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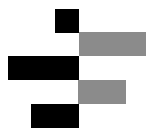# Анали
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ОРИГИНАЛНИ НАУЧНИ РАД / Original scientific article

Оригинални научни рад
Original scientific article

Similarities and differences of the HR practices in foreign-owned subsidiaries in the post-Soviet region in comparison to Central and Eastern European countries

Сличности и разлике у пракси управљања људским ресурсима у подружницама компанија у страном власништву у постсовјетском региону у поређењу са државама Централне и Источне Европе

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Abstract:
The purpose of this study is to determine interrelations between the characteristics of HRM in local subsidiaries in six focal countries in the light of different organizational variables: year of establishment, sector of MNC, mode of entry and origin of MNCs in selected post-Soviet counties in comparison to Central and Eastern European countries. We profile the HRM practices of almost 234 foreign owned subsidiaries located in Kyrgyzstan, Kazakhstan, Hungary, Russia, Slovakia and Poland. Using descriptive statistics, we present the general characteristics of the sample and then we use bivariate statistical analysis to test our hypotheses relating to the impact of different factors on the HR practice mix implemented in the subsidiaries of MNCs covered in our survey. The results support a contention that multinational companies following different HR management practices/approaches due to institutional histories. For example, in post-Soviet countries, HR departments have more centralized decision-making with tight control and the number of expatriates is lower when compared to the practices of firms in the CEE region.
Keywords: human resource management, multinational companies, Central and Eastern Europe, Kyrgyzstan, Russia, Kazakhstan, Hungary, Slovakia, Poland.

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Сажетак: Циљ овог истраживања је да се утврде међусобни односи између одлика управљања људским ресурсима локалних подружница у шест фокусних држава у светлу различитих организационих варијабли: година оснивања, сектор мултинационалне компаније (МНК), начин уласка и порекло МНК у одабраним постсовјетским државама у поређењу са земљама Средње и Источне Европе. Идентификовали смо профиле праксе управљања људским ресурсима у скоро 234 подружница страних компанија у Киргистану, Казахстану, Мађарској, Русији, Словачкој и Пољској. Дескриптивном статистиком презентирамо опште карактеристике узорка, а затим биваријатном статистичком анализом тестирамо хипотезе у вези са утицајем различитих фактора на микс праксе управљања људским ресурсима примењен у подружницама мултинационалних компанија обухваћених нашим истраживањем. Резултати подржавају аргумент да одељења за људске ресурсе следе различите облике праксе односно приступе због институционалне историје. На пример, у постсовјетским државама, одељења се одликују вишим степеном централизације одлучивања, уз строгу контролу, а број странаца је мањи у поређењу са праксом фирми у региону Централне и Источне Европе.
Кључне речи: Управљање људским ресурсима, мултинационалне компаније, Централна и Источна Европа, Киргистан, Русија, Казахстан, Мађарска, Словачка, Пољска.
ЈЕЛ класификација: E60, J2, M50, M54

Introduction

In Cambridge Dictionary, the term *transition economy* denotes an economy that shifts from one under government control to a market economy. The transition from socialist to market economy started in Asia in the late 1970s and then in Europe in the last 1980s. All communities that were historically characterized by the socialist economic system and ideology started some form of post-communist political period (Aslund, 2013; Rutland, 1994; Svejnar, 2002). Hungary, Slovakia and Poland also experienced transitional economies after the collapse of the post-communist regime. Russia, Kyrgyzstan and Kazakhstan shared over 40 years of experience under communism. Moreover, the aforementioned countries had experienced a similar HRM institutional approach: authoritarian managerial models, which meant total and tight control by the Communist Party (Brewster et al., 2010; Buzady, 2016). Countries with transitional economy received more and more attention not only from MNCs in search of global competitive advantage, but also from social scientists (de Jong et al., 2015; Latukha & Malko, 2019; M. J. Morley et al., 2016) as post-Soviet countries attempted to adapt business practices and economic models left over from socialist regime (Koleva et al., 2010). Even though the HRM scholars' interest in this region has increased over the past two decades it may actually be less often empirically investigated (Dickmann et al., 2016; Wood & Demirbag, 2015). Moreover, only few studies (Markoulli et al., 2017; Sanders & De Cieri, 2021) illustrated result from Kyrgyzstan, Kazakhstan and Russia.

We would like to fill this gap by presenting the results of our empirical study regarding comparison of HRM practices at local subsidiaries in the light of different organizational variables (year of establishment, country of origin, entry mode, and sector) in selected three countries from the former Soviet Union and three post-communist countries from Central and Eastern Europe (CEE). Comparison of companies from different parts of the world allows us to better understand HRM practices (Gooderham et al., 2019), and to find out whether HRM practice have evolved over time or have remained constant (Parry et al., 2020). In our study we aimed to answer to

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following questions: 1) What is the relationship between the home country of subsidiary, sector, year and mode of establishment of MNC subsidiary operating in the former Soviet country group and post-communist CEE country group and total firm employee number? 2) What is the relationship between home country of subsidiary, sector, year and mode of establishment of MNC subsidiary operating in the former Soviet country group and post-communist CEE country group and the number of expatriates? 3) What is the relationship between the home country of the subsidiary, economic sector, year and mode of establishment of MNC subsidiaries operating in the former Soviet countries and post-communist CEE countries and the role of the HR function?

1. Theoretical background

In Central and Eastern Europe, the emergence of multinational companies began after the fall of the socialist system in 1989. The growth of multinational companies in the region has been attributed to factors such as the removal of trade barriers, globalization of markets, demographic changes, and an increase in annual foreign direct investment in the region (Pudelko & Harzing, 2007b; Slavić et al., 2014). Due to the intensive growth and the geographical expansion of MNCs, competition was also growing. In order to keep up a competitive advantage, more effective methods of human resources management were required from MNCs operating in the various regions (Brenner, 2009; Mayes et al., 2017).

The Soviet system was characterized by a strong centralization and bureaucracy; therefore, major issues were managed by the higher and more politically dependable levels of management. Full employment, which was followed by central planning in term of wages and investment, was a core of labour market policy of Soviet system. Centrally planned capital spending enabled firms to retain a fixed or increasing level of employment. As a result, reducing the total wage bill and inflated labour demand led to full employment (Kornai, 1992; Pavlova & Rohozynsky, 2005). At the beginning of transition period labour market of most post-Soviet countries was based on labour market models from the Soviet system. In the 1960s and 1970s, the Human Resources concept was initially introduced in the developed world in US as a progressive approach to people management that includes teamwork, employee participation, and empowerment (Brewster, 1995). This is in sharp contrast to the bureaucratic, authoritarian approach to labour management style of post-Soviet countries (Minbaeva & Muratbekova-Touron, 2013). The public and private sectors' organizational structures in Kyrgyzstan are founded on tight hierarchies that reflect the Kyrgyz people's tribal tradition and the Soviet party bureaucracy (Junisbai, 2010). Due to the necessity for consensus among numerous decision-makers, the decision-making process is somewhat stiff and time-consuming. In both private and public enterprises, power connections between managers and subordinates are best described as high-power distance relationships (Kubicek, 1998). The Kyrgyz people are either collectivist or have a group society in which people's identity is perceived as members of clans or communities. Collectivism, like any cultural feature, unavoidably influences HR practices in firms (Kolpakov, 2001; Kuehnast & Dudwick, 2004; Temirbekova et al., 2014).

In 2009, the UN named Kazakhstan a country with high human potential, along with countries such as Malaysia and Brazil. Foreign investment grew steadily. Almaty has become

Central Asian headquarters for international corporations including Microsoft, Procter and Gamble, Ernst and Young, Kimberly Clark, Coca-Cola, Samsung, BASF, and British American Tobacco. However, the current approach to human resources management cannot provide the basis for developing the human capital competencies necessary to move Kazakhstan forward competitively (Davis, 2012). HRM practices in Kazakhstan are strongly hierarchical (Ardichvili & Kuchinke, 2002) and heavily bureaucratic with an authoritarian and paternalistic decision making style characterized by centralized control and decision making approach – a heritage of Soviet management style (Minbaeva et al., 2007; Muratbekova-Touron, 2002; Tibekov et al., 2004).

The level of development of human resource management practices in Eastern European countries differed significantly. The differences were explained by economic and socio-cultural distinctions (Tung & Havlovic, 1996). Prior to the end of 1980s, HRM activities in most of Eastern Europe were under tight state regulation, in other words, under the control of the Communist Party (Koubek & Brewster, 1995; Poór et al., 2017). Key positions and selection of specialists had been closely controlled by the Communist Party and government policies (Kazlauskaitė & Bučiūnienė, 2010; Poór et al., 2020); the mix of collective and individual leadership elements was presented as an optimal form of management. In the previous regime, the Personnel Department was primarily directed by the Managing Director, and the scope of the Personnel Department's duties was selection and career management (M. Morley et al., 2016).

One of the first major problems facing transition countries' HR departments was dealing with the large layoffs that occurred as a result of privatization. The labour market structure of former Soviet countries was reshaped in several ways by multinational corporations (Redman & Keithley, 1998).

Hungarian businesses have been turned fat less political by the actions and importance of multinational companies. HR policies have been of critical significance. In most cases, these MNC firms have better productivity and efficiency outcomes than local ones. In contrast with the relatively poor and unformed or changing local institutional structure, multinational corporations have successfully exploited an advantage that was based on own resources (Lewis, 2005).

2. Hypotheses development

This study aimed to determine relationship between four characteristics of subsidiary management environment: origin of subsidiary; sector; the age of subsidiary; mode of establishment, and size of subsidiary, presence of expatriates, and HR role of MNCs in two groups of countries: the post-Soviet region (Kyrgyzstan, Kazakhstan and Russia) and CEE countries (Hungary, Poland, and Slovakia).

The first characteristic of subsidiary management environment is the so-called Country of origin effect. The *Country of origin effect* concept is determined by factors such as physical and human capital, political institutions and cultural characteristics. These give domestic firms a comparative advantage over firms from other countries (Porter, 1990; Sethi & Elango, 1999). Some researchers claimed that an evolutionary path of MNCs would be influenced by the institutional context of their home countries, resulting in differences in organization design (Bartlett & Ghoshal, 1999). The second characteristic of subsidiary management environment is

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the age of a subsidiary. It is significant determinant of the subsidiaries' ability to acquire expertise and skills of subsidiary, and as a result generate value for the MNC (Rabbiosi & Santangelo, 2013). According to some studies young firms stand at a disadvantage to older firms because the latter have had more time to develop not only the absorptive capacity needed to recognize and assimilate new ideas, but also the capabilities to innovate (Cohen & Levinthal, 1990; March, 1991). However, other researchers believe that old businesses suffer from the liability of aging, which occurs as businesses age and become less effective at responding to changes in their environment (Barron et al., 1994; Ranger-Moore, 1997). The third characteristic of subsidiary management environment is the mode of establishment. Licensing, exporting, and foreign direct investment are ways multinational corporations can enter an economy. The entry mode chosen by MNCs will have a significant impact on their future performance (Rasheed, 2005). It has been found to be significantly related to subsidiary HRM practices, as the form and nature of local employee training and development are influenced by the choice of entry mode (Fleisher & Schoenfeld, 1992). The fourth characteristic of subsidiary management environment is the economic sector of the MNC.

At the start of the transition period, the job markets of most of post-Soviet countries were formed on traditional labour market inherited from the Soviet system. Full employment, which was followed by central planning in terms of wages and investment, was the core of labour market policy of Soviet system (Pavlova & Rohozynsky, 2005). Soviet enterprises' management style can be described as 'authoritarian paternalist' with rigidly hierarchical formal structure (Clarke, 2004). However, Western European companies gave regional subsidiaries more autonomy and only appointed executives from the headquarters (Novitskaya & Brewster, 2016). Therefore:

Hypothesis 1: There is a relationship between characteristics of subsidiary management environment (year of establishment, sector of MNC, mode of entry and origin of MNC) and HR role in a given country group (post-Soviet and CEE).

When the subsidiary is small, increasing subsidiary size implies increasing resources in the subsidiary, which increases subsidiary autonomy. However, with increasing subsidiary size comes increase in coordination complexity and managerial expertise from the headquarters is needed to increase the subsidiary's dependence (Johnston & Menguc, 2007). Furthermore subsidiary size is considered as a measure of the subsidiary's importance and its technical maturity (O'Donnell, 2000). Thus, we hypothesize:

Hypothesis 2: There is a relationship between characteristics of subsidiary management environment (year of establishment, sector of MNC, mode of entry and origin of MNC) and employee count of subsidiaries in a given country group (post-Soviet and CEE).

The most important challenge for multinational companies is to figure out how many expatriate employees their subsidiary should have. Expatriate staffing is an effective way of subsidiary management and plays an important role for subsidiary performance. Therefore determining the required expatriate staffing size in their subsidiaries is one of the most difficult

challenges for multinational companies (MNCs) (Gaur et al., 2007; Goerzen & Beamish, 2007). Hence,

Hypothesis 3: There is a relationship between characteristics of subsidiary management environment (year of establishment, sector of MNC, mode of entry and origin of MNC) and expatriates' size in a given country group (Post-soviet and CEE).

3. Methodology

The present research is part of a long-term collaborative research consortium – the Central and Eastern European International Research Team (CEEIRT). The research team included researchers from different universities from the Central and Eastern European (CEE) and Central Asian (CA) regions. The aim of the project is to examine changing Human Resource (HR) practices and roles in MNC subsidiaries operating in the region.

This study used data collected in 2018–2019. One questionnaire was used for all countries responding, translated by local researchers from English into the national language of the respective country. Language accuracy was tested by our research team members who are native speakers of the target language. The data was collected both in person and online. A total of 234 subsidiaries with foreign participation located in the territory of the respondent countries (Hungary, Kazakhstan, Kyrgyzstan, Poland, and Slovakia) took part in the study.

Descriptive statistics were used in order to present the general characteristics of the sample and bivariate statistical analysis were used for hypotheses testing.

4. Results and discussion

Origin of subsidiary. The 234 subsidiaries originated in 38 countries: 20% of them have their parent companies in Germany, 13.2% in USA, 5.8% in UK, 5.8% in France, and 4.5% in Korea.

Year of establishment. 30% percent of subsidiaries in European Union country group were established before 1995.

Table 1: Year of establishment of the company

Country group	Year of establishment				
	before 1995	1995-2000	2001-2005	2006-2010	after 2010
Post-Soviet	14.8%	20.4%	14.8%	25.9%	24.1%
EU member	31.0%	19.5%	16.1%	18.4%	14.9%
Total	27.2%	19.7%	15.8%	20.2%	17.1%

Source: the authors' primary research

Form of establishment. Most of the subsidiaries, some 84 percent, in post-Soviet countries, have been acquired by majority control of greenfield investments. Only 15% of subsidiaries were established via merger-acquisition projects. In contrast, 53 percent of the respondent subsidiaries from European Union member countries were established via a greenfield project. 46.15 percent of

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the companies participating in current research have been realized by merger-acquisition investments.

Table 2: Form of establishment of the company

Year of establishment	Merger & Acquisition	Green-field	Total
before 1995	54.2%	45.8%	100.0%
1995-2000	46.5%	53.5%	100.0%
2001-2005	20.0%	80.0%	100.0%
2006-2010	28.9%	71.1%	100.0%
after 2010	32.4%	67.6%	100.0%
Total	38.4%	61.6%	100.0%

Source: the authors' primary research

Sector mode. Most of the companies in post-Soviet countries deal with other service (51.8%). The trade sector reached 21.4%. 19.6 percent indicated industry, and a minority of subsidiaries had businesses related to financial services, merely 7.1%. Most of the companies in Central and Eastern European countries classified themselves in industry. This category comprises 44.4% of companies responding. The second highest percentage – 25.8% is seen in organizations that provide other services.

A minority of companies classify themselves in trade (19.1%) and financial services (10.7%).

Table 3: Major Business sector of your subsidiary

Country group	Industry	Trade	Financial services	Other services
Post-Soviet	19.6%	21.4%	7.1%	51.8%
EU member	44.4%	19.1%	10.7%	25.8%
Total	38.5%	19.7%	9.8%	32.1%

Source: the authors' primary research

H1: There is a relationship between characteristics of subsidiary management environment (year of establishment, sector of MNC, mode of entry and origin of MNC) and HR role in a given country group (post-Soviet and CEE).

Human resource management is considered to be the least prone to cross-border convergence, as multinational corporations prefer to localize rather than export the practices of countries of origin (Pudelko & Harzing, 2007a). The associations between the origin of MNC and primary HR role did not illustrate meaningful results for either group. The likelihood test for independence showed no significant association in the case of questioned survey participants from post-Soviet countries, $\chi2$ (18, n =48) = 14.441, p = 0.362. The likelihood test for independence for survey participants from EU member countries indicated no significant association between the origin of MNC and primary HR role, $\chi2$ (24, n =168) =31.433, p = 0.142. Moreover, many authors found that the origin of a subsidiary has a major effect on the MNCs' management practices (Almond et al., 2005; Ferner, 1997; Harzing & Sorge, 2003). Rosenzweig & Nohria, (1994)

suggested that that MNCs' HR practices are influenced by the national institutions of the host country. The result of the survey showed that there is no significant relationship between form of entry/establishment and primary HR role in any of the groups. The likelihood test for independence for post-Soviet countries indicated no significant association between the form of entry/establishment and primary HR role, $\chi2$ (3, n =52) =1.854, p = 0.603. The output of Pearson's chi-square test for independence for survey participants from EU member countries indicated no significant association between the form of entry/establishment and primary HR role, $\chi2$ (3, n =167) =4.218, p = 0.239. These findings are contrary to previous studies which suggested that the mode of establishment of a subsidiary are significantly related to subsidiary HRM practices (Ahlvik & Björkman, 2015; Bjorkman & Lu, 2001; Fleisher & Schoenfeld, 1992).

The result of the survey showed that there is no significant relationship between the year of establishment and the HR management practices in any of the groups. The likelihood test for independence showed no significant association in the case of questioned survey participants from post-Soviet countries, $\chi2$ (12, n =53) = 14.779, p = 0.254. As regards EU member countries, the likelihood test for independence indicated no significant association between the year of establishment and the primary HR role $\chi2$ (12, n = 172) =17.901, p = 0.119. The likelihood test for independence for survey participants from post-Soviet countries indicated no significant association between the sector of MNC and primary HR role, $\chi2$ (9, n =53) =7.190, p = 0.617. The associations between the sector of MNC and primary HR role illustrated no significant association in the case of surveyed EU member countries. The likelihood test for independence showed no significant association $\chi2$ (9, n =174) = 6.992, p = 0.638. Regarding the relationships year of establishment, sector of subsidiary and HR role, we were not able to find any arguments in the literature. This argument was not supported by the literature.

H2: There is a correlation between characteristics of subsidiary management environment (year of establishment, sector of MNC, mode of entry and origin of MNC) and employee count of subsidiaries in a given country group (post-Soviet and CEE).

The results of the survey showed that there is no significant relationship between the year of establishment and the number of employees in any of the groups. The likelihood test for independence for survey participants from post-Soviet countries indicated no significant association between year of establishment of MNC and the number of employees in the case of questioned survey participants from post-Soviet countries, $\chi2$ (16, n = 52) = 22.804, p = 0.119. In the case of the EU member countries, the likelihood test for independence for survey participants from EU member countries indicated no significant association between the year of establishment of MNC and the number of employees, $\chi2$ (16, n = 163) = 13.551, p = 0.632. The result of the survey showed that there is no significant relationship between the sector of MNC and the number of employees in post-Soviet countries. The likelihood test for independence for survey participants from post-Soviet countries indicated no significant association between the sector of MNC and the number of employees in post-Soviet countries, $\chi2$ (12, n = 53) = 15.380, p = 0.221. In the case of the EU member countries, the likelihood test for independence for survey participants from EU member countries indicated a significant association between the sector of MNC and the number of employees, $\chi2$ (12, n = 167) = 43.93, p = 0.000. The effect size of the relationship is at a high level (i.e., Cramer's V=0.272). As for any significant relationship between sector of MNC and number of employees we were not able to find any argument in the literature. The result of the

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survey showed that there is no significant relationship between the mode of entry and the number of employees in any of the groups. The likelihood test for independence for survey participants from post-Soviet countries indicated no significant association between mode of entry of MNC and the number of employees in the case of questioned survey participants from post-Soviet countries, $\chi2$ (4, n = 51) = 9.461, p = 0.051. In the case of the EU-member countries, the likelihood test for independence for survey participants from EU-member countries indicated no significant association between the mode of entry and the number of employees, $\chi2$ (4, n = 160) = 5.379, p = 0.251. The likelihood test for independence showed no significant association between the origin of MNC and the number of employees in the case of questioned survey participants from post-Soviet countries, $\chi2$ (24, n = 49) = 24.791, p = 0.417. Speaking of EU member countries, the likelihood test for independence indicated no significant association between the origin of MNC and the number of employees, $\chi2$ (32, n = 161) =37.535, p = 0.230.

Concerning the relationship between mode of entry, sector of subsidiary and number of employees we were not able to find any argument in the literature. This argument was not supported by the literature.

H3: There is a relationship between characteristics of subsidiary management environment (year of establishment, sector of MNC, mode of entry and origin of MNC) and expatriates' size in a given country group (post-Soviet and CEE).

It is known that the recruitment of expatriates is important for the efficiency of the subsidiary company management. However, determining the required number of foreign employees in their subsidiaries is one of the most challenging tasks for multinational companies (Gaur et al., 2007; Goerzen & Beamish, 2007). Since an increase in the size of a subsidiary implies an increase in resources in the subsidiary, which leads to an increase in the autonomy of the subsidiary. And as the size of the subsidiary increases, the complexity of coordination increases and managerial experience from headquarters is required, which increases the dependence of the subsidiary (Johnston & Menguc, 2007).

Only one of the associations between the year of establishment and expatriation illustrated meaningful results. The likelihood test for independence showed a significant association in the case of questioned survey participants from post-Soviet countries, $\chi2$ (4, n =53) = 22.363, p = 0.015. The effect size for the relationship in the case of post-Soviet countries, Cramer's *V*, was at high level, 0.491 (Pallant, 2016). The results are in agreement with other scholars (Delios & Beamish, 2001; Harzing & Sorge, 2003; Wilkinson et al., 2008) findings, which showed that subsidiary age has significant impact on subsidiary expatriate staffing level However, speaking of EU member countries the output of Pearson's chi-square test showed that there is no significant relationship between the year of establishment and expatriation, $\chi2$ (4, n =161) =0.515, p = 0.972. Some researchers (Harzing & Sorge, 2003) have suggested that as the international subsidiary matures, they are likely to weaken their dominant presence by reducing the proportion of expatriates. Considering that in the EU member countries sample, 54 out of 174 companies (31%) were established before 1995 and 34 out of 174 companies (19.5%) companies between 1995 and 2000. It is logical that there is no significant relationship between variables.

The result of the survey showed that there is no significant relationship between the sector of MNC and expatriation in any of the groups. The likelihood test for independence showed no significant association between the sector of subsidiary and expatriation in the case of questioned survey participants from post-Soviet countries, $\chi2$ (3, n =53) = 1.934, p = 0.586. The value of Pearson's chi-square test for independence calculated for EU member countries does not fall within the accepted range, $\chi2$ (3, n=163) =3.516, p=0.319.

The results of the survey showed that there is no significant relationship between the form (mode) of entry/establishment and expatriation) in any of the groups. The values of Fisher's Exact test do not fall within the accepted range (P≥0.05) in any of the country groups. The results of the survey showed that there is no significant relationship between the mode of entry of MNC and expatriation in any of the groups. The output of Pearson's chi-square test for independence for survey participants from post-Soviet countries indicated no significant association between the form of entry/establishment expatriation $\chi2$ (1, n =52) = 1.231, p = 0.267. The output of Pearson's chi-square test for independence for survey participants from EU-member country indicated no significant association between the form of entry/establishment expatriation $\chi2$ (1, n=157) = 1.124, p = 0.289.

The results of the survey showed that there is no significant relationship between the origin of MNC and expatriation in any of the groups. The likelihood test for independence showed no significant association between the origin of subsidiary and expatriation in the case of questioned survey participants from post-Soviet countries, $\chi2$ (6, n =48) = 6.680, p = 0.351. The likelihood test for independence showed no significant association between the origin of subsidiary and expatriation in the case of questioned survey participants from EU-member countries, $\chi2$ (8, n=158) =12.188, p=0.143.

Table 4: Hypotheses summary

Hypotheses	Acceptance of Hypothesis
H 1.1 There is an association between year of establishment and HR management practices. H 1.2 There is an association between Sector of MNC and HR management practices. H 1.3 There is an association between mode of entry and HR management practices. H 1.4 There is an association between country of origin and HR management practices.	Fully refused
H 2.1 There is an association between year of establishment and employee count. H 2.2 There is an association between Sector of MNC and employee count. H 2.3 There is an association between mode of entry and employee count. H 2.4 There is an association between country of origin and employee count.	Very low acceptance
H 3.1 There is an association between year of establishment and expatriation. H 3.2 There is an association between Sector of MNC and expatriation. H 3.3 There is an association between mode of entry and expatriation. H 3.4 There is an association between country of origin and expatriation.	Very low acceptance

Source: the authors

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Conclusion

The main objective of this paper was to explore relationships between HR role, number of employees and number of expatriates and four characteristics of subsidiary management environment: origin of subsidiary; sector; the age of subsidiary; mode of establishment in two groups of countries – the post-Soviet region (Kyrgyzstan, Kazakhstan and Russia) and CEE countries (Hungary, Poland, and Slovakia). The authors were interested in determining if the HR environment of multinational companies in post-Soviet and CEE countries is entirely diverse by illustrating significance of relationships mentioned in the hypotheses. To reach the aim of research, the authors conducted a survey in 234 MNCs in selected post-Soviet (Kyrgyzstan, Kazakhstan and Russia) and CEE countries (Hungary, Poland, and Slovakia).

Against all expectations, each hypothesis was supported partly. MNCs are more likely to localize human resource management practices than to export country-of-origin practices since HRM deals with the management of people (Pudelko & Harzing, 2007a). Contrary to expectations, this study has identified that year of establishment, mode of entry; sector and country of origin of MNC did not affect HR role in post-Soviet and EU-member country groups. The evidence from this study suggests that MNCs' management practices majorly influenced by origin of a subsidiary (Almond et al., 2005; Ferner, 1997; Harzing & Sorge, 2003). The investigation of influence of characteristics of subsidiary management environment on number of expatriates of subsidiaries in a given country group (post-Soviet, EU member country) has shown that year of establishment influenced the number of expatriates only in post-Soviet country group. Prior studies noted (Harzing & Sorge, 2003) that the proportion of expatriates depends on maturity as the multinational subsidiary matures. Considering that in the post-Soviet countries 25.9% sample companies were established between 2001 and 2005, and 24.1% after 2010, it is logical that year of establishment influenced the number of expatriates. The research has also shown that sector of MNC influenced the employee number only in EU-member country. An implication of this is the possibility that in Central and Eastern Europe countries most of the companies classified themselves in industry (44.4%) and trade is 19.1% of companies responding. However, in Post-Soviet country group most of the companies in post-Soviet countries deal with other service (51.8%).

As any research, this work bears limitations also. The relationship between the subsidiary's position in the global operations of MNCs and the configuration of HR practices is complicated. MNC regionalization tactics may be diluting any patterns of industry or national distinctions. The self-reported nature of this type of data can influence the stated organizational performance outcomes. The descriptive nature of the questionnaire is one of the major drawbacks of our study. We used a descriptive form to identify subtle differences and nuances in the views of HR professionals from different countries. In some countries, we were not able to find some international subsidiaries.

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Corporate social responsibility and expected benefits in the financial sector: empirical evidence from Serbia

Корпоративна друштвена одговорност и очекиване користи у финансијском сектору: емпиријско истраживање у Србији

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Abstract: As one of the pillars of the economy, financial institutions play important role in implementation of the concept of corporate social responsibility (CSR). The paper is focused on CSR in the financial sector, i.e. the perception of employees in banks and insurance companies in Serbia on the level of development of CSR regarding its external dimensions, such as responsibility toward beneficiaries, community and environment. The aim is to identify the employees' perceptions of external aspects of CSR in the financial sector, as well as to determine the impact of selected external aspects on the expected CSR benefits. The results of the conducted empirical research demonstrate a positive attitude of employees in financial institutions in the Republic of Serbia towards external aspects of CSR, as well as statistically significant impact of CSR towards beneficiary and environment on the expected CSR benefits. Additionally, the results indicate that CSR towards the community does not affect the expected benefits. Accordingly, we identified some practical and theoretical implications that can serve as a basis for creating and implementing a strategic approach to CSR in financial institutions.
Keywords: corporate social responsibility (CSR), financial sector, banks and insurance companies, external aspects of CSR, expected benefits of CSR.
JEL classification: M14, G21, G22

Сажетак: Као један од стубова привреде, финансијске институције имају важну улогу у имлементацији концепта друштвено одговорног пословања. Предмет истраживања у раду је корпоративна друштвена одговорност у финансијском сектору, односно перцепције запослених у банкама и осигуравајућим друштвима у Србији о степену развоја корпоративне друштвене одговорности у погледу екстерних димензија, као што су одговорност према корисницима, заједници и животној средини. Циљ истраживања је да се идентификују перцепције запослених о екстерним димензијама корпоративне друштвене одговорности, као и да се испита њихов утицај на очекиване користи од примене друштвено одговорних

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активности. Резултати спроведеног емпиријског истраживања показују позитивне ставове запослених у финансијским институцијама у Републици Србији у погледу екстерних димензија корпоративне друштвене одговорности, као и статистички значајан утицај одговорности према корисницима и животној средини на очекиване користи од друштвено одговорног понашања. Поред тога, резултати показују да одговорност према заједници не утиче на очекиване користи од друштвено одговорног понашања. Сходно наведеном, у раду су дефинисане одговарајуће практичне и теоријске импликације које могу бити добра основа за креирање и имплементацију стратегијског приступа корпоративне друштвене одговорности у финансијским институцијама.
Кључне речи: корпоративна друштвена одговорност, финансијски сектор, банке и осигуравајућа друштва, екстерни аспекти корпоративне друштвене одговорности, очекиване користи од корпоративне друштвене одговорности
ЈЕЛ класификација: M14, G21, G22

Introduction

In modern business conditions, the application of the concept of corporate social responsibility (CSR) is the requirement for different types of organizations, as confirmed by the growing number of research on CSR in various sectors (e.g. Lee, Chang, & Lee, 2017; Matute-Vallejo, Bravo, & Pina, 2011; Ramasamy & Yeung, 2009). Also, CSR research in financial institutions became an indispensable topic after the global economic crisis in 2008, as the crisis arose due to the irresponsible behavior of financial organizations. After this period, banks and other financial organizations strive to improve their image and reputation and regain the trust that some beneficiaries, employees and the community lost (Forcadell & Aracil, 2017). The development of CSR and the implementation of the concept of "responsible banking" is one of the ways in which banks can become responsible organizations that care about the needs of their stakeholders, which will contribute to corporate image and reputation improvement (Pérez & del Bosque, 2014; Forcadell & Aracil, 2017). Socially responsible financial institutions provide many benefits, not only in terms of financial performance, but also in terms of non-financial benefits that are the basis for long-term survival, competitiveness and market success, contributing to society as a whole and environmental quality (Birindelli, Ferretti, Intonti, & Iannuzzi, 2013).

According to the above mentioned, the research of CSR in banks and insurance companies is a significant research area. Although there are numerous studies related to CSR in other sectors, in the financial one, they are rare and sporadic. Also, most of the research papers, observe CSR as a whole, without taking into account the examination of the significance of its various dimensions, and in particular the external dimension of the CSR is insufficiently researched. The paper is focused on social social responsibility of organizations in the financial sector in terms of the importance of its external dimension, such as responsibility to beneficiaries, community and the environment, as well as the expected benefits. The research aims to identify employees' perceptions of external aspects of CSR in the financial sector, as well as to determine the impact of selected external aspects on the expected benefits of socially responsible behavior.

1. Literature review

1.1. The main dimensions and benefits of CSR

Despite growing interest in researching CSR, one can say that it is still evolving, relatively undetermined and insufficiently understandable term without a generally accepted definition (Žarevac Bošković, Lakićević, & Pantović, 2021). According to Berber, Slavić & Aleksić (2021) the concept of CSR means "greater involvement of the corporate sector in social, environmental, institutional issues and conditions, which in turn affects the company's profits, and it is related to the concepts of sustainable development, ethical behaviour of companies, corporate sustainability, corporate citizenship, and strategic philanthropy". Actually, CSR concerns companies' actions beyond their legal obligations towards society and environment (Zlatanović, 2015).

