% to 75%, whereas customs rates of more than 75% are projected to decrease by 70%. The minimum average reduction must be 54% and special restrictions for customs rates exceeding 100% are foreseen. Reductions should be made for a period of 5 years.

For developing countries, the reduction in each band will be two thirds of the equivalent reduction for developed countries, with a maximum required reduction of 36%. The reduction bands for developing countries are: for

**Table 2: Reduction of customs protection under the Agreement on Agriculture**

	Average reduction	Reduction by product (tariff code)	Implementation period
Developed countries	-36%	-15%	6 years
Countries in development	-24%	-10%	10 years

Source: [55].

customs rates over 130% reduction of 46.7%, for customs rates between 80% and 130% reduction of 42.7%, while for customs rates below 30% decrease would be 33.3%. The implementation period of the proposed solutions would be 10 years.

The export of agri-food products, primarily to the European Union market, requires the development of programs that promote domestic products. The manufacturing industry participates in the channels of marketing of agricultural products primarily in the purchase, since the purchase of agricultural products, processing companies, primarily the food industry, provide a raw material base. In addition, the processing industry is also in the function of stable raw materials supply, because it provides security to agricultural producers in terms of placements and prices.

### Intertek operators as innovation channels of the marketing of developed economies

Geographical diversity, cultural specialty and different degrees of economic development are the basic characteristics of the rural areas of the European Union. But the aims of rural development lead to the question: Don't mountains and poor regions need agricultural activities [13]? In the last decades of the 20th century, agribusiness in many parts of Europe experienced profound changes. A significant factor in these changes is the development of the Common Agricultural Policy of the European Union. Also, we should mention the development of high and communication technologies, changes in the way of life and habits of consumers. The concept of rural development has entered the practice of the countries of the European Union through the agricultural and regional development policy. Agriculture and regional inequalities in economic development are mentioned in the first constitutional

Table 3: Indicators of European Union agriculture

Indicators	Data
Total surface:	418.113 million hectares
Land resources (000 hectares):	Agricultural - 39,505 / Arable - 24,888 / Fields and gardens - 16,945
Number of farmers:	23,214,000 (2008) 22,388,000 (2009)
Number of employees in agriculture:	11,406,000 (2008) 11,018,000 (2009)
Share of employed persons in agriculture in total employment:	About 4.6% of total employees
Rural population:	26.37%
The share of agriculture in GDP:	2.80%
Average farm size:	About 18 hectares
Distribution of value by sector:	Cereals and oil crops production 67% Livestock production 40%

Source: [23].

acts of the European Economic Community (Rome Agreement 1957).

Structural policy is aimed at strengthening economic and social cohesion between the different EU regions. In 1975, the European Regional Development Fund (ERDF) was established in order to co-finance measures aimed at developing and adapting the less developed regions.

The organization of the European Union, which is under the influence of a constant need for expansion, as well as adapting to the conditions imposed by the market and the World Trade Organization, has affected the reform of agriculture still in progress. Also, the importance of agrarian policy is in direct relation with the single market and the European Monetary Union, which are two main pillars of European integration; at the same time, the marketing and trade have become very active functions, as a result of changes in final demand and consumption, at the market of the European Union.

The agrosector of developed economies today is based on the existence of two models. The first is farmer's with a backing on the family farm, while the second is the model of agro-industrial business.

As an example of an agriculturally developed country, we will single out France.

France is one of the leading agricultural countries in the world. The area dedicated to agricultural production is 19.5 million hectares (48.2 million hectares) in 1999, or 35.5 percent of the total land area of France. It has the most of the agricultural land in Western Europe. Important products that characterize France include dairy products,

wine, beef, veal, wheat, fresh fruits and vegetables. The Common Agricultural Policy (CAP) had a tremendous impact on French agriculture. The CAP has created a system of common agricultural product prices across the EEC, stimulated agricultural production and improved the income of many French farmers. As the most prominent agricultural producer in Western Europe, France is the largest recipient of the CAP funds.

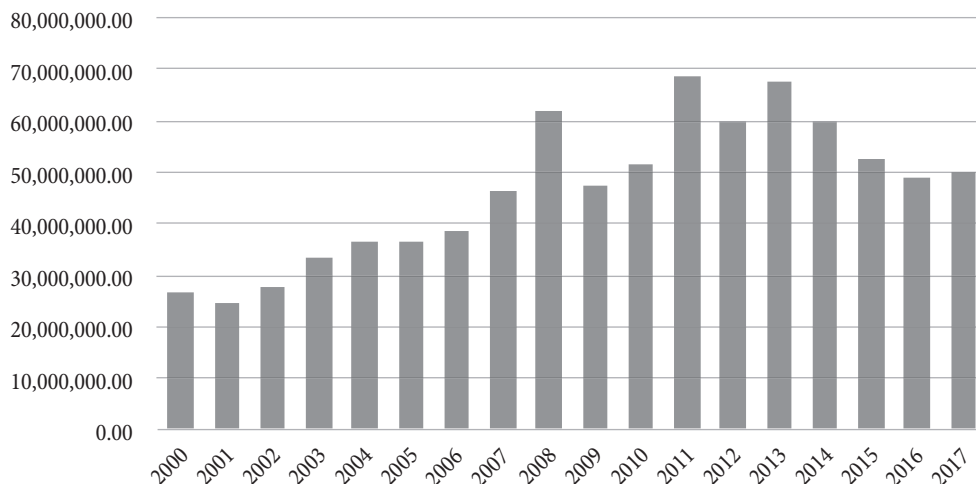
In addition to the realized agricultural production of 70.4 billion euros in 2011, French agricultural production began to occupy the leading position in Europe. The share of France in the value of agricultural production in the EU is 18.1%, Germany 13.4%, Italy 12.3% and Spain 10.6%. France thus holds the first place in the production of beef, poultry, cereals, sugar beet, oilseeds and potatoes. The French trade surplus of food and agriculture rose in 2013, as co-operation expanded to developing countries.

The total trade in food products grew by 11% annually for the period from 2001 to 2013, based on the latest data on FAO trade. In 2009, after the financial crisis, total food trade fell by 11%.

French agriculture and the agri-food industry note new records in 2013. During the first six months of 2013, the French trade deficit was down 16% from the previous year in the same period. By the end of June 2013, this deficit reached 30 billion euros, while it was 35.8 billion euros at the end of June 2012.

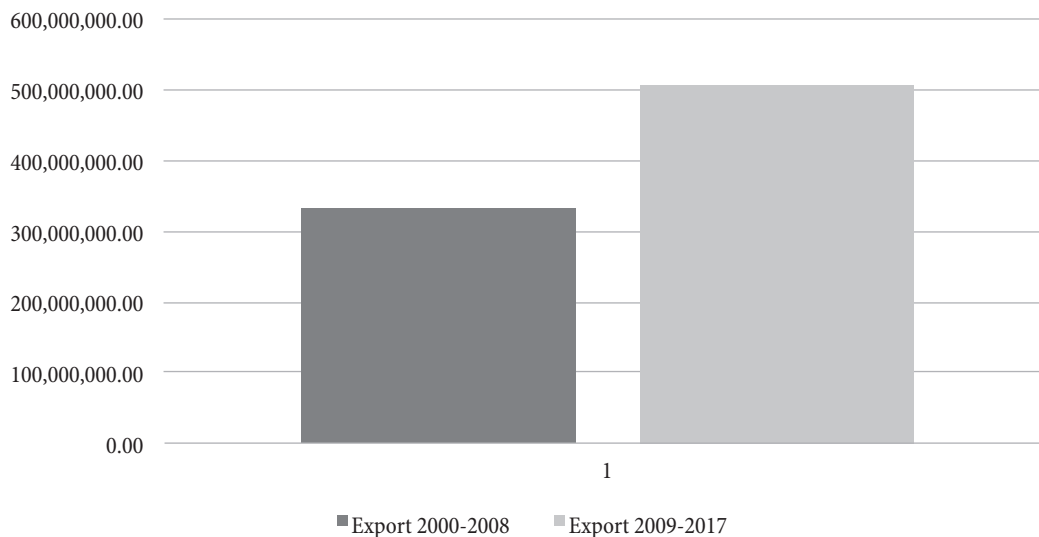
A new record of food exports was reached during the first semester of 2013. French exports to the United States increased by 48% compared to 2012 in the same