In general, two key dimensions of social responsibility can be distinguished – external and internal. The internal dimension of social responsibility includes care for the health of employees and safety at work, beyond the limits defined by law, respect for individual differences and problems faced by team members, mutual respect and understanding, promoting humanity and care for people, which is not limited only to working hours, but also include an attempt to achieve a balance between work, family and free time (Babić & Zlatanović, 2020; Štrukelj, Zlatanović, Nikolić, & Sternad-Zabukovšek, 2021). The external dimension of social responsibility refers to all external stakeholders, and it is reflected in the rational use of resources, reduction of emissions of harmful substances, recycling and similar. In relation to the local community, socially responsible behavior is indirectly related to creating and improving business and paying taxes, and directly to: participation in various humanitarian activities, sponsoring cultural and sports events, financing educational projects, environmental programs, donations to health and social institutions. scholarships for young talents and other forms of assistance to community members. Until the 1990s, organizations were turned to the external dimension, because it is more exposed to the public and makes a favorable impression of a marketing nature (Stojanović-Aleksić, Erić Nielsen, & Bošković, 2016).

Research and understanding of the dimensions of corporate social responsibility are related to the expected benefits of applying the mentioned concept. Berber, Slavić, & Aleksić (2019) point out that ″CSR activities are based exclusively on cost-benefit analysis, that takes into account, on the one hand, invested capital (investments-disclaimer from current consumption for higher results in the future), while on the other hand, and especially the "invisible" and long-term benefits that an organization derives from the investment and implemented activities″. It is considered that the main benefits of adopting and applying CSR principles are: reputation improvement, costs and risks reduction, competitive advantage, learning and development, innovation and risk management, investment attraction. Improving CSR is quite connected to creation and nurture of the good reputation of the organization, which in this way builds loyalty among its

stakeholders, positions itself as a corporately responsible member of society and improves its image, attracts employees as well as beneficiaries and investors, having consequently numerous financial and non-financial benefits. Therefore, profitability should not be the primary or the only motive for socially responsible business (Žarevac Bošković et al., 2021).

1.2. The specifics of CSR in financial sector

The social responsibility of banks and other financial institutions is recognized as necessary, as they play a key role in engaging in the field of social responsibility. This is because their work is always public due to direct or indirect influence on a wide range of stakeholders, which leads to higher expectations, in terms of their transparency and visibility comparing to other organizations (Coelho, Filipe, & Ferreira, 2011; Scholtens, 2009). The financial sector, especially the banking one, is considered a high visibility sector with a very large stakeholder base (Menassa, 2010). It is for these reasons that financial institutions are among the first to got involved in CSR issues and began to apply this concept and to emphasize it publicly, either in the media or on their websites, that they are socially responsible. Accordingly, they started to submit reports to the public on CSR activities, stating that it is their duty.

However, the outbreak of the financial crisis in 2008 marked a series of confidence crisis that occurred in the financial industry, after which they tried to regain their damaged reputation and image, applying socially responsible principles and thus incorporating the concept of socially responsible business into their strategies (Lee et al., 2017; Paulik, Kombo, & Ključnikov, 2015). For this reason, it is not surprising that financial institutions have become the largest investors in CSR and that they have fostered the trend of togetherness, philanthropy and environmental commitment among beneficiaries, by adopting the concept of CSR into their new strategy (Jamaliah, Hasman, Norzitah, & Nor Akila, 2015), which is very important because financial institutions can stimulate economic growth and create employment, improve living standards, participate in environmental protection, so they can make a great contribution to sustainable development if they act properly and efficiently. Socially responsible banks are "banks with conscience", which strive to invest funds exclusively in those ventures that create welfare for the wider community, and at the same time bring good for the reputation and image of the bank itself (Ivanišević Hernaus, 2016). The strugle for beneficiaries among banks is getting fiercer and therefore creation of a positive image in the eyes of the community is an important aspect of achieving corporate performance. Accordingly, financial institutions are beginning to develop socially responsible business strategies in order to demonstrate commitment to community needs, from their business, due to the expected impact on their corporate performance.

The usage of CSR concepts improves society's perception of the financial industry as a whole and can therefore reinforce and strengthen the level of confidence necessary for banks and other financial institutions. The banking sector requires constant innovation in CSR activities in order to be attractive to beneficiaries and to establish a stable market (Akpan, 2016). For the financial sector, where beneficiary involvement in the service is

high, CSR has a positive effect on bank perceptions as well as on service assessments, and banks' participation in CSR creates affection for the bank and thus has a positive impact on its reputation (Marin & Ruiz, 2007; Matute-Vallejo et al., 2011).

It can be said that CSR in financial institutions, especially in banks, has been deeply and thoroughly studied, considering the fact that this sector is one of the crucial ones when it comes to the application of CSR principles. This is not a surprise taking into account that engagement in corporate social responsibility helps banks generate strategic benefits that enable them to improve their service offer and reduce operating costs due to a better reputation in the community that perceives them as socially responsible (Herzig & Moon, 2012).

2. Research model and hypotheses development

Beneficiaries' protection, as well as a fair attitude towards them is one of the pillars of building CSR activities and a basic condition for a good image and reputation of the organization. CSR implies not only beneficiaries' protection in terms of their economic interests, but building a special relationship between the company and beneficiaries based on which beneficiaries will create a positive impression of the organization, i.e. socially responsible behavior affects greater beneficiary satisfaction and a better reputation of the company (Babić & Zlatanović, 2020). In fact, the real effects of social responsibility are indirect and can be seen only in a long time interval, where the connection between social responsibility and financial results is very difficult to measure. In addition to financial benefits, non-financial benefits of socially responsible behavior are mainly observed in the context of employees, beneficiary satisfaction and company reputation. That is why it is important for organizations to understand on time that beneficiaries view them through the prism of socially responsible business, as well as that irresponsible behavior can cause losses that are difficult to compensate (Stojanovic-Aleksić et al., 2016).

Starting from the position that beneficiaries are key stakeholders for a financial institution, because they are directly connected with building the reputation and image of the organization, due to which they are most often associated with expected benefits, the following hypothesis has been developed:

H1: CSR towards beneficiaries has a statistically significant impact on the expected benefits from CSR.

In addition to the above, the connection between the local community and the CSR is diverse, significant and two-way. Namely, organizations contribute to their communities by providing jobs, salaries and benefits and tax revenues, while on the other hand, organizations depend on the health, stability and prosperity of society and the communities in which they operate (Commission of the European Communities, 2001). Also, organizations are involved in the "life" of the community through donations, sponsorships of sports clubs and individuals, investement in education and culture, scholarships, humanitarian actions, animals protection and similar (Stojanovic-Aleksić et al., 2016). Also, the organization does not have to be a direct donor of these actions, but it can have

indirect influence on the dissemination of information, organization of various events, promotions, advertising materials on company websites and similar. Consequently, organizations gain certain benefits from socially responsible activities towards the local community in terms of achieving business success. In fact, an organization that is an active member of the community through the CSR, achieves positive results in terms of strengthening its reputation and image, and thus competitiveness (Štrukelj, 2021; Zlatanović, 2015).

Taking into account the position that organizations and community are interconnected and conditioned, it is assumed that CSR activities towards the community contribute to a better image and reputation of the organization, based on which hypothesis H2 has been developed:

H2: CSR towards community has a statistically significant impact on the expected benefits from CSR.

As one of the most important element of external CSR is environmental protection, which includes activities related to: dedicated usage of energy and materials, reduction of environmental pollution, usage of safe technologies and biodegradable materials, development of recycling, reduction of energy costs, development of safe packaging (Stojanovic-Aleksić et al., 2016; Štrukelj et al., 2021). In fact, the environmental dimension of business is seen as one of the basic ones, and for decades, special attention has been put on environmental issues. Organizations are increasingly paying attention to environmental protection as they become more aware of the increased profitability that can result from environmental performance improvement and operating costs reduction (Commission of the European Communities, 2001).

Aleksić et al. (2020) emphasize that environmental awareness and consumer sensitivity to environmental issues have been raised to a higher level with an increased Internet presence and media influence. Also, Ahmed & Streimikiene (2021) demonstrate that CSR to environment has a positive and significant association with organizational performance and competitiveness. Due to the media importance of activities for promotion of environmental protection as a global phenomenon, as well as benefits in terms of tax relief and cost reduction, CSR activities aimed to environmental protection are linked to the benefits, and based on that hypothesis H3 has been developed:

H3: CSR towards environment has a statistically significant impact on expected benefits from CSR.

Accordingly, it can be concluded that the most frequently expected benefits of corporate social responsibility in the literature are improvement of organization reputation, satisfaction and loyalty of beneficiaries, competitive advantage and lower costs. Based on theoretical knowledge, as well as a review of empirical research results, in order to clarify the relationship between external aspects of CSR and expected benefits from CSR, a research model presented in Figure 1 has been developed, which shows the relationship between independent variables and dependent variable. CSR towards beneficiaries, local community and environment as external dimensions of social responsibility are

independent variables, while the expected benefits from CSR measured on the basis of subjective perceptions of respondents in terms of non-financial benefits are considered a dependent variable. Taking the above ino account, we deloped the research model (Figure 1).

Figure 1: Research model
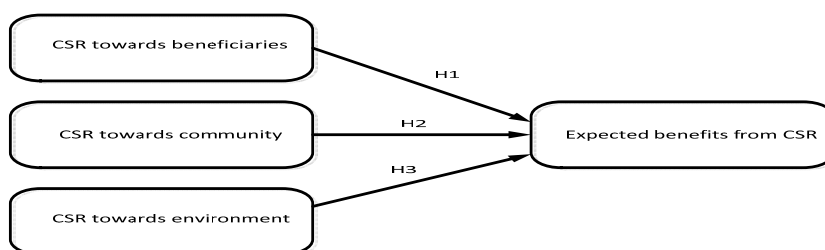
Source: the authors

3. Methodology and research results

3.1. Sample and measures

Starting from the literature review in the field of CSR, with special emphasis on the importance and specifics of CSR in the financial sector, an empirical study was conducted in order to determine the impact of the effects of CSR towards beneficiares, environment and community on expected benefits from CSR. The research was conducted among employees in banks and insurance companies operating in the territory of the Republic of Serbia.

A customized questionnaire on social responsibility, as an instrument for data collection, was used, based on theoretical knowledge of the concept and dimensions of corporate social responsibility, and the questions were formulated on the model of research in similar fields (e.g. Babić & Zlatanović, 2020; Peloza & Sang, 2011; Ramasamy & Yeung, 2009; Zlatanović, 2015). The questionnaire includes five segments. The first part of the questionnaire includes statements about the organization's responsibility towards beneficiaries. Examples of statements are: *Complete information about services are available to the beneficiaries* and *We are measuring regularly beneficiaries' satisfaction and taking measures for its improvement.* The second part includes statements regarding CSR towards community, such as, *Your organization has a good collaboration with local community* and *In the last year, your organization organized or participated in action aiming to contribute to the education.* Statements regarding environment are in the third part, like *Your organization uses recycled materials* and *Awareness of environment protection is at high level in your company.* The fourth part consists of statements about the expected benefits from the CSR. The questionnaire contains a total of 32 statements with

which the respondents expressed the level of agreement using the five-point Likert scale (1 - I do not agree at all, 5 - I completely agree). The fifth part is general data on respondents refering to the gender and age of respondents, level of education, years of work, position, activities of the organization in which the respondent is employed, as well as the size of the organization.

The questionnaire was distributed to managers and administrative staff in banks and insurance companies in Serbia. Respondents' response was satisfying, especially the response of the top management. SPSS (Statistical Package for the Social Sciences) was used for data processing. Regarding the size and ownership structure of the sampled banks and insurance companies, financial institutions with over 100 employees (74.3%) are dominant, 70.8% of which are foreign-owned. First, a reliability analysis was conducted and all the obtained values of the Cronbach's alpha coefficient are more than 0.7, which indicates good internal consistency of the applied statements – CSR towards beneficiaries (0.911), CSR towards community (0.928), CSR towards environment (0.945) and Expected benefits from CSR (0.960).

Table 1 shows the structure of the sample.

Table 1. Sample's characteristics

Variable	Frequency	% of total
Gender		
Male	49	43.4
Female	64	56.6
Age	Frequency	Percentage
18-25	5	4.4
26-35	20	17.7
36-45	51	45.1
46-55	25	22.1
More than 55	12	10.6
Education level	Frequency	Percentage
Faculty	80	70.8
Higher school	18	15.9
High school	15	13.3
Elementary school	0	0
Years of working experience	Frequency	Percentage
1-5	16	14.2
6-10	10	8.8
11-15	35	31

More than 15	52	46
Position	Frequency	Percentage
Top management	7	6.2
Middle management	27	23.9
Clerk	79	69.9
Activity	Frequency	Percentage
Bank	67	59.3
Insurance company	46	40.7
Organization size	Frequency	Percentage
Less than 50 employees	14	12.4
51-100 employees	15	13.3
Over 100 employees	84	74.3

Source: the authors' calculation

3.2. Research results and discussion

In order to test the level of employees' perception on the development and implementation of corporate social responsibility in the sample, Table 3 shows the results of descriptive statistical and correlation analysis for all four variables of the research model, namely: CST towards beneficiaries, CSR towards community, CSR towards environment and Expected benefits from CSR. The variable with the highest arithmetic mean, i.e. the most favorable attitude of employees, is on *Expected benefits from the CSR* (M = 4.25), and the most unfavorable is on *Responsibility towards community* (M = 3.57).

Table 2: Means, standard deviations, and correlations

Variable	Mean	SD	1	2	3	4
Responsibility towards beneficiaries	4.22	.725	-	.467**	.574**	.666**
Responsibility towards environment	3.60	1.196	.467**	-	.739**	.471**
Responsibility towards community	3.57	.982	.574**	.739**	-	.624**
Expected benefits from CSR	4.25	.743	.666**	.471**	.624**	-

Note: $p < 0.005$**

Source: the authors' calculation

The results of the presented descriptive statistics indicate that the perceptions of employees in financial institutions in Serbia are favorable for items regarding the benefits of CSR and that employees perceive that CSR improves the organization's reputation in line with the position that one of the benefits the organization can have from CSR is positive impact on image and reputation (Weber, 2008). It is very important for banks, because reputation is a decisive factor in retaining old clients and attracting new ones, which ultimately leads to strengthening of financial status (Tran, 2014). This is particularly

significant as the strategic approach to the concept of CSR is important for achieving the competitiveness of companies, and contributes to creation of benefits in risk management, cost savings, capital provision, customer relationship management, human resource management and innovation (Commission of the European Communities, 2001). Also, the perception about CSR towards beneficiaries is at a high level, which is particularly important due to the basis for gaining a competitive advantage is beneficiaries needs and requirements identification (Marylyn, 1993). In the banking sector corporate image is crucial and knowledge of beneficiaries' expectations regarding CSR activities is essential (Perez & del Bosque, 2014).

At the middle level of development are responsibility towards environment and responsibility towards community, which indicates that these responsibilities are present, but still there are many opportunities for improvement. Employees' perception is that the participation of financial institutions is at the middle level, and since CSR is related to the integration of the organization into the local community and that they can have a mutual impact reflected on performance, it is needed the activation in this direction, which will as well contribute to the satisfaction of employees and beneficiaries (Commission of the European Communities, 2001). Also, it is necessary to increase participation in actions related to environmental protection, because when we talk about this responsibility, it is not local ones, but global, and therefore international cooperation is necessary in order to enhance the contribution of organizations to the global environmental protection (Commission of the European Communities, 2001). In addition to the mentioned, it is very important to develop awareness among employees that CSR has an impact on reducing costs and that this is one of the benefits that an organization can achieve by participating in CSR activities but also show them concrete examples in order to understand that the application of CSR gives to the organizations this type of benefit, as well. In addition, correlation analysis demontrates that there is a strong, positive connection between variables taking into account the values of the Pearson's coefficient of correlation (r) and statistical significance (p).

For the purpose of hypotheses H1, H2 and H3 testing, in order to draw more detailed conclusions, multiple linear regression analysis was used, so as to determine the impact of independent variables on the expected benefits of implementing Corporate Social Responsibility. The model includes three independent variables that represent the external dimension of CSR and these are CSR towards beneficiaries, CSR towards community, CSR towards environment, and one dependent Expected benefits from CSR. Also, in order to determine if there is multicollinearity between the variables, the calculation of the variance increase factor (VIF) was done.

The results of multiple regression analysis showed that the determination coefficient in the model is 0.530, which means that 53% of the variability of expected benefits from CSR is explained by this regression model, i.e. through the external dimensions of CSR, CSR towards beneficiaries, community and environment. The data are suitable for conducting multiple regression analysis, because the value of the VIF coefficient is less than 5 and ranges from 1,500 to 2,586, based on what, it can be concluded that there is no multicollinearity. According to the results in Table 3, the variables CSR towards

beneficiaries and CSR towards environment have a statistically significant impact on the dependent variable, i.e. on the expected benefits from CSR (Sig. value <.01) and the risk of error is 1%, while the variable CSR towards community has no statistically significant impact on the expected benefits from CSR because the Sig value is greater than .01. The highest value of the standardized regression coefficient is for the variable CSR towards beneficiaries (β = .460), which shows that it has the biggest impact on the perception of the expected benefits of CSR.

Table 3. Results of Multiple Regression Analysis

Variables	β	Sig.	VIF
Responsibility towards beneficiaries	.460	.000	1.500
Responsibility towards community	-.020	.840	2.216
Responsibility towards environment	.374	.001	2.586

Source: the authors' calculation (Note: R= .728; R²= .530; F= 41.027; p < 0,01)

Based on the above results, it can be concluded that the variables CSR towards beneficiaries and CSR towards environment have a statistically significant impact on the expected benefits of CSR, thus confirming hypotheses H1 and H3. However, the variable CSR towards community does not have a statistically significant impact on the expected benefits of CSR, so hypothesis H2 has not been confirmed.

The results about determination of the impact of CSR towards beneficiaries on benefits are expected, especially taking into account that the main benefits are reputation, image and competitiveness that are directly affected by the attitude of beneficiaries. This result confirms the market orientation of employees and a high level of awareness of the importance of beneficiaries' satisfaction. Gained outcome is in accordance with other similar research showing that if beneficiaries are satisfied, they would like to repeat the service or purchase and thus become loyal, as well as that there is a positive impact of CSR on beneficiaries loyalty (Martinez & Bosque, 2013; Matute-Vallejo et al., 2011). In fact, loyalty has an impact on the organization image and reputation building, by which an organization is positioned in the market as competitive.

The results regarding CSR towards environment are encouraging, because culture and awareness of this global problem are still not at a high level in Serbia. Certainly, the outcome in terms of the impact of CSR towards community on benefits is not expected. CSR activities focused on local community are among the most common, but employees do not consider these activities as very much related to benefits.

According to Pomering and Dolnicar (2009), beneficiaries accept more CSR activities oriented towards them than community-oriented ones, which may link the test results of the first and second hypotheses (as cited in McDonald & Rundle-Thiele, 2008; McDonald & Lai, 2011). Also, it is confirmed that CSR activities such as humanitarian actions, cultural events and environmental protection are not highly valued by beneficiaries and are not enough to mark an organization as socially responsible, and that CSR activities

oriented towards beneficiaries have more impact than philanthropic or activities intended to protect the environment (McDonald & Lai, 2011).

When focus of research is on community, another aspect should be considered. CSR depends and differs in specific, national contexts and it is implicit in Europe, which means that it accepts the values, norms and rules of local culture (Matten & Moon, 2008). In Serbia, it is a tradition to help, organize humanitarian actions, give donations and sponsorships, etc., which could explain the perception of employees that responsibility towards community does not contribute to the benefits of CSR, because it is understood as a need, and thus it is not perceived as benefit since it is voluntary and has no other purpose than to help and support.

Conclusion

The concept of CSR has been recognized by financial institutions as a key strategic element of business, having as result improvement of the organization reputation, its better image and beneficiaries loyalty. By accepting socially responsible business and informing the community about it, through various forms of promotion, the company begins to differ from competitors, which can enable: better market positioning, greater loyalty of customers (clients or beneficiaries) due to their positive image of the company as well as higher sale or usage of its products or services.

Research on the perception of the application of CSR concepts in financial institutions in the Republic of Serbia, led to the conclusion that employees in banks and insurance companies recognize the importance of beneficiaries for their business, as well as identify the impact of CSR towards beneficiaries on benefits from socially responsible activities, which confirms employees' market orientation. The obtained result is a significant indicator for financial institutions to be customer-oriented and to build and develop their reputation and image, through strengthening beneficiaries' satisfaction and loyalty. Also, the research determines the impact of CSR towards environment on benefits, which can be related to the fact that environmental responsibility activities represent initiatives not having only a local goal, but also a global one, preserving the planet Earth. These initiatives are often associated with tax breaks or similar, which leads to savings. However, the perception of employees is that the impact of CSR towards community on benefits does not exist, and this is a field that needs to be understood and explored in more detailed way. It can be related to culture and philanthropic approach and the attitude that humanitarian actions and volunteerism should not bring any benefit. Certainly, it is necessary to create awareness and better knowledge of the impact of CSR on organizational performance and benefits (Commission of the European Communities, 2001).

This research indicates the perceptions of employees and enables insights into state of the art of CSR in financial sector in Republic of Serbia, and consequently enables definition of opportunities for improvement and guidelines. Of relevant importance is that the results confirmed significant impact of CSR towards beneficiaries on the expected benefits from CSR, i.e. confirmed that employees perceive the benefits of this dimension because in daily contact with the beneficiaries they have a direct influence on organization

image creation, and therefore it is relevant to apply an approach to beneficiaries in which they are the center of attention. In addition to employees, as the most important internal stakeholders, beneficiaries are the most important external stakeholders in banks, so the goal is to achieve a high level of satisfaction of both, which in turn is reflected positively in the financial aspect (Paulik et al., 2015).

The limitation of the conducted research is reflected in the structure of the sample as they are employees, and it would be useful to include other stakeholders in the research in order to get a broader picture and perspective. Also, the paper focuses on the external dimensions of CSR and their impact on performance, i.e. benefits, without considering the impact on financial peformance, and therefore guidelines for further research should be related to the relationship and impact of CSR on financial performance in the Republic of Serbia, in order to confirm that the results of participation in social activities are measurable. Besides, a further guideline for research can be a comparative analysis with countries in the region, especially taking into account the fact that most banks and insurance companies in Serbia are international ones, or an analysis related to the type of ownership in order to determine whether this concept is more applied in financial institutions that have mostly foreign or domestic ownership.

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Original scientific article

Applying cognitive approach to teaching prepositions in business English: a case study

Примена когнитивно-лингвистичког приступа у настави предлога у пословном енглеском језику: студија случаја

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Abstract: The paper sets out to investigate the potential advantages of applying insights from the field of cognitive linguistics to teaching prepositions in business English over an approach relying on the traditional linguistic framework. For the study, three of the English prepositions were chosen: to, for, and at. Study participants were divided into two groups: an experimental group, which received a cognitive treatment of the three prepositions; and a control group, which received an instruction relying on traditional accounts. The participants were administered three tests in total: a pretest, an immediate posttest, and a delayed posttest. Their scores were taken on all three tests and then compared within each group and between the groups. To calculate the results, descriptive statistics, t-test of independent means and one-way ANCOVA were used. Grounding the expected results in expert literature, it was anticipated to obtain the results indicative of the advantage of the cognitive approach. According to the study results, the experimental group outperformed the control group at all levels of statistical analysis. The results suggest that a strategic incorporation of a cognitive view of the structure of language into the foreign language classroom could facilitate better understanding, more effective learning and long-term retention of the language points taught.

Keywords: applied cognitive linguistics, prepositions, business English, semantic network, conceptual metaphor
JEL classification: A20, A22, Z13

Сажетак: Циљ рада је да истражи потенцијалне предности примене увида из области когнитивне лингвистике у настави предлога у пословном енглеском језику над приступом заснованом на традиционалном лингвистичком оквиру. За потребе студије, изабрана су три енглеска предлога: to, for и at. Учесници истраживања су подељени у две групе: експерименталну групу, која је добила когнитивно-лингвистички третман три одабрана предлога; и контролну групу, која је добила инструкције које се ослањају на тумачења традиционалне лингвистике. Учесници су радили укупно три теста: тест који је претходио инструкцији, пост тест одмах након инструкције, и одложени пост тест два месеца након инструкције. Постигнућа учесника су измерена на сва три теста и затим су упоређена унутар сваке од група и између група. Приликом израчунавања резултата коришћени су дескриптивна статистика, т-тест независних узорака и униваријантна анализа коваријансе (ANCOVA). Базирајући се на стручну литературу, очекивали су се резултати који указују на предност когнитивног приступа. На основу резултата истраживања, експериментална група је остварила предност на свим нивоима статистичке анализе. Резултати указују на то да би стратешка инкорпорација когнитивног виђења структуре језика у језичке учионице помогла бољем разумевању, ефективнијем учењу и дугорочној ретенцији предаваних језичких јединица

Introduction

Linguistic investigations originating from the scope of cognitive linguistics (CL) are not new as a solid ground for them to take off was laid in the 1980s, with the works of Lakoff and Johnson (1980) and Langacker (1987). Their highly influential respective theories of cognitive semantics and cognitive grammar broke off with many of the traditions of the predominating, generative linguistics of Chomsky (1965). Away from the view of language as an autonomous, isolated system with its domain-specific rules and properties that separate language from the general cognitive system, CL introduced a theoretical framework that treats language as an integral part of human cognition, which systematically reflects our cognitive processing and experience with the social-physical world (Tyler, 2012). Such a view presents a dramatic turn from a system traditionally assumed to operate in a largely arbitrary and idiosyncratic fashion to a highly motivated system with recurring cognitive patterns found at all levels of linguistic analysis (Đurović, 2017). From a pedagogical aspect, given that learning an additional language (L2) in formal settings still heavily relies on traditional linguistics where a wide range of L2 points are taught and learnt via lists of rules and exceptions to the rules, CL offers a different understanding of the nature and organization of language that allows learners to take a more holistic perspective on language governing principles.

Insights from CL have a substantial pedagogical potential as they could facilitate better understanding, more effective learning, and long term-retention of some of the common problematic areas in L2 learning (Đurović, 2017). Among these, mastering L2 prepositions has proved to be one of the major challenges for L2 learners. The reason for this is that the semantics of prepositions is rather complex. Namely, the distinction between the meanings of some prepositions can be quite unclear at a first glance, as is the case with the English prepositions over and above. Another prominent feature of prepositions is that they tend to have an elaborate set of distinct meanings, a good example of which is the English preposition over with its, at least, 16 meanings (Tyler & Evans, 2003). If we add to this the fact that prepositions are typically taught and learnt as if their meanings are not related in any systematic way, as suggested by traditional theoretical accounts, the difficulties associated with attaining proficiency in this area of L2 learning become even more obvious.

1. Literature review

Investigations on spatial language grounded in CL have delivered conclusions quite different from those stemming from the traditional linguistic framework. The position promoted by cognitive linguists is that of polysemy, which holds that distinct meanings associated with a single preposition are not arbitrary but are in a systematic, rule governed relationship (Tyler & Evans, 2003). In other words, distinct meanings of a linguistic form

are not represented as multiple, unrelated pairings in the mental lexicon but are understood as a single mental representation where a form is paired with a set of distinct but related meanings that constitute a semantic network. Typically, such networks are organized around a central sense from which other senses are derived in a radial fashion (Tyler & Evans, 2003).

The idea of a semantic network with systematic relationships between the meanings it comprises rests upon some of the basic CL principles. Starting from an observation that interpretations commonly assigned to strings of words or sentences are far richer than the sum of individual lexical entries, a CL conclusion is that the process of meaning construal depends on information beyond strictly linguistic, as previously assumed (Tyler, 2012). In the process, we rely on all of our available knowledge of a particular conceptual entity, i.e., an accumulated reservoir of information drawn from our experience of and interaction with the social-physical world, to interpret what we hear or read (Đurović, 2017). Meaning construal occurs at the conceptual level where language and the actual words we use "refer to what is represented in the human conceptual system" (Tyler & Evans, 2003:3). Language, then, is a means of conceptualization as it provides us with information that supports general principles of understanding (Lakoff & Johnson, 1980). Also, a CL claim that meaning is grounded in experience strongly emphasizes that what we perceive as everyday reality is not to be considered an objective view of the world because any input we receive from the environment is fundamentally affected by the physiology and neural architecture of our bodies (Tyler & Evans, 2003). Within the CL framework, this view of meaning and meaning construal is referred to as embodied meaning.

In this light, language with its semantic categories is not to be seen as a stable system because it needs to have the quality to adapt to and accommodate any new experiences and changes in the world around us. This makes linguistic structures and word meaning dynamic and flexible (Đurović, 2017). Within the theory of word meaning, a CL stand is that a semantic response to the need to communicate a novel experience or situation is sometimes seen in a new phonological string but most commonly it occurs via the process of meaning extension (Tyler & Evans, 2003). Having in mind that communication is the primary role of language, any novel use of a lexical form with an already established meaning would only make sense if it was reasonable to expect for the form to be interpreted as the speaker intends (Tyler, 2012). What follows is that polysemous lexical units, a good example of which are prepositions, have derived their distinct meanings through meaning extension grounded in situated communication.

Even though prepositions are frequently used with meanings that go beyond the physical and concrete, central sense of any preposition always communicates the way entities are related to each other in terms of space. Spatial scene is a CL concept used to describe how we conceptualize different spatial configurations between real-world entities (Tyler & Evans, 2003). There are several elements that constitute each spatial scene: a smaller and movable entity or a trajector (TR); a larger and immovable entity or a landmark (LM) with respect to which a TR is located; and a conceptual spatial relation between a TR and LM signalled by a preposition. Each spatial scene also includes a functional element

indicative of real-world consequences of two entities being placed in a certain configuration. It is the functional element of spatial scenes that makes them abstract conceptualizations i.e., the result of interaction of our experience with the spatial-physical world and conceptual processing, rather than a realistic projection of the outside world (Tyler & Evans, 2003).

Spatial scenes, with their functional aspect in particular, are an important CL construct as they lie ground for the process of meaning extension through which additional senses of a preposition are derived. For any additional sense to be qualified as a distinct sense away from the central meaning of a preposition, it either needs to be a new spatial sense that involves a certain modification of a TR-LM configuration found in the original scene or a sense that involves additional, non-spatial meaning (Tyler & Evans, 2003). Non-spatial meanings of prepositions always arise from the correlated non-spatial consequences of spatial configurations i.e., the functional element of spatial scenes. Throughout the process, we assume that the principles of real-world force dynamics also hold in contexts away from the physical and concrete and that is how additional prepositional meanings may refer to completely abstract contexts (Tyler, 2012). Meaning extensions of this kind are only possible because of the metaphorical nature of our conceptual system. Within CL, metaphor is placed at the very centre of our thought processes, allowing us to make connections between our experience with the external, physical phenomena and the more internal, abstract phenomena (Lakoff & Johnson, 1980). Metaphorical mappings we make between the physical (source) and abstract (target) domains are typically asymmetrical, in the sense that they may highlight one aspect of the spatial scene and at the same time obscure the other. Any change or addition in highlighting can call for new, additional meanings (Tyler, 2012). This way, an elaborate set of senses may be derived that, on the surface, may seem unrelated but all additional senses can be traced back if not to the central sense, then to one of the previous senses derived from the central one. In this light, it becomes evident that the process of meaning extension is both motivated and follows a certain systematic pattern based on metaphor.

A CL view of metaphor makes a sharp turn from a peripheral property of language based on a traditional distinction between linguistic and non-linguistic knowledge, and recognizes metaphor as encompassing the two. As such, metaphor becomes a cognitive instrument of meaning construal and a key organizing principle not only in language but in thought processes as well (Đurović, 2017). Metaphors allow us to make coherent and systematic relationships both within and between individual concepts and without the ability to establish such links, we could not fully understand a wide range of concepts that are of paramount importance to us such as emotions, ideas, or time. To comprehend any of the concepts that are abstract or not clearly delineated in our experience, we use other concepts we understand in more concrete terms such as spatial orientations or objects. This, in turn, leads to metaphorical definitions in our conceptual system we depend on in even attempting to understand ourselves and the world around us (Lakoff & Johnson, 1980).

The intricate way in which physical experience interacts with our conceptual system and how this is reflected in language is probably most clearly evidenced in the rich semantic flexibility of spatial particles (Tyler, 2012). Their use reveals how some of our

most basic experiences of physical space, and the way we understand and organize them, form the basis for construction and understanding of more complex concepts (Mandler, 2004). Given the graphic and relatable way in which CL presents the logic of prepositional meanings, the present study is an attempt to investigate L2 learner benefits resulting from an instructional approach to L2 prepositions that appreciates cognitive principles in language. These, above all, include the ideas of interconnectedness of language and experience, embodied meaning, semantic networks, spatial scenes, and conceptual metaphor.