**Figure 1: Value of France’s export by year (2000-2017)**



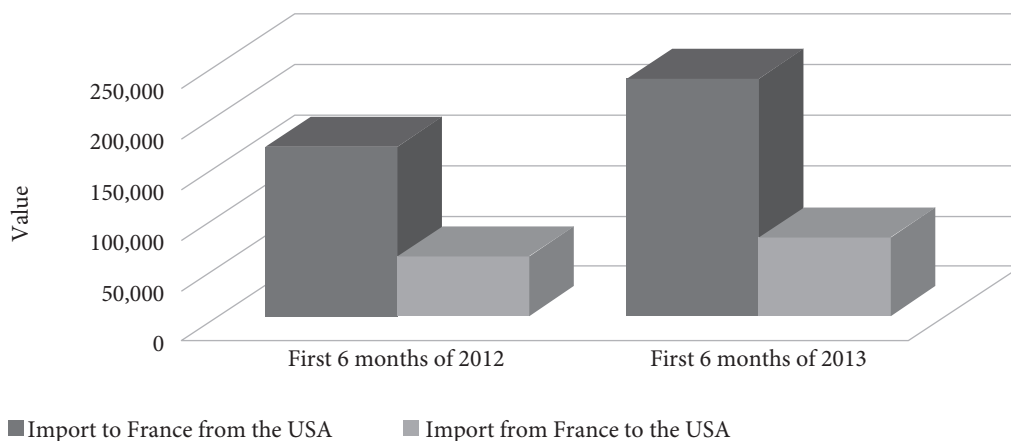
Source: Author’s view based on statistics data from [73].

**Figure 2: Foreign trade of France shown cumulatively by years (2000-2008 / 2009-2017)**



Source: Author’s view based on statistics data from [73].

**Figure 3: Trade in agricultural products between France and the United States**



Source: [66].

period; French imports from the US also increased by 36%, so the trade balance for the food sector amounted to € 916.7 million at the end of June 2013 (€ 875.4 million in June 2012).

In principle, the commercial environment in France is favorable for the sale of U.S. goods and services. The marketing of products and services in France is similar to the approach in the United States, regardless of some significant differences in cultural factors and certain legal and regulatory constraints. Although competition is strong, local partners have great access to most sectors and product lines. The new markets of Asia and South America, targeted by France, in 2017 increased the trade surplus in the export of food and agricultural products. For the first time, in 2013, the trade surplus for countries outside the European Union was higher than the surplus with the EU countries. At the time, it was €105 million more than in 2012 (an increase of 3.3%).

The United States remains the leader in 2017 in the export and import of agricultural products, especially food. France is in the top five countries in terms of export in 2017, while it is the seventh in terms of imports of agricultural products.

**Table 4: The world's largest importers and exporters of agri-food products**

Leading world exporters (in billions of USD)	2017	Leading world importers (in billions of USD)	2017
USA	148.10	USA	137.78
Netherlands	102.46	China	116.91
Germany	86.30	Germany	100.78
Brazil	81.22	Netherlands	68.46
France	69.26	England	61.99
China	62.18	Japan	59.72
Spain	50.40	France	57.71
Italy	46.53	Italy	46.34
Canada	45.89	Belgium	38.90
Belgium	45.16	Canada	35.58

Source: [63].

The contribution to the trade surplus is given by raw agricultural products, like wheat, whose exports were increased by 20% by the United Kingdom, North Africa and the Middle East. High prices in the potato market increased the value of the exported potato.

It mostly establishes cooperation with EU member states, and exports to these countries account for 70% of total exports.

Although France is third in Europe in exports with \$69.26 billion, its imports of agricultural products are significantly lower than Germany and the Netherlands, amounting to \$57.1 billion.

The top ten importers and exporters of agricultural products have a share of at least 50% of the market flows of agricultural products. Supply markets are concentrated around the same importer.

**Table 5: Countries with the highest market share of agri-food products**

Importers	Market share (2017)	Average growth rate 2015- 2017
USA	9.4%	3.3%
China	8.0%	3.3%
Germany	6.9%	5.1%
Netherlands	4.7%	5.5%
England	4.2%	-0.9%
Japan	4.1%	2.7%
France	3.9%	5.0%
Italy	3.2%	2.6%
Belgium	2.7%	6.7%
Canada	2.4%	1.0%

Source: [64].

Agri-food products (excluding fish products) make up 70% of the agricultural products traded on average.

The National Economy Guide with its Commercial Service Office in Paris offers many services and solutions for rapid adaptation and development of market entry and facilitates exports to France.

In France, the establishment of the Inter-Ministerial Delegation for Industry and Agribusiness (DIIAA), whose role is to animate and coordinate activities in favor of the development of the agri-food industry and agri-industry, is a novelty. DIIAA is under the auspices of the Ministry of Agriculture and the Ministry of Industry (Ministry of Economy, Industry and Employment).

Over the past few years, U.S. consumers have become more rigorous for healthier and authentic foods and drinks. The focus is on the origin and quality of the product. These growing American trends stimulate a demand that fits nicely with quality French agricultural supplies.

In addition to the comparative advantages it possesses, with Intertek Operator France acquires competitive advantages. Intertek is a global operator in France that takes care of monitoring safety and quality at every stage of the supply chain, which guarantees the best quality to its users. Implementation of supply chain management can protect against failures in food safety, incidents or failures in quality, and help identify and correct problems before reaching consumers.

The population, groups of people, organizations and various social groups in societies understand the importance of the use of information technologies to improve all kinds of people's lives such as: education, health, rural development, agriculture ... Adoption of such technology leads to increased productivity, time savings, energy and money [6], [47].

Information and communication technology is rapidly growing as the most important asset for rural development in third world countries, where most people adopt these technologies to advance education in the field of agriculture. In addition, these communication technologies are expanding and widening business in a small business [26].

In the agricultural sector, the green market offers a platform that integrates players across specific value chains, enabling efficiency and productivity. Remote farmers via a mobile phone, with the help of regional buyers, research institutions and transport companies can connect with many consumers and traders. In this way, communication between suppliers and producers is realized, as well as demand forecasting, transport and stock tracking. Mobile purchasing and distribution management enables farmers and other marketing channel participants to reliably identify a signal for demanding agricultural products and find a way of distribution.

The mobile money category provides the possibility of integrating with mobile money providers and enables payment through the supply chain. Monitoring and managing knowledge through the program is another advantage by having insight into what is happening in the value chain, which provides better effects and results. The advantages are multiple because it allows all entities of the marketing channel to have bidirectional information.

Short marketing channels are being promoted in France. Definition of short supply chains developed by [37] has been studied by researchers much later. They claim that short marketing channels have the capacity to "socialize" food, enabling consumers to make value estimates of food. The food that is the subject of trade is defined by a locality or even a specific farm where it is produced. Interestingly, [37] indicate the importance of the origin of products and information and the involvement of consumers in the information provided. Built-in information is printed on the package or delivered personally at the point of sale. This information allows the consumer to connect with the site and the space production and production methods [37]. Differentiating products in this way, in theory, allows products to command a superb price if information provided to consumers is important.

They are considered to be the most profitable. There are several types of short channels of marketing that can be identified, such as a farmer's community that includes farm sales, market sales, collective sales, especially to public institutions, which are closest to sales. This type of food chain has certain social and economic impacts at regional and farm level, as well as the environmental impact. Short food distribution channels are present throughout the EU, although there are some differences in the different members regarding the dominant species.

By definition, the circuit electric is characterized by no more than one agent between the producer and the consumer. The geographical distance between consumers and manufacturers is not taken into account due to the desire to engage producers who are far from the consumer markets, who still want to access these markets. Information and communication technologies provide facilities for the independent organization of economic activities. In this context, the significance of this technology is that it applies networking and information exchange among users, which is the main medium of communication technologies for small rural households [5].

It is significant that the concept of a circuit electric moves beyond direct sales from farmers to producers and includes shops, restaurants, school canteens and allows intermediaries and collective groups to become more involved in the development of circuit.

The rural development of France adopted distribution through circuit electric as a basis for territorial development. The concept of short distribution channels and definitions has been developing in France since 2009. The National Food Program also endorsed the principle of a circuit electric system that would find its application in collective catering, for example in schools. Agricultural modernization is supported by a law that allows canteens to buy food directly from a producer or a group.

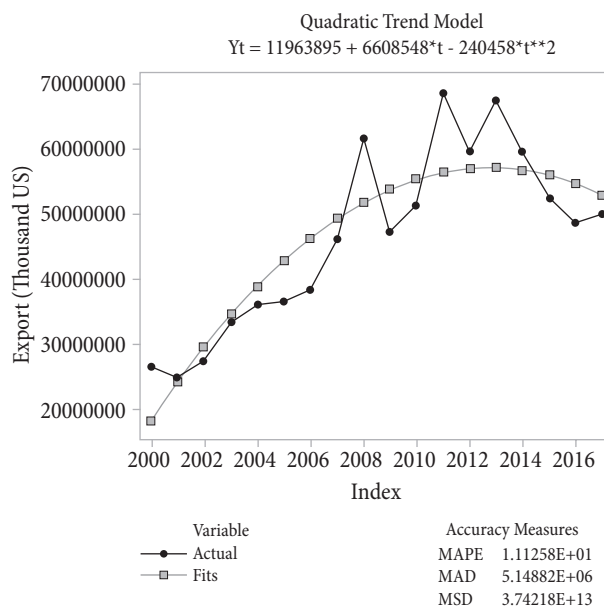
By promoting local managers to provide information to manufacturers and allowing consumers to identify where they can buy local products through the so-called switches of circuit electric, the level of awareness about the importance of distribution across circuit electric is raised. The idea on the creation of an EU label for farm products is at the level of all institutional representatives. The mark on the label should allow farmers to get a fair price for their goods. The label does not necessarily have to be for the type of product, but also for the type of supply chain, and it would help prevent the abuse of the origin of agricultural products. France can serve to Serbia as an example of a well-organized and successful market on the road to future development.

### Statistical analysis based on Minitab software

An analysis of export of vegetables from France for the period of 17 years (2000-2017) has included 231 countries. Using statistical software Minitab, we have analyzed the influence of the marketing channels for vegetables on the development of agriculture in France, as well as the overall placement of agricultural products. The trend analysis plot displays the observations versus time. The plot includes the fits calculated from the fitted trend equation and the accuracy measures. The analysis found that the data had best adapted to the square trend, as it shows the least standard deviation. The fitted trend equation is an algebraic representation of the trend line and interpretation is:  $Y_t = 11963895 + 6608548*t - 240458*t^2$ . This equation describes the movement of variable export over time, and under the influence of marketing channels where innovation has been applied. From the evolution of the marketing channels (the introduction of Intertek 2009), the

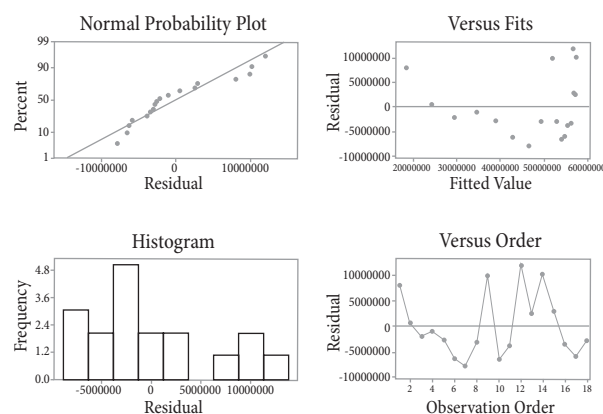
time series shows cyclical variations and a positive trend, which significantly influenced the export of agricultural products compared to exports in the previous period (2000-2008). Therefore, we can conclude that with the introduction of the Intertek, export variable has reached the highest performance.

Figure 4: Trend analysis plot for export (2000-2017)



Source: Author's work based on Minitab software.

Figure 5: Residual plots for export 2000-2017 (in thousands of USD)



Source: Authors' work based on Minitab software.

**Normal probability plot.** The normal plot of the residuals displays the residuals versus their expected values when the distribution is normal. In the case of France's export, S-curve implies a distribution with long tails, so the residuals are not normally distributed.

**Residuals versus fits plot.** The residuals versus fits plot displays the residuals on the y-axis and the fitted values on the x-axis. We use the residuals versus fits plot to determine whether the residuals are unbiased and have a constant variance. Ideally, the points should fall randomly on both sides of 0, with no recognizable patterns in the points. Therefore, residues are impartial and have a constant variation.

**Residuals versus order plot.** The residuals versus order plot displays the residuals in the order that the data were collected. Ideally, the residuals on the plot should fall randomly around the center line, which means that the model is well-adapted to the data.

**Histogram of residuals.** The histogram of the residuals shows the distribution of the residuals for all observations. If the model fits the data well, the residuals should be random with a mean of 0. The histogram should be approximately symmetric around 0, so the residuals in this case are not normally arranged.

## Characteristics of marketing channels for agricultural foodstuffs in the Republic of Serbia

The market for agricultural products in the Republic of Serbia is rather hindered and unorganized, and the main factors determining market trends are: incomplete utilization of the food industry capacity, extensive or semi-intensive production, small areas of farms, unfavorable variety structure, high production costs, product cyclical, warehouse capacities, free export and import, quality standards and poor organization of farmers. These tendencies lead us to the necessity of seeing that effective marketing channels are a key assumption of the competitiveness of agribusiness in modern conditions.

The incomplete utilization of the capacity of the food industry is due to the narrow performance of the foreign market, the significant decline in demand on the domestic market due to the reduced payment capacity of the citizens and the inadequate production structure.

A particular problem and obstacle to intensifying Serbian agricultural production and increasing the supply of agricultural products are small private farmers' farms, where economically increased investment in production is

not profitable. In the Republic of Serbia the most numerous are agricultural holdings with an area of 1 to 3 hectares, and such a small surface causes a number of problems in the development of farming and fruit and vegetable production, for the following reasons:

- More serious development of production cannot be expected, since our farmers produce almost all kinds of cereals, fruits or vegetables in such small areas;
- Small yields and poor wages from dealing with agricultural production are the main reason for low or no investment in intensifying and modernizing production.

On the other hand, large agricultural holdings which, according to the structure of production, often have the character of agro-industrial factory-farms, deliver their products to the processing industry (for example, slaughter industry, milling industry, etc.) and, as a rule, have warehouses for storage, storing and commercial processing product.

Extensive or semi-intensive production of all sectors of agriculture in Serbia each year causes big losses and makes our products uncompetitive, both on the domestic and foreign markets, because it primarily causes low average yields of cultures. Namely, as a result of the production scale, i.e., small average yields per unit area, high production costs appear that adversely affect the price competitiveness of Serbian products.

Due to adverse weather conditions (drought, excessive precipitation, hail ...) in plantation, vegetable and fruit production, farmers suffer great losses almost every year, while improvised greenhouses, which increase the number of hectares in vegetable production, can protect and improve production to a small extent. All this has a major impact on the supply of agricultural products.