2. Research sample and methodology

The main idea of the study was to explore the potential advantages of applying insights from CL to L2 teaching practice over the traditional approach relying on Chomskyan linguistics. The reason for this was twofold. To start with, even though it has been more than forty years now since CL delivered its intriguing theory of language, not much of it has found way to the language classroom, which still heavily relies on descriptive and pedagogical grammars, textbooks and materials based on traditional linguistics (Tyler, 2012). Also, most people experience great difficulty in their attempts to master an L2, regardless of whether L2 learning is their own choice, or it is imposed on them through an educational process or by career needs. This is because language learning is one of the most demanding cognitive tasks we achieve throughout life. Contrary to the popular belief among non-scholars in the field, not even children learn their mother tongue effortlessly and within their early childhood years. Research has shown that it approximately takes ten years for one's first language to set in, with many aspects of pragmatics taking even longer (Tyler, 2012). Having this in mind, it would be worthwhile to investigate the options stemming from CL that offer a more systematic understanding of language and, as such, could facilitate more effective L2 learning (Đurović, 2017).

Prepositions, as an L2 field of interest in the study, were also chosen for two reasons. Firstly, semantics of L2 prepositions is notoriously difficult to master and traditionally presents one of the major challenges for L2 learners (Celce-Murcia & Larsen-Freeman, 1999). Even though most languages use a prepositional system to describe both spatial and non-spatial relations and domains, the variance with which they are exploited is far too great across languages to allow predictability (Tyler, 2012). And secondly, the rich semantics of prepositions is one of the clearest examples of CL principles at work (Tyler & Evans, 2003). For the present study, three of the English prepositions were chosen: to, for and at. The choice was mainly inspired by the study of Tyler et al. (2011), where the three prepositions are pointed to as being subject to erroneous use even with advanced learners.

Although most of the studies of a similar design were conducted either with advanced L2 learners (e.g., Tyler et al., 2011), or with learners whose level of L2 proficiency was at approximately the same level (e.g., Dolgova Jacobsen, 2016), the present study was carried out with participants who hadn't been scanned for their level of L2 English proficiency. As a result, the study was conducted with a heterogeneous group of participants in terms of their L2 skills. This was done because L2 teachers commonly face

learner groups of a similar structure. Study participants were students who had enrolled the Faculty of Economics in Subotica, University of Novi Sad, weeks prior to the study. A regular part of their curriculum is a two-year English course, within which the study was conducted. Participant groups were chosen randomly out of ten groups of first-year students. In line with the main objective of the study, it was decided that obtaining data solely on the effect of a CL based instruction on L2 prepositions would not be informative enough. Accordingly, the study was designed to include two groups of participants: an experimental group and a control group. The experimental group received a cognitive treatment of the three prepositions, and the control group received an instruction based on traditional accounts. The total number of participants was 55, with the experimental group counting 27 and the control group counting 28 participants.

A two-group design was applied with an aim to measure the participants' performance prior and after the instruction within each group, and then to make an inter-group comparison of scores. Participant performance was measured three times in total. A pretest was administered before the instruction to obtain data against which the effect of instruction was to be measured; an immediate posttest at the end of instruction was used to calculate the short-term effect of instruction; and a delayed posttest eight weeks after the instruction to check for the long-term effect. All three tests had a forced choice, fill in the blanks format. The tests included fifty sentences, each with a missing preposition. There were thirty-five target items and fifteen filler items in each test. Only participants' answers on target items were used in calculating scores.

The study started with a pretest for both groups of participants. Following the pretest, each of the participant groups attended two, 90-minute instructional sessions on the three prepositions that were a week apart.

At the beginning of the instruction, the experimental group was introduced into the field of CL. They were presented with the main CL ideas relevant to the semantics of prepositions, which included the communicative nature of language, embodied meaning, spatial scenes, semantic networks, and conceptual metaphor. Over the course of the remaining part of the first session and throughout the second session, the participants were provided with detailed explanations of the semantic networks for to, for and at. With each preposition, the discussion started with the central, spatial meaning of the preposition and the original spatial scene. All additional meanings were included afterwards, when metaphor-based mechanisms of meaning extension for each of the additional senses were presented to them on the board in the form of a diagram. Both central and additional senses of the three prepositions were labelled as suggested by Tyler & Evans (2003) in their CL based analysis of the semantics of the targeted prepositions. In the case of to, the explanation of its semantic network started with the central sense of facing a goal. Extended meanings with the underlying metaphor-based cognitive mechanisms were introduced and explained in the following order: facing a goal – receiver – receiver of experience; facing a goal – object of attention; facing a goal – limit – contact – attachment; facing a goal – perceptual experience. The preposition for was introduced with its central sense of intention. Its extended meanings with the underlying cognitive mechanisms were given and explained in the following order: intention – purpose – benefit – exchange; purpose –

expected response – desired response; expected response – personal response. Finally, the sense of collocation was given as the central meaning of the preposition at while the explanations for the extended, additional meanings were given as follows: collocation – functional association – intensity; collocation – measurement scale; collocation – intended collocation; collocation – mutual relations – emotional reaction – provoked state. After the theoretical part of the instruction, the participants were involved in group work exercises which consisted of sample sentences with a missing preposition. They were asked to agree on the missing preposition within a group and then read their answers aloud. All the participants were encouraged to give comments on whether they agreed with the answers they heard.

On the other hand, the control group also received detailed explanations on the meanings of the three prepositions, with a difference that the treatment was not CL based but included a list of possible meanings with numerous illustrative examples. Even though the control group was not presented with any sort of cognitive analysis, the discussion of each proposition started with its spatial meaning. The extended meanings were not given in any organized way but were just randomly listed and explained. Participants in the control group were afterwards also involved in group work exercises, followed by active participation in discussions on the answers provided.

After a 15-minute break following the instruction, both groups of participants were administered an immediate posttest. The participants were tested once more, eight weeks after, when they were asked to take a delayed posttest. The three tests were composed in similar fashion, and both groups of participants were administered the same tests.

Participant scores were taken on all three tests to calculate the results. In the analysis, type of instruction was an independent variable against which the effect of instruction was measured and compared within, and between the groups. Descriptive statistics was used to show minimum, maximum, and mean values on each of the tests for both groups. This was to identify the presence of short- and long-term effect of instruction. Next, t-test of independent means was applied to make an inter-group comparison of the participants' scores along the timeline. The calculation was to show the difference in the level of performance at two points in time after the intervention depending on the type of instruction. Finally, a one-way ANCOVA was conducted for an inter-group comparison of the intensity of the effect of instruction over time. To achieve this, pre-intervention, immediate post-intervention, and delayed post-intervention states were considered. At all levels of statistical analysis, it was aimed to establish a potential advantage of one of the instructional approaches.

3. Results

The first step in the analysis was to calculate the participants' group performance indicators on all three tests. As can be seen from Table 1, the difference in calculated minimum, maximum, and mean values within individual participant groups between the pretest and the immediate posttest results is indicative of a positive effect of instruction for both groups. This is also evidenced in the average gain for both groups. Even though both

groups of participants benefited from the instructional approaches applied, the results also show a higher average gain for the experimental group (6.07) than the average gain for the control group (3.36).

Table 1: Participants' group results on the pretest and the immediate posttest

Group	Pretest Minimum	Pretest Maximum	Pretest Mean	Pretest Std. Deviation	Immediate posttest Minimum	Immediate posttest Maximum	Immediate posttest Mean	Immediate posttest Std. Deviation	Gain Average
Experimental	5	25	13.52	5.381	8	30	19.59	5.740	6.07
Control	4	23	12.96	5.357	7	27	16.32	6.110	3.36

Source: the author's calculation

Based on the values calculated from the participant scores on the immediate and the delayed posttest, a certain drop in performance for both groups was evident. This was expected as a lower level of performance is common after prolonged periods of time following instruction without revising in any field of learning. Even so, the results demonstrate that the average drop in scores for the experimental group (1.81) was lesser than the drop identified in the control group (2.89). The results of the immediate posttest and the delayed posttest are given in Table 2.

Table 2: Participants' group results on the immediate posttest and the delayed posttest

Group	Immediate posttest Minimum	Immediate posttest Maximum	Immediate posttest Mean	Immediate posttest Std. Deviation	Delayed Posttest Minimum	Delayed Posttest Maximum	Delayed Posttest Mean	Delayed Posttest Std. Deviation	Gain Average
Experimental	8	30	19.59	5.740	7	29	17.78	5.666	-1.81
Control	7	27	16.32	6.110	4	25	13.43	5.500	-2.89

Source: the author's calculation

However, despite the drop in performance detected for both groups between the two posttests, the results from the participant scores on the pretest and the delayed posttest suggest that both groups of participants have gained from instruction not only short-term

but also long-term. Based on the calculated results, the average gain for the experimental group (4.26) was once again higher than the average gain for the control group (0.47). This is shown in Table 3.

Table 3: Participants' group results on the pretest and the delayed posttest

Group	Pretest Minimum	Pretest Maximum	Pretest Mean	Pretest Std. Deviation	Delayed Posttest Minimum	Delayed Posttest Maximum	Delayed Posttest Mean	Delayed Posttest Std. Deviation	Gain Average
Experimental	5	25	13.52	5.381	7	29	17.78	5.666	4.26
Control	4	23	12.96	5.357	4	25	13.43	5.500	0.47

Source: the author's calculation

As an effect of instruction was detected for both groups on the first test after the instruction, with a difference in the average gain favouring the experimental group, it was necessary to determine whether the difference in the exhibited performance was statistically significant. Results of a t-test of independent means used for this calculation are given in Table 4. Comparison of the immediate posttest results between the experimental and the control group suggests that the experimental group outperformed the control group with a statistically significant difference ($p < 0.05$).

Table 4: Inter-group comparison of the immediate posttest results

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed) p	Mean Difference	Std. Error Difference	Lower	Upper
Immediate posttest	0.590	0.446	2.045	53	0.046	3.271	1.600	0.062	6.480

Source: the author's calculation

The same statistical analysis was conducted to test whether the difference in the level of performance between the groups would still be statistically significant on the delayed posttest. As the results suggest, the difference was statistically significant again when the long-term effects of instruction were compared. This is shown in Table 5. In sum,

the experimental group outperformed the control group on both tests that followed the instruction with a statistically significant difference (p < 0.05).

Table 5: Inter-group comparison of the delayed posttest results

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed) p	Mean Difference	Std. Error Difference	Lower	Upper
Delayed posttest	0.003	0.956	2.889	53	0.006	4.349	1.506	1.329	7.369

Source: the author's calculation

In addition to the previous analyses, a one-way ANCOVA was conducted to test whether there was a statistically significant difference in progress achieved on the immediate posttest between the experimental and the control group. This inter-group comparison on the level of progress exhibited immediately after instruction revealed that there was a statistically significant difference in favour of the experimental group, as given in Table 6 (p < 0.05).

Table 6: Inter-group comparison of the difference between the immediate posttest and pretest results

Dependent Variable: Immediate posttest

Source	Type III Sum of Squares	df	Mean Square	F	Sig. p	Partial Eta Squared	Noncent. Parameter	Observed Power
Corrected Model	1824.948	2	912.474	254.060	0.000	0.907	508.120	1.000
Intercept	125.207	1	125.207	34.861	0.000	0.401	34.861	1.000
Pretest	1677.864	1	1677.864	467.168	0.000	0.900	467.168	1.000
Group	99.214	1	99.214	27.624	0.000	0.347	27.624	0.999
Error	186.762	52	3.592					
Total	19688.000	55						
Corrected Total	2011.709	54						

Source: the author's calculation

As a drop in the effect of instruction was detected between the immediate and the delayed posttest for both groups, a one-way ANCOVA was conducted again to test whether there was a statistically significant difference in drop between the experimental and the control group. The results shown in Table 7 suggest that the drop calculated for the experimental group was significantly lesser than the drop identified for the control group (p < 0.05).

Table 7: Inter-group comparison of the difference between the delayed posttest and the immediate posttest results

Dependent Variable: Delayed posttest

Source	Type III Sum of Squares	df	Mean Square	F	Sig. p	Partial Eta Squared	Noncent. Parameter	Observed Power
Corrected Model	1802.079	2	901.039	428.092	0.000	0.943	856.184	1.000
Intercept	2.765	1	2.765	1.314	0.257	0.025	1.314	0.203
Immediate posttest	1542.075	1	1542.075	732.654	0.000	0.934	732.654	1.000
Group	24.066	1	24.066	11.434	0.001	0.180	11.434	0.913
Error	109.449	52	2.105					
Total	15234.000	55						
Corrected Total	1911.527	54						

Source: the author's calculation

The same statistical analysis was conducted to compare the overall gain achieved by the experimental and the control group. The inter-group comparison on the progress between the pretest and the delayed posttest suggests that there was a statistically significant difference in the overall gain between the two groups (p < 0.05). Once again, the experimental group was identified as having progressed significantly better than the control group. The results of the compared long-term effects of instruction are given in Table 8.

Table 8: Inter-group comparison of the difference between the delayed posttest and the pretest results

Dependent Variable: Delayed posttest

Source	Type III Sum of Squares	df	Mean Square	F	Sig. p	Partial Eta Squared	Noncent. Parameter	Observed Power
Corrected Model	1735.826	2	867.913	256.865	0.000	0.908	513.729	1.000
Intercept	50.397	1	50.397	14.915	0.000	0.223	14.915	0.966
Pretest	1475.822	1	1475.822	436.780	0.000	0.894	436.780	1.000
Group	198.403	1	198.403	58.719	0.000	0.530	58.719	1.000
Error	175.701	52	3.379					
Total	15234.000	55						
Corrected Total	1911.527	54						

Source: the author's calculation

As indicated by the study results, a statistically significant difference was calculated at all levels of the analysis. The experimental group was identified as having benefited more from a CL based approach to teaching the three English prepositions than the control group did from the traditional instructional approach. In other words, not only that the level of progress tested immediately after the instruction was higher in the case of the experimental group, but the overall progress measured by the delayed posttest, which also

included the measure of expected drop in performance over time, was also identified as being at a higher level for the experimental group.

4. Discussion

The study was designed and conducted with an aim of testing the effectiveness of an innovative L2 teaching approach that incorporates some of the main principles of CL. Even though the results suggest an advantage of a CL based approach over the traditional L2 teaching approach, an L2 field within which the study was conducted is far too narrow to make any general claims. However, there have been other studies with intriguing results that cover other issues in L2, such as articles (e.g., Verspoor & Huong, 2008), grammatical aspect (e.g., Neimeier & Reif, 2008), verb constructions (e.g., Goldberg, 2006), modal verbs (e.g., Robinson & Ellis, 2008) or conditionals (e.g., Dolgova Jacobsen, 2016), to name just some of them. All these studies indicate that CL has a substantial potential of being successfully applied to many areas of L2 teaching and learning.

Apart from the fact that a growing body of research in the field of applied CL has delivered encouraging results, it is important to note that most of the studies were carried out with advanced L2 learners at an approximately similar level of L2 mastery. In the same vein, one of the pressing issues over the course of the present study was that the participants' level of English proficiency was not even close to uniform. At the time of the study, they all started a B2 level course at the faculty, and they all had a history of L2 English learning but there are no eliminatory criteria upon course entrance and the only option for students who choose English as a foreign language is a course at B2 level. Despite this unfavourable research condition, the study was conducted with randomly chosen groups of participants that were not previously scanned for their L2 proficiency. This was decided because L2 learner groups of this kind are, more often than not, a pedagogical reality.

Another major concern in the study was the educational background of the participants. What is meant by this is that none of the study participants had any special linguistic education prior to the study, so it was not certain how they would react to an approach to L2 teaching that is in many ways different from what they had been accustomed to. The participants were presented with quite a few linguistic concepts that were completely alien to them while they also had never been involved in a deeper linguistic analysis of any sort. Even so, the participants appeared intrigued by the novel approach, and, in the end, as the study results suggest, a CL based approach to teaching the three English prepositions delivered better learning outcomes than the one relying on traditional linguistics.

However, it would not be reasonable to claim that any new instructional approach to L2 teaching would serve as a magical shortcut in language learning. Instead, a sensible recommendation that a quite elaborate theoretical and empirical CL research communicates is that a carefully planned and designed incorporation of CL elements into certain parts of L2 teaching practice could facilitate a better overall understanding of how L2 system works.

Conclusion

The main idea of the study was to investigate the effectiveness of a CL based approach to teaching L2 prepositions in contrast with the traditional approach. Stemming from the scientific assumptions listed in the theoretical part of the paper, there are several potential benefits of a CL-based instructional approach that could facilitate L2 learning. These include a better understanding of how language is structured, raising awareness of the metaphorical nature of language, and recognizing that meaning of lexical units is motivated and not arbitrary. All of this is to promote a more in-depth L2 knowledge, easier and faster memorization, and long term-retention. According to the study results, these goals were achieved as the participants in the experimental group exhibited a higher level of performance on both posttests, higher rate of progress and a lesser drop in performance over time.

The intersection of cognitive and applied linguistics seems to offer plenty of avenues for researchers in the field and L2 teachers alike. A CL theory of language has long become one of the major linguistic trends but its systematic application in the L2 classroom is still awaiting. Even the research studies in the field of CL do not extend the timespan of several months. The reason for this may be the lack of textbooks and other materials compatible with CL and ready for strategic and continual use in classrooms. It is also a fact that teaching a foreign language in line with CL principles takes up a substantial amount of time and energy but the potential benefits regarding teaching and learning outcomes might outweigh the difficulties.

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The impact of training on employees' performance in the entrepreneurial environment in Serbia: empirical and statistical findings

Утицај обуке на перформансе запослених у предузетничком окружењу у Србији: емпиријски и статистички налази

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Abstract: The efforts of organizations to improve their business processes, establish market competitiveness, achieve goals more efficiently and increase profitability are mainly made through an attempt to upgrade the performance of employees. Increasing the employees' work performance is directly correlated with the improvement of individual skills, as well as the level of ability to effectively transform new knowledge according to daily work obligations. In this process, synergies should be established between employees, on the one hand, who should be adequately motivated, committed, and focused on the acquisition of new knowledge, and on the other hand, organizations that should provide resources, support, and conditions for effective knowledge transfer from educational process to visible improvement indicators of different employees' performance levels. The purpose of this paper is to investigate the impact of training on increasing the individual and organizational performance of employees in entrepreneurial organizations in Serbia. Additionally, the correlation between the two groups of respondents, managers and non-managerial staff, will be tested, to determine more closely whether there is a distinction in relation to the position held by the respondent, for defined issues.

Keywords: entrepreneurship, work performance, employees training, organizational behavior
JEL classification: L21, L26

Сажетак: Напори организација да унапреде своје пословне процесе, успоставе тржишну конкурентност,

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ефикасније остварују циљеве и повећају профитабилност, углавном се чине кроз покушај унапређења учинка запослених. Повећање радних перформанси запослених је у директној корелацији са унапређењем вештина појединца, као и нивоом способности да се нова знања ефикасно трансформишу према свакодневним радним обавезама. У том процесу треба да се успостави синергија између запослених, са једне стране, који треба да буду адекватно мотивисани, посвећени и фокусирани на усвајање нових знања, и са друге стране, организације која треба да обезбеде ресурсе, подршку и услове у ефективом трансферу знања од едукативног процеса до видљивих индикатора унапређења различитих група перформанси запослених. Сврха овог рада је да истражи утицаја обуке на повећање индивидуалних и организационих перформанси запослених, у предузетничким организацијама у Србији. Посебно ће бити истражена корелација између две групе испитаника, менаџера и не менаџерског особља, како би се ближе утврдило да ли постоји дистинкција у односу на позицију коју испитаник држи, за наведена питања.
Кључне речи: предузетништво, радни учинак, обука запослених, организационо понашање.
ЈЕЛ класификација: L21, L26

Introduction

Every modern progressive organization strives to ensure its development through a clearly defined business structure, in order to ensure maximum results in achieving competitiveness and profitability (Call & Ployhart, 2021; Stajković et al., 2019). In this process, the segmentation of tasks and responsibilities that employees have must be precisely delegated in order to achieve outcomes that will enable the sustainability of the business venture. Without connecting all stakeholders in the organization effectively, a delay in or complete absence of the accomplishment of goals can happen (Petak, 2021). It is important for all employees to have equal opportunities to develop the necessary knowledge and skills, which will not only be essential in improving work performance further and being in line with organizational goals but also promote a model of behavior that is consistent with organizational culture.

Sung and Choi (2018) state that the goal set by organizations for improving business results means the establishment of continuous models of employee training, which should contribute to creating an environment in which human resources will be able to cope with everyday challenges adequately. This can only be achieved by linking the individuals' level of knowledge with the expected organizational results. If there is a dispersion between these two factors in any case, there may be an ineffective use of knowledge. To avoid such circumstances, it is necessary for organizations to constantly evaluate the needs and justification of investing in human resources, in order to ensure maximum return visible in the improved work performance (Berber & Lekovic, 2018; Tošović-Stevanović & Bogdanović, 2018).

It is beyond doubt that the systematic planning, development, and analysis of employee performance is an important function of the organization's business strategy. Organizations conduct various types of activities aimed at improving business processes that are in favor of human factors, material, technological, and all other available resources (Vidović, 2018). Common to all processes is the organizations' intention to establish the optimal level of work performance of employees, which will allow the effects of training to have their visible equivalent in the performance level of human resources (Marković et al.,

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2022). Therefore, organizations should enable employees to make their full intellectual and creative contribution, so that the level of work performance is in line with the expected goals. This primarily refers to creating an organizational culture based on the intellectual capacities of employees and their ability to effectively use their potentials, continuous skills improvement and monitoring of further education needs and active employees' participation in solving various business challenges (Garg, 2019; Maliranta & Nurmi, 2019).

Given that entrepreneurial organizations in Serbia face challenges in establishing coherence between different groups within the business system, there is a need for research to determine whether there are different views on aspects that affect performance improvement. This involves analyzing the attitudes between employees who are in managerial positions and employees who are in non-managerial positions. To improve activities that contribute to the development of overall organizational performance, it is necessary to test the individual attitudes of respondents and put them in the broader context of the entrepreneurial environment, as a basis for business sustainability in challenging times.

1. Relationship between training activities and performance outcomes

Organizations conduct training to support employees to perform their activities more efficiently and to accept and absorb various market turbulences more easily (Jeong et al., 2019). Implementation and modeling of the training plan are directly related to the previous analysis of organizational and individual needs, to gather sufficient information regarding personal preferences, motivation, level of talent, and experience, to enable realistic and visible improvement of employee performance (Morley et al., 2016). Talent management involves aligning the capabilities and abilities of employees and the goals of an organization (Bartosik & Wiścicka, 2021; Tsareva, 2021). The goal is to form a group that enables efficient transfer of knowledge according to everyday business activities and thus ensuring incremental growth of individual and organizational performance (Sung & Choi, 2018).

Quality implementation of training activities is in the function of adequate preparation that supports educational activities and thus enables the achievement of goals that satisfy the individual and the organization. The objectives of each training process should be presented to all participants, as well as what kind of outcomes in terms of improving skills, knowledge, or behavior is expected of them after completing the training. When the goals are set based on real needs and by the individual capacities of the employee, the possibility of forming a model and content of education that will be understandable and achievable for all participants in the process, regardless of their position in the organization (Guan & Frenkel, 2019).

To achieve the maximum effect of educational programs, it is necessary to perform a quality situational analysis of employee training needs, then determine the methodology

and content by which the training process will be implemented, and the final component is to ensure efficient transfer according to daily business activities (Hecht et al., 2020). Successful incorporation of new knowledge into the tasks set before employees is an important factor that should lead to increased levels of work performance and greater self-confidence, but also reduced employee turnover due to increased satisfaction with the way the organization invests in them.

Adequate levels of commitment, motivation, and competence of employees are significant performances of business excellence that contribute to the growth of the organization, profitability, and market competitiveness (Gabler et al., 2018). An important role in this is played by educated human resources who, with their knowledge, manage to respond to all the requirements of the organization, but also to those that come from the external environment. The implementation and development of the continuous training process is a key value in achieving these goals. The training process can have different implications at the individual level regarding its purpose and goals (Szabó et al., 2019). At its core, it should contribute to improving the quality of human resources for the performance of daily tasks, developing the specific skills of employees, and changing the attitudes, values, and behavior of employees in the direction of organizational needs (Lounsbury et al., 2019; Ahmed et al., 2018).

In addition, it is necessary to understand that employees have a special attitude toward different types of business activities, which is one of the basic factors in creating forms and models of organizational behavior. In circumstances where employees express a negative attitude towards managers or executives, organizational goals, company products, and other aspects of the business, there may be a reduced level of work performance and delivery of the organization's services to the market (Ivanović-Đukić et al., 2021). The business system of entrepreneurial management has the character of the operational functioning of the organization, and with the adequate connection of vertical and horizontal directions, a new space is opened for work performance management in the direction of increasing positive outcomes (Kessler et al., 2020). The goal is to ensure the homogeneity of the organizational structure and the efficiency of responding to all business challenges.

2. Research procedure and methodological approach

In order to review the opinions and attitudes of employees in different positions in the organization (line managers, employees) related to the impact of training on skills development and performance improvement, as well as shaping the desired behavior of employees, primary research was created with following questions:

Q1: To what extent has the training influenced the expansion of knowledge and skills of employees?

Q2: How and to what extent did the training influence the shaping of employees' attitudes and behaviors in line with organizational values?

Q3: How and to what extent did the training affect the improvement of employees' work performance, in order to achieve the strategic goals of the organization more efficiently?

Data were collected by survey method. The research sample is a non-random sample, a deliberate sample (purposive sampling) of employees in entrepreneurship organizations in the territory of Serbia. The research was conducted in the period from June to October 2021. The pilot study included 20 respondents, while the final number of respondents was 123. Open-ended questions where respondents had to write their opinion and expectations will be treated qualitatively. Closed-ended questions in the questionnaire from the point of view of measurement are of the scale, ordinal and nominal types. Respondents rated their attitudes on a scale of 1 to 7, where 1 - Not at all, and 7 - I totally agree. In order to obtain answers to the research questions, measures of central tendency (Mean, Median, Mode, Q1-first quartile, Q3-third quartile), dispersion measures, symmetry measures, and correlation analysis were calculated. Parametric and nonparametric techniques (Independent-Samples T-Test, Mann-Whitney U-Test) were used to test the hypotheses.

3. Statistical findings

As previously mentioned, 123 respondents participated in the research, 31 (25.2%) respondents in the position of line managers and 92 (74.8%) respondents in the position of employees. The structure of respondents in relation to gender is 59 (48%) female and 64 (52%) males. Viewing the structure of respondents and position in Table 1, it can be observed that there is no significant difference in this segment.

Table 1: Structure of respondents in relation to gender and position in the organization

		Gender		Total
		Female	Male	
		Count	Count	
Position	Line manager	16	15	31
	Employee	43	49	92
Total		59	64	123

Source: the authors' calculation

Graph 1: Structure of respondents in relation to gender and position in the organization
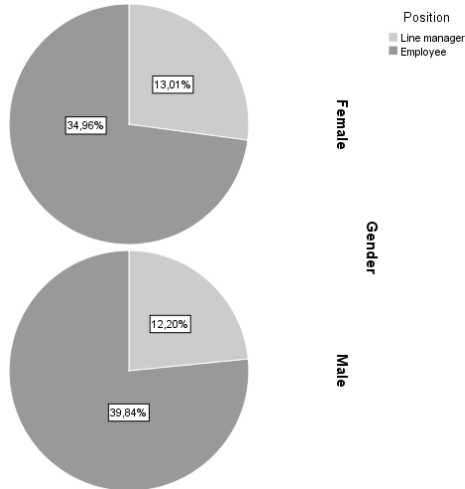
Source: the authors' research

With a probability of 95%, the authors claim that the respondents' ages move in the interval (35.05, 37.24). By the look at the age of the respondents, the average age of the line manager is 39.68, the median is 38, while the average age of the employee is 34.96 and the median is 35. In terms of employees' education level, 45.16% of line managers have a university degree, while 26% of line managers have college and Master's diplomas. The most common level of education of respondents in the employee position is university degree, 46.74%, while 35.87% of respondents in the same position have college education

Regarding the variable on the impact of training on increasing skills and abilities of employees, respondents rated it 4.65, the median 5, skewness -0,102, so it can be noted that there is no asymmetry, 25% of respondents give a grade of 4 or less, and 75% give a grade of 5 or less, i.e., Interquartile Range is 1. The coefficient of variation is 28.22%, which indicates that the variability is relatively weak. If the variable is observed in relation to the position that the respondents hold, the situation is completely different. Line managers give an average score of 3.61, the median is 4, 3.25% of respondents give a score of 3 or less, and 75% a score of 4.5 or less. Skewness is 0.235, i.e., the variable shows a small positive asymmetry. Respondents in the employee position give an average grade of 5, the median is also 5, 24% give a grade of 4 or less and 75% give a grade of 6 or less, and skewness is -0.162, i.e., weak negative asymmetry.

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Graph 2: My work knowledge increased after the training
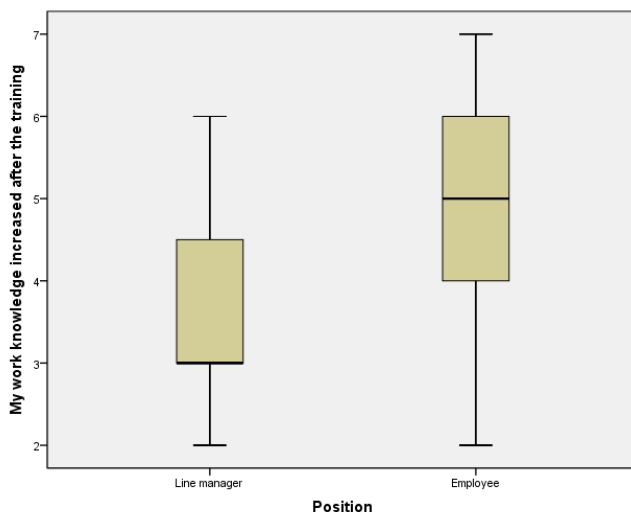
The T-test of independent samples compared the results of upgrading knowledge and skills after completing the training, in relation to the position of line managers and employees. There was a significant difference between line managers (Mean = 3.61, SD = 1,116) and employees (Mean = 5.00, SD = 1,186); t (121) = -5,714, p = 0,000 (both sides). The difference between mean values by groups (Mean Difference -1,387, 95% CI: -1,868 to -0,906) was large,

$$\eta^2 = \frac{t^2}{t^2 + (N_1 + N_2 - 2)} = \frac{(-5.714)^2}{(-5.714)^2 + (31 + 92 - 2)} = 0.2125$$

(Cohen, 1988). The position percentage of the respondents explains the 21.25% variance of the increase in knowledge after the training. In relation to gender, no statistically significant difference was observed, t (121) = 0.773, p = 0.441 (both sides).

As regards opinion on the impact of training on the formation of business attitudes and values in accordance with the organizational culture, respondents rated an average score of 4.75, the median is 5.2; 25% of respondents give a score of 4 or less, and 75% give a score of 6 or less. Skewness is 0.012, which means that the variable does not show asymmetry. The coefficient of variation is 25.38%, i.e., variability is relatively weak. Looking at the variable in relation to the position, the line managers give an average grade of 3.94, the median is 4, 25% of respondents give a grade of 3 or less, while 75% of respondents give a grade of 5 or less. Skewness is 0.351, i.e., the asymmetry is moderately positive, and the coefficient of variation is 25.33%, which means that the variable shows relatively weak variability. The employees give an average score of 5.04, the median is 5, 25% of respondents give a score of 4 or less, and 75% of respondents give a score of 6 or

less, skewness is -0.131, which means that the variable shows a small negative asymmetry and relatively low variability, with a coefficient of variation of 22.78%.

Graph 3: The training had a positive impact on shaping my business attitudes and values in line with the organizational culture
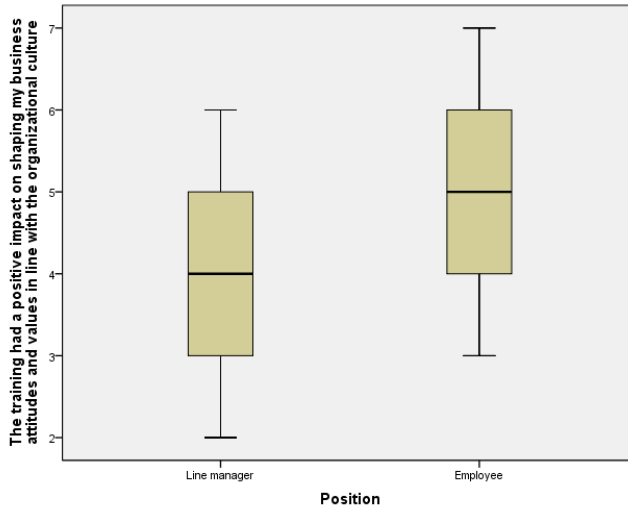
Source: the authors' research

The T-test of independent samples compared the results of opinion on the impact of training on the formation of business attitudes and values in accordance with the culture of the organization of line managers and employees. There was a significant difference for line managers (Mean = 3.94, SD = 0.998) and employees (Mean = 5.04, SD = 1.148); t (121) = -4,797, p = 0,000 (both sides). The difference between the mean values by groups (Mean Difference -1,108, 95% CI: -1,565 to -0,651) was large,

$$\eta^2 = \frac{t^2}{t^2 + (N_1 + N_2 - 2)} = \frac{(-4.797)^2}{(-4.797)^2 + (31 + 92 - 2)} = 0.1598$$

where the percentage of respondents explains the 15.98% variance of the impact of training on design business attitudes and values in line with the culture of the organization. In relation to gender, no statistically significant difference was observed, t (121) = -0.162, p = 0.872 (both sides).