On one inhabitant in Serbia there are 0.71 hectares of agricultural land, or 0.46 hectares of arable land and garden.

In the long-term Serbian policy, the targeted and structural adjustment of total production can be realized on the balance of supply and demand of the most important agricultural products, the construction of market institutions and the application of economic instruments and government guarantees. Most of the

realized agricultural production with the exception of cereal production, in Serbia is still realized through green, quantitative and livestock markets. In order to increase competitiveness in this branch it is necessary to monitor the needs of consumers, to explore new markets for the placement of these products and to increase their value, for which the financial resources required by the community are needed. The disunited and fragmented agricultural producers are a characteristic of developing countries. Long inefficient marketing channels whose subjects are purchasers, wholesalers and retailers are present in the market of developing countries such as that of the Republic of Serbia.

Serbia is one of the countries with very small farms, which is a big problem for farmers in our country, as a large percentage of rural population is engaged in agriculture. The largest holdings are located in the Czech Republic.

Based on the comparison with the EU countries, Serbia is a country with exceptional natural resources, which is the size of arable land that occupies almost half of the total territory, but it belongs to countries with small agricultural holdings and is not using this natural resource. However, from Figure 6 we can see the positive foreign trade balance in the period 2013 - 2017. The year 2017 is the year with a surplus of \$348,607,600.

The implementation of logistics strategies must be in line with the goals that are intended to be achieved, and the

ultimate measure should be significantly higher efficiency and profitability [53]. Every time delays adversely affect the quality and safety of products being transported [24].

Developing countries have faced a number of problems that have influenced the formation of an efficient supply chain:

1. Bad timing in the formation of a chain
2. Poor optimization of the supply chain
3. Impact of legislation and policy.

The exchange of information must be constant, whereby subjects will seek the information flow mechanism that suits them best.

### Advantages and obstacles to the establishment of the competition position of the Republic of Serbia

Serbia has all the natural factors for the development of agri-food products. Possibilities for better positioning in the export of these products can be achieved by Serbia thanks to the competitive price of labor, quality fruit and vegetable production, the existence of tradition and experience in production, increased demand for consumers on the world market. Favorable climatic conditions contribute to the creation of a quality and possible health-safe product. Opportunities should be sought in a potential such as better access to new technologies, using export

**Figure 6: Balance of foreign trade of fresh fruit and vegetables between the Republic of Serbia and the EU, expressed in thousands of USD**



Source: [70], [71].



opportunities, a wide range of products, creating value added products. Consumer society imposes growth in living standards, which has the effect of increasing the consumption of agri-food products. The chance should be sought in the approach to the regional and international market through cooperation between the subjects of a marketing channel. The result of this integration would be more efficient business and product preservation, better understanding of the market and making profits.

Growth of investments is the main activity provided by developed countries to all subjects of the short marketing channel, if this leads to an increase in the interest of each individual member of the marketing channel. As a result of higher investments, there is a rise in employment and country standards. Serbia should follow this path. The obstacle to creating a competitive position is the lack of brand names, the fragmentation of the estate, the insufficiently intensive production. The unorganized producer and purchasing is another in a series of weaknesses in building an effective marketing channel. The aggravating circumstance for Serbia is also a regional competition that operates with great state support.

The supply breakdown results in the import of branded fruits and vegetables. Incomplete application of standards in the production of fruits and vegetables increases the consumers' suspicions that health food offer is a priority.

According to the economies of developed countries, seasonal variations and the impossibility of food demand forecasts, this should be tempered by the use of modern technologies and systems. They help companies and manufacturers to be significantly more productive in the market. Creating a competitive advantage in Serbia can be achieved by creating local brands in conjunction with other industries, such as tourism. This would increase the confidence of the agricultural producers themselves.

The obstacle to the development of a country's competitiveness is insufficient information from the producers about the needs of the market for agri-food products. The lack of a combination of producers and consumers creates an inability to placate goods in an efficient way. This shortage of agricultural land, such as France, is eliminated by short marketing channels.

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## THE CONSUMERS' PROCLIVITY FOR HOTEL REVIEW POSTING: HOW DO WE DIFFER?

Sklonost hotelskih gostiju ka publikovanju onlajn  
hotelskih recenzija – po čemu se razlikujemo?

### Abstract

This study aims to determine international differences in hotel guests' proclivity for posting online hotel reviews. By using TripAdvisor reviews of Vienna, Belgrade and Zagreb hotels, the proclivity coefficient is constructed. By employing the panel regression model, a direct correlation between the proclivity coefficient and the internet penetration is determined. The values of the Spearman correlation coefficient support the statistically significant direct correlation between the proclivity coefficients and the Hofstede's indexes for the individualism/collectivism dimension. The results show that the proclivity coefficient values are higher for the consumers from countries with higher values of internet penetration and individualism/collectivism index values. Results of this research offer practitioners an insight into the factors moderating hotel guests' proclivity for posting online hotel reviews and thus enables them to adapt e-WOM strategies to different groups of consumers.

**Keywords:** *electronic word-of-mouth (eWOM), cross-cultural study, online hotel reviews, proclivity coefficient.*

### Sažetak

Cilj ovog rada je da utvrdi sklonost hotelskih gostiju iz različitih zemalja ka publikovanju onlajn hotelskih recenzija. Korišćenjem recenzija hotela iz Beča, Beograda i Zagreba sa portala TripAdvisor konstruisan je koeficijent sklonosti ka publikovanju recenzija. Primenom panel regresionog modela utvrđena je direktna korelacija između vrednosti koeficijenata sklonosti i stope internet penetracije. Vrednosti Spirmanovog koeficijenta korelacije potvrđuju postojanje statistički značajne direktne korelacije između koeficijenata sklonosti i Hofštedovog indeksa za dimenziju nacionalne kulture individualizam/kolektivizam. Rezultati ukazuju da se više vrednosti koeficijenta sklonosti registruju u slučaju potrošača iz zemalja sa višim registrovanim vrednostima internet penetracije i višim vrednostima Hofštedovog indeksa za dimenziju individualizam/kolektivizam. Rezultati ovog istraživanja omogućavaju praktičarima uvid u faktore koji utiču na sklonost hotelskih gostiju ka publikovanju onlajn hotelskih recenzija, omogućavajući im da prilagode e-WOM strategije različitim grupama potrošača.

**Ključne reči:** *elektronska komunikacija od usta do usta (eWOM), kros-kulturna studija, onlajn hotelske recenzije, koeficijent sklonosti.*

## Introduction

The rapid development of modern information technologies makes tourists more informed and sophisticated [9]. It is vehemently contributed by the growth of the second generation of the internet, the so-called Web 2.0. Practically, it is about the word-of-mouth (WOM) information distribution, but not in its traditional sense, but via the use of Web 2.0 technology which is in tourism also referred to as Travel 2.0 [74]. Buhalis and Law [9] state that Web 2.0, with the concepts of social networking and virtual communities, is widely applied in the tourism industry. Such contents are also deemed as user-generated content (UGC). Xiang and Gretzel [74] identify several different forms of UGC: virtual community sites (i.e. Lonely Planet), consumer review sites (i.e. TripAdvisor), media sharing sites (i.e. YouTube), social networks (i.e. Facebook), and blogs. Such portals enable horizontal communication between the users who have the opportunity to exchange different content. If such contents refer to product and service consumption, such type of communication is called electronic word-of-mouth – eWOM [7], [22], [25], [40], [57]. eWOM is a very popular source of information for trip planning/organising [11], [58] and it considerably affects the tourist industry, especially the hotel industry [10]. The reviews severely affect the consumers who are keen on using the internet [67], [81], that is, such an influence is more prominent in the case of those products and services which are more frequently purchased online, which applies to hotel services [64]. Consumer review sites are the most influential form of eWOM in the hotel industry [5], [26] with a strong influence on hotel guest behaviour [64], [70], and therefore on hotel performances [32], [52], [54], [76].