Relation of the training impact on the work performance quality, the respondents rated a high average score of 4.87, the median is 5, where 50% of respondents gave a grade of 6, and 7.25% of respondents gave a grade of 4 or less, while 75% of respondents gave a grade of 6 or less. The mode is 5, skewness is -0.360, which indicates medium negative

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asymmetry, and variability is relatively weak, while the coefficient of variation is 25.34%. However, by looking at the rating in relation to the position, they are completely different. Line managers rated it with an average score of 3.61, the median is 4, Mode is also 4, 25% of respondents give a rating of 3 or less, 75% a rating of 4 or less, Skewness is 0.024, and there is no asymmetry, and the coefficient of variation is 30 %. Employees give an average score of 5.29, the median is 5, mode 5, 25% of respondents give a score of 5 or less, and 75% give a score of 6 or less, with skewness -0.028, which also means no asymmetry and the coefficient of variation is 18.28%. In Graph 4, it can be seen that the variable has outliers, but for the line managers' position, they are higher than the maximum value of 5, while for the employees' position they are lower than the minimum value of 4.

Graph 4: The training affected the quality of my work performance
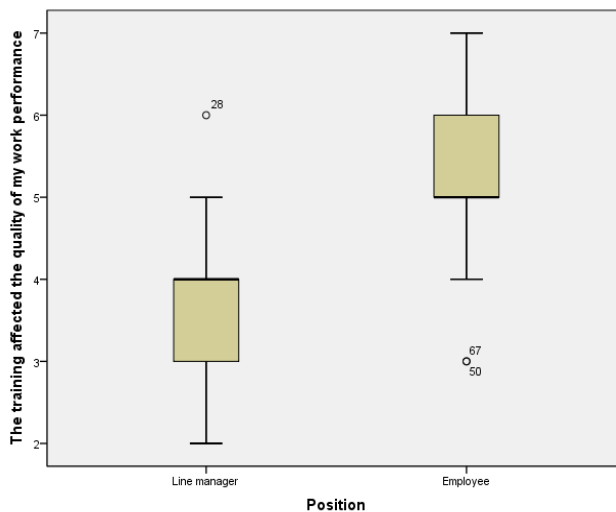
Source: the authors' research

The T-test of independent samples compared the results of examinations on the impact of training on the work performance quality for line managers and employees. There was a significant difference between line managers (mean = 3.61, SD = 1,086), and employees (mean = 5.29, SD = 0.967); t (121) = -8,112, p = 0.000 (both sides). The difference between the mean values by groups (mean difference -1,681, 95% CI: -2,091 to -1,270) was very large,

$$\eta^2 = \frac{t^2}{t^2 + (N_1 + N_2 - 2)} = \frac{(-8.112)^2}{(-8.112)^2 + (31 + 92 - 2)} = 0.3522$$

In terms of percentage, the position of the respondents explains 35.22% of the variance. In relation to gender, no statistically significant difference was observed, t (121) = 0.244, p = 0.808 (both sides).

For questions about the effects of training and its connection with the strategic goals of the organization, respondents rated with an average score of 4.39, while the median is 5 as much as the mode. The variable shows a medium negative asymmetry, skewness is -0.448, and variability is relatively weak with a coefficient of variation of 27.32%, 25% of respondents give a score of 4 or less, and 75% of respondents give a score of 5 or less. It is very interesting to point out that only in this case did the respondents in the position of line manager give a higher average score than the respondents in the position of employees and it is 4.55, the median is 5, the mode is also 5, while variable shows a small negative asymmetry, skewness is -0.156 and for the observed group of respondents has no outliers data. Respondents in the employees' position give an average score of 4.34, Median is 4 and mode is 5, and the variable shows a medium negative asymmetry, Skewness is -0.405, and Graph 5 shows that for this group of respondents the variable has outliers data.

Graph 5: Training is related to the strategic goals of the organization
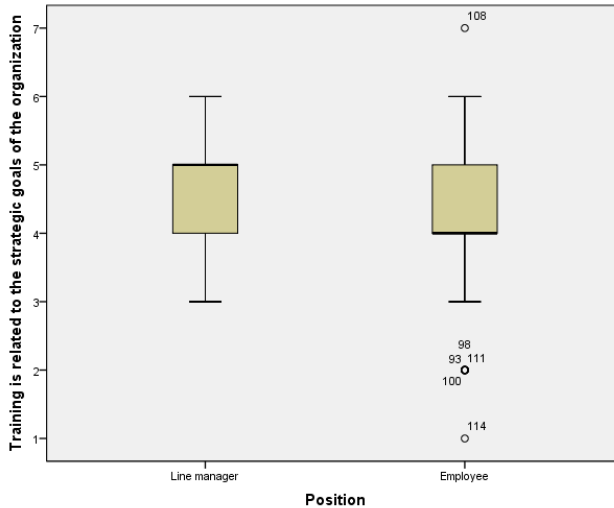
Source: the authors' research

For the connection of the training with the strategic goals of the organization, there was no statistically significant difference in relation to the position of respondents, line managers (Me = 5.0, n = 31) and employees (Me = 4.0, n = 92), U = 1326.50, z = -0.559, p = 0.549, magnitude of impact is very small,

$$r = \frac{z}{\sqrt{N}} = \frac{0.559}{11.091} = 0.05$$

Slightly higher mean rank is held by respondents who are in the position of line managers. In relation to the gender of the respondents, no statistically significant difference was observed (p_value for Mann-Whitney U test is 0.508).

In Table 2 it can be noticed that there are no significant linear relationships between the observed variables: My work knowledge increased after the training; The training had a positive impact on shaping my business attitudes and values in line with the organizational culture; The training affected the quality of my work performance; Training is related to the strategic goals of the organization, but nonlinear forms of connectivity are not excluded. For variables, *the training had a positive impact on shaping my business attitudes and values in line with the organizational culture* and *the training affected the quality of my work performance*, moderate positive linear connection is observed.

Table 2: Correlations of performance measures

	Mean	Std. Deviation	1	2	3	4
1.My work knowledge increased after the training	4.65	1.312	-			
2.The training had a positive impact on shaping my business attitudes and values in line with the organizational culture	4.76	1.208	,315**	-		
3.The training affected the quality of my work performance	4.87	1.234	,194*	**,413****	-	
4.Training is related to the strategic goals of the organization	4.39	1.199	,041	,064	,112	-

**. Correlation is significant at the 0.01 level (2-tailed).
 *. Correlation is significant at the 0.05 level (2-tailed).

Source: the authors' research

4. Discussion and conclusion

The results of this research have led to several important insights, which can be guidelines in the direction the entrepreneurial environment in Serbia should move if it wants to effectively and long-term manage the process of increasing employee performance. Without a systematic investment in increasing the knowledge and skills of employees, organizations may find themselves in a position of losing a competitive edge, as well as reducing market share and profitability. Looking at the gender structure of the respondents in this research, it can be seen that the number of males and females in managerial positions is similar, which is a significant shift in entrepreneurial opportunities in Serbia in the last 10 years. Such a relationship implies that there is a balance in opportunities for both genders, with fewer restrictions and barriers than before.

On the other hand, the analysis of defined research questions led to the following indicators. Considering the primary question, to what extent the training affects the increase of skills and knowledge, it can be seen that there is a significant difference in the answers between the two groups of respondents. In this context, parameters for line managers are next (mean=3.61, SD=1,116), while employees report (mean=5.00, SD=1,186). This shows that employees in non-managerial positions are significantly more satisfied with the

training outcomes than managers. Such a relationship may be associated with an inadequate methodology in selecting the educational programs for managers. Entrepreneurs must understand the distinction in training needs between different levels in the organization, so as not to reduce the outcome of the educational process, as can be seen in this case.

Regarding the connection between training and changes in attitudes and values of respondents, there was again a significant difference in the attitudes of employees (mean=5.04, SD=1.148), and line managers (mean=3.94, SD=0.998). In addition to its primary task of increasing knowledge and skills, the training also had the function of developing business attitudes that are transferred to the culture of the organization. This type of outcome is directly related to the quality of the educational process and the connection with the real needs of the workplace. This only confirms that training in entrepreneurial organizations is more tailored to employees than managers, which may increase their satisfaction and motivation, and the transfer of new values is more efficiently incorporated for this group of respondents.

When it comes to the correlation between training outcomes and improving the work performance, it can be seen that there is a significant difference in the attitudes of respondents, where employees express the following parameters (mean=5.29, SD=0.967), while this level for line managers is (mean=3.61, SD=1.086). Again, employee attitudes are significantly more positive in terms of the impact of training on job performance development than in the case of line managers. This level of response can be directly related to the quality of educational design, which connects current and future workplace needs with the training program. If managers believe that training does not significantly affect the increase in work performance, then will be a strong ineffectiveness of investing in human resources. On the other hand, employees who are not in managerial positions show a high degree of agreement that some type of training has had a positive impact on the quality of work performance.

Regarding the relationship between training and strategic goals of the organization, there is no significant difference in the attitudes of respondents, which employees express through the following parameters (Me=4.0, n=92), while for the line managers is (Me=5.0, n=31). It is indicative that this is the only case where line managers show a higher degree of agreement in relation to employees. This shows that nominally, managers support the training process, which aims to make it easier to achieve business results. This may also be related to greater knowledge of the strategic goals that managers have in relation to employees. When employees clearly understand how their work fits into the strategic goals of the organization, then the level of motivation and commitment to the training process increases significantly, which should be one of the main activities in the training preparation process.

By analyzing the correlations of performance measures, it is found that there is no significant linear relationship between the above issues, except at a moderate level for statements, the training had a positive impact on shaping my business attitudes and values/the training affected the quality of my work performance, which is 413 **. It can be interpreted that training has a greater impact on shaping the attitudes and values of the

individual, in the direction of motivation and commitment, than on improving structural skills.

The above analysis implies that training in the entrepreneurial environment in Serbia is more adapted to employees who are not in managerial positions and that it is conducted in a way that partially improves work performance, but with significant room for improving methodology and outcomes that will have a stronger impact on organizational results. Regarding line managers, the situation is significantly more unfavorable, which is reflected in the fact that the training designed for them does not contribute enough to the development of essential skills to improve work performance, but also other aspects of organizational behavior. Entrepreneurs' understanding that training must be tailored to different parameters of the workplace, the position held by the employee, and future business needs, opens a new valorization perspective of investment in human resources with a visible impact on their work performance in growing organizational potential.

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The impact of training on employees' performance in an entrepreneurial environment in Serbia: empirical and statistical findings

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Financial ratio indicators as early predictors of business failure: evidence from Serbia

Финансијски рацио показатељи као рани предиктори пословног неуспеха: искуство из Србије

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Abstract:
The problem of corporate bankruptcies has intrigued the scientific community for years due to its practical significance. There is no country whose economic well-being is not affected by business failures. The research problem stems from the lack of analyses related to the issue of business failures in the the Republic of Serbia. The main aim of this research paper is to determine whether ratio indicators are relevant in predicting business failure one, two and three years before bankruptcy proceedings start. The research was conducted on a sample of 100 companies from the teritorry of Serbia. The data for ratios calculation was taken from the official website of the Business Registers Agency. Statistical analysis is based on *Mann-Whitney* test, which is used to identify differences between two groups with respect to a variable (ratio). The test was conducted in IBM's SPSS v.26 tool. Results of the research indicate that financial ratios can be useful for business failure prediction even three years before bankruptcy proceedings start, since there are statistically significant differences in ratio values between bankrupt and solvent companies.
Keywords: business failure, bankruptcy, financial distress, Mann-Whitney, financial ratios
JEL classification: G33, M40

Сажетак: Проблем банкротства предузећа годинама интригира научну јавност због свог практичног значаја. Нема земље на чије економско благостање не утичу пословни неуспеси. Проблем истраживања произилази из недостатка анализа из Републике Србије које се односе на питање пословних неуспеха. Основни циљ овог истраживачког рада је да се утврди да ли су рацио показатељи релевантни за предвиђање пословног неуспеха једну, две и три године пре покретања стечајног поступка. Истраживање је спроведено на узорку од 100 предузећа са територије Републике Србије. Подаци за обрачун рација преузети су са званичног сајта Агенције за привредне регистре. Статистичка анализа се заснива на *Mann-Whitney* тесту који се користи за идентификацију разлика између две групе у односу на неку варијаблу (рацио). Тест је спроведен у ИБМ-овом СПСС в.26 алату. Резултати истраживања указују на то да финансијски показатељи могу бити корисни за предвиђање пословног неуспеха чак и три године пре покретања стечајног поступка, јер постоје статистички значајне разлике у вредностима рација између банкротиралих и солвентних предузећа.
Кључне речи: пословни неуспех, банкрот, финансијски притисак, Mann-Whitney, финансијска рација
ЈЕЛ класификација: G33, M40

Introduction

Business failures can be identified in the literature by different terms, such as deteriorating corporate financial health, bankruptcy, financial difficulties, default, credit risk, ex-ante financial analysis, early warning systems, etc. (Svabova et al., 2018, p. 16–29). Bankruptcy prediction is a topic which affects the economic well-being of all countries (Gordini, 2014, p. 2). A company is said to be insolvent or under financial distress if it is unable to pay its debts as they become due, which is aggravated if the value of the firm's assets is lower than its liabilities (Bacerra, Galvao & Abou-Seada, 2005).

In terms of this research, *business failure* is considered to be a synonym for *bankruptcy.* According to Serbian Law[1] bankruptcy can be defined as procedure carried out against a legal entity that is experiencing difficulties in operating business. The main aim of bankruptcy proceedings is to enable the most favorable collective settlement of creditors' claims by selling the property of a bankrupt legal entity.

The problem that the paper focuses is creating segregation between two groups of companies, bankrupt and solvent, through financial analysis. The main aim of the research is to determine which of the most used financial ratios can signal business failure early (one, two and three years in advance). To test the financial performance of companies, ratio analysis is employed as a commonly used technique. Ratio analysis is defined as the systematic use of indicators to interpret financial statements (Mitrovic, Knezevic & Milasinovic, 2021). The ratios that will be used in the paper are of great importance in both traditional and modern analyses of business failures, judged by the results of previous research. However, a large number of analyses and models are focused on developed countries, while a small number of them are focused on developing countries such as Serbia. There are not many scientific papers in Serbia dealing with the issue of corporate bankruptcies, and even fewer papers deal with the issue of adequate selection of financial variables that could signal business troubles three years in advance, which emphasizes the importance of the research.

The first part of the research paper systematizes the existing literature related to bankruptcy prediction models. This part is important for understanding the choice of variables that will be used in the research. In the second part, the final selection of variables is performed, the research sample is presented, as well as the way in which the analysis will be performed. In the third part, the analysis is performed, as well as confirmed which variables are potentially good predictors of business failure. Final thoughts and conclusions are presented in the penultimate and last chapters.

1. Literature overview

The problem of bankruptcies or business failures has occupied researchers for a long time. The first beginnings of research on bankruptcies date back to early 30s, where Fitzpatrick (1932) analyzed distinction between successful and unsuccessful entities. The most popular

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[1] Available at: https://www.paragraf.rs/propisi/zakon_o_stecaju.html (*date of access: 01.04.2022.*)

and traditional research papers on this topic were written in the mid 60's. Beaver (1966) used univariate discriminant (UDA) statistical method. He compared mean values for failed and non-failed companies and concluded that "Cash flow to Total debt", "Net income to Total assets", "Working Capital to Total Assets", "Current ratio" and "No-credit interval" have greater values for non-failed companies, while "Total debt to Total Assets" ratio has greater values in case of failed companies. Altman (1968) used multivariate (MDA) discriminant analysis on a sample of 66 entities. He developed well-known Z–score model with bankruptcy prediction accuracy of 79%. The model includes five variables: X1 (ratio of net working capital to operating assets), X2 (ratio of retained earnings and total assets), X3 (ratio of profit before interest and taxation and total assets), X4 (ratio of market value of capital and total liabilities) and X5 (ratio of operating income to total assets). Ohlson (1980) was the first to point out the shortcomings of MDA analysis, and used logistic regression in his work. 105 businesses were included in the research and a model of 96% accuracy was developed. Nine variables were used in Ohlson's models: X1 (logarithm of total assets to gross domestic product index), X2 (ratio of total liabilities to assets), X3 (share of net working capital in total assets), X4 (ratio of current liabilities and current assets), X5 ("dummy" variable that takes the value 0 if total liabilities are less than total assets and the value 1 in the opposite case), X6 (share of profit in total assets), X7 (ratio of cash flow from operating activities and total liabilities), X8 ("dummy" variable which takes the value 1 when there is a loss in the last two years, and 0 in other cases) and X9 [(NIt - NIt-1) / (| NIt | + | NIt-1 | , *and the label "Nit" is the net profit in the last observed period*]. Deakin (1972) used the MDA statistical technique and developed a model that could predict bankruptcy with 96% accuracy two years before initiating bankruptcy proceedings. He used 14 variables in the analysis: cash flow / total liabilities; net result / total assets; total liabilities / total assets; current assets / total assets; cash and cash equivalents / total assets; working capital / total assets; cash / total assets; current assets / current liabilities; cash and cash equivalents / current liabilities; cash / short-term liabilities; working capital / sales revenue; cash and cash equivalents / sales revenue; working capital / sales revenue; cash / sales revenue. Zmijewski (1984) opted for a probit approach which, like the models of his predecessors, was based on accounting data. However, it uses a different set of independent variables. The variables included in the model are: NITL (Net result divided by total liabilities), TLTA (total liabilities divided by total assets), and CACL (Current assets divided by current liabilities). McKee (1995) applied the method of inductive reasoning where he predicted the bankruptcy of 60 public companies from the territory of the United States. As with most authors, the sample is balanced (50:50 = solvent companies: bankrupt companies). The research is focused on the period from 1986 to 1989, and the following variables are included in the analysis: net profit / assets; working capital / assets; working capital / current liabilities; cash / assets; current assets / sales; long-term debt / assets; receivables / sales.

Many researchers have tested the significance and predictive power of these models to date (Milic, et al, 2021; Mizdrakovic & Bokic, 2017; etc.), but also many bankruptcy prediction models have been developed after those ground-breaking ones (Ciampi & Gordini, 2008; Pervan, Pervan & Vukoja, 2011; Zenzerovic, 2011; Cultrera & Bredart, 2016; Obradovic, et. al, 2018; Svabova, et al.,2020; etc.). What is specific to a large number of

predictions of business failures is that they are based on financial ratio indicators, but in order to strengthen the predictive power of analysis and models, it is desirable to include non-financial and even external variables as well.

Table 1: Variables selection in bankruptcy prediction models

Variables	Frequency of use in the 190 studies
Financial ratio (ratio of two financial variables)	93%
Statistical variable (mean, standard deviation, variance, logarithm, factor analysis scores… calculated with ratios or financial variables	28%
Variation variable (evolution over time of a ratio or a financial variable	14%
Non-financial variable (any characteristic of a company or its environment other that those related to financial situation	13%
Market variable (ratio or variable related to stock price, stock return)	6%
Financial market variable (data coming from a balance sheet, an income statement or any financial documents	5%

Source: Jardin, 2009

2. Data, variables and methods

The research idea and scientific problem lie in the fact that in Serbia, there are not many scientific papers dealing with analysis of financial (ratio) variables, in order to identify those that are relevant for business failure prediction. Before the research, it is mandatory to define several aspects: hypothesis, research sample, variables and methodology that will be applied.

Research hypothesis is defined as follows: *financial ratio indicators can be used as early predictors of business failure in Serbia one (Y-1), two (Y-2) and three (Y-3) years before bankruptcy proceedings occur.* The research sample consists of 100 Serbian large, medium and small companies from various industries. A bankrupted company is considered to be one that initiated bankruptcy proceedings, while those that did not initiate bankruptcy proceedings are considered "healthy" ones (solvent). Business years 2019-2021 were considered. The number of companies that initiated bankruptcy proceedings is equal to the number of companies that did not (50:50) which is the case in most bankruptcy analysis and prediction models (Altman, 1968; Deakin 1972; McKee 1995; Ciampi & Gordini, 2008; Zenzerovic, 2011; Obradovic, et. al, 2018; etc.). Bankrupt companies were selected based on the list of active bankruptcy proceedings that is available on the "Agency for Licensing of Bankruptcy Trustees"[2] web page.

Such an analysis requires a sample that is well structured, and it is important to note that the sample is also balanced by company size, as well as by business activity. The average turnover of companies that started bankruptcy proceedings is 777,375,000 RSD, while the average turnover of "healthy" companies is 781,095,000 RSD. According to the Statistical

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[2] Available at: https://alsu.gov.rs/stecaj/statistika-stecajnih-postupaka/ (*date of access: 01.04.2022.*)

Office of the Republic of Serbia[3], the characteristic of the Serbian economy is that small companies dominate, with an average share of 79% in the total number of companies (excluding micro entities) for the period 2018-2020. Accordingly, the research sample is dominated by small businesses with a share of 72%. Also, the research sample is dominated by trading and manufacturing companies with the share of 66% in total number of observations.

The research is based on a combination of statistical and financial analysis methods. The financial data (balance sheets) were taken from the Serbian Business Registers Agency[4] webpage. Financial part of the analysis is related to calculation of research variables – financial ratio indicators that are presented in the Table 2. They were calculated for one (Y-1), two (Y-2) and three (Y-3) years before bankruptcy proceedings started, in order to test the hypothesis. Financial statements used in the research cover the period from 2016 to 2021.

Table 2: Variables selection

Label	Calculation	Author sources
V1	Working capital / Total Assets	Altman (1968); Deakin (1972); Ohlson (1980); Keasey and McGuinness (1990); Theodossiou (1991); Obradovic, et. al. (2018); Becerra, Galvao and Abou-Seada (2005); Tserng, et al. (2014); Alaminos and Ferna´ndez (2016)
V2	Retained earnings / Total Assets	Altman (1968); Theodossiou (1991); Becerra, Galvao and Abou-Seada (2005);
V3	Gross result / Total Assets	Altman (1968); Chesser (1974); Hillegeist, et al. (2004) Alaminos and Fernández (2016); Papana & Spyridou (2020)
V4	Net result / Total Assets	Deakin (1972); Ohlson (1980); Frydman, Newblod and Whiteford (1985) Zmijewski, M. E. (1984); Theodossiou (1991); McKee (1995); Zenzerović (2011); Tserng, et al. (2014); Papana and Spyridou (2020)
V5	Equity / Total Assets	Altman (1968); Keasey and McGuinness (1990); Papana and Spyridou (2020)
V6	Sales / Total Assets	Altman (1968); Bilderbeek (1979); Zavgren (1983); Keasey and McGuinness (1990); Shah and Murtaza (2000); Dewaelheyns and Van Hulle (2004); Becerra, Galvao and Abou-Seada (2005); Tserng, et al. (2014); Alaminos and Ferna´ndez (2016); Korol (2019)
V7	Net cash flow / Total Assets	Beaver (1966); Van Wymeersch, Declerc and Heins (1992)
V8	Net cash flow / Total Liabilities	Beaver (1966); Deakin (1972); Frydman, Newblod and Whiteford (1985); Cultera and Brédart (2016)
V9	Net result / Total Liabilities	Beaver (1966); Shumway (2001)

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[3] Available at: https://www.stat.gov.rs/ (*date of access: 05.04.2022.*)

[4] Available at: https://pretraga2.apr.gov.rs/unifiedentitysearch (*date of access: 10.04.2022.*)

V10	Total Liabilities / Total Assets	Deakin (1972); Chesser (1974); Ohlson (1980); Zmijewski (1984); Frydman, Newblod and Whiteford (1985); Theodossiou (1991); Van Wymeersch, Declerc, and Heins (1992) Platt, Platt and Pedersen (1994); Shah and Murtaza (2000); Shumway (2001); Dewaelheyns and Van Hulle (2004); Tserng, et al. (2014); Alaminos and Ferna´ndez (2016); Slefendorfas G (2016);
V11	Current Assets / Current Liabilities	Ohlson (1980); Altman & Levallee (1980); Zmijewski (1984); Frydman, Newblod and Whiteford (1985); McKee (1995); Pervan, Pervan and Vukoja (2011); Korol (2019); Cultera and Brédart (2016); Svabova, et. al. (2020); Vukovic, et. al. (2020); Papana and Spyridou (2020); Sfakianakis (2021); Mirovic, et. al (2022)
V12	Current Liabilities / Total Assets	Deakin (1972); Taffler (1983)
V13	Current Assets / Total Assets	Deakin (1972); Frydman, Newblod and Whiteford (1985); Alaminos and Ferna´ndez (2016); Vukovic, et. al (2020)

Source: the author

Focusing on the statistical method, it requires a good analysis of data, so that the research would not be conducted by wrong statistical method, which can further lead to wrong conclusions. The main aim of the research is to determine whether there are statistically significant differences in variables levels for two groups of entities: bankrupt VS solvent. Therefore, the hypothesis testing will be performed through variables mean comparison. A parametric t-test and a nonparametric Mann-Whitney test are available for such testing. Through the analysis of data distribution normality for all three years, a decision will be made on which of the two above-mentioned statistical methods will be applied. According to Rosenthal (1991) SPSS z-score can be converted into the effect size estimation (*r*) as it follows:

$$r = \frac{Z}{\sqrt{N}}$$

Where z is score produced by SPSS program, and N is the sample size from the research (50 bankrupted + 50 solvent = 100 total). Effect size will be calculated for every variable and every case (Y-1, Y-2 and Y-3).

3. Analysis and research results

In order to analyze if distribution deviates from normal distribution, Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) tests will be used. These tests compare the scores in the sample to a normally distributed set of scores with the same mean and standard deviation. If the test is non-significant (p >.05) it tells us that the distribution of the sample is not significantly different from a normal distribution (i.e. it is normal). If, however, the test is significant (p < .05) then the distribution in question is significantly different from a normal distribution (Field, 2009, p.144)

Table 3: Normality tests

Tests of Normality – one year before bankruptcy proceedings					
Var.	**Kolmogorov-Smirnov**			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
V1 (Y-1)	0.313	100	0.000	0.310	100	0.000
V2 (Y-1)	0.176	100	0.000	0.843	100	0.000
V3 (Y-1)	0.222	100	0.000	0.699	100	0.000
V4 (Y-1)	0.233	100	0.000	0.673	100	0.000
V5 (Y-1)	0.314	100	0.000	0.525	100	0.000
V6 (Y-1)	0.252	100	0.000	0.621	100	0.000
V7 (Y-1)	0.283	100	0.000	0.561	100	0.000
V8 (Y-1)	0.319	100	0.000	0.519	100	0.000
V9 (Y-1)	0.305	100	0.000	0.508	100	0.000
V10 (Y-1)	0.345	100	0.000	0.278	100	0.000
V11 (Y-1)	0.241	100	0.000	0.728	100	0.000
V12 (Y-1)	0.326	100	0.000	0.297	100	0.000
V13 (Y-1)	0.098	100	0.019	0.941	100	0.000
Tests of Normality – two years before bankruptcy proceedings					
Var.	**Kolmogorov-Smirnov**			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
V1 (Y-2)	0.330	100	0.000	0.270	100	0.000
V2 (Y-2)	0.163	100	0.000	0.849	100	0.000
V3 (Y-2)	0.285	100	0.000	0.682	100	0.000
V4 (Y-2)	0.299	100	0.000	0.669	100	0.000
V5 (Y-2)	0.374	100	0.000	0.297	100	0.000
V6 (Y-2)	0.217	100	0.000	0.663	100	0.000
V7 (Y-2)	0.319	100	0.000	0.447	100	0.000
V8 (Y-2)	0.232	100	0.000	0.694	100	0.000
V9 (Y-2)	0.257	100	0.000	0.718	100	0.000
V10 (Y-2)	0.358	100	0.000	0.237	100	0.000
V11 (Y-2)	0.303	100	0.000	0.458	100	0.000
V12 (Y-2)	0.343	100	0.000	0.252	100	0.000
V13 (Y-2)	0.087	100	0.061	0.946	100	0.000

Tests of Normality – three years before bankruptcy proceedings					
Var.	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
V1 (Y-3)	0.281	100	0.000	0.537	100	0.000
V2 (Y-3)	0.169	100	0.000	0.839	100	0.000
V3 (Y-3)	0.352	100	0.000	0.347	100	0.000
V4 (Y-3)	0.358	100	0.000	0.331	100	0.000
V5 (Y-3)	0.468	100	0.000	0.093	100	0.000
V6 (Y-3)	0.232	100	0.000	0.612	100	0.000
V7 (Y-3)	0.392	100	0.000	0.217	100	0.000
V8 (Y-3)	0.409	100	0.000	0.207	100	0.000
V9 (Y-3)	0.275	100	0.000	0.446	100	0.000
V10 (Y-3)	0.296	100	0.000	0.493	100	0.000
V11 (Y-3)	0.474	100	0.000	0.091	100	0.000
V12 (Y-3)	0.256	100	0.000	0.511	100	0.000
V13 (Y-3)	0.077	100	0.145	0.955	100	0.002

Source: the author's calculation, SPSS output

The results of K-S and S-W tests for Y-1, Y-2 and Y-3 period (one, two, and three years before bankruptcy proceedings) are present in the Table 3. It can be concluded that normal distribution is *not present* for Y-1 taking into account that the test is significant ($p < 0.05$) in case of every variable. The results of K-S and S-W tests for Y-2 indicate that normal distribution is *not present* taking into account that the test is significant ($p < 0.05$). It is important to point out that according to Kolmogorov-Smirnov test, Variable 13 (V13) is not significantly different from a normal distribution in Y-2. According to Field (2009), Sharpo-Wilk test has more power to detect differences from normality, and considering its p value < 0.05 it can be concluded that V13 is not normally distributed. The results of K-S and S-W tests for Y-3 period also indicate that normal distribution is not present taking into account that the test is significant. Like in previous case for Y-2 variables, Kolmogorov-Smirnov test for Variable 13 (V13) is not significantly different from a normal distribution, but Sharpo-Wilk test, that has more power to detect differences from normality, has p value < 0.05. Therefore, it be concluded that V13 is not normally distributed.

In accordance with the analysis of distribution normality, the hypothesis testing was performed using the *Mann-Whitney* test for all three periods: one year (Y-1), two years (Y-2) and three years (Y-3) before bankruptcy proceedings. The *Mann-Whitney* test is used to identify differences between two groups with respect to a variable. It is a nonparametric version of the statistical t-test (Mann & Whitney, 1947).

Table 4: Descriptive statistics and Test statistics for two groups (one year before bankruptcy proceedings)

Descriptive Statistics								
Variable	0				1			
	N		Mean	Median	N		Mean	Median
	Valid	Missing			Valid	Missing		
V1 (Y-1)	50	0	-0.71	-0.18	50	0	0.12	0.16

F i n a n c i a l   r a t i o   i n d i c a t o r s   a s   e a r l y   p r e d i c t o r s   o f   b u s i n e s s
f a i l u r e :   e v i d e n c e   f r o m   S e r b i a

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V2 (Y-1)	50	0	0.14	0.08	50	0	0.33	0.26
V3 (Y-1)	50	0	-0.24	-0.10	50	0	0.08	0.04
V4 (Y-1)	50	0	-0.24	-0.10	50	0	0.06	0.03
V5 (Y-1)	50	0	0.30	0.01	50	0	1.55	0.59
V6 (Y-1)	50	0	1.19	0.96	50	0	2.11	1.12
V7 (Y-1)	50	0	-0.11	-0.04	50	0	0.18	0.04
V8 (Y-1)	50	0	-0.11	-0.03	50	0	0.39	0.06
V9 (Y-1)	50	0	-0.15	-0.10	50	0	0.31	0.06
V10 (Y-1)	50	0	1.63	1.01	50	0	0.68	0.63
V11 (Y-1)	50	0	0.90	0.78	50	0	2.25	1.41
V12 (Y-1)	50	0	1.30	0.76	50	0	0.51	0.33
V13 (Y-1)	50	0	0.59	0.64	50	0	0.63	0.66

Test Statistics				
Variable	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig.(2-tailed)
V1 (Y-1)	594.000	1869.000	-4.522	0.0000
V2 (Y-1)	688.000	1963.000	-3.881	0.0001
V3 (Y-1)	350.000	1625.000	-6.204	0.0000
V4 (Y-1)	346.000	1621.000	-6.232	0.0000
V5 (Y-1)	537.000	1812.000	-4.983	0.0000
V6 (Y-1)	1060.000	2335.000	-1.310	0.1903
V7 (Y-1)	627.000	1902.000	-4.295	0.0000
V8 (Y-1)	673.000	1948.000	-3.978	0.0001
V9 (Y-1)	389.000	1664.000	-5.936	0.0000
V10 (Y-1)	513.000	1788.000	-5.081	0.0000
V11 (Y-1)	591.000	1866.000	-4.543	0.0000
V12 (Y-1)	584.000	1859.000	-4.591	0.0000
V13 (Y-1)	1165.000	2440.000	-0.586	0.5579

Source: the author's calculation, SPSS output

First part of the Table 4 shows descriptive statistics with mean and median for every variable. Due to fact that the data is not normally distributed and thus non-parametric test was used, median should be focused. Label "1" stands for entities that are solvent, while label "0" stands for entities that went bankrupt. Second part of the table shows results for Mann-Whitney test. This pattern is present in all 3 cases (1 year, 2 years and 3 years before bankruptcy). Test results for time period one year before bankruptcy that is presented in the Table 4 indicate following:

- **V1$_{(Y-1)}$, V2$_{(Y-1)}$, V3$_{(Y-1)}$, V4$_{(Y-1)}$, V5$_{(Y-1)}$, V7$_{(Y-1)}$, V8$_{(Y-1)}$, V9$_{(Y-1)}$, V10$_{(Y-1)}$, V11$_{(Y-1)}$** and **V12$_{(Y-1)}$** values for bankrupted companies **differ significantly** from the same variables values for entities that are solvent **($p < 0.05$)**, meaning further that these ratios can potentially be used for prediction of business failure *one year* before bankruptcy proceedings start.

- **V6$_{(Y-1)}$** and **V13$_{(Y-1)}$** values for bankrupted companies **do not differ significantly** from the same variables values for entities that are solvent **($p > 0.05$)**, meaning

further that these ratios are not recommended to be used for prediction of business failure *one year* before bankruptcy proceedings start.

Effect size (*r*) results for Y-1 follow:

- $r_{V1(Y-1)}$ = -0.45; $r_{V2(Y-1)}$ = -0.39; $r_{V3(Y-1)}$ = -0.62; $r_{V4(Y-1)}$ = -0.62;
- $r_{V5(Y-1)}$ = -0.50; $r_{V6(Y-1)}$ = -0.13; $r_{V7(Y-1)}$ = -0.43; $r_{V8(Y-1)}$ = -0.40;
- $r_{V9(Y-1)}$ = -0.59; $r_{V10(Y-1)}$ = -0.51; $r_{V11(Y-1)}$ = -0.45; $r_{V12(Y-1)}$ = -0.46;
- $r_{V13(Y-1)}$ = -0.06

Taking into account the above stated *r* results, it can be concluded that V3 (Gross result / Total Assets) and V4 (Net Result / Total Assets) have largest effect size, while V13 (Current Assets / Total Assets) has lowest effect size one year before bankruptcy.

Table 5: Descriptive statistics and Test statistics for two groups (two years before bankruptcy proceedings)

Descriptive Statistics								
	0				1			
Variable	N		Mean	Median	N		Mean	Median
	Valid	Missing			Valid	Missing		
V1 (Y-2)	50	0	-0.49	0.03	50	0	0.06	0.13
V2 (Y-2)	50	0	0.13	0.09	50	0	0.31	0.26
V3 (Y-2)	50	0	-0.03	0.01	50	0	0.06	0.05
V4 (Y-2)	50	0	-0.03	0.01	50	0	0.05	0.04
V5 (Y-2)	50	0	0.76	0.22	50	0	1.52	0.54
V6 (Y-2)	50	0	1.49	1.08	50	0	1.74	1.14
V7 (Y-2)	50	0	-0.02	0.01	50	0	-0.01	0.03
V8 (Y-2)	50	0	-0.01	0.01	50	0	0.07	0.03
V9 (Y-2)	50	0	-0.01	0.01	50	0	0.16	0.07
V10 (Y-2)	50	0	1.37	0.82	50	0	0.69	0.65
V11 (Y-2)	50	0	1.00	1.04	50	0	2.12	1.28
V12 (Y-2)	50	0	1.10	0.67	50	0	0.56	0.43
V13 (Y-2)	50	0	0.61	0.65	50	0	0.62	0.61

Test Statistics				
Var.	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
V1 (Y-2)	885.000	2160.000	-2.516	0.0119
V2 (Y-2)	615.500	1890.500	-4.376	0.0000
V3 (Y-2)	662.000	1937.000	-4.054	0.0001
V4 (Y-2)	678.000	1953.000	-3.943	0.0001
V5 (Y-2)	744.000	2019.000	-3.500	0.0005
V6 (Y-2)	1158.000	2433.000	-0.634	0.5259
V7 (Y-2)	965.000	2240.000	-1.965	0.0494
V8 (Y-2)	915.000	2190.000	-2.309	0.0209
V9 (Y-2)	595.000	1870.000	-4.515	0.0000
V10 (Y-2)	748.000	2023.000	-3.461	0.0005

V11 (Y-2)	831.000	2106.000	-2.889	0.0039
V12 (Y-2)	825.000	2100.000	-2.930	0.0034
V13 (Y-2)	1234.000	2509.000	-0.110	0.9122

Source: the author's calculation, SPSS output

Test results for two years before bankruptcy that are presented in the Table 5 indicate the following:

- **V1$_{(Y-2)}$, V2$_{(Y-2)}$, V3$_{(Y-2)}$, V4$_{(Y-2)}$, V5$_{(Y-2)}$, V8$_{(Y-2)}$, V9$_{(Y-2)}$, V10$_{(Y-2)}$, V11$_{(Y-2)}$, V12$_{(Y-2)}$** values for bankrupted companies **differ significantly** from the same variables values for entities that are solvent (**p < 0.05**), meaning further that these ratios can potentially be used for prediction of business failure *two years* before bankruptcy proceedings start.

- **V6$_{(Y-2)}$, V7$_{(Y-2)}$** and **V13$_{(Y-2)}$** values for bankrupt companies **do not differ significantly** from the same variables values for entities that are solvent (**p > 0.05**), meaning further that these ratios are not recommended to be used for prediction of business failure *two years* before bankruptcy proceedings start.

Effect size results for Y-2 follow:

- r V1(Y-2) = -0.25; r V2(Y-2) = -0.44; r V3(Y-2) = -0.41; r V4(Y-2) = -0.39;
- r V5(Y-2) = -0.35; r V6(Y-2) = -0.06; r V7(Y-2) = -0.20; r V8(Y-2) = -0.23;
- r V9(Y-2) = -0.45; r V10(Y-2) = -0.35; r V11(Y-2) = -0.29; r V12(Y-2) = -0.29;
- r V13(Y-2) = -0.01

Taking into account the above stated *r* results, it can be concluded that V3 (Gross result / Total Assets) and V4 (Net Result / Total Assets) still have important effect size, but largest effect size is present for variables V9 (Net Result / Total Liabilities) and V2 (Retained earnings / Total Assets). On the other hand, V13 (Current Assets / Total Assets), together with V6 (Sales / Total Assets), has lowest effect size two years before bankruptcy.

Table 6: Descriptive statistics and Test statistics for two groups (three years before bankruptcy proceedings)

Descriptive Statistics								
	0				1			
Status	N		Mean	Median	N		Mean	Median
	Valid	Missing			Valid	Missing		
V1 (Y-3)	50	0	-0.23	0.07	50	0	0.03	0.09
V2 (Y-3)	50	0	0.13	0.08	50	0	0.28	0.20
V3 (Y-3)	50	0	-0.08	0.01	50	0	0.06	0.04
V4 (Y-3)	50	0	-0.09	0.01	50	0	0.05	0.04
V5 (Y-3)	50	0	10.85	0.22	50	0	1.28	0.42
V6 (Y-3)	50	0	1.74	1.41	50	0	1.61	1.10

V7 (Y-3)	50	0	-0.08	0.02	50	0	0.01	0.02
V8 (Y-3)	50	0	-0.34	0.02	50	0	-0.01	0.03
V9 (Y-3)	50	0	0.04	0.02	50	0	0.13	0.06
V10 (Y-3)	50	0	1.07	0.83	50	0	0.71	0.71
V11 (Y-3)	50	0	11.08	1.15	50	0	2.12	1.24
V12 (Y-3)	50	0	0.83	0.63	50	0	0.59	0.53
V13 (Y-3)	50	0	0.61	0.63	50	0	0.61	0.60

Test Statistics			
Var.	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
V1 (Y-3)	1080.500	2355.500	-1.169	0.2426
V2 (Y-3)	758.500	2033.500	-3.391	0.0007
V3 (Y-3)	637.500	1912.500	-4.222	0.0000
V4 (Y-3)	627.500	1902.500	-4.291	0.0000
V5 (Y-3)	916.500	2191.500	-2.304	0.0212
V6 (Y-3)	1228.500	2503.500	-0.148	0.8822
V7 (Y-3)	1244.000	2519.000	-0.041	0.9670
V8 (Y-3)	1184.500	2459.500	-0.452	0.6516
V9 (Y-3)	613.500	1888.500	-4.388	0.0000
V10 (Y-3)	921.500	2196.500	-2.265	0.0235
V11 (Y-3)	1003.500	2278.500	-1.699	0.0893
V12 (Y-3)	1034.500	2309.500	-1.486	0.1374
V13 (Y-3)	1242.500	2517.500	-0.052	0.9588

Source: the author's calculation, SPSS output

Test results for period of three years before bankruptcy that are presented in the Table 6 indicate the following:

- **V2$_{(Y-3)}$, V3$_{(Y-3)}$, V4$_{(Y-3)}$, V5$_{(Y-3)}$, V9$_{(Y-3)}$, V10$_{(Y-3)}$** values for bankrupted companies **differ significantly** from the same variables values for entities that are solvent (**p < 0.05)**, meaning further that these ratios can potentially be used for prediction of business failure *three years* before bankruptcy proceedings start.

- **V1$_{(Y-3)}$, V6$_{(Y-3)}$, V7$_{(Y-3)}$, V8$_{(Y-3)}$, V11$_{(Y-3)}$, V12$_{(Y-3)}$** and **V13$_{(Y-3)}$** values for bankrupted companies **do not differ significantly** from the same variables values for entities that are solvent (**p > 0.05)**, meaning further that these ratios are not recommended to be used for prediction of business failure *three years* before bankruptcy proceedings start.

Effect size results for Y-3 follow:

- *r* $_{V1(Y-3)}$ = -0.12; *r* $_{V2(Y-3)}$ = -0.34; *r* $_{V3(Y-3)}$ = -0.42; *r* $_{V4(Y-3)}$ = -0.43;
- *r* $_{V5(Y-3)}$ = -0.23; *r* $_{V6(Y-3)}$ = -0.01; *r* $_{V7(Y-3)}$ = -0.00; *r* $_{V8(Y-3)}$ = -0.05;
- *r* $_{V9(Y-3)}$ = -0.44; *r* $_{V10(Y-3)}$ = -0.23; *r* $_{V11(Y-3)}$ = -0.17; *r* $_{V12(Y-3)}$ = -0.15;
- *r* $_{V13(Y-3)}$ = -0.01.

Taking into account the above stated *r* results, it can be concluded that V9 (Net Result / Total Liabilities) has largest effect size, together with V4 (Net result / Total

Assets) and V3 (Gross result / Total Assets). On the other hand, V7 (Net Cash Flow/ Total Assets), together with V6 (Sales / Total Assets) and V13 (Current Assets / Total Assets), has the lowest effect size for business failure prediction three years before bankruptcy.

4. Discussion

Based on previous research by other authors, but also based on the results of this research, there is no doubt that financial ratios can be useful inputs in diagnosing financial health of a company, combined with statistical techniques. The issue of bankruptcies is extremely important for every country, especially for developing countries such as Serbia.

The focus of this research was on isolated analysis of individual variables, i.e. financial ratios, in order to identify ratios that may be relevant in the classification of companies into two categories: those that have gone bankrupt and those that are solvent (healthy). The research results are important both for business owners and future researchers. On the one hand, business owners can calculate these critical ratio indicators to examine whether results for their companies are closer to means and medians of bankrupt entities or closer to values of solvent (healthy) entities. On the other hand, research results can be useful for future researchers who will develop models for predicting business failure, because results indicate which variables of all the popular ones can be useful for statistical modelling in developing countries like Serbia. It is important to note that this research has several shortcomings. To begin with, Serbian economy is dominated by small and medium enterprises, and therefore those enterprises are dominant in the research sample (share of 72%). This indicates that variables from this research may not give perfect results if used in modeling only for large companies. In addition, the sample is dominated by processing and trading companies (share of 66%), which may also indicate that variables used in this research may not be a perfect fit for other economic activities such as IT or administration, for example. Furthermore, research focuses on financial ratio data, but in order to better understand differences between bankrupt and solvent entities, it is necessary to include some non-financial or even global (macroeconomic) indicators in analysis. An avenue of future research is to include these relevant ratio indicators in some statistical or machine learning models, to investigate how these relevant variables, combined together, classify businesses into group of solvent or bankrupt ones several years in advance. Additionally, it is important to mention that correctly presented financial statements are mandatory for any analysis including bankruptcy prediction. If it is based on erroneous information, then a correctly performed analysis of financial and accounting reports will, in fact, not be valid (Parnicki, Zivkovic Petrovic & Tucakovic, 2021).

Conclusion

The results demonstrate importance of financial ratios in business failure prediction. Also, results indicate that, as we move backwards from the moment of initiating the bankruptcy proceedings, the power of financial ratios to give a signal of financial difficulties decreases.

One year before bankruptcy (Y-1), all the variables except for V6 (Sales / Total Assets) and V13 (Current Assets / Total Assets) showed statistically significant differences in values for the two groups of companies: bankrupt vs. solvent. This means that all variables except for two above mentioned can potentially be used for prediction of business failure one year before bankruptcy proceedings start. *Two years before bankruptcy (Y-2)* all the variables except for V6 (Sales / Total Assets), V13 (Current Assets / Total Assets) and V7 (Net Cash Flow / Total Assets) showed statistically significant differences for the two groups of companies. This means that all variables except for three above mentioned can potentially be used for prediction of business failure two years before bankruptcy proceedings start. When it comes to the period of *three years before the initiation of bankruptcy proceedings (Y-3)*, 6 out of 13 variables showed statistically significant differences in value for these two groups of companies. Variables V1 (Working Capital / Total Assets), V6 (Sales / Total Assets), V7 (Net Cash Flow / Total Assets), V8 (Net Cash Flow / Total Liabilities), V11 (Current Assets / Current Liabilities), V12 (Current Liabilities / Total Assets) and V13 (Current Assets / Total Assets) are not recommended as good predictors of business failure three years in advance according to research results. Considering the fact that ≈85% of variable values showed statistically significant differences between groups for Y-1 period, ≈77% of variable values showed statistically significant differences between groups for Y-2 period, and ≈46% of variable values showed statistically significant differences between groups even for Y-3 period, it can be concluded that commonly used financial ratios can be solid base for business failure prediction in Serbia, thus hypothesis of the research is accepted.

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Bibliometric analysis of contemporary trends in cultural tourism

Библиометријска анализа савремених трендова у културном туризму

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Abstract: Cultural tourism and the prospects it has are increasingly being talked about in academic circles. During the travels around the world, the terms cultural tourism and cultural heritage management have been constantly functioning in recent years. However, although experts in the field of cultural tourism and the tourism industry have multidimensional benefits in the management, preservation, and presentation of cultural assets, the multiple importance in this scientific field in terms of quantity of works is still not emphasized enough. The purpose of this study is to form an adequate instrument for assessing current trends and future directions of cultural tourism research. Specifically, using bibliometric mapping, the study identifies changes in the conceptualization of cultural tourism perspectives. The results of the study will show leading journals in the field of dissemination of academic knowledge about cultural tourism, but also identified recognised authors in this field.
Keywords: bibliometric analysis, cultural tourism, academic literature, Publish and Perish software
JEL classification: Z39

Сажетак: О културном туризму и перспективама које има све више се почиње говорити у академским круговима. Током путовања широм света, последњих година непрекидно функционишу појмови културни туризам и управљање културним наслеђем. Међутим, иако стручњаци из области културног туризма и туристичка индустрија имају мултидимензионалних користи у управљању, очувању и представљању културних добара, још увек није довољно истакнут вишеструки значај у овој научној области са аспекта квантитета радова. Сврха ове студије је да се формира адекватни инструмент за процену актуелних трендова и будућих праваца истраживања културног туризма. Конкретно, употребом библиометријског мапирања, студија идентификује промене у концептуализацији перспективе културног туризма. Резултати спроведене студије показаће водеће часописе у области ширења академских знања о културном туризму, али и идентификовати препознате ауторе у овој области.
Кључне речи: библиометријска анализа, културни туризам, научна литература, Publish and Perish software
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Introduction

Cultural tourism is a major market segment of global tourism, accounting for about 360 million international trips annually or about 40% of global tourism demand. In Europe, four out of ten tourists choose their destination based on the cultural offer of the destination. Over time, the cultural tourism market has expanded, and today consists of tourists with different characteristics, preferences, and expectations (Pulido-Fernández & Sánchez-Rivero, 2010). The growth of interest in cultural tourism (Jević et al., 2021) can be explained by the expanded opportunities for cultural consumption and the general growing popularity of tourism, as well as changes in cultural consumption itself. (Tasić, 2018)

The academic background of the literature in research work is an important starting point for the researcher, who studies the intellectual field and develops research questions to expand the capacity of knowledge (Small, 1977). Systematic literature reviews are an explicit algorithm that enables the selection and evaluation of literature through a transparent process of studying the field of research (Tranfield et al., 2003; Denyer & Tranfield, 2009).

The study in this paper applies bibliometric analysis of contemporary Crossref literature related to cultural tourism. The aim of this paper is to point out the latest trends in the field of tourism of special interest, where cultural tourism stands out as an important concept. The results will identify scientific journals, papers and authors who have contributed most to modeling in the field of cultural tourism in the last decade of the 21st century, 2010-2019.

1. Theoretical background on cultural tourism

Research on cultural tourism has grown rapidly, especially in areas such as cultural consumption, cultural heritage, the economy of cultural tourism and the relationship with the creative economy (Richards, 2018).

Recent research in the field of tourism is most often associated with cultural tourism (Ebejer, 2019), cultural heritage (Salazar, 2012; AlSayyad, 2006; Zdravković & Peković, 2021) and creative tourism (Stylianou-Lambert, 2011). In this case, the broadest term refers to cultural tourism, while cultural heritage tourism and creative tourism derive from cultural tourism. A broader definition of cultural tourism was adopted on September 11, 2017 in Chengdu, China by the World Tourism Organization, and reads (UNWTO, 2020): "Cultural tourism is a type of tourist activity in which the basic motive of the visitor is to learn, discover, experience and consume tangible and intangible cultural attractions and products in a tourist destination".

The new, modern definition of cultural tourism shows that there have been changes in cultural tourism that emphasize not only visiting sites and monuments, but also learning about the way of life, lifestyle and cultural identity in the destination. Or, as Chen & Rahman (2018) pointed out, cultural contact in a destination that affects an unforgettable

experience is important (Chen & Rahman, 2018; Seyfi, Hall, & Rasoolimanesh, 2020; Wong, 2013).

The authors also point out the multiple benefits of cultural tourism, such as being a generator of income and employment (Salazar, 2012; Franklin, 2001) and contributing particularly to rural development (Swensen, 2008; Nordin et al., 2014 ; Moswete & Lacey, 2015; Uduji, Okolo-Obasi & Asongu, 2019; Radjenovic et al., 2021) and finally, it adds value to a tourism product that contributes to creating unforgettable experiences (Seyfi, Hall & Rasoolimanesh, 2020; Ramkissoon & Uysal, 2010; Manolica et al., 2020). In addition, cultural heritage and the cultural industry can extend the season through the involvement and interaction of tourists in a tourist destination (Cuccia & Rizzo, 2011). It is the intrusion of cultural tourists in the destination that has created a new concept of creative tourism in response to the changing needs and expectations of tourists (Pawlusiński & Kubal, 2018).

After the revival of cultural tourism in some rural areas, significant social progress was observed in the local population, from the growth of household income to gaining access to educational and health institutions (Anderson, 2015). In addition, as Figini & Vici (2012) add, cultural tourism emphasizes synergies and compromises between off-season tourists, summer tourists, and locals. Whole findings on cultural tourism may be of potential interest for economic development and economic policy (Luis & GÃ³mez-Vega, 2017).

Cultural tourism can also be useful in developing competitive cultural tourism products to recognize and preserve cultural identity. (Zhang, Ruan & Yang, 2021; Vasanicova et al., 2021) and the issue of authenticity is becoming a fundamental factor in destinations that modern travelers are increasingly looking for (Ramkissoon & Uysal, 2010; Yang, 2011).

Cultural tourism studies rely on a wide range of methodologies, such as qualitative (Naomi, 2014; Seyfi, Hall & Rasoolimanesh, 2020), quantitative (Figini & Vici (2012) or modeling in the form of structural and regression equations, Cuccia & Rizzo, 2011; Chen & Rahman, 2018; Ramkissoon & Uysal, 2010. In addition to the above, the assessment of the economic benefits of cultural events is particularly popular (Torre & Scarborough, 2017).

2. Methodology

In this study we used Harzing's Publish and Perish 8.2 software to conduct the bibliometric analysis (Hall, 2011). The sample for this research was obtained using the keyword "cultural tourism" within Crossref references. The Publish and Perish software search resulted in an initial output of approximately 150 bibliometric items. Further, we used the following filters for our analysis: 1) papers were published in last decade of the 21st century, i.e., in the period 2010-2019 in WoS tourism and hospitality journals; 2) papers were prepared as an original scientific paper research (the monograph, books, etc. were excluded); 3) papers in our research have received ten or more Crossref citations per year.

Using these filters, we separated 18 journal articles. We used this analysis with the idea to determine the most influential journal articles and authors in the field of cultural tourism.

3. Results and discussion

Table 1 was prepared as a summary of 18 chosen papers. In Table 1 we present the main structure and characteristics of our sample.

Table 1: The structure and characteristics of the sample

Author (s)	Article Title	Journal	Region	Method(s)
Richards, G. (2018)	Cultural tourism: A review of recent research and trends	*Journal of Hospitality and Tourism Management*	Non-specific region	Descriptive statistics
Salazar, B. N. (2012)	Community-based cultural tourism: issues, threats and opportunities	*Journal of Sustainable Tourism*	Tanzania, Africa	Qualitative study (interpretative phenomenological analysis)
Chen, H., Imran, R. (2018)	Cultural tourism: An analysis of engagement, cultural contact, memorable tourism experience and destination loyalty	*Tourism Management Perspectives*	Non-specific region	Survey with questionnaire (qualitative analysis, model with the structure equations)
Cuccia, T., Rizzo, I. (2011)	Tourism seasonality in cultural destinations: empirical evidence from Sicily	*Tourism Management*	Sicily, Italy	Online survey (regression analysis)
Stylianou-Lambert, T. (2011)	Gazing from home: cultural tourism and art museums	*Annals of Tourism Research*	Non-specific region	Qualitative study (qualitative analysis, comparative analysis)
Seyfi, C. S., Michael, S. H., Rasoolimanesh, M. (2019)	Exploring memorable cultural tourism experiences	*Journal of Heritage Tourism*	Paris, France	Interviews with questionnaire (qualitative analysis)
Moswete, N., Lacey G. (2014)	"Women cannot lead": empowering women through cultural tourism in Botswana	*Journal of Sustainable Tourism*	Botswana, Africa	Semi-structured qualitative interviews (qualitative analysis)
Anderson, W. (2014)	Cultural tourism and poverty alleviation in rural Kilimanjaro, Tanzania	*Journal of Tourism and Cultural Change*	Kilimanjaro in Tanzania	Qualitative study (qualitatively analysis, quasi-statistics, domain analysis, narratology)
Figini, P., Vici, L. (2012)	Off-season tourists and the cultural offer of a mass-tourism destination: The case of Rimini	*Tourism Management*	Rimini, Italy	Survey with questionnaire (Input-Output method)

Herrero-Prieto, C. L., Gómez-Vega, M. (2017)	Cultural resources as a factor in cultural tourism attraction	*Tourism Economics*	Spain	Non parametric statistical test, Indicator analysis, Input-Output model
Torre, A., Scarborough, H. (2017)	Reconsidering the estimation of the economic impact of cultural tourism	*Tourism Management*	Australia	Cost-benefit analysis (Input-Output function model with parameters)
Ramkissoon, H., Uysal, M. (2010)	Testing the role of authenticity in cultural tourism consumption: a case of Mauritius	*Tourism Analysis*	Mauritius, Africa	Survey with questionnaire (qualitative analysis, model with the structure equations)
Uduji, I. J., Okolo-Obasi, N. E., Asongu, A. S. (2018)	Does CSR contribute to the development of rural young people in cultural tourism of sub-Saharan Africa? Evidence from the Niger Delta in Nigeria	*Journal of Tourism and Cultural Change*	Nigeria, Africa	Survey with questionnaire (Logit model)
Pawlusiński, R, Kubal, M. (2017)	A new take on an old structure? Creative and slow tourism in Krakow (Poland)	*Journal of Tourism and Cultural Change*	Krakow, Poland	Survey with interviews (Comparative analysis)
Croes, R., Hyun Lee, S., Olson, D. E. (2013)	Authenticity in tourism in small island destinations: a local perspective	*Journal of Tourism and Cultural Change*	Aruba, South America	Survey with interviews (Comparative analysis)
Ebejer, J. (2018)	Urban heritage and cultural tourism development: a case study of Valletta's role in Malta's tourism	*Journal of Tourism and Cultural Change*	Valletta, Malta	No specific method
Yang, Li. (2011)	Cultural tourism in an ethnic theme park: tourists' views	*Journal of Tourism and Cultural Change*	Yunnan, China	Survey with informal interviews (interpretative perception analysis)
Vong, F. (2013)	Relationships among perception of heritage management, satisfaction and destination cultural image	*Journal of Tourism and Cultural Change*	Macao, China	Qualitative study (interpretive perception analysis, comparative analysis)

Source: the authors' research

Analyzing the abstracts of the above selected articles we can conclude that an extensive range of topics in the researched field are covered: starting from definition of cultural tourism and its uniqueness, analyzing benefits, development and change of organization of small territories such as small islands, integration of women and its empowering through cultural tourism, etc. Also, we found in the most abstracts that the relationship between cultural tourism and heritage tourism is very strong. Using our further analysis in this field we conclude that cultural and creative tourism are also strongly

connected and interpenetrating. Actually, the concept of creative tourism could be understood as a manner of dealing with cultural tourism (Pawlusiński & Kubal 2017). According to the previous, here we want to emphasize that if we try to make comparative analysis related to the number of the published papers in two periods 2010-2014 and 2015-2019 with keyword *cultural tourism,* we conclude that the number of published papers in the second period decreased (10 against 8). Authors also made a comparative analysis for the keyword *creative tourism*, and concluded that that the number of published papers for the second period increased dramatically (over 50% in the second period). Since creative tourism is proposed as a new take of an old structure of cultural tourism (Pawlusiński & Kubal 2017), on Figure 1 we presented a connected graph for the considered article. It's easy to see that connected papers are mostly recent dates.

Figure 1: Network of papers

Source: the authors' research using Connected paper software: https://www.connectedpapers.com/ (data processed on April 20, 2022)

Further, from Table 1 we can conclude that half of the research was conducted outside of Europe. No region was specified in the study (Richards, 2018). In this review

paper we found important suggestions for development of cultural tourism, where the major trends and research areas were identified. Two studies were realized in China and six studies were implemented in Europe.

In more than a half of the studies authors used survey questionnaires (online, onsite, interviews). Further research with data was conducted with one of the following analyses: qualitative analysis, comparative analysis, cost-benefit analysis, output models with parametric structure equations, etc.

Table 2 was prepared to find the distribution of selected articles across the journals.

Table 2: The number of papers distributed across the journals

Journal	Number of papers
Journal of Tourism and Cultural Change	7
Tourism Management	3
Journal of Sustainable Tourism	2
Journal of Heritage Tourism	1
Tourism Analysis	1
Tourism Economics	1
Annals of Tourism Research	1
Tourism Management Perspectives	1
Journal of Hospitality and Tourism Management	1

Source: the authors' research

Based on the data presented in Table 2 we found that more than a third of the analyzed papers on the topic of cultural tourism were published in the scientific journal *Journal of Tourism and Cultural Change*. The second place according to the number of published papers belongs to the scientific journal *Tourism Management*. In the case of remaining journals, a relatively even distribution of papers can be noticed (2 or 1).

In Table 3 we gathered information related to the frequencies of keywords across to the selected papers to determine the dominant topics and trends that occupy the attention of the researchers. In our keyword analysis, more than 90 words were singled out from individual papers. In Table 3 we presented only keywords repeated two or more times. A word cloud was prepared in addition to Table 3 view (Figure 1). The most frequently cited words are shown in the larger letters. From Table 3 and Figure 1 we have that in addition to the keyword cultural tourism, the following topics are in the center of the researches: heritage, destination, experience, cost benefit, grounded theory and authenticity. In Figure 1 the most frequently cited words are shown in the larger letters.

Table 3: The most used keywords within the selected papers

Keyword	Number of repetitions
cultural tourism	18
(cultural) heritage	5
(tourism) destination	5
(tourist) experience	3
cost benefit	3
grounded theory	2
authenticity	2

Source: the authors' research

Figure 2: Keyword world cloud

Source: the authors' research

Citation analysis is shown in Tables 4 and 5. Using this analysis prepared with the intensive use of Publish and Perish software, we were able to determine the contribution of the individual works to the cultural tourism development. According to Nisonger's (2000), we did not exclude autocites, because it's not an important condition for considering a quality citation analysis. The analyzed papers were cited 890 times. Among the selected papers, the most cited papers were by Richards, G. (2018) with 210 citations, Salazar, B. N. (2012) with 142 citations, Chen, H. et al (2018) with 141 citations and Cuccia, T. et al. (2011) with 130 citations. Also, the most influential works in the field of cultural tourism if we use criteria of the number of citations per year are Richards, G. (2018) with 52.5 citations per year and Chen, H. et al. (2018) with 35.25 citations per year. Also, from the data presented in Table 4 we could conclude that the most influential author in the field of cultural tourism research is Greg Richards.

Table 4: Distribution of citations across the observed papers

Author (s)	Web of Science		
	Total	Cites per year	Cites per author
Richards, G. (2018)	210	52.5	210
Salazar, B. N. (2012)	142	14.2	142
Chen, H., Imran, R. (2018)	141	35.25	71
Cuccia, T., Rizzo, I. (2011)	130	11.82	65
Stylianou-Lambert, T. (2011)	87	7.91	87
Seyfi, C. S., Michael, S. H., Rasoolimanesh, M. (2019)	45	15	15
Moswete, N., Lacey G. (2014)	45	5.63	23
Anderson, W. (2014)	44	5.5	44
Figini, P., Vici, L. (2012)	43	4.3	22
Herrero-Prieto, C. L., Gómez-Vega, M. (2017)	29	5.8	15
Torre, A., Scarborough, H. (2017)	27	5.4	14
Ramkissoon, H., Uysal, M. (2010)	25	2.08	13
Uduji, I. J., Okolo-Obasi, N. E., Asongu, A. S. (2018)	23	5.75	8
Pawlusiński, R., Kubal, M. (2017)	18	3.6	9
Croes, R., Hyun Lee, S., Olson, D. E. (2013)	14	1.56	5
Ebejer, J. (2018)	13	3.25	13
Yang, Li. (2011)	13	1.18	13
Vong, F. (2013)	10	1.11	10

Source: the authors' research

In Table 5 we present the distribution of the citation across the journals in a comparison to the number of papers published per journal. According to the criteria presented in Table 5 we found that the most influential scientific journals are *Journal of Hospitality and Tourism* with 210 citations and *Tourism Management* with 200 citations.

Table 5: Distribution of the citation across the journals

Journal	Crossref	
	Total	per paper
Journal of Hospitality and Tourism Management	210	210
Journal of Tourism and Cultural Change	135	19.2
Tourism Management	200	66.67
Journal of Sustainable Tourism	187	93.5
Journal of Heritage Tourism	45	45
Tourism Analysis	25	25

Tourism Economics	29	29
Annals of Tourism Research	87	87
Tourism Management Perspectives	141	141

Source: the authors' research

Conclusion

The main research academic trends emphasize the transition from general cultural tourism to cultural heritage tourism, while increasing attention is being paid to creative tourism. Certainly, cultural tourism in the domain of academic literature and community interest is characterized by territorial expansion, both on the European continent and beyond. All this stands in agreement the opinions of Greg Richards, who stands out as the most important in the study of cultural tourism. This field of research emphasizes small areas where cultural identity is important and preserved, and which needs a tourist dimension to present that identity. For this purpose, cultural tourism fits perfectly.