Even though the question of the consumers' motivation for participation in the eWOM content creation has captured the attention of a certain number of researchers [22], [27], [40], [73], [78], Wilson et al. [73] and Bore et al. [6] point out that little of the research refers to the impact of nationality on motivation for participation in the eWOM. From a general point of view, some papers [16] investigate the influence of the national culture features on the tourist service evaluation by the consumers, as well as their influence on the probability of positive offline word-of-

mouth. To the best of our knowledge, merely few studies have considered the effect of tourist cultural orientation on their proclivity for tourist related eWOM [73].

In 1980, Geert Hofstede defined different cultural dimensions [27]: power distance (PDI), individualism vs. collectivism (IDV), masculinity vs. femininity (MAS), and uncertainty avoidance (UAI). Since cultural differences are a significant factor that affects consumers' engagement in eWOM [14], motives for participation in eWOM [79], customer behaviour in tourism [49], as well as their complaint behaviour regarding hotel services [51], it is reasonable to expect that the influence of cultural differences will make members of different cultures exhibit different behaviour in comparison to their proclivity for making online hotel reviews. In the literature [10] there is a call for further research that will respond to the following questions: Do cultural differences influence the creation of online hotel reviews? and What aspects contribute to the generation of online hotel reviews in different nationalities? This paper is a response to that call.

Studies that investigate the relation between hotel-related eWOM and the nationality are usually based on a limited sample [73]. This study is centred on a large sample consisting of 151,019 hotel reviews that have been collected and analysed in order to:

- Determine and quantify the proclivity of hotel guests from different countries for posting online hotel reviews.
- Determine if the ascertained different tendencies towards posting hotel reviews can be explained by different availability of the internet in the observed countries.
- Ascertain whether cultural differences between specific nations are the factor which could explain different tendencies towards posting hotel reviews by exploring the relationships between the proclivity of hotel guests from different countries for posting online hotel reviews and the Hofstede's national cultural dimension index values. This objective is viable because Hofstede's cultural dimensions, initially determined in 1980, are predominantly used in the relevant literature for defining national cultures [16], and are one of the most popular frameworks aimed

at investigating the effects of culture in marketing [36], which are considerably accepted and quoted in the cross-cultural management literature [53]. It is important to note the publication of a certain number of recent scientific papers whose authors dispute the coherence and utility of certain cultural dimensions of the Hofstede model. Thus Minkov [47] states that the PDI based on the results of this study is a logical facet of IDV, and that the MAS dimension lacks coherence, whereas claiming that UAI lacks internal reliability even though the previous investigation of the same author [48] reached the opposite conclusions regarding this cultural dimension. Despite the aforementioned opposite statements [47], we have decided to include all of the Hofstede's original cultural dimensions in the analysis. Considerable insight into some of the scientific papers published over the last year in the most prominent multidisciplinary journals, as well as the journals in the field of cross-cultural and strategic management research and hospitality and tourism [2], [13], [18], [33], [35], [38], [42], [44], [50], [65], [69], [75], has provided us with the fact that the original Hofstede model is still being widely applied.

## Literature review and hypotheses

eWOM is a field that has been thoroughly investigated in the literature [26], [40], [66], [73], [78]. Cantalops and Salvi [10] point out that the literature on the subject features two basic directions of eWOM research: the research of the motivation which contributes to eWOM creation and the impact of eWOM both from the perspectives of the consumers and companies. Having in mind the fact that a small number of eWOM providers affects a large number of consumers in the purchasing process [66], it is vital to ascertain the factors behind motivating the consumers to post reviews on product and service quality.

The research conducted by Fu et al. [21] indicates that the level of consumers' satisfaction with products/services purchased exhibits limited association with eWOM intentions. eWOM requires some time and effort. Therefore, consumers opt for making product/service reviews only

when highly motivated [31]. The literature encompasses the following frequent motives for eWOM posting: desire for social interaction, desire for economic incentives [26], concern for other consumers [12], [26], altruism [8], [63], potential to enhance their own self-worth [17], [26], [78], platform convenience and problem-solving support - platform assistance [26], status seeking [37], consumer empowerment [8], helping the company [8], and revenge [24], [63]. Yen and Tang [77] indicate that motives are not universal and that there are different factors that motivate users in comparison to the used eWOM platform.

The question arises as to whether there are factors which affect the consumers from different countries having different proclivities for publishing online hotel reviews. Bearing in mind that reviews are published online, it is reasonable to expect the hotel guests from countries with higher percentage of individuals using the internet to have better opportunities to publish reviews, so our initial hypothesis is:

H1: Hotel guests from countries with a recorded higher percentage of individuals using the internet show a higher proclivity for posting online hotel reviews.

However, even with the same internet availability, it can be used in different ways with regard to both frequency and contents [23]. It could be attempted to account for such behaviour differences with cultural differences. Lam et al. [36] have analysed the influence of cultural differences on offline WOM and concluded that individualism, masculinity, uncertainty avoidance and power distance have a significant impact on in-group and out-group WOM engagement. We could ask a question whether these four cultural dimensions also influence eWOM, especially hotel related eWOM.

Individualist societies are deemed as societies in which the relations between individuals are weaker, and in which individuals are expected to take care of themselves and their nuclear family, whereas collectivist societies are the ones in which strong cohesive in-groups are formed providing protection in exchange for unquestioning loyalty [27]. Since eWOM is a communication which is carried out in the online environment, in order to hypothesize whether IDV dimension affects the hotel guests' proclivity for posting online reviews or not, it is initially necessary to

determine whether IDV affects the consumers' proclivity for using information and communication technologies (ICT) and the internet whatsoever. Hofstede et al. [27] state that, in essence, the internet is an individualistic tool. In addition, they also claim that information and communication technologies are more often and more enthusiastically used in individualist societies. However, the influence of culture does not cease at the point of determination of the degree to which people tend to use the internet, but it includes the way of using it, as well. As Goodrich and Mooij [23] claim, the way people use the internet varies worldwide, which applies to usage frequency, number and type of contacts, interactivity, and content. Frequent usage of the internet does not necessarily imply greater proclivity for posting online hotel reviews. It is vital to identify whether the IDV cultural dimension influences the willingness of hotel guests to share their product/service purchase experience with strangers or not.

The relationships between the IDV cultural dimension and WOM have been the subject of several studies. Luo et al. [43] analyse the effects of individualism–collectivism cultural orientation on eWOM information processing and conclude that it affects eWOM readers' perception of information credibility. Lam et al. [36] conclude that individualism has a strong and positive effect on out-group WOM. Koh et al. [34] investigate online movie reviews in different cultures and conclude that the individualism/collectivism dimension affects the willingness of the consumers to assess the movie, with the consumers from collectivist cultures being more willing to publicly express their opinion in a situation when they like the movie in comparison to the situation in which they dislike the movie. Triandis [68] states that the size of in-groups is different: in collectivist cultures they are smaller and usually include the family, whereas in individualist cultures they are larger and can include all individuals who we share significant views with, as well as that members of the collectivist cultures are more inclined to share resources with in-group members, simultaneously exhibiting mistrust and unwillingness to cooperate with out-group members. Since information is regarded as a resource, it can be concluded that members of collectivist cultures are less inclined to share information with strangers who are

not part of their in-group. Members of collectivist cultures have a more intensive contact with other people, and the information exchange regarding product/service purchasing is more frequently carried out interpersonally within an in-group. Taking into account the abovementioned views, we put forward the following hypothesis:

H2: Hotel guests coming from countries with high IDV index scores are more inclined to post online hotel reviews.