This study expands the well-established knowledge in the field of cultural tourism and offers explanations, significance and differences between the fields and results of research among authors in the field of cultural tourism. Certainly, it turned out that the research is based on past experiences, specific methods for using and analyzing data, and that the *Journal of Tourism and Cultural Change* stands out as the journal with the most published papers in this field.

This study represents the beginning of a bibliometric research of insufficiently researched topics of these type of tourism, which means that it should be viewed with limitations. Based on the findings, future research can refer to a comparative analysis of cultural and creative tourism, bearing in mind that the authors started and presented part of the research for this relation. In addition, based on that study, it is possible to develop a comparative relational analysis in the future. As this study concluded, the analysis may be particularly important for small places with great features of cultural entities that can significantly develop the tourism and economy of that place in the future. Small towns are dominated by traditional culture and preserved cultural identity, which is increasingly leaning from cultural to creative tourism.

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The financial performance of selected REITs from S&P500

Финансијске перформансе одабраних РЕИТ-а из С&П 500

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Abstract: Every investor, trader, portfolio manager or analyst tries to evaluate the performance of the selected asset to develop a strategy for investment or trading. There are a variety of analyses that can be used depending on the asset class chosen. Since this paper is about REITs (Real Estate Investment Trusts), two ratios will be calculated: DPU (dividend distribution per unit) and FFO (funds from operations). The objective is to investigate whether these two performance measures produced significantly different results during the COVID-19 crisis. The selected assets were chosen to cover most of the asset classes in the real estate industry: 1. Public Storage: PSA, 2. Host Hotels & Resorts: HST, 3. Healthpeak Properties: Peak, 4. AIMCO: AIV. It can be concluded that REITs as an asset class generally offer steady returns, however, some sectors are more affected than others during the crisis. It is difficult to estimate which sector will be affected, as crises are always novelties. The best performing asset class was that of the storage sector, which remained stable and positive throughout the entire period, paying higher dividends than the other asset classes.

Keywords: real estate, FFO, NAV

JEL classification: G11, G12, G24

Сажетак: Сваки инвеститор, трговац, портфолио менаџер или аналитичар покушава да процени учинак изабраних средстава како би развио стратегију за инвестирање или трговање. Постоје различите анализе које се могу користити у зависности од изабране класе имовине. С обзиром да се у овом раду ради о РЕIT-овима (инвестиционим фондовима за некретнине), израчунаваће се два коефицијента: DPU (расподела дивиденде по јединици) и FFO (средства из пословања). Циљ је да се истражи да ли су ове две мере учинка дале значајно различите резултате током кризе COVID-19. Одабрана средства су изабрана да покрију већину класа имовине у индустрији некретнина: 1. Public Storage: PSA, 2. Host Hotels & Resorts: HST, 3. Healthpeak Properties: Peak, 4. AIMCO: AIV. Може се закључити да REIT као класа имовине генерално нуде стабилан принос, међутим, неки сектори су више погођени од других током кризе. Тешко је проценити који сектор ће бити погођен, јер су кризе увек новине. Класа акција са најбољим учинком била је она из сектора складиштења, који је остао стабилан и позитиван током читавог периода, исплаћујући веће дивиденде од осталих класа имовине.

Кључне речи: некретнине, FFO, NAV

ЈЕЛ класификација: G11, G12, G24

Introduction

REITs originated in the USA and were introduced by Congress in 1960. The first REITs were run as mortgage REITs, as it was not permitted for the same company to own and

manage assets. This changed with pending tax reform, but more importantly with the 1986 tax reform that allowed internally managed REITs. Although internally managed REITs have been shown to outperform externally managed REITs, there are still some systems that do not allow this, such as those in the Asia-Pacific region, where REITs are exclusively externally managed (Omokhomion, Egbu, & Robinson, 2018). In the USA, REITs were licensed as corporations, leading to the first IPO in 1993. They were created to provide real estate investment opportunities to private investors who could not invest in properties of their own. This allowed private investors to purchase a real estate interest without having thousands of dollars in their bank account to invest in a property. Thus, they were given the opportunity to diversify their portfolios and convert an illiquid asset into a liquid one. Among other benefits, these made REITs a very popular asset class. They led to the creation of a product that combined the best features of real estate and equity investments. The positive effects were two-sided: not only were investors able to invest in real estate with less capital, but developers also gained a new source of financing.

In addition, REITs act as companies that pool the funds of various investors, which are then invested in properties that are rented out. The type of property can vary, so depending on the asset class in which REITs are invested, one can buy industrial, commercial, residential, hotel, and logistics REITs. This type is referred to as equity REITs. Dividends are distributed from the rents generated. Another type of REITs are mortgage REITs, where dividends are paid from the interest on the loans granted.

One of the main advantages of REITs is that they must distribute 90% of their income to the shareholder in order not to pay corporate income tax. This has led to them being a major attraction for investors due to their favourable tax treatment and the additional opportunities for global diversification (Kola & Kodongo, 2017).

To qualify as a REIT, a company must comply with certain Internal Revenue Code (IRC) provisions. Specifically, a company must meet the following requirements to qualify as a REIT (Institute, 2021):

- Invest at least 75% of total assets in real estate, cash, or U.S. Treasuries

- Earn at least 75% of gross income from rents, interest on mortgages that finance real property, or real estate sales

- Pay a minimum of 90% of taxable income in the form of shareholder dividends each year

- Be an entity that is taxable as a corporation

- Be managed by a board of directors or trustees

- Have at least 100 shareholders after its first year of existence

- Have no more than 50% of its shares held by five or fewer individuals

The study aims to examine the performance of REITs in the S&P500, namely 1. Public Storage: PSA, 2. Host Hotels & Resorts: HST, 3. Healthpeak Properties: Peak, 4. AIMCO: AIV. For this purpose, trend analysis was conducted to evaluate both dividend distributed per unit (DPU) and net asset value (NAV). The primary investment objective of

issuing REITs is generally to provide unitholders with stable distributions per unit with the potential for being sustainable.

Stocks were selected from the S&P 500 to cover main asset classes in the real estate industry. There are several valuation methods that can be used, but for the sake of simplicity, only the two mentioned methods are used in this paper. Moreover, this leaves room for further research on this topic.

The performance of the selected stocks is measured by the performance of DPU and NAV based on the annual numbers of each REIT. At the same time, the study also aims to investigate whether individual REITs behaved differently during the sample period and how they responded to the COVID-19 crisis. To address this issue, the historical data will be selected from the financial reports and the selected metrics will be performed. Afterwards, they will be compared with each other to derive further conclusions. From the foregoing, it is clear how important such an analysis is and that it provides only a small glimpse into REITs. The metrics can be further elaborated with other metrics to get a more detailed picture. Therefore, it is important to define several fundamental parameters. Although the main idea is to examine the performance of stocks using two metrics, the knowledge gap will focus more on understanding how certain stocks react to market situations. Therefore, the main focus will be on how the selected stocks react to the COVID-19 crisis.

It is known that some sectors and asset classes are more volatile, and the objective of this paper is to examine which would be the riskiest asset class to invest in the REIT sector. For this reason, four stocks were selected from different sectors: Storage, Hotel, Healthcare and Residential. Without diving deeper, at first glance one might conclude that the hotel sector has suffered the most and the residential sector the least. This would be the first hypothesis to confirm or disprove based on the metrics. With this in mind, the research question was posed.

1. Theoretical background of REITs

There are many analyses that have been done on the performance of REITs, but not on the selected stocks from S&P500 with the two ratios. One of the studies has investigated if the high distribution per unit ratio constrained the ability of REITs to use internal earnings which led to debt financing. According to findings, a certain level of liquidity is negatively related to the debt and financial performances (Zainudin, 2019). In addition, the impact of leverage on the financial performance of companies in the Autonomous Province of Vojvodina, Republic of Serbia, showed that the level of leverage does not have a significant impact on the financial performance of the company and that the most significant results were indicated in the net profit margin, which shows the decrease in net profit margin when leverage is higher (Stoiljković, Tomić & Uzelac 2021).

Further, performance of the 99 Brazilian REITs measured by Jensen's Alpha indicator have shown that the property control strategy positively affects the performance of Brazilian REITs, especially by avoiding conflict of interest with the third parties (Bortoluzzo, Silva Neto, & Bortoluzzo, 2020). There are studies done on the Spanish REITs market with regard to the aftermarket performance of REITs after IPOs. The results

taken from the period between November 2013 and January 2020 on the Spanish market have evidenced that that the issuer experienced significant negative returns two years after going public (Castano, Farinos, & Ibanez, 2021). Furthermore, there has been evidence on the US REIT market that has shown that REITS that have provided a dividend forecast in their prospectus significantly out-perform those REITs that do not across all event periods (Ratcliffe, Dimovski, Keneley, & Salzman, 2020). Several studies have been conducted on REIT volatility forecasting models. One of them has shown that the models with long memory provide the best forecasts (Zhou & Kang, 2011). Further research has shown that systematic risk positively affects the volatility of REIT returns, with a larger impact in up markets than in down markets (Li, 2012). In addition, the future performance of REITs is highest when the correlation between REITs and the S&P500 is lowest (Fei, Ding, & Deng, 2010). An investigation of monetary shocks and REIT returns was also conducted, which showed a strong response in both the first and second moments of REIT returns to unexpected changes in policy rates (Bredin, O'Reilly, & Stevenson, 2007). Beyond that, a study on the correlation between EREIT and conventional real estate investments has shown that the residuals from regressions are significantly correlated (Giliberto, 2020).

In the financial industry, practitioners are continuously looking for method for evaluating REITs performance. There has been research on finding metrics for evaluating REITS performance, and it is viewed that FFO (Funds From Operations) is as important as the Price/Earnings for other non-REIT firms (Koch, 1998). FFO was introduced by the NAREIT (National Association of Real Estate Investment Trusts) as a supplement measure of performance of the REITS (n.a., 2022). Moreover, NAREIT has suggested that NI (Net Income) is a misleading measure of performance for REITs. They claim that historical depreciation is inappropriate for income-producing properties because it does not correlate with changes in the values of these assets. Based on this recommendations from NAREIT, a study has been conducted to investigate the association of NI and FFO with REIT stock return. The results suggest that FFO is more closely associated with stock returns than NI. In particular, the association of returns with the components of NI suggests that FFO and gains/losses on disposal of investments are significantly associated with stock returns, while depreciation and amortization is not. However, the fact that gains/losses on sales of investments are associated with returns suggests that FFO excludes value-relevant accounting data. Therefore, this study provides evidence on which components of NI are considered most informative by investors in REITs (Gore & Stott, 1998), (Graham & Knight, 2020). Furthermore, an examination of NI and FFO and their association with REITs as non-GAAP measures has shown that both measures contain information that is valuable to investors (Feng, Lin, & Wu, 2020). There is a comparative study of the EPSU (Unlevered Earnings per Share) and Unlevered Funds from Operation per Share(FPSU) which shows that the relative performance of REITs bears a stronger correlation with standardized percentage change in unlevered earnings metrics than with the standardized percentage change in standard accounting earnings metrics, thereby highlighting the merit of disclosing the Unlevered EPS and Unlevered FPS to stakeholders as an additional information for a more precise evaluation of performance of the REITs (Cheng, 2020). Moreover, some studies have been examined the REITs on few levels such as valuation models, returns, volatility and asset growth (Letdin, Sirmans, Stirmans, & Zietz, 2019), (Brueggeman, Chen, & Thibodeau, 1984), (Chan, Hendershott, & Sanders, 1990).

The most similar analysis that has been done in the past is the performance of the four selected IREITs for the period from 2012 to 2016 using two metrics, DPU and NAV. It has showed that the selected investments represent an attractive investment in the form of dividends for shareholders while being supported by high quality underlying assets (Ruslan, 2019). This paper will follow analysis of (Ruslan, 2019), where instead of NAV the FFO will be used on the selected REITs and the time span will be longer.

2. Methodology overview

There are many metrics used to evaluate stock performance that cannot be applied to REIT stocks. The most commonly used metrics for REITs are FFO, P/FFO, DPU and NAV, and this paper uses two of them, FFO and DPU, calculated for the selected S&P500 stocks. Funds from Operations (FFO) is the actual cash flow generated from a company's operations. To calculate net FFO, non-cash expenses or losses that do not arise from operations, such as depreciation and losses on the disposal of assets, must be added to net income (Frankel, 2021). Gains on the disposal of assets and interest income are then deducted. FFO is commonly used by companies engaged in real estate investment trusts (REITs), a business focused primarily on income-producing real estate transactions. REIT companies are in the business of commercial real estate - selling, leasing and financing office and residential buildings, warehouses, hospitals, shopping centres, hotels and timberlands. FFO measures the company's operating efficiency or performance, especially for the majority of REIT companies. The reason is that real estate values have been shown to rise and fall with macroeconomic conditions. Operating results calculated using the cost accounting method are generally not an accurate measure of performance. Real estate companies use FFO as a more accurate measure of operating performance. Likewise, investors use this metric to determine the financial performance of a real estate company. The DPU is the sum of the declared dividends paid by a company for each outstanding ordinary share. The ratio is calculated by dividing the total dividends paid by a company over a given period, usually one year, including interim dividends, by the number of ordinary shares outstanding (Chen, 2021). The FFO and DPU will be analysed using the trend analysis. There are several benefits to analysing trends in financial statements. Here are some of the benefits that could have the greatest impact on your business:

Measuring financial performance - Using trend analysis methods to measure the financial performance of one's business over a period of time can help one make better decisions for the future of the business. When identifying issues or potential concerns about the future financial health of one's business, changing business processes can help get to the root of the problem.

Enable comparisons - One of the other main benefits of trend analysis is the ability to make a comparison between one's company and a competitor, while also comparing one's performance to the industry standard. This can help evaluate company's weaknesses and strengths, identify gaps and make changes to make business more profitable in the future.

Limitations of the interpretation of trend analyses

When conducting trend analysis and making decisions based on its results, it is important to remember that predictions from trend analysis are never 100% accurate. While past events are generally indicative of the future, this is not always - and not infallibly - the case. Therefore, it is important to examine the results of trend analysis critically.

Broadly speaking, trend analysis is a method of analysis that traders can use to predict what will happen to a stock in the future. Trend analysis relies on historical data about the stock's performance in terms of general market trends and certain indicators within the market. Therefore, trend analysis will be used to analyse the performance focusing on dividend distribution per unit and funds from operations.

Trend analysis is an analysis of the company's trend by comparing financial statements to analyse the market trend or future analysis based on the results of past performance, and it is an attempt to make the best decisions based on the results of the analysis performed.

Trend analysis involves collecting information from multiple time periods and plotting the collected information on a horizontal line to determine actionable patterns from the given information. In the financial world, trend analysis is used for technical analysis and accounting analysis of stocks. There are three different trends: An upward trend, downward and horizontal.

The performance of the individual REITs - Public Storage, Host Hotels & Resorts, Healthpeak Properties and AIMCO - is estimated using a trend analysis of FFO and DPU for the period 2009 to 2020. For this purpose, the distribution of income per unit and the fund from operations are used as indicators of performance. Broadly speaking, trend analysis relies on historical data about the stock's performance given the general market trend and certain indicators within the market. Based on the extracted data, the dividend distributed per unit (DPU) is calculated using the following formula:

$$Dividend\ distribution\ per\ unit\ (DPU) = \frac{total\ amount\ of\ cash\ distribution}{total\ amount\ of\ unit\ shares\ issued}$$

(1)

and the FFO is computed by using the following formula:

$$Funds\ from\ operations\ (FFO)$$
$$= (Net\ Income + Depreciation + Amortization + Losses\ on\ Property\ Sales)$$
$$- Gains\ on\ Sales\ of\ propert - Interest\ Income$$

(2)

3. Results and discussion

First stock to be investigated is:

Public Storage

Public Storage is an American international self-storage company headquartered in Glendale, California, that operates as a real estate investment trust (REIT). Public Storage Inc. was founded in 1972 by B. Wayne Hughes and Kenneth Volk Jr. By 1989, the company had grown to 1,000 locations, with financing provided by investors in real estate limited partnerships (RELPs). The privately held company was restructured into a publicly traded REIT in 1995, when Storage Equities merged with and took over the name of Public Storage (Commission, 2021).

Figure 1- FFO allocable to common shares Public Storage
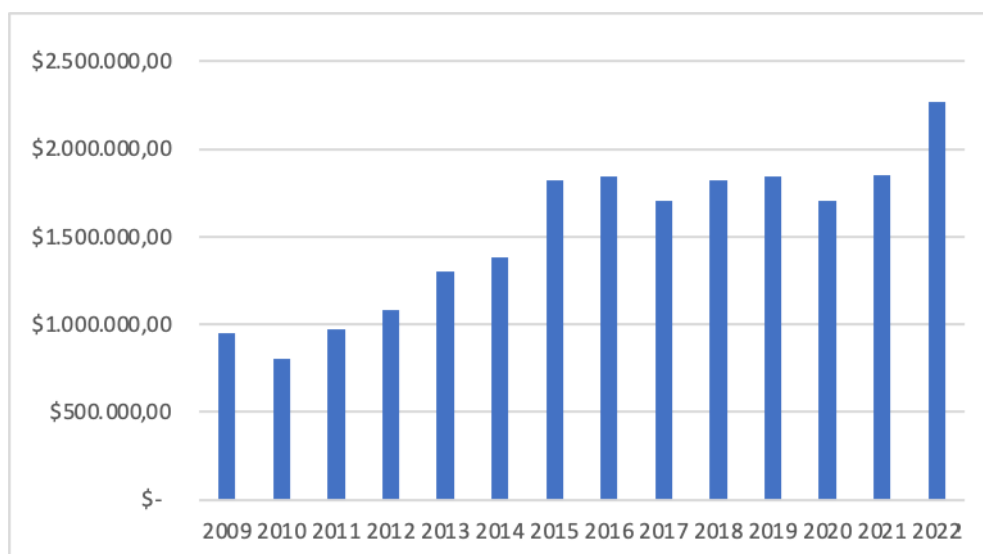
Source: the author's calculation based on data

Figure 2 - FFO and DPU per Unit Public Storage
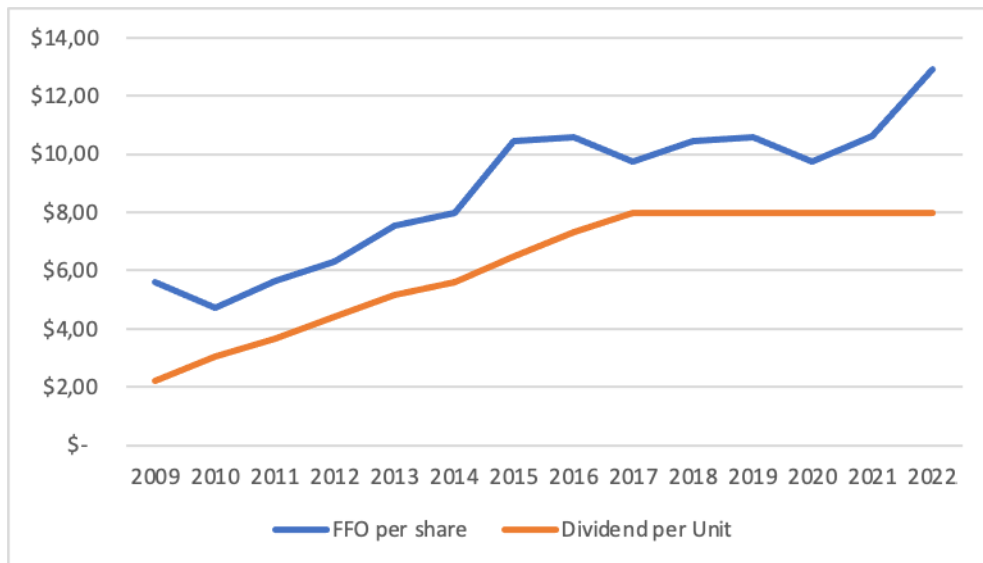
Source: the author's calculation based on data

Figure 1 shows the funds from operations for the period from 2009 to 2020. It can be observed that the fund from operations is steadily increasing and the trend can be described as positive. In 2017 and 2020, there were two slight decreases, but they are not considered a problem for the business, since the decrease in 2017 was followed by an increase in 2018 and 2019, and 2020 was the year in which all sectors were affected by the COVID-19 crisis and this decrease can be described as a market reaction. Figure 2 shows the trend in dividends paid and funds from operations per share. A positive trend can be seen in this regard. What indicates stability is furthermore that the distributed dividend has maintained the level of the previous years also in 2017 and 2020 at the 8.00 $ per share. Moreover, it can be concluded that the warehousing sector was not strongly affected by the COVID-19 crisis.

Host Hotels & Resorts, Inc

Host Hotels & Resorts, Inc. is an American real estate investment trust that invests in hotels. As of February 19, 2021, the company owned 80 upscale hotels with approximately 46,500 rooms in the United States, Brazil and Canada (Commission, 2021).

Figure 3- FFO allocable to common shares Host Hotels & Resorts
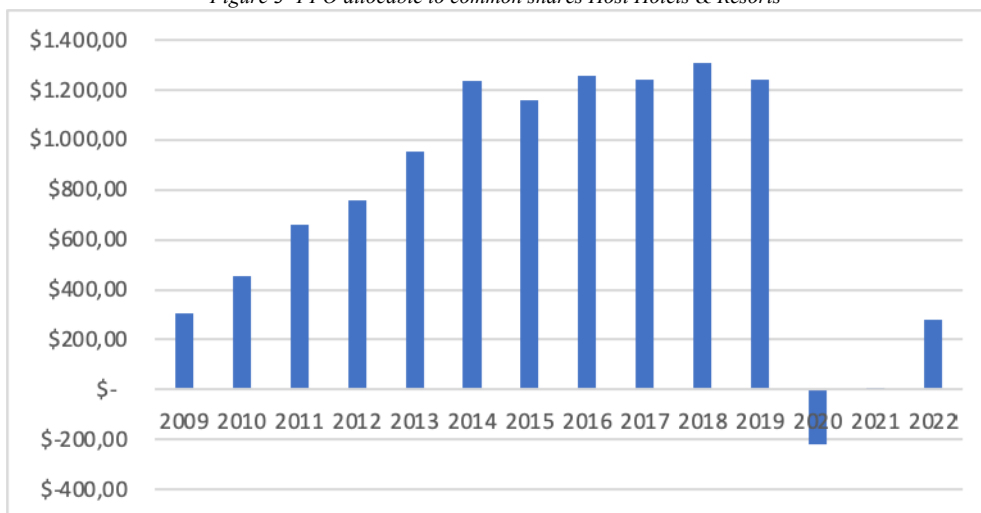
Source: the author's calculation based on data

Figure 4- FFO & DPU per Unit Host Hotels & Resorts
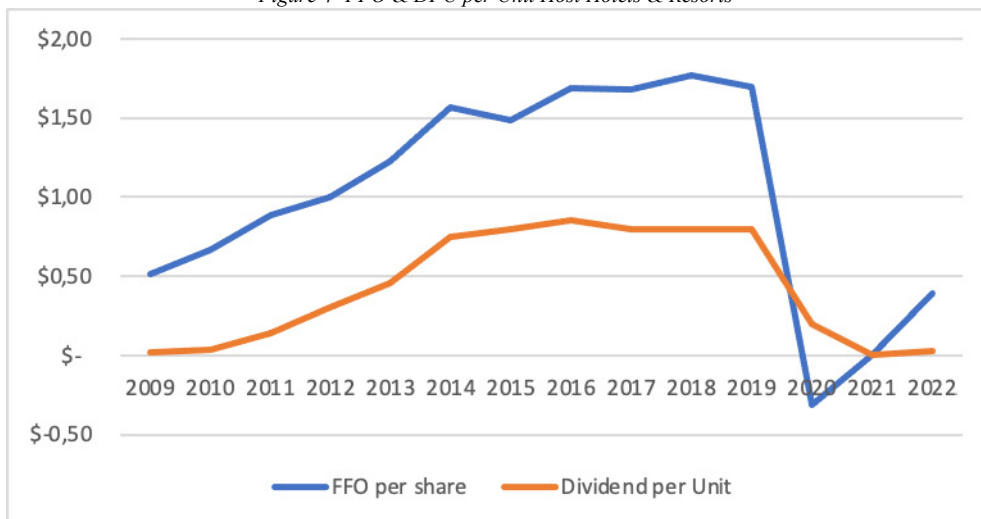
Source: the author's calculation based on data

Figure 3 illustrates the funds from operations for Host Hotels & Resorts. A steady increase could be seen until 2020. In 2020, the company had a negative result, resulting in a loss in funds from operations of 219 million, a difference of -100% compared to the previous year. This can be explained by the travel restrictions where people were not allowed to travel and many hotels were closed.

Figure 4 exhibits a sharp decline in dividends distributed and operating funds per unit. Dividends paid were $0.20 per share, while funds from operations per share were -$0.31. It can be concluded that the hotel sector was strongly affected by COVID-19.

Calculated using the ratio of expenses to revenues, the same results are shown for the 30 different hotel groups. The majority of the hotels included had a decrease in revenue in 2020 compared to 2019, with some having a decrease of more than 70% (Temelkov, 2022).

Healthpeak Properties, Inc

Healthpeak Properties, Inc. is a real estate investment trust that invests in properties related to the healthcare industry, including senior housing, life science and medical offices. The company was founded in Maryland and is headquartered in Denver, Colorado, with offices in Nashville and San Francisco. As of December 31, 2019, the company owned interests in 617 properties. The company was founded in 1985 with 2 acute care hospitals and 22 skilled nursing facilities. In 1985, the company went public through an initial public offering (Commission, 2021).

Figure 5- FFO allocable to common shares Healthpeak Properties
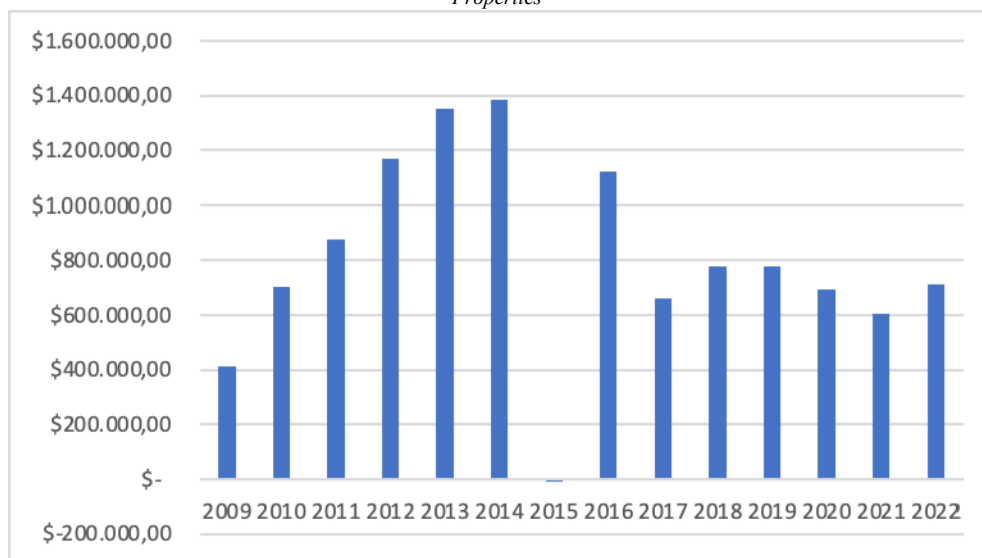
Source: the author's calculation based on data

Figure 6- FFO & DPU per Unit Host Hotels & Resorts Healthpeak Properties
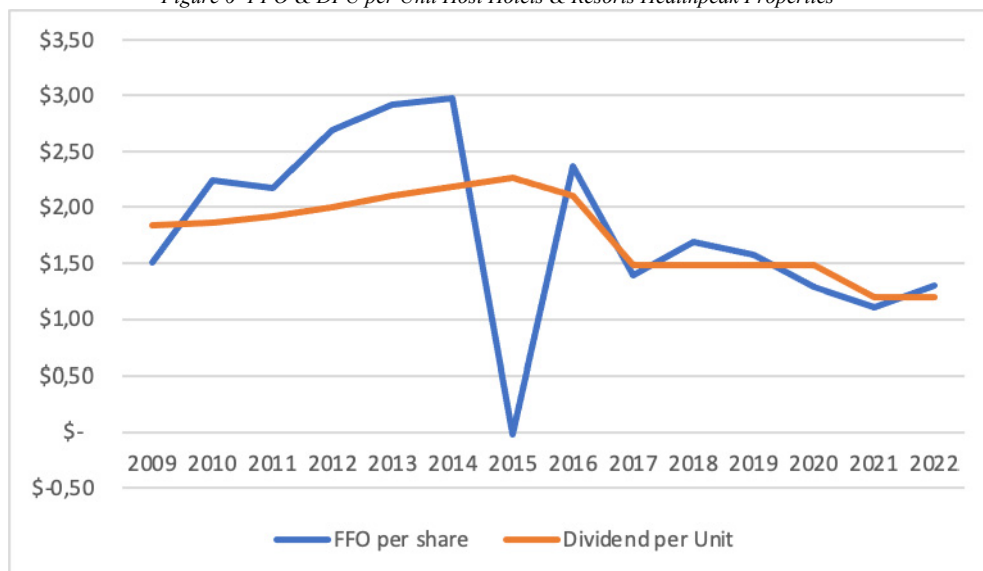
Source: the author's calculation based on data

Figure 5 illustrates the trend in operating income for Healthpeak Properties. There was an upward trend until 2015 when for some reason the operating fund went into the red. The cause needs further investigation in the company's financial statements. After the recovery in 2016, FFO failed to return to previous results in subsequent years, indicating major changes and/or problems in the company. The same results are shown in Figure 6, where FFO per share was negative and dividends paid per share were lower in the subsequent years. Moreover, it can be concluded that the COVID-19 had no major impact on the Healthpeak Properties.

Equity Residential

The last stock selected is Equity Residential. Equity Residential is a publicly traded real estate investment trust focused on acquiring, developing and managing rental housing in urban and densely populated suburban markets where today's renters want to live, work and reside. Equity Residential owns or has an interest in 307 properties containing 79,322 apartment units located primarily in Boston, New York, Washington, D.C., Seattle, San Francisco, Southern California and Denver. On August 11, 1993, the company went public in an initial public offering under the symbol EQR (Commission, 2021).

Figure 7- FFO allocable to common shares Equity Residental
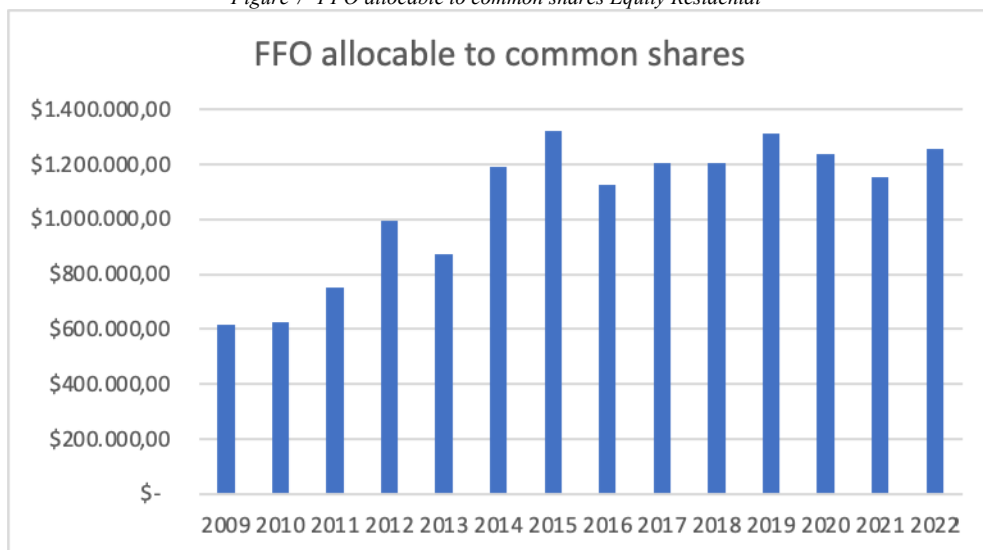
Source: the author's calculation based on data

Figure 8- FFO & DPU per Unit Host Hotels & Resorts Equity Residental
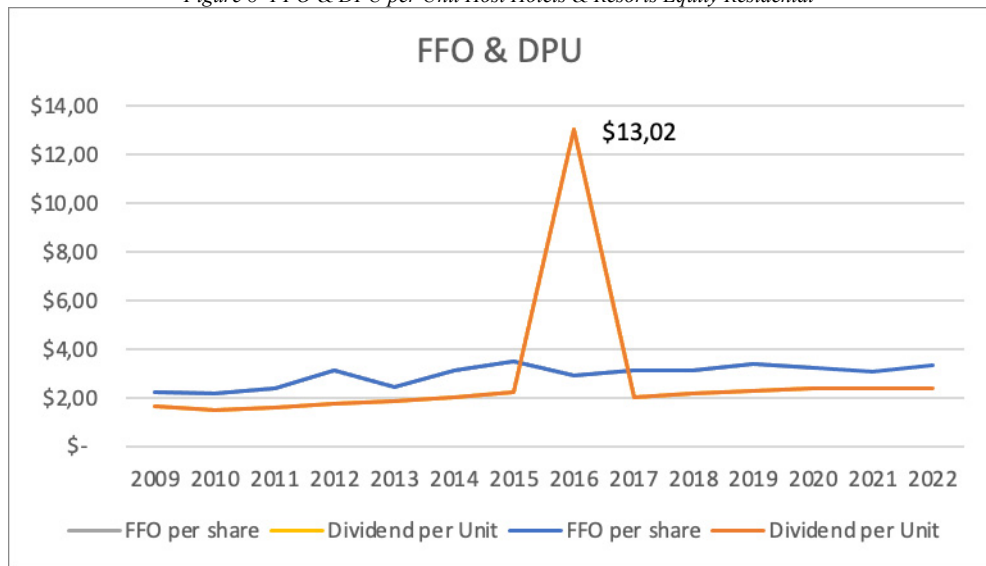
Source: the author's calculation based on data

Figure 7 demonstrates a steady increase in Equity Residential's funds from operations, with a small decline in 2016. This decline should not be understood as a fundamental problem for the company, as subsequent years have seen continued increases.