According to Hofstede et al. [27], power distance (PDI) is defined as the degree to which the less powerful institution and organisation members within a country expect and agree that power is distributed unequally. The people from countries with low PDI index scores are induced to express their opinion, to be independent, early on in life. It is logical to expect the members of such societies to show initiative for evaluating hotel service quality, as well as for exchanging useful information between equal members of online virtual communities. The results of the research carried out by Lam et al. [36] indicated that low PDI index score is related to a higher willingness to participate in WOM with out-group members. Schumann et al. [60] advocate that it is expected of people from national cultures with low scores of PDI to be more comfortable with making assessments based on their own experiences. Pornpitakpan and Francis [56] state that people from cultures scoring high on PDI are more influenced by experts than the people from cultures with low PDI index scores. Hotel-related consumer review sites are not expert platforms. Based on that, one may assume that people from high PDI cultures are less inclined to believe the information obtained via these non-expert, informal sources. Therefore, they are less likely to visit such portals because they do not pose a relevant information source for them, so it may be assumed that they are less inclined to post reviews on such portals. Goodrich and Mooij [23] point out that high IDV is usually correlated with low PDI, so that correlations relating to one dimension are consequently often related to the other. Therefore, the following hypothesis is formulated:

H3: Hotel guests originating from countries with low PDI index scores are more inclined to post online hotel reviews.

Masculine society is regarded as a national culture in which assertiveness, toughness and focus on financial success prevail, whereas a feminine society is one in which modesty, tenderness and concern with the quality of life are predominant [27]. Hofstede et al. [27] claim that the use of the internet for private purposes correlates with low MAS, and posting online hotel reviews certainly qualifies as using the internet for personal purposes. Hofstede further indicates that low MAS is related to the internet usage for “rapport” purposes, whereas in high MAS, the internet is more frequently used for “report” purposes. The rapport purpose involves using the internet for sating personal views, opinions and feelings, whereas the report purpose is linked to information conveyance [27]. Can the communication on hotel-related consumer review sites be regarded to be more of a “rapport” or a “report” character? It is evident that hotel guests will not use hotel reviews to convey solely objective information, but they will often express personal views, opinions and feelings so that the contents that are exchanged on the consumer review sites essentially stand as subjective experiences gained during consumption. Blackshaw and Nazzaro [4] state that social network content is a combination of different elements, such as facts and opinions, impressions, sentiments, experiences, and even rumours. Therefore, the following hypothesis is put forward:

H4: Hotel guests originating from countries with low MAS index scores are more inclined to post online hotel reviews.

Hofstede et al. [27, p. 191] define uncertainty avoidance (UAI) “as the extent to which the members of a culture feel threatened by ambiguous or unknown situations”. Consumers coming from cultures with high UAI index scores generally show greater resistance against changes [59]. Therefore, we argue that the same resistance is expected to be present against the communication channel changes. The usage of electronic communication and online platforms for information exchange is surely an innovative form of communication between people who are unfamiliar to each other. Consequently, they are less likely to adopt electronic communication and are hesitant to use modern technologies. On the other hand, consumers originating from cultures with a low level of uncertainty avoidance use

the internet sources more frequently for the comparison of different alternatives when purchasing services [27]. Taking into consideration the abovementioned, we put forward the following hypothesis:

H5: Hotel guests originating from countries with low UAI index scores are more inclined to post online hotel reviews.

## Research methodology

The initial step in the research involved the identification of the categorised hotels in Vienna, Belgrade and Zagreb as selected destinations for the analysis. With regard to that, the following official publications were used: “Hotel Guide” issued by the Vienna Tourist Organization [71] and a lists of categorised hotels retrieved from the portals of the Ministry of Trade, Tourism and Telecommunications of the Republic of Serbia [46] and The Ministry of Tourism of the Republic of Croatia [45].

The research for the purpose of this study was carried out from September 2018 to December 2018. The analysed sample consists of all categorised hotels in Vienna, Belgrade and Zagreb.

The next step involved the identification of the reviews on TripAdvisor portal for each hotel respectively, which was, then, followed by the classification based of the country of origin of the reviewers within the 2010-2017 period. TripAdvisor was selected because it is by far the most popular hotel-related consumer review site [1], [3], [11], [74], [80]. There is a possibility of publishing hotel reviews on the portals of numerous online intermediaries (e.g. Booking.com). However, such a portal allows only the consumers who use the portal itself to make a booking to subsequently make a hotel review. Contrary to that, the TripAdvisor portal allows posting reviews regardless of the booking channel. It was an additional factor behind the selection of TripAdvisor portal as the centre of this research.

There was an attempt to extract data by way of a web crawler, but since during their registration to the TripAdvisor portal, a large number of reviewers had failed to record their country of origin, but primarily only their place (city/town) of residence, the application of the



automated method of data extraction did not contribute to the efficiency of the research. So, in the case of the reviewer's entry only of his/her place of residence (city/town), Google Maps service was used to pinpoint the country of origin based on such data. The reviews whose authors mentioned no data about the place of residence were classified into a separate group and were not included in the analysis. The analysed sample includes 151,019 reviews. It was possible to determine the origin of the reviewer for 136,099 reviews, that is, 90.12 percent of them.

With a view to identifying and measuring the differences of the proclivity of hotel guests from different countries for online hotel review posting, it was necessary to identify the total number of guests from different countries who visited Vienna, Belgrade and Zagreb during the analysed period. The data was obtained from the official statistical publications – Vienna Tourist Organization: Arrivals and Bednights in All Types of Accommodation [72], Statistical Yearbooks of Belgrade 2011-2017 [29] and Statistical Yearbooks of Zagreb 2011-2018 [15]. The data on Percentage of Individuals Using the Internet during 2010-2017 period were obtained from the International Telecommunication Union portal [30].

One may expect to record a higher number of hotel reviews whose authors come from countries for which a higher number of visits to the analysed destinations has been recorded, as well. In order to rule out the impact of the abovementioned, the number of hotel reviews from individual countries is compared to the number of guests from every individual country and then multiplied by a thousand. As a result, the proclivity coefficient represents the number of the posted guest reviews from every individual country for a thousand recorded guests coming from that particular country.

It could be expected that a higher number of guests coming from countries with a higher level of disposable income will be recorded, but it will not necessarily entail a higher number of hotel reviews made by these guests. Internet penetration and cultural differences between nations could influence the value of the proclivity coefficient by affecting the number of reviews from individual countries.

Proclivity coefficients are determined only for the consumers originating from the countries for which all the

necessary statistical data were available. The ascertained coefficients were then compared to the Hofstede index values [27] of different countries for each of the main four analysed cultural dimensions, as well as to the rates of internet penetration in those countries, in order to determine whether cultural differences and the internet penetration could account for the perceived differences in consumers' proclivity for posting reviews on TripAdvisor.

## Results and discussion

The proclivity coefficients for posting reviews on the TripAdvisor portal are determined for consumers coming from 26 countries, with a sample of all the categorized hotels in Vienna, Belgrade and Zagreb. Proclivity coefficients by country have been ascertained as aggregate for the observed period of eight years, that is, these are calculated for the eight years in total. Using the data obtained from the three cities, we construed an aggregate proclivity coefficient for posting reviews. An aggregate proclivity coefficient is construed by summarising the number of reviews of the recorded guests coming from individual countries to all three cities, and then compared to the overall number of guests in all three cities. The results for the proclivity coefficients are presented in Table 1.

The goal of the next part of this research is to determine whether there is a correlation between the proclivity coefficient and internet penetration. For each of the years mentioned, proclivity coefficient and internet penetration are analysed. The data under examination are the panel data, which are suitable for hierarchical modelling. Within the panel data, it is possible to perceive a certain irregularity, that is, the effects among the countries either within a time period or finally between the countries and the time. Due to the nature of the data, it is necessary to employ panel regression. In this case, panel regression model involves two variables, that is, proclivity coefficient as a dependent variable and percentage of individuals using the internet (internet penetration) as an independent variable. These panel regression models which encompass the abovementioned variables for 26 observed countries for an eight-consecutive-year period can be viewed as stable and acceptable, provided they are in accord with

the initial assumptions of the regression. With a view to obtaining reliable evaluations of the regression coefficients, therefore a valid model, a preliminary analysis has been carried out including the following: the detection of unusual and influential data, heteroscedasticity testing, multicollinearity and linearity.