Figure 8 shows constant FFO per share, which supports Figure 7, with a large change in dividends paid in 2016. In 2016, the dividend paid was $13.02, which is significantly higher than the year before or after. Since there is no big change in FFO, this change must be due to other factors that should be found in the financial statements. Trends in 2020 show that Covid19 did not have a large impact on Equity Residential's performance.

The best way to determine if one stock has outperformed the others is to compare them to each other to get an idea of how the REIT sector is doing. Before we do that, it's important to clarify two open unknowns for Healthpeak Properties in 2015 and Equity Residential in 2016. Healthpeak Properties explained the decrease in the FFO as a result of: (i) $1.3 billion of impairments related to our HCRMC DFL investments, (ii) $112 million of impairments related to investment in Four Seasons Notes, (iii) $46 million of impairments related to equity investment in HCRMC, (iv) $38 million recognized in 2014 in net fees for terminating the leases on the 49 senior housing properties in the Brookdale Transaction, (v) transaction-related items of $33 million and (vi) a severance-related charge of $7 million (Commission, 2021).

For the year ended December 31, 2016, Equity Residential reported diluted earnings per share/unit of $11.68 compared to $2.36 per share/unit for the year ended December 31, 2015. The difference is primarily due to approximately $3.7 billion in higher gains on property sales and lower depreciation expense in 2016 compared to the same period in 2015 as a direct result of the significant sales activity in 2016, partially offset by significantly higher debt extinguishment costs in 2016 compared to 2015. For the year ended December 31, 2016, income from continuing operations increased approximately $3.6 billion when compared to the year ended December 31, 2015 (Commission, 2021).

Figures 9 and 10 show a comparative analysis between the asset classes. Figure 9 shows that Public Storage has the highest FFO per share over the entire period, with an increasing trend. Healthpeak Properties and Equity Residential had lower FFO per share that are relatively stable, while Host & Hotels were stable until 2020.

Figure 9- FFO per Share for all four assets
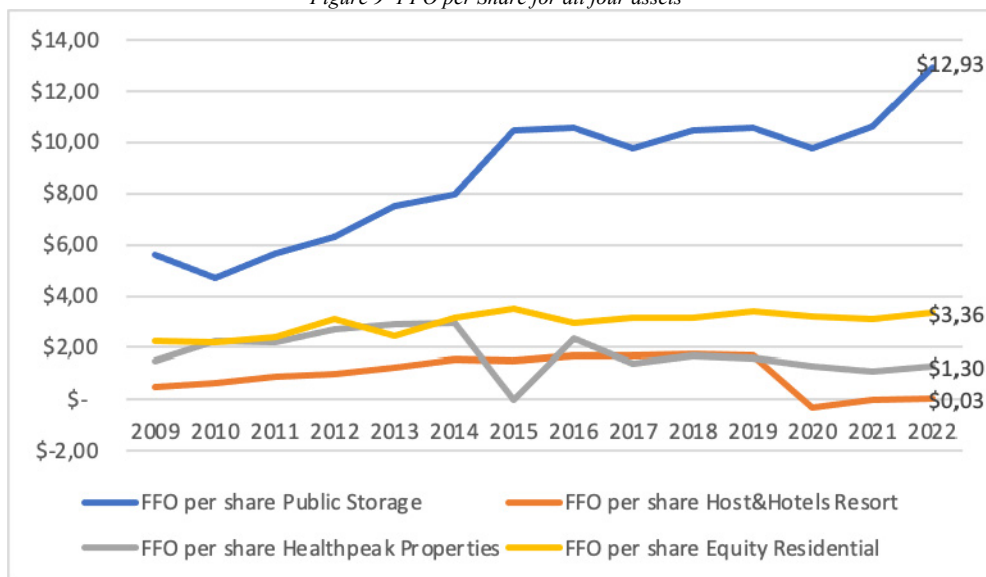
Source: the author's calculation based on data

Conclusion

The paper provides a brief overview of REITs and the possible ways to measure their performance. The main conclusion is that REITs are an attractive investment vehicle as they provide steady returns to shareholders in the form of dividends even during the crisis.

The best performing asset class was that of the storage sector, which remained stable and positive throughout the entire period, paying higher dividends than the other asset classes. In addition, it remained positive during the 2020 crisis and did not suffer large losses. The residential real estate sector presented by Equity Residential can also be considered a stable asset worth investing in, even during the crisis. It has been shown that higher dividends are possible if the company has higher profits than usual. The healthcare sector can be considered a more volatile asset class as FFO changes from year to year and the recovery process takes time. The hotel sector can also be described as more volatile, as it suffered the largest losses during Covid19.

It can be concluded that REITs as an asset class generally offer steady returns, however, some sectors are more affected than others during the crisis. It is difficult to estimate which sector will be affected, as crises are always novelties. Investing in companies with healthy financial statements is important.

In the future, it would be interesting to get the analysis for the coming years to see if the hotel sector has recovered and if the other asset classes have maintained the level of

dividends paid. In addition, some other analysis can be done, like the ones mentioned in the sector Introduction, to get a more comprehensive picture of the assets. Furthermore, a technical analysis can be performed to obtain forecasts.

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Subsequent measurement of non-current assets – the impact of the fair value concept choice on total comprehensive income of listed companies in the Republic of Serbia

Накнадно мерење сталне имовине – утицај избора концепта фер вредности на укупан свеобухватни резултат листираних компанија у Републици Србији

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Abstract: In response to investor demands, with the introduction of the fair value (FV) concept, other comprehensive income (OCI) has become a significant indicator of changes in the current values of certain financial statement items in successive periods. Although it deviates from the traditional concept of historical cost (HC) and its prudence principle, on which reliability rests, the use of fair value contributes to the relevance of the presented information. The total comprehensive income (TCI), as a summary of realized and unrealized gains and losses recognized in the income statement, i.e. OCI, represents a valuable base of relevant information for investors and other users of financial statements.
The paper focuses on a sample of listed entities on the Regulated Capital Market of Serbia for the period 2016-2020 and finds that the FV concept is predominantly used for the subsequent measurement of property, plant and equipment (PP&E). In addition, we analyze the impact of changes in the fair value of certain non-current assets' items (i.e.: PP&E, intangible assets and long-term investments) on TCI. Our research shows that some OCI items have a divergent impact on TCI, and, thus, different information power, which can increase uncertainty, i.e. make it harder for analysts to predict net income.
Keywords: historical cost model, fair value model, non-current assets, other comprehensive income, total comprehensive income
JEL classification: M41

Сажетак: Као одговор на захтеве инвеститора, увођењем концепта фер вредности (ФВ), остали свеобухватни резултат (ОСР) постаје значајан индикатор промена текућих вредности одређених ставки финансијских извештаја у сукцесивним периодима. Иако се одступа од традиционалног концепта историјског трошка (ИТ), у чијој је основи принцип опрезности, на који се наслања карактеристика поузданости, употреба фер вредности доприноси релевантности презентованих информација. Укупан

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свеобухватни резултат (УСР), као збир остварених и нереализованих добитака и губитака признатих у билансу успеха, односно ОСР, представља драгоцену базу релевантних информација за инвеститоре и друге кориснике финансијских извештаја.

У раду смо на узорку листираних ентитета на Регулисаном тржишту капитала Србије за период 2016-2020. утврдили да је за накнадно вредновање некретнина, постројења и опреме (НП&О) доминантно коришћен концепт ФВ. Поред тога, анализирали смо утицај промене фер вредности ставки сталне имовине (односно: НП&О, нематеријалне имовине и дугорочних финансијских пласмана) на УСР. Наше истраживање показује да неке ставке ОСР имају дивегентни утицај на УСР, и тиме различиту информативну моћ, чиме могу повећати неизвесност, односно отежати аналитичарима могућност предвиђања нето прихода.

Кључне речи: модел историјског трошка, модел фер вредности, стална имовина, остали свеобухватни резултат, укупан свеобухватан резултат

ЈЕЛ класификација: M41

Introduction

The principle of conservatism, as a kind of accounting profession's "attitude" on which accounting science and practice has rested for decades, is being abandoned in order to meet the growing investor demand for useful accounting information. As an alternative to conservative reporting, international accounting regulations introduce the fair value concept. "The historical cost concept, as the basis of the principle of conservatism, emphasizes reliability as one of the most important qualitative characteristic of financial information, while the fair value concept emphasizes the relevance of financial information" (Arsenijević, 2020b, p. 379).

Non-current assets are a material item in most companies' financial statements. Therefore, their initial and especially subsequent measurement has an impact on the financial statements and, consequently, on investors', creditors' and other stakeholders' decisions. Measurement options after initial recognition at historical cost less depreciation or at fair value have an impact on income and net assets of the reporting entity. If an entity opts to subsequently measure non-current assets at fair value (revaluation option for the most items in this group of assets), unrealized gains are recognized, which are included in other comprehensive income, resulting in a change in the reporting entity's total comprehensive income. On the other hand, the subsequent measurement of non-current assets at historical cost less depreciation will not lead to the recognition of unrealized gains and impacts on OCI.

The aim of our research is first to find out which accounting policies of subsequent measurement of non-current assets are practiced by listed companies in the Republic of Serbia. Also, if the revaluation model is applied, our primary focus is on examining the effects of changes in the fair value of these assets on TCI. We aim to survey a sample of companies of public interest, since the quality of information presented in their financial statements mostly affects a wide range of existing and potential investors. There is similar new research in the Republic of Serbia, but on a sample that is not primarily oriented to listed companies (Karapavlović, Obradović & Bogićević, 2020), or in a specific industry, such as tourism (Milašinović, Obradović & Karapavlović, 2022), or is only focused on the application of the fair value concept (Pantelić, 2019), i.e. accounting policies applied

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(Arsenijević, 2022), with no analysis of the impact of the applied fair value concept on TCI, which is why we believe that our research can fill that gap in creating a comprehensive picture of this issue. In accordance with the research subject and objective, we define four hypotheses. First, we assume that the listed entities on the Regulated Capital Market in Serbia apply historical cost or fair value as the basis for subsequent measurement of the PP&E rather than historical cost. Then, through the next three hypotheses, we want to provide an answer to the impact of changes in the fair value of some non-current assets on TCI if the accounting policy of listed companies in Serbia is to subsequently measure those assets using revaluation model. In doing so, we analyze the level of changes in fair value for three forms of fixed assets: PP&E, intangible assets, long-term financial investments (LTFI). The basis for the testing the mentioned hypotheses are the financial reports of non-financial entities listed on the Regulated Market of the Belgrade Stock Exchange (BSE) for the period 2016-2020.

In addition to Introduction and Conclusion, the paper is structured in three chapters in order to realize the research objective. First, through the literature review, we point out the consequences of historical-cost-based conservative reporting, on the one hand, and the consequences of fair value, on the quality of accounting information as an information basis for decision making on the other. The second part of the paper refers to the research design, where the theoretical foundations of the research are first presented, and then the sample and methodology are described. The third part contains research results and discussion. The final part is the conclusion, with implications, limitations and directions of future research.

1. Historical cost vs fair value for subsequent measurement of non-current assets

From investors' perspective, as the basis for conservative financial reporting, historical cost is not always a desirable way of valuing and presenting assets, liabilities, equity, and based on their changes, consequently, revenues and expenses, profit or loss. The primary reason for this is orientation towards prudent measurement of income and net assets in order to maintain the company's capital. By using historical cost, with the conscious formation of latent reserves and hidden losses, this goal is achieved.

Francis et al. (2004) study a sample of US companies in the period 1975-2001 and find that "entities with higher levels of conservatism as a measure of higher quality of the presented income have a lower cost of equity". Chan, Lin & Strong (2009) found in their research that "ex-post conservatism is associated with lower-quality financial information and higher cost of equity, and that ex-ante conservatism is associated with higher-quality financial information and lower equity cost". However, a study by Gietzmann and Trombetta (2003) suggests that "ex-post conservatism may be seen as a substitute for the voluntary disclosure of information that is empirically proven to reduce the cost of equity" based on reducing the information risk of investors. Also, the recent 2018 study by Khalifa et al. (2018) points to a "positive correlation between ex-ante conservatism and the cost of

equity", as well as a "negative correlation between ex-post conservatism and the cost of equity".

The aforementioned and other research indicates, therefore, that conservative reporting and the related historical cost concept, in addition to its strengths, has its drawbacks. Taking into account the qualitative characteristics of useful accounting information expected by their primary users, the shortcomings of conservative reporting can be eliminated by using the fair value concept.

Empirical studies have shown that under the fair value concept, relevance is less susceptible to manipulative activities than reliability (Kadous, Koonce, & Thayer, 2012; Fukui & Saito, 2022). However, Landsman (2007) as well as Watts (2003) discuss relevance versus reliability of the fair value concept. They believe that the valuation of financial statements at FV, which is determined on the basis of Level 1 and Level 2 inputs, may contain serious errors in assessment that will lead to problems of information asymmetry and moral hazard. In the event that fair value is not measured reliably, i.e. when based on managerial valuation techniques (Level 3), the fair value determined in this way will provide less relevant information on future cash flows (Hernandez, 2004), and "will not be useful to investors in assessing entity value" (Beisland, 2014). Managers will then have the opportunity to manipulate income, i.e. to manage it and to equalize it through accounting periods. Thus, although fair value may be informationally relevant to investors, it can also be very problematic when it comes to its level of reliability, primarily due to unknown valuation errors.

Insisting on conditioning the credible presentation on neutrality of the presented information is not expedient, since in such a normative basis, the neutrality of all presented information cannot be achieved (Arsenijević, 2020a, 167). It would be equally inexpedient to insist that only information that has been carefully weighed is presented credibly.

2. Research design

2.1. Theoretical background and development of hypotheses

Thijssen and Iatridis (2016, p. 59) point out that the "value or relevance of accounting information (primarily income) represents the degree to which book values agree with market values". Fair value as a reflection of market value or its approximation (when there are no Level 1 and 2 inputs) can be applied to subsequent measurement of only certain assets and liabilities according to the applicable accounting regulations. The most significant part of assets that can be measured in this way even after initial recognition is long-term assets. Giving up the historical cost in the subsequent measurement of these assets will result in the recognition of unrealized gains in OCI, but also a change in the total comprehensive income for the period.

Profit quality is one of the measures of the quality of financial statements as an information basis for the decision-making process. At the same time, predictability, persistence and volatility of income, as a measure of quality, is most often in the focus of

S u b s e q u e n t   m e a s u r e m e n t   o f   n o n - c u r r e n t   a s s e t s   –   t h e   i m p a c t   o f   t h e   f a i r   v a l u e   c o n c e p t   c h o i c e   o n   t o t a l   c o m p r e h e n s i v e   i n c o m e   o f   l i s t e d   c o m p a n i e s   i n   t h e   R e p u b l i c   o f   S e r b i a

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financial analysts and other users of financial statements. Certainly, the stated income characteristics, especially the one determined in OCI, do not always have the same value relevance (Jones & Smith, 2011). The reason for this can be found in the heterogeneity of OCI items and the factors that affect the recognition of unrealized gains or losses on subsequent measurement of those items. "Although levels of realized and unrealized income indicate an increase in net worth, changes in realized and unrealized income differ in terms of uncertainty; it is, therefore, more important for market participants to judge information's usefulness" (Park, 2018, p. 1).

The amount of OCI and the structure of the elements that make up OCI, as well as their amount and volatility can affect the company valuation (Dee, 1999), but also have an individual impact when assessing certain financial performance indicators (Touron, 2016), which may be particularly important in crisis periods (Gazzola & Amelio, 2014). The results of the Graham & Lin study (2017, p. 72) suggest that "future discretionary expenditures are associated with both positive OCI and negative OCI for higher leveraged firms but only associated with positive OCI for lower leveraged firms". For listed companies, the value relevance of OCI, as a part of TCI, is even more pronounced. Kanagaretnam et al. (2009, 349) find that "aggregate comprehensive income is more strongly associated (in terms of explanatory power) with both stock price and returns compared to net income". OCI is no less important for creditors. Research has shown that "creditors use information from OCI in their assessment of firm credit risk and in pricing debt contracts" (Bao et al., 2020, p. 457).

On the other hand, there is evidence of limited OCI value. Anderson et al. (2021) document that "analysts' 1-year-ahead earnings forecasts are associated with OCI and OCI components having predictive ability". The partial inclusion of OCI components in earnings forecasting is a consequence of the uncertainty of their realization and, thus, the risk of analyst error. Research in Korea has shown that only one component of OCI, i.e. "net unrealized gains/losses on available-for-sale (AFS) investment securities are positively associated with future earnings" (Lee at al., 2020, p. 31). Furthermore, research has shown a "weak negative association between OCI and equity price" (Harasheh et al., 2021, p. 3835), i.e. a positive correlation between OCI and equity total risk.

Certainly, it should not be neglected that in fair value assessment, the subsequent measurement of certain assets and liabilities may consciously affect the amount of unrealized gains and losses. Thus, OCI can be a solid tool for earnings management (Wang et al., 2021; Lin & Rong, 2012). The application of the fair value concept in practice is often the subject of manipulative activities aimed at earnings management in order to avoid showing its volatility and the repercussions that it brings with it. Specifically, the high level of volatility of the entity's profit is associated with low market values of its shares, which results in higher business risk and increased probability of bankruptcy (Roekhudin et al., 2015, p. 885).

Notwithstanding certain weaknesses, it is considered that there is still some "incremental value relevance of OCI" (Djaballah & Fortin, 2021) and that this report can be a useful source of information for decision makers (He & Lin, 2015).

Having in mind the above-mentioned advantages of the analysis of OCI elements, we define the following hypotheses:

H1 – Listed entities at BSE use FV for subsequent PP&E measurement rather than HC

H2 – Changes in the fair value of PP&E have effect on TCI

H3 – Changes in the fair value of intangible assets have minor effect on TCI

H4 – Changes in the fair value of LTFI have effect on TCI

Included within the OCI, changes in the fair value of non-current assets affect the change in the TCI. However, changes in the fair value of non-current assets (mostly PP&E) can affect net income – through the effects of revaluation on depreciation costs. Due to unavailable analytical data on the effects of revaluation on the depreciation costs of the analyzed entities, it is not possible to analyze the impact of changes in the FV of the certain non-current assets on income for the year in the profit or loss statement and consequently on the TCI in the comprehensive income statement. Therefore, our analysis under the second, third and fourth hypotheses will focus only on the effects of applying the concept of fair value on total net comprehensive income for the main non-current assets items.

2.2. Sample and materials

In accordance with the research objective and defined hypotheses, the sample consists of companies listed on the Regulated Market of the BSE, which use the revaluation model, i.e. the fair value concept, in the subsequent valuation of PP&E. The initial sample consists of companies listed on Regulated Market of the BSE. This sample is the basis for testing the first hypothesis (H1). As on any capital market, the number of listed entities varies over time, as is the case with the BSE. The initial sample from the first three analyzed years (27 entities) drops to 17 in the last two years, because as of 2019, 11 entities no longer list their securities on the BSE Regulated Market, while one new entity is included on the market. The initial sample will be the basis for the H1.

For testing H2, the initial sample is reduced by the number of entities that use historical cost in the subsequent measurement of each PP&E item. The final sample for this hypothesis, therefore, includes only entities that subsequently measure at least one PP&E item at fair value (see Tables 1, 2 and 3). The H3 will be explored on a sample of reporting entities that have recognized intangible assets in individual reports, but also goodwill for parent entities that prepare consolidated financial statements. Finally, the sample for testing the H4 consists only of entities that have long-term financial investments in their financial statements whose changes in fair value are recognized in OCI (see Table 4).

The analysis covers the period for the last five reporting years and publicly available financial statements at the time of completing our research, i.e. 2016-2020. The data for the

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analysis is taken from the annual financial statements available on the website of the Serbian Business Registers Agency.

3. Research results and discussion

3.1. Propensity to use HC or FV for subsequent PP&E measurement (H1)

Before testing our further hypotheses, we find it important to highlight the fact of the tendency to use options in the subsequent measurement of PP&E by entities listed on the Regulated BSE Market. Table 1 clearly shows that, in accordance with accounting policies of the sampled entities, the fair value concept is predominantly used (in the first three analyzed years in 81.48% of cases, and in the reduced sample in the last two analyzed years 70.59%).

Table 1: Subsequent measurement of PP&E

	2016		2017		2018		2019		2020	
	n	*F*	n	*F*	n	*F*	n	*F*	n	*F*
Total entities listed at the Regulated Market of the BSE	27		27		27		17		17	
– Entities that use HC	5	*18.52%*	5	*18.52%*	5	*18.52%*	5	*29.41%*	5	*29.41%*
= Entities that use FV	22	*81.48%*	22	*81.48%*	22	*81.48%*	12	*70.59%*	12	*70.59%*

n – Number of sampled entities
F – Frequency (in %)

Source: the authors' research

Pantelić (2019) comes to similar conclusion on a sample of 53 Serbian companies that "out of total items that could be subject to fair value measurements, 72.70% was actually measured at fair value" (Pantelić, 2019, p. 348). In addition, the survey finds that Serbian "accountants quite firmly believe that fair value provides the most valuable and relevant information to investors".

However, Karapavlović et al. find "that companies are more likely to choose the historical cost model than the revaluation model (the fair value model) for owner-occupied properties and plant and equipment" (Karapavlović et al., 2021, p. 95). We believe that one of the reasons for the discrepancy between the results of our and this research is the sample structure. Specifically, Karapavlović et al. (2021) have 300 companies of all sizes in the sample (without indicating which part of the sample is listed). There are only 94 large companies in the sample that apply IFRS, while the rest predominantly apply IFRS for SME, which at the time of the survey (2014-2016) provided for the use of historical cost as the only option for subsequent measurement of PP&E. On the other hand, our research focuses on a sample of listed companies that apply IFRS, and which, by their nature, seek to provide value-relevant information to investors and other users of their reports, which is why they use the option to measure PP&E at fair value.

3.2. Impact of change in fair value of PP&E on TCI (H2)

In order to assess the extent to which a change in the fair value of PP&E affects TCI, it is necessary to first analyze the level of change in fair value in relation to the book value of this group of fixed assets.

a) Level of change in fair value of PP&E

Level of change in fair value of PP&E in relation to their book value is calculated as the ratio between changes in revaluation reserves and the total book value of PP&E (Table 2).

Table 2: The level of change in the fair value of PP&E in relation to their book value

Effect of the FV change	Level of change	2016		2017		2018		2019		2020	
		n	*F*	n	*F*	n	F	n	F	n	F
No change	0.00%	12	*55%*	18	*82%*	15	*68%*	7	*58%*	7	*58%*
Increase in fair value	0.01-0.99%	3	*14%*	1	*5%*	2	*9%*	2	*17%*	2	*17%*
	1.00-4.99%	2	*9%*	0	*0%*	0	*0%*	2	*17%*	0	*0%*
	5.00-9.99%	1	*5%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	1	*5%*	1	*5%*	0	*0%*	0	*0%*	0	*0%*
Decrease in fair value	0.01-0.99%	2	*9%*	2	*9%*	4	*18%*	1	*8%*	2	*17%*
	1.00-4.99%	1	*5%*	0	*0%*	0	*0%*	0	*0%*	1	*8%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	0	*0%*	0	*0%*	1	*5%*	0	*0%*	0	*0%*
Total sample		22		22		22		12		12	

n – Number of sampled entities
F – Frequency (in %, rounded)

Source: the authors' research

The research results show that most entities in the observed years have no change in the fair value of PP&E in relation to their book value. The financial statements of the entities in which the fair value of PP&E has changed do not show a drastic change in their carrying amount. Specifically, the changes are often minor in nature and range from 0.01-0.99%, or less than 1% regardless of the sign. Changes in fair value greater than 10% are rare – one entity in the first three years.

We believe that the stated volatility of fair value reflects the real situation if we take into account the annual inflation rate, i.e. the general level of price changes in Serbia, which, according to official data, ranged between 1.1% and 3.0% for the observed period (Statistical Office of the Republic of Serbia, 2022). Certainly, our assessment would be more accurate if there was official data on the movement of specific prices of certain PP&E items. Also, the heterogeneity of items within the PP&E group would require monitoring of individual specific market price indices, which, in the conditions of the Republic of Serbia, was also not available.

b) The effect of changes in the fair value of PP&E on TCI

The effect of changes in the fair value of PP&E on total net comprehensive income is the ratio of changes in revaluation reserves to total net comprehensive profit or loss (Table 3).

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Table 3: Effects of changes in the fair value of PP&E on total net comprehensive profit or loss

Effects of changes	Level of change	2016		2017		2018		2019		2020	
		n	F	n	F	n	F	n	F	n	F
a) No change	0.00%	12	*55%*	17	*77%*	15	*68%*	7	*58%*	6	*50%*
b) Changes in total net comprehensive profit											
Increase in total net comprehensive profit	0.01-0.99%	2	*9%*	1	*5%*	2	*9%*	1	*8%*	1	*8%*
	1.00-4.99%	1	*5%*	0	*0%*	0	*0%*	1	*8%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	1	*8%*	0	*0%*
	More than 10.00%	4	*18%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Decrease in total net comprehensive profit	0.01-0.99%	1	*5%*	1	*5%*	2	*9%*	0	*0%*	1	*8%*
	1.00-4.99%	0	*0%*	0	*0%*	1	*5%*	1	*8%*	1	*8%*
	5.00-9.99%	1	*5%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	1	*5%*	2	*9%*	1	*5%*	0	*0%*	0	*0%*
c) Changes in total net comprehensive loss											
Increase in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	1	*8%*
	1.00-4.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	0	*0%*	1	*5%*	0	*0%*	0	*0%*	1	*8%*
Decrease in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	1	*5%*	0	*0%*	1	*8%*
	1.00-4.99%	0	*0%*	0	*0%*	0	*0%*	1	*8%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Total sample		22		22		22		12		12	

n – Number of sampled entities
F – Frequency (in %, rounded)

Source: the authors' research

The results of the research show that in more than 50% of entities in the observed years there is no change in fair value. The noticeable data from the previous table is that a larger number of entities have a change in the total net comprehensive profit, but not in loss, regardless of the sign of its change. Nevertheless, the low material significance of those changes, as well as the fact that in the majority of the sampled entities there is no impact on TCI, indicates that the relevance of the elements of OCI related to PP&E is very low.

3.3. Impact of change in fair value of intangible assets on TCI (H3)

In modern business conditions, especially of listed entities, intangible assets make up a significant part of the company value. This applies in particular to internally generated intangible assets that, according to accounting rules, cannot be recognized in single financial statements (unless a business combination has been realized in accordance with IFRS 3), but only in consolidated financial statements. However, in the single financial statements of the entities in our sample, the share of intangible assets is materially insignificant (in most entities, the share of intangible assets in total non-current assets is below 0.62%). Most of the sampled entities apply the historical cost concept in the subsequent measurement of intangible assets (78% of the entities), while a significantly

smaller number use the fair value concept. Given the insignificant share in total non-current assets, we believe that the impact of subsequent measurement of intangible assets recognized in the single financial statements on OCI and consequently on TCI is not relevant to our research.

Since the sampled entities are listed on the Belgrade Stock Exchange and are therefore subject to additional financial reporting requirements, we wanted to examine the impact of subsequent goodwill measurement on the group's net income if the parent entity (as an entity covered by our study) mandatory prepares consolidated financial statements. The number of sampled entities preparing consolidated financial statements for the period 2016-2020 is: 15, 16, 16, 11 and 12, respectively. However, more than 80% of these entities did not report goodwill in their financial statements. Out of the entities that reported goodwill in the financial statements, goodwill was impaired in only one case. On the example of this entity, the effect of goodwill impairment on the change in net income of the group, which represents the ratio of the amount of goodwill impairment and consolidated net profit or loss, refers to a decrease in group net profit of 0.07% in 2017, 0.08% in 2018 and 1.08% in 2019 and an increase in group net loss of 0.35% in 2020.

Due to its material insignificance in our sample, we believe that the effects of changes in the fair value of intangible assets reported in TCI do not provide incrementally value-relevant information to users. Even in cases where there is an item of intangible assets (either in single or consolidated financial statements), as well as in the case of PP&E (Karapavlović et al., 2020, p. 95), insufficient and inadequate disclosures in the Notes are a limitation for making quality assessments and decisions.

3.4. Impact of changes in the fair value of long-term investments on TCI (H4)

We investigate the effects of changes in the fair value of LTFI on the TCI both for (1) items that will not be reclassified to the income statement in future periods and to (2) items that may subsequently be reclassified to the income statement in future periods.

A small number of sampled entities (up to four entities per year) show the effects of changes in the FV of the first group of LTFI on TCI. The analysis indicates that these effects most often relate to the impact of recognized unrealized gains on the increase in TCI. In the observed period, the minimum increase in total net comprehensive income is 0.002%, and the maximum is 8.38%. The impact of recognized unrealized losses on the decrease of total net comprehensive income is significantly smaller – a maximum of 1.12%, while the impact on the increase in total net comprehensive loss is a maximum of 5.27%.

On the other hand, the second group of the LTFI items are related to gains or losses from the translation of financial statements of foreign operations, gains or losses from hedging instruments of net investments in foreign operations, gains or losses from hedging instruments of cash flows and gains or losses from AfS securities.

The effects of changes in the FV of LTFI on TCI on these items are presented in Table 4.

Table 4: Effects of changes in the fair value of long-term investment on total net comprehensive profit or loss

Effects of changes	Level of change	2016		2017		2018		2019		2020	
		n	F	n	F	n	F	n	F	n	F
a) Impact of recognized unrealized gains											
Increase in total net comprehensive profit	0.01-0.99%	2	*13%*	4	*28%*	3	*23%*	1	*14%*	0	*0%*
	1.00-4.99%	3	*20%*	2	*14%*	2	*15%*	1	*14%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	1	*6%*	1	*7%*	2	*15%*	2	*29%*	0	*0%*
Decrease in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	1.00-4.99%	1	*6%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
b) Impact of recognized unrealized losses											
Increase in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	1	*8%*	1	*14%*	2	*29%*
	1.00-4.99%	0	*0%*	0	*0%*	1	*8%*	0	*0%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	1	*6%*	1	*7%*	0	*0%*	0	*0%*	0	*8%*
Decrease in total net comprehensive profit	0.01-0.99%	4	*26%*	0	*0%*	0	*0%*	2	29%	2	29%
	1.00-4.99%	2	*13%*	2	*14%*	2	*15%*	0	*0%*	1	*14%*
	5.00-9.99%	0	*0%*	3	*21%*	1	*8%*	0	*0%*	1	*14%*
	More than 10.00%	1	*6%*	1	*7%*	1	*8%*	0	*0%*	1	*14%*
Total sample		15		14		13		7		7	

n – Number of sampled entities
F – Frequency (in %, rounded)

Source: the authors' research

Looking at the percentage data in the Table 4, we can conclude that the impact of recognized unrealized gains, which is reflected in the increase in total net comprehensive income, and the impact of recognized unrealized losses, which is reflected in the decrease in total net comprehensive income, are relatively equal. The level of change is lower than 10% in most cases.