First, a preliminary analysis of the panel regression model is conducted. Unusual sequence data are those which noticeably deviate from the average (outliers), and they are identified based on the value or the residual, Cook's D and DFITS values, whereas the influence of the independent variable data is calculated by the value of DFBETE. The abovementioned values of the analysed data meet the initial assumptions of the model. The assumption of the heteroscedasticity is tested by the Cook-Weisberg test, and based on the obtained results (p-value=0.072), the zero hypothesis is not dismissed, which indicates a

**Table 1: Proclivity coefficients for posting reviews on the TripAdvisor portal during the 2010-2017 period**

Country	Proclivity coefficients for the 2010-2017 period			
	Vienna	Belgrade	Zagreb	Aggregate proclivity coefficients
Australia	5.92	5.59	5.78	5.87
Austria	0.65	2.17	1.09	0.67
Belgium	3.10	4.04	2.51	3.08
Bulgaria	0.92	0.93	0.49	0.80
Canada	5.35	4.37	4.27	5.07
Czech Republic	1.36	2.08	1.25	1.40
Denmark	2.20	2.88	2.52	2.31
France	3.50	3.90	1.97	3.32
Germany	1.33	2.39	1.17	1.35
Great Britain	7.00	10.03	7.31	7.22
Netherlands	2.18	3.34	1.70	2.21
Hungary	1.04	1.66	1.16	1.10
Italy	5.33	5.99	3.40	5.13
Japan	1.53	2.99	1.52	1.56
Norway	2.47	4.17	2.83	2.74
Poland	1.21	1.58	0.87	1.20
Portugal	3.17	5.43	2.19	3.07
Romania	1.33	1.99	1.25	1.41
Russia	3.38	5.15	3.03	3.54
Slovakia	0.81	1.26	1.29	0.92
Slovenia	1.25	0.80	0.79	0.94
Spain	2.44	4.33	1.81	2.40
Sweden	2.11	3.62	1.86	2.34
Switzerland	2.62	5.21	1.49	2.66
Turkey	1.73	1.88	1.67	1.78
USA	4.37	7.89	6.75	4.80

Source: Authors' calculations.

stable regression model. Since the initial assumptions of the regression model are met, the next step is the selection of an adequate type of the panel regression model. With regard to that, first the Hausman test is carried out; as Hausman's statistic is 16.47 and p-value=0.000, the zero hypothesis is dismissed, that is, the application of the fixed effects (FE) model is recommended. Table 2 presents the assessed regression coefficients of the abovementioned model.

The research included the proclivity coefficients of hotel guests from 26 countries established for each year for the eight-year period. For that reason, the panel

**Table 2: Panel regression model – Proclivity coefficient (dependent variable) and percentage of individuals using the internet (independent variable)**

Proclivity coefficient	Coefficient	Std. err.	t-stat.	p-value	[95% Conf. Interval]	
Internet	0.135	0.016	8.600	0.000	0.104	0.167
Intercept	-5.238	0.878	-5.960	0.000	-6.971	-3.504
Australia	-0.280	0.740	-0.380	0.705	-1.740	1.180
Austria	-5.148	0.729	-7.060	0.000	-6.587	-3.709
Belgium	-3.038	0.745	-4.080	0.000	-4.508	-1.567
Bulgaria	-1.366	0.543	-2.520	0.013	-2.437	-0.296
Canada	-1.496	0.784	-1.910	0.058	-3.044	0.051
Czech Republic	-3.460	0.656	-5.280	0.000	-4.754	-2.166
Denmark	-5.268	0.874	-6.030	0.000	-6.993	-3.543
France	-2.350	0.714	-3.290	0.001	-3.759	-0.942
Germany	-4.789	0.765	-6.260	0.000	-6.300	-3.279
Great Britain	-0.159	0.827	-0.190	0.847	-1.790	1.472
Netherlands	-4.951	0.850	-5.830	0.000	-6.628	-3.274
Hungary	-3.544	0.643	-5.510	0.000	-4.814	-2.275
Italy	2.498	0.550	4.540	0.000	1.413	3.584
Japan	-4.886	0.781	-6.260	0.000	-6.427	-3.345
Norway	-5.016	0.892	-5.620	0.000	-6.777	-3.254
Poland	-2.677	0.598	-4.480	0.000	-3.856	-1.498
Portugal	-0.448	0.578	-0.770	0.440	-1.588	0.693
Romania	-0.291	0.539	-0.540	0.589	-1.355	0.772
Russia	-0.012	0.582	-0.020	0.984	-1.160	1.136
Sweden	-5.049	0.856	-5.900	0.000	-6.738	-3.360
Slovakia	-4.462	0.694	-6.430	0.000	-5.832	-3.092
Slovenia	-3.617	0.640	-5.650	0.000	-4.880	-2.355
Spain	-2.511	0.658	-3.810	0.000	-3.810	-1.211
Switzerland	-4.022	0.794	-5.060	0.000	-5.588	-2.455
Turkey	(omitted)					
USA	-0.088	0.649	-0.130	0.893	-1.367	1.192
Number of observations	207					
Adj. R-squared	0.717					
F-statistic	21.03					
p-value	0.000					

Source: Authors' calculations.

regression model contains 207 observations. Throughout this research, the Least Squares Dummy Variable 1 model (LSDV1) of panel regression is used. This model always drops a dummy variable (in our case it is Turkey, which has been automatically chosen by STATA software), that is, the parameter of the eliminated dummy variable is set to zero and is used as a baseline.

The obtained model is statistically significant ( $F=21.03$ ,  $p\text{-value}=0.000$ ). The empirical model shows that there is a statistically significant effect of internet penetration on the proclivity coefficient. It stems from the statistical significance of the incline or the regression coefficient ( $p\text{-value}=0.000$ ). Results of the panel regression model lead to the conclusion that the increase of proportional use of the internet causes a rise of the proclivity coefficient values, which proves H1. Namely, if the use of the internet increases by 1% on average, a proclivity coefficient rise of 13.5% is expected.

Finally, in order to test the remaining hypotheses, Spearman’s correlation coefficient is calculated between the aggregate proclivity coefficient and the main Hofstede’s indexes (IDV, PDI, MAS and UAI).

As shown in Table 3, a strong direct correlation is evident between the aggregate proclivity coefficients and IDV index value. The value of the correlation coefficient is 0.596, and it is statistically significant because  $p\text{-value}=0.001$ . The presented result corroborates H2, thus the claim is relevant for the entire population.

**Table 3: Correlation between aggregate proclivity coefficients by country and the Hofstede’s indexes**

	Correlation coefficient	p-value
Individualism (IDV)	0.596	0.001
Power distance (PDI)	-0.246	0.226
Masculinity (MAS)	-0.024	0.907
Uncertainty avoidance (UAI)	-0.370	0.063

Source: Authors’ calculations.

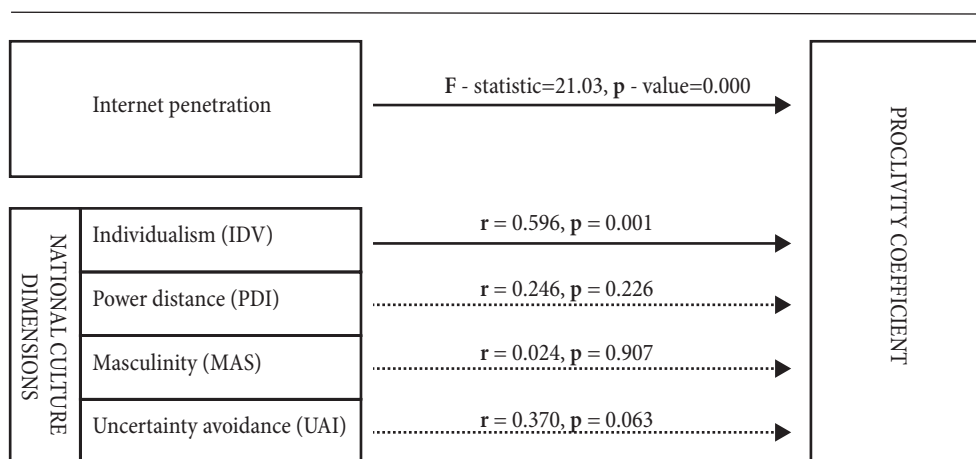
Based on the data presented in Table 3, we may infer that there is no sufficient evidence to suggest a statistically significant correlation between the aggregate proclivity coefficients and the Hofstede’s indexes for PDI, MAS and UAI.