Although some studies have shown that "only realized gains and losses on available-for-sale securities have value relevance" (Yulianti et al., 2020), the importance of unrealized gains and losses on long-term financial investments should not be overlooked. Thus, for example, Barth and Clinch (1998), Kanagaretnam et al. (2009) find "that unrealized gains or losses on securities held for sale or for trading have a significant association with price changes or abnormal returns".

Conclusion

The application of the FV concept in the subsequent measurement of certain items of assets and liabilities requires the recognition of unrealized gains and losses, which should be reported within OCI, which, together with net income, constitutes total comprehensive income. Research has shown that OCI has its value relevance especially in developed capital markets.

Our research had four hypotheses. The first hypothesis is confirmed by checking how much listed entities on BSE use FV for subsequent PP&E measurement - 81.48% of entities in sample for 2016, 2017 and 2018 and 70.59% of entities in the sample for 2019 and 2020. The second hypothesis is not confirmed because the research results show that most entities in the observed years have no change or the changes are often minor in nature in the fair value of PP&E in relation to their book value. The H3 is confirmed – results show that the effects of changes in the fair value of intangible assets reported in TCI are minor in nature and do not provide incrementally value-relevant information to users. Finally, the fourth hypothesis is confirmed by investigating the effects of changes in the fair value of LTFI on the TCI both for (1) items that will not be reclassified to the income statement in future periods and to (2) items that may subsequently be reclassified to the income statement in future periods.

Regardless of the underdevelopment of the Serbian capital market, we believe that data on the use of the FV concept and the effects of changes in FV assets and liabilities on OCI may be relevant for investors in Serbia, as shown in other studies in developing countries (for example: Yousefinejad et al., 2017). However, our research shows that some OCI items have a divergent impact on the TCI, and thus different information power, which may increase uncertainty or make it harder for analysts to predict net income, as demonstrated in other studies (Lee et al., 2020; Arthur et al., 2019; Jones & Smith, 2011). However, in circumstances where net income is constant, the value relevance of OCI increases (Park, 2018).

The assessment of the full value relevance of OCI requires a series of specific data related to the items of that statement, as well as data from the capital market. The fact that the entities in our sample do not disclose in the Notes the depreciation costs resulting from the revaluation of PP&E and intangibles is one of the main research limitations. With this data, our analysis could be extended to assess the impact of the application of the fair value concept not only on OCI, but also on net income, as well as on TCI. This data, as well as data from the capital market, would enable the determination of the full value relevance of OCI for decision makers. The next limitation of our research is the small number of entities listed on the Regulated Market of the Belgrade Stock Exchange, as well as the very limited volume of trading in their securities, which, as with the first limitation, limits the application of more complex econometric methods. In that sense, our future research could focus on a comparative analysis of the relevant indicators of OCI relevance on the capital market of Serbia and capital markets similar in level of development.

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Analysis of the productivity of the retail sector of the Republic of Serbia regarding the COVID-19 pandemic

Анализа продуктивности сектора малопродаје Републике Србије са освртом на COVID-19 пандемију

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Abstract: The sector that has suffered the highest market turbulence caused by the COVID-19 pandemic is the retail sector. Evidence for this can be found in the great shocks on the demand side, primarily for essential products necessary in conditions of self-isolation and quarantine. The principal question is whether the sharp increase in demand, restrictions on the operation of retail facilities, strict epidemiological measures among both employees and consumers, tightened safety protocols, mandatory protective equipment etc., have affected the business, primarily of small retailers. In this regard, the aim of the paper is to analyze productivity between key groups of retailers in the market of Serbia with special reference to the assessment of productivity in the period before and during the COVID-19 pandemic. The results showed statistically significant differences existed between the productivity of local and regional retail chains in relation to the leading retail chains. It was confirmed that the average productivity of associated retailers is higher than that of independent (local) retailers. Also, there are differences in productivity per employee between the observed groups. However, the results showed no statistically significant difference in the degree of productivity of the retail sector in the period before and during the COVID-19 pandemic. The obtained results suggest that the retail supply chain has stabilized after the first months of the pandemic and shown its complete flexibility to sudden market shocks. Guidelines for future research are included in the paper.
Keywords: retailing, productivity, employee, COVID-19 pandemic
JEL classification: L81, E24, O40

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Сажетак: Сектор који је претрпео највеће турбуленције на тржишту изазване COVID-19 пандемијом је сектор малопродаје. О томе сведоче велики шокови на страни тражње првенствено за есенцијалним производима неопходним у условима самоизолације и карантина. Кључно питање је да ли су се нагли раст тражње, ограничавања рада малопродајних објеката, строге епидемиолошке мере како међу запосленима тако и међу потрошачима, појачани протоколи безбедности, обавезна заштитна опрема, итд., одразили на пословање, превасходно малих малопродаваца. Стим у вези, циљ овог рада је да се анализира продуктивност између кључних група малопродаваца на тржишту Републике Србије са посебним освртом на оцену продуктивности у периоду пре и током COVID-19 пандемије. Резултати су показали постојање статистички значајних разлика између продуктивности локалних и регионалних малопродајних ланаца у односу на водеће малопродајне ланце. Потврђено је да је просечна продуктивност удружених малопродаваца виша у односу на независне (локалне) малопродавце, као и да постоје разлике у продуктивности по запосленом између посматраних група. Међутим, резултати су показали да не постоји статистички значајна разлика у степену продуктивности сектора малопродаје у периоду пре и током COVID-19 пандемије. Добијени резултати сугеришу да се ланац снабдевања малопродаје након првих месеци пандемије, стабилизовао и показао своју потпуну флексибилност на изненадне тржишне шокове. Смернице за будућа истраживања су наведене у раду.
Кључне речи: малопродаја, продуктивност, запослени, COVID-19 пандемија.
ЈЕЛ класификација: L81, E24, O40.

Introduction

The primary task of every national economy is to help economic entities create new value by creating favorable conditions for businesses and their maintenance over time (Leković, 2016). The biggest obstacle to establishing a market-friendly business environment in Serbia, as in other transition countries, is the problem of increasing market centralization. In particular, centralization is emphasized in the retail sector, and some authors who measure it by using the ratio of centralization (CR) define it as high ranging from 0.85 to 1.22 (Vukmirović & Marić, 2017). Similarly, Petković, Lovreta, Pindžo, & Pešić asses retail rating as moderately centralized as measured by the Herfindahl-Hirschman Index (HHI), which is 1.256 points for Serbia. However, the same authors predict a significant increase in the value of HHI in the coming years (Petković et al., 2016).

Excessive centralization of the retail market disrupts the desired concentration of retailers in one region and thus harms other positive economic effects. Foreign retail chains contribute to centralization in their tendency to achieve better business results in a shorter period. They enter the markets of developed regions, which further disrupts the existing market distribution. The inhomogeneous retail market entails the growth of unemployment in rural areas and the migration of the population to economic centers, causing the lack of certain products and services in the available assortments.

The problem of centralization being a ballast for retail in Serbia was accompanied by the global pandemic caused by the COVID-19 virus. The first registered case of coronavirus in Serbia was recorded on March 6, 2020, and as a consequence, on March 15, a state of emergency was declared on the territory of the entire country (Official Gazette of RS 29/2020). In addition to a state of emergency, the Government of the Republic of Serbia adopted several measures regulating the rules of conduct and restricting the movement of the population, such as self-isolation and quarantine, social distancing, mandatory wearing of masks and other protective equipment (gloves), use of disinfectant barriers and glass

barriers, et cetera. In addition, for 40 days, measures were introduced that instantly prevented the work of companies and entrepreneurs in the service sector, except for retail (Official Gazette of RS 39/2020).

Consumers reacted to these measures by accumulating stocks in panic, especially products essential in conditions of self-isolation and quarantine, such as flour, oil, rice, yeast, meat and meat products, bottled water, chemicals, hygiene supplies, medical masks, medicines, et cetera. (Marić & Đurković-Marić, 2021). The panic in consumer behavior caused shocks in the market with an inconceivable increase in demand for these categories of goods (Stojadinović-Jovanović, Krstić, & Marković, 2020). It is interesting to note that the situation, which requires measures of social distancing and prohibiting contact, acted as a driver for retailers in the market of the Republic of Serbia to redirect much of their activities to e-retail and purchasing products and services via the Internet. According to expert estimates (Rašić, 2020), electronic retail records 50% higher growth compared with the months before the crisis and drastically higher growth in 2020 compared to 2019.

The subject of this paper is to define the impact of the consolidation and centralization of the retail market on its productivity, with an emphasis on the consequences of the COVID-19 pandemic for all participants in the retail sector. *The aim of this paper* is to analyze productivity between key groups of retailers in the market of the Republic of Serbia with special reference to the assessment of productivity in the period before and during the COVID-19 pandemic. The research covers the business activities of key retailers in the market of Serbia, which are divided into three statistically significant units (strata): (1) ten leading retail chains in the Serbian market, (2) retail companies that are members of the Domestic Trade Chain (DTC) and (3) independent retail chains or local and regional retailers. Their productivity and profitability were investigated during the stated period before (2016-2019) and the period (2020) of the COVID-19 pandemic. *The obtained results* show significant deviation in terms of productivity, especially between local and regional retail chains concerning the leading retail chains, and significant differences in profitability per employee between the observed groups. The study did not confirm a statistically significant impact of the COVID-19 pandemic on business results. *The practical significance of the paper* is reflected in the fact that it indicates to the management of trade companies where the crucial problems for achieving better business results lie and the measures and incentives that local and regional retailers must take to raise their productivity and profitability.

1. Theoretical background

In academic studies, there are two opposing views regarding the justification of a centralized retail market. Some authors argue that the centralization of the retail market through the strengthening of vertical integrations leads to increased business efficiency and improved competitive position of retailers in the market. As a result, big retail chains have more efficient coordination of activities and cooperation between all members of the supply chain and a reduction in the costs of ownership change. (Rickert, Schain, & Stiebale, 2018). Proponents of centralization point out that consolidation enables large retail chains to

achieve higher levels of gross turnover and operating income, the ability to influence or even determine the level of competitive prices, providing super discounts on quantity, and providing promotional discounts as additional sales revenue, et cetera. (Li et al., 2016; Yoon, 2016). On the other hand, small retailers face serious problems reflected in lower turnover and lower total earnings per unit of product, lack of bargaining power, non-competitiveness, higher prices, higher margins, etc. (Vukmirović & Marić, 2017).

In Serbia, the retail market is focused on large centers, such as Belgrade, Novi Sad, Niš, etc. The centralization ratio (CR), defined as the ratio of each macro indicator concerning the average values for a given indicator (Bhattacharya, 2003), shows certain deviations for the market of Serbia. The north part of the country and AP Vojvodina show the CR value, which, in the last five years, was within the interval from 0.98 to 1.04 for the gross turnover of retailers, from 1.01 to 1.06 for the consumer basket, and about 0.85 for the number of population (a result closer to a score of 1.00 indicates a more homogeneous market). The results show that the CR of the city of Belgrade in the observed period ranges from 1.46 to 1.48, which is one index point higher than the value of CR for Central-Southern Serbia, which ranges from 0.59 to 0.62 measured by the realized turnover of key retailers. When it comes to the consumer basket, for the city of Belgrade CR = 1.03 in all years, in Vojvodina it ranges from 1.01 to 1.06, while in Central-Southern Serbia it is slightly below the ideal value and amounts to 0.91 to 0.95.

In line with the greater degree of centralization of the domestic retail market, the increase in the market share of foreign retail chains leads to a change in the balance of power between local-national and international (global) retail chains. The most commonly used supply chain model of foreign retail chains can be presented with a ratio of 80:20, which indicates that the range of these retailers includes a maximum of 20% of products from local and national markets, and 80% of the total range are products produced by foreign manufacturers. The growing share of products of foreign origin has a high negative impact primarily on the business of local, regional, and national retailers. The reasons for that are the impossibility of gaining advantages at purchase prices for products of foreign origin due to a lower volume of purchases from foreign retail chains, as well as exclusive agreements between foreign retail chains and their suppliers which prevent the supply of competing retailers. This triggers a negative spiral of declining revenues and profitability, which in the long run significantly reduces or eliminates the possibility of applying low price policies in response to price competition from foreign retailers and manufacturers.

It turns out that the homogeneity and stability of the market are important, especially for local and national producers and retailers to be able to precisely define the projected business income and target market segment. In addition to the inhomogeneity, the balance in the domicile retail market was further disturbed by the sudden global COVID-19 pandemic. At the beginning of the pandemic (March-April, 2020), the retail sector in some categories, such as consumer goods and goods essential for quarantine and self-isolation periods (for example, meat, rice, flour, milk, canned food, oil, bottled water, etc.), recorded significant growth rates. It is estimated that the total turnover of consumer goods in retail stores in that period in the Republic of Serbia was 100% higher than in February, and almost 50% higher compared to the same period in 2019, primarily as a result of the

enormous shock on the demand side, and the present fear among consumers of store closures. As a result, sales tripled and there were huge gaps on the demand side, empty shelves in stores, and a lack of some product categories. Demand was stabilized at the beginning of May 2020, when consumers realized that the stocks of basic foodstuffs were provided and that the assortment of products in retail stores was stable (Zrnić et al., 2021). It is necessary to mention that the decision on the state of emergency and the introduction of restrictions on work in the services sector did not apply to large retail chains that continued to supply the population without hindrance. The assumption is that after the initial shock, the productivity and profitability of the retail sector were saved. At the same time, the minimal level of demand for technical equipment and devices, footwear and clothing, appliances, furniture, and cars was offset by increased demand for food products and rapid growth in e-commerce and product placement through e-channels and e-retail.

With regards to the abovementioned, it is necessary to analyze how the enlargement of the retail market affects the productivity and profitability of trade companies and how the COVID-19 pandemic affected their business. In particular, it is necessary to compare the business result according to the most significant strata in retail, namely: leading retail chains, members of the Domestic Trade Chain (DTL), and local and regional retailers.

2. Methodology

2.1. Aim of research and research hypotheses

The research aims to assess productivity and profitability among key groups of retailers in the market of the Republic of Serbia in the period before and during the COVID-19 pandemic. Modeled according to some previous research as key groups of retailers in the domestic market, ten key retail chains, retail companies that are members of the Domestic Trade Chain (DTC), and independent retailers or local and regional retailers were chosen. Based on the set goal and the research sample, four research hypotheses were defined:

H_1: There is a statistically significant difference in productivity (income per employee) between the observed groups of retailers in the market of the Republic of Serbia.

H_2: The average productivity of associated retailers is higher than that of independent (local and regional) retailers.

H_3: There is a statistically significant difference in productivity in 2020 compared to the previous period before the outbreak of the COVID-19 pandemic.

H_4: There is a statistically significant difference in profitability per employee between the observed groups of retailers in the market of the Republic of Serbia.

2.2. Research variables

The set hypotheses were examined using variables included in the research. These are independent grouping variables and dependent interval variables (indicators of profitability and productivity of trading companies). An independent, grouping variable is the size of a

trading company operating on the market of the Republic of Serbia. Within this research, and following the set hypotheses, trade companies are divided into 3 statistically significant groups (strata). The number of trade companies in each stratum is uniform: leading retail chains - 10 companies, DTC - 11 companies, and local and regional retailers - 14 companies. Dependent variables are of the interval type of measurement and represent indicators of the company's profitability in the previous four years (2017-2020), individually by years and in total. Profitability measures of retail companies (Lukić, 2010) include net profit, operating income, number of employees, net profit per employee, and operating income per employee (Table 1).

2.3. Research sample

The research was conducted on a sample of 35 trade companies in the retail sector of the Republic of Serbia. In the sample structure, the leading retail chains participate with 28.6%, trade companies, members of DTC with 31.4%, and small independent retailers with 40%. The data were collected by analyzing the financial statements on profitability. They were taken from the website of the Business Registers Agency of the Republic of Serbia (BRA) and included the years from 2017 to 2020. The key indicators taken into consideration are business (gross) income, net profit, and the number of employees. Data collection was performed during the first quarter of 2022. The detailed structure of the research sample and collected data on retailers in the domicile market are presented in Table 1.

Table 1: Structure of the research sample

Order No.	Retailer's name	Business income (in bill. RSD)				Net profit (in bill. RSD)				Average no. of employees
Leading retailers		2017	2018	2019	2020	2017	2018	2019	2020	2017/20
1	Lidl	7.352	11.470	37.851	57.014	-3.284	-5.506	-1.986	1.138	1.454
2	Delhaize	94.884	100.488	104.869	111.485	4.264	2.666	5.175	3.931	12.196
3	MercatorS	90.748	79.549	78.465	79.966	-6.852	-1.662	-2.158	-5.478	8.121
4	Aman	19.039	19.649	21.811	24.965	457	420	106	627	2.560
5	Univerexport	16.913	18.819	20.262	23.011	53	31	79	367	2.249
6	DIS	22.623	20.688	21.325	21.279	131	40	158	100	1.285
7	Veropulos	5.390	5.638	5.969	6.558	351	300	383	578	555
8	Metro	26.606	26.531	25.068	22.351	-203	-22	-139	-20	1.245
9	Gomeks	11.728	12.972	14.275	16.568	250	226	15	218	1.904
10	Quattro Company	6.322	7.044	7.973	8.927	76	132	76	317	817
Domestic Trade Chain		2017	2018	2019	2020	2017	2018	2019	2020	2017/20
11	Senta promet	3.250	3.619	3.960	4.164	66	63	65	105	617
12	Persu	7.242	7.678	9.170	9.810	46	62	38	54	948
13	Morava Kragujevac	2.325	2.412	2.646	2.825	55	41	30	83	278
14	Vum Šabac	1.777	1.869	2.033	2.409	9	10	14	18	360
15	Tekijana Kladovo	2.971	3.115	3.135	3.194	97	116	88	151	445
16	VP Dima	1.589	1.845	2.093	2.348	38	46	58	119	173
17	Proleter G. Milanovac	1.801	2.376	2.707	3.143	42	43	49	72	327
18	Styline Požarevac	719	815	890	910	6	12	25	26	103
19	Kastrum	1.192	1.202	1.327	1.359	28	24	25	40	197
20	Podunavlje AD	1.749	1.872	1.970	2.074	11	16	13	8	331

A n a l y s i s   o f   t h e   p r o d u c t i v i t y   o f   t h e   r e t a i l   s e c t o r   o f   t h e   R e p u b l i c   o f   S e r b i a   r e g a r d i n g   t h e   C O V I D - 1 9   p a n d e m i c

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21	Europrom Valjevo	4.265	4.669	5.021	5.501	208	199	246	256	574
Independent retailers		**2017**	**2018**	**2019**	**2020**	**2017**	**2018**	**2019**	**2020**	**2017/20**
22	Aroma	3.840	4.927	5.498	5.427	-131	-79	-45	-248	865
23	Soulfood	4.849	5.117	5.117	5.144	78	98	52	119	473
24	Sinagoga Sombor	3.868	4.164	4.591	5.590	135	87	126	246	176
25	Trnava Kragujevac	9.096	9.929	10.404	11.563	137	50	64	3	865
26	Orion Leskovac	2.116	2.031	66	0	34	31	-102	-11	170
27	ES Komerc Prijepolje	1.725	1.739	1.888	1.943	19	47	31	104	312
28	Fortuna market	2.706	2.829	2.968	3.224	120	86	137	177	445
29	Podunavlje Beočin	1.749	1.872	1.970	2.074	11	16	13	8	331
30	Mikromarket	3.299	4.732	5.596	6.156	141	158	237	257	795
31	Čutura Prokuplje	2.214	2.195	2.319	2.472	103	134	86	112	452
32	VIVA 92 Kruševac	3.157	3.646	3.967	673	18	35	38	37	119
33	TIS Mitrovic Zaječar	458	578	647	720	2	1	1	0	109
34	TSV Brave Beograd	2.850	2.944	2.886	3.017	33	38	34	58	523
35	Transkom 94 Šabac	2.778	2.895	3.035	3.038	54	49	57	65	505

Source: the authors' calculation

2.4. Data processing method

The collected data were processed by the statistical package SPSS 20. The accuracy of the set hypotheses was tested by different statistical methods, appropriate to the set hypotheses. One-way analysis of variance (ANOVA) and Scheffe's Post Hoc test were used to test statistically significant differences in productivity. Scheffe's Post Hoc test and T-test for independent samples were used to examine average productivity. The consequences of the COVID-19 pandemic were analyzed using the T-test for dependent samples, and the profitability between the observed groups was tested based on One-way analysis of Variance (ANOVA) and Scheffe's Post Hoc test.

3. Research results

To test the first Hypothesis H_1, we examined whether there is a statistically significant difference in productivity, that is, in income per employee between the observed groups of trading companies. The difference between the groups was examined by One-way analysis of variance (ANOVA) test. The categorical, independent variable was the group to which the enterprise belongs. The dependent variable was operationalized as the average income per employee in the period from 2017 to 2020.

Table 2 shows the productivity (arithmetic mean and standard deviation) for each group of retailers in the sample. Leading retail chains scored the highest productivity. They are followed by DTC members and, finally, local and regional retail chains.

Table 2: Descriptive statistics for the productivity value concerning the type of trading company

		Mean	SD
Productivity (000. RSD)	Leading retail chains	12.549	5.196
	DTC members	10.873	8.043
	Independent retailers	7.905	2.187
	Total	**10.413**	**6.136**

Source: the authors' calculation

Based on the analysis results and the obtained indicators, it can be concluded that the observed difference between the groups is statistically significant. The test results are listed in Table 3. There is a statistically significant difference between the surveyed groups of trading companies in the achieved level of productivity in the given time.

Table 3: Indicators of the conducted analysis of variance

		The sum of the squares	Degrees of freedom	Median square	F	Significance
Productivity	Between groups	470.604.375	2	235.302.187	6.776	.002
	Within groups	4.687.951.797	135	34.725.568		
	Total	5.158.556.172	137			

Source: the authors' calculation

Utilizing Scheffe's post hoc test, it was examined between which groups of retailers there is a statistically significant difference in the achieved level of productivity. Scheffe's post hoc test, which is strict, indicates that the largest difference exists between independent, that is, local and regional retailers compared to the leading retail chains (Table 4). The leading top 10 trade companies are statistically significantly more productive in the market of the Republic of Serbia.

Table 4: Post hoc test results

		Subset for α = 0.05	
		1	**2**
Type of trading company	Independent retailers	7.906	
	DTC members	10.873	10.873
	Leading retail chains		12.549
	Significance	**10.413**	**6.136**

Source: the authors' calculation

Based on the conducted testing, it is concluded that the first research hypothesis **H₁** is accepted and that there are statistically significant differences in terms of the achieved level of productivity between trade companies in the retail sector of the Republic of Serbia. These differences are the most expressed between the top 10 retail chains and local and regional retailers. This result was expected, bearing in mind that the degree of centralization of the Serbian market has been increasing in recent years and vertical integrations within the supply chain are increasingly present. In this way, a privileged position is provided to large trade companies that achieve competitive advantages at price, location, product range etc., at the expense of small and independent retailers, primarily in urban areas.

The second research hypothesis sought to test whether the average value of united retailers was higher than that of independent (local) retailers. Based on the conducted analysis, the obtained value is higher and on the border of statistical significance (according to the values of Scheffe's post hoc test). The T-test for independent samples was applied to compare the two groups separately. The independent variable had two degrees - affiliation to the domestic retail chain or local and regional retail chains. The dependent variable was productivity, measured as income per employee in the period from 2017 to 2020.

Group statistics confirm earlier findings that retail companies in the domestic retail chain are achieving higher productivity. The conducted analysis shows that the difference is statistically significant (Table 5). Domestic retail chain members are more productive than local and regional retail chains.

Table 5: T- test results for independent samples

		Mean	SD	T	Significance
Productivity	DTC	10.873	8.043	2.375	.020
	Independent retailers	7.905	2.187		

Source: the authors' calculation

The obtained results confirmed the **H₂** hypothesis implying that the volume of generated income and average productivity increases with retailers becoming a part of special units and groups, such as DTC. Members of such groups achieve better business results compared to independent (local and regional) retailers.

The third research hypothesis was to test whether there is a statistically significant difference in the productivity of the retail sector in 2020 compared to the period before the outbreak of the COVID-19 pandemic (2017-2019). This hypothesis aims to define whether and in what way the consequences of the COVID-19 pandemic and the sudden shocks it caused on the market affected the business of domestic retailers. T-test for dependent samples was conducted to examine these differences. It examined whether there is a difference in productivity in the period from 2017 to 2019 concerning the achieved productivity in 2020. The independent, grouping variable was the period, while the dependent variable was operationalized as the productivity of the retail business. Table 6 presents the obtained results.

Table 6: T-test results for dependent samples

		Mean	SD	T	Significance
Period	2017-2019	10.170	5.618	0.081	.936
	2020	10.212	5.399		

Source: the authors' calculation

The given table shows that the values of achieved productivity are uniform in retail chains before the pandemic and in its first year (as well as the standard deviation). Based on the obtained findings, we can conclude that there is no statistically significant difference in productivity in the period before the COVID-19 pandemic concerning the productivity achieved in 2020. We deduce that the pandemic did not leave significant consequences on the retail sector in the Republic of Serbia. Therefore, we reject the third research hypothesis **H₃**. The objective reason for this result is the retail sector's stabilization after the first two months of closure. The decline in demand for non-essential products such as appliances, electronic devices, furniture, etc., was offset by significantly higher demand for food products. The positive trend reflected itself in the sharp increase in the share of electronic retail, which also filled the gap in retailers' business revenues. Social distancing, limited contacts, shorter working hours of stores, and fear of infection seemed to divert a part of the activities of Serbian retailers to the electronic purchase of products and services. It is estimated that the frequency of online shopping and the volume of turnover of products and services through this channel increased by as much as 67% in 2020 (Kovačević & Petković, 2021).

The fourth hypothesis examined whether there was a statistically significant difference in profitability (net profit per employee) between the observed groups of retail chains. A one-way analysis of variance (ANOVA) was applied to test this hypothesis. An independent, grouping variable was the type of trade enterprise (leading retail chains, DTC members, local and regional retail chains). The dependent variable was net profit per employee from 2017 to 2020.

Table 7 shows descriptive statistics for net profit per employee in relation to the group to which the retail chain belongs. It can be seen that the average profit per employee is the highest among leading retailers, while it is the lowest in the group of local and regional retail chains.

Table 7: Descriptive statistics for the value of profit concerning the type of trading company

		Mean	SD
Profit (000. RSD)	Leading retail chains	11.310	1.708
	DTC members	7.905	366
	Independent retailers	7.425	433
	Total	**9.486**	**939**

Source: the authors' calculation

The results of the conducted One-way analysis of variance revealed a statistically significant difference between the groups (Table 8). Based on these results, we conclude that the fourth research hypothesis **H₄** is accepted since there is a statistically significant

difference in net profit per employee between the groups of trading companies in the market of the Republic of Serbia.

Table 8: Indicators of the conducted analysis of variance

		The sum of the squares	Degrees of freedom	Median square	F	Significance
Profitability	Between groups	7.247.344	2	3.623.672	4.308	.015
	Within groups	110.196.788	131	841.196		
	Total	117.444.132	133			

Source: the authors' calculation

Scheffe's post hoc test examined which groups included in the research found this difference as the most significant. The analysis indicated a statistically significant difference between the leading retail chains whose profitability is statistically significantly higher compared to local and regional retail chains and domestic retail chains. The results of the analysis are shown in Table 9.

Table 9: Post hoc test results

		Subset for $\alpha = 0.05$	
		1	**2**
Type of trading company	Independent retailers	7.425	
	DTC members	7.905	
	Leading retail chains		11.310
	Significance	**.991**	**1.000**

Source: the authors' calculation

Based on the conducted analyses and tests, the conclusion is that the results of some previous studies (Vukmirović & Marić, 2017; Petković et al., 2016; Leković, 2016) have been confirmed by this research and that the consolidation of the retail market leads to higher productivity and profitability. Simultaneously, an interesting indicator is that the COVID-19 pandemic did not leave major consequences on the business results of the retail sector. It only forced retailers to change their sales policy, that is, to place their products and services through several channels, including electronic and mobile commerce.

4. Discussion

Based on the conducted research and confirmed research hypotheses, it follows that the centralization and consolidation of trade companies in the retail market have a statistically significant impact on productivity and profitability. The research confirmed that the volume of gross income and the retailers' productivity are statistically significant related to their size and enlargement (**H1** and **H2**). Also, significant differences between large and small retailers can be seen regarding net profit and profitability (**H4**).

As the fundamental goal of trade policymakers is to achieve a homogeneous retail market, the following measures and incentives should be implemented to harmonize the elementary economic indicators of trade companies. On the one hand, this means taking the following trade policy measures, which would make the retail sector more attractive and efficient, such as:

1) granting subsidies, favorable credit lines, and financial incentives to small independent retailers by competent institutions, associations, and commercial banks;

2) developing modern infrastructure, logistics, and distribution networks;

3) encouraging employment growth through the release of taxes and contributions for new employees in the retail sector;

4) reduction of income tax for small retailers, etc.

On the other hand, small and independent retailers need to find ways to achieve identical profitability results as leading trading companies through more efficient operations. This usually means (1) increasing sales revenue through greater application of the concept of customer relationship management; (2) more efficient margin management; (3) reduction of total costs through the application of a modern concept of cost management (TQM, supply chain analysis, just in time delivery, continuous improvement, etc.); (4) application of modern IT technology, etc.

These trade policy measures and incentives in the retail sector itself should be the primary instrument in the hands of trade policymakers that will reduce the degree of centralization and enable achieving a homogeneous retail market.

Conclusion

The need to investigate the impact of centralization and consolidation in the retail sector of the Republic of Serbia on the productivity and profitability of retailers stemmed from the fact that it is one of the fastest-growing economic activities with a share of gross retail value in total GDP of about 10% operating income in 2019 of about 600 billion RSD. Of course, the sudden changes in the market and the shocks caused by the COVID-19 pandemic on the demand side required a thorough analysis.

The obtained results and the confirmed impact of enlargement on profitability and productivity were expected. The impact of the pandemic consequences proved to be less statistically significant than assumed. In accordance with these results, a whole set of measures and incentives was proposed in order to equalize the business results among the most dominant groups of retailers in the Serbian market. Also, retailers were recommended to place an increasing volume of their products and services through electronic channels (internet, e-shops, mobile trading).

The lack of the existing research is the territorial limits of the research exclusively on the market of the Republic of Serbia. The objective reason for this is the availability of data with and the author's familiarity with the mechanisms of retail functioning in the

domicile market. Another shortcoming of the research is that the analysis is limited to five performance indicators (gross income, net profit, number of employees, net profit per employee, and gross income per employee), which may have led to simplified interpretations.

As part of suggestions for future research, the analysis should be extended to more regions. For example, perform a comparative analysis between EU regional countries (Croatia, Hungary, Bulgaria, and Romania) and the Republic of Serbia. Include several profitability indicators (ROA, ROE, turnover ratio, etc.) in the analysis. Extended research would deepen the scientific view of the importance of centralization and enlargement of companies on the productivity and profitability of the retail sector.

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Original scientific article

Effect of the COVID-19 pandemic on the profitability of construction companies: evidence from Bosnia and Herzegovina

Утицај пандемије коронавируса на профитабилност компанија из области грађевинарства: искуство Босне и Херцеговине

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Abstract: This paper aims to demonstrate the theoretical and empirical impact of the COVID-19 virus pandemic on profitability. The analysis was performed on a sample of 131 actively operating companies in Bosnia and Herzegovina between 2014 and 2020. Applying panel regression methodology, an empirical study was conducted. The assessment of fixed-effect model revealed the presence of a negative and statistically significant effect of the coronavirus pandemic on profitability as measured by return on total assets (ROA). The findings validated the curiosity of the construction sector in Bosnia and Herzegovina, suggesting that it is among several sectors with increased demand for its products - residential and non-residential buildings, throughout the pandemic crisis and recession at the beginning of 2020. The results of this study could help construction companies to develop operational performance and risk management in pandemic situations, and the flexibility of their actions in the face of future crises of a similar nature, given that the construction sector has played a crucial role in supplying construction of all types of residential buildings, buildings for industrial production, e.g. factories, workshops, assembly plants, parking garages, warehouses, schools, as well as, hospitals in challenging times and has met the increased demand.

Keywords: COVID-19, pandemic, profitability, construction industry, Bosnia and Herzegovina
JEL classification: C23, L25, L74

Сажетак: Овај рад има за циљ да прикаже теоријски и емпиријски утицај пандемије вируса Ковид-19 на профитабилност. Анализа је извршена на узорку од 131 активних друштава у Босни и Херцеговини у периоду од 2014. до 2020. године. Применом методологије панел регресије спроведено је емпиријско истраживање. Оцена модела са фиксним ефектима показала је присуство негативног и статистички значајног утицаја пандемије