On the basis of this study, it can be concluded that hotel guests coming from countries for which Hofstede recorded a high level of individualism and that are recorded to have high percentages of individuals using the internet are more inclined to post online hotel reviews. It is important to emphasise that these two factors are frequently simultaneous. Namely, a higher percentage of individuals using the internet is recorded in more developed countries, and Hofstede et al. [27, p. 132] state that “richer countries are associated with higher IDV”.

On the basis of the results obtained, H1 and H2 are supported, whereas hypotheses H3, H4 and H5 are dismissed.

These findings are considerably in line with the findings recorded in the previous studies. Such studies,

**Figure 1: The hypotheses tested and the results obtained**



NOTE: Dashed lines indicate that hypothesis is rejected

Source: Authors’ calculations.

which are aimed at analysing the cultural dimension impact on the consumers' proclivity for sharing information regarding the consumed products and services [20], [41], have indicated the impact of the IDV cultural dimension on the consumers' motivation to share their impressions of the consumed products and services in an online environment. The results of such studies point out that the consumers who are a part of predominantly individualist societies are more motivated to share their experiences in an online environment in comparison to the consumers coming from collectivist societies, who are less inclined to do so. Nevertheless, the abovementioned studies do not relate specifically to the analysis of hotel guest behaviour and, bearing in mind the specific features of the hotel product, it would be a just question to ask whether the results would be somewhat different if the analysis was focused solely on such subjects. With regard to that issue, a study carried out by Seval Ergun and Kitapci [61] might be of some significance. They analysed the relationships between the cultural dimensions of Hofstede and customer complaint behaviour in the hotel industry, and concluded that there was a positive impact of PDI, UAI and IDV on consumers' "public action" which they defined as "actions where the customer desires other to be aware of their dissatisfaction" [61, p. 63]. The results of our study confirm the impact of the IDV cultural dimension on the consumers' willingness to share their impressions, either positive or negative, of the hotel product with other consumers in an online environment, and simultaneously, point out to the interrelatedness between other cultural dimensions to this proclivity.

### Concluding remarks

It is the determination of the novel quantitative indicator – proclivity coefficient and the factors which moderate its values that make a contribution to the existing literature.

Our findings suggest that the perceived differences in the consumers from different countries' behaviour and their proclivity for posting online hotel reviews can be partially explained by different internet availability. Thus, an increase in internet availability implies the rise in the proclivity coefficient for posting reviews on the

TripAdvisor portal. The research shows that the increase in internet penetration of 1% implies a rise in the proclivity coefficient values of 13.5%. According to the ITU data [30], at the beginning of the analysed period, that is, the year of 2010, there were approximately 1.99 billion internet users, whereas, according to the same source, the number of the users in 2017 was estimated at around 3.65 billion. Taking these results into account, one may expect that the anticipated future increase in internet availability will contribute to a higher consumers' proclivity for posting hotel reviews.

Nevertheless, the difference in the coefficient values between consumers from different countries cannot be accounted for only by different internet availability. Besides the similarities in internet penetration rates, consumers from different countries can exhibit completely different behaviour in terms of their proclivity for posting online hotel reviews. For instance, the cases of Japan and Great Britain prove that similar values of percentage of individuals using the internet [30] can, on the contrary, exhibit considerably different proclivity for posting hotel reviews (Table 1).

The very data on the percentage of individuals using the internet per countries do not yield any information about the way in which the internet is used. Intercultural differences affect different behaviour of an individual. By analysing the ascertained values of the Spearman's correlation coefficient between the proclivity coefficients and the Hofstede's indexes, one may conclude that individualism/collectivism is the cultural dimension which affects the behaviour of hotel guests and their proclivity for posting online reviews. A strong direct correlation is perceived, and it indicates that hotel guests from countries with higher values of the individualism index (IDV) imply higher values of the proclivity coefficient for posting online reviews.

The findings of our research are also important for the practitioners who may find this insight into the factors moderating the guests' proclivity for posting online hotel reviews to be of certain significance. Hotel management can use IDV values and internet penetration rates and can accordingly adapt the eWOM strategies to different consumer groups in order to induce them to participate in

eWOM, leading to the enhancement of the visibility and recognisability of the hotel in the online setting. It is also important to bear in mind the type of consumers who are more inclined to post online hotel reviews. An increased proclivity of hotel guests from certain countries for posting online reviews provides the hotel management with a possibility to be proactive in terms of potential reduction in the number of negative reviews and protection from their adverse effects on the hotel operation.

This study does have certain limitations. First, the country of origin, i.e. a certain cultural group a person belongs to, is determined based on the data provided by the TripAdvisor users during the registration process. Some reviewers could state the country they live in, and still originate from a different country. For instance, members of certain highly collectivist cultures could live in a country with a predominantly individualist culture and vice versa. It may lead us to conclude that they could have kept the cultural pattern of their country of origin. This could cause the abandonment of the framework of the expected cultural pattern typical for the stated country of origin. Also, the simplicity of anonymous review publishing on TripAdvisor tempts the management of a certain number of hotels into posting fake reviews with a view to promoting their own business, attack the competition or protect themselves from negative reviews [28]. Such reviews are presented to be authentic so as to misguide consumers and make some good use of it businesswise [39]. Such reviews are often published using the accounts created only to make fake reviews. Given the fact that the entire review is fake, quite often the stated country of origin is fake as well. One can also find a certain number of fake reviews on TripAdvisor, e.g. [19], [55], [62]. While carrying out this investigation, it was not possible to identify fake reviews. As a result, they were taken into account when determining proclivity coefficients of the guests coming from individual countries, which can potentially affect the obtained results. Still, taking into account the size of the examined sample, we can infer that this limitation has no significant influence of the results obtained in the research.

Second, owing to the specific features of the hotel services consumption, the consumptive behaviour of

hotel guests is a specific category, as well. Namely, the purchase of hotel services ought not to be compared to the purchase of other goods and services due to the fact that hotel facilities are intended for temporary “stay” and the satisfaction of the existence-related and psychological needs, which primarily stem from out-of-the-place-of-residence stay. Therefore, this study should not be taken as a basis for formulating general conclusions about consumers’ proclivity for posting online reviews which could be linked to other business activities and purchases.

Third, this study could not include hotel guests from a larger number of countries because the official statistical publications lacked the data regarding the number of tourist arrivals coming from individual countries in the analysed destinations, therefore it was impossible to determine the proclivity coefficient values for the guests coming from those countries.

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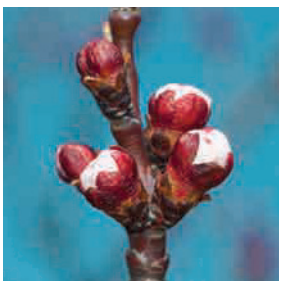
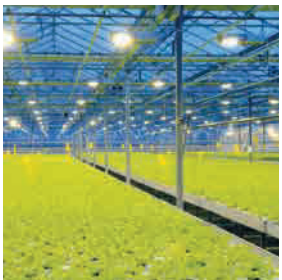
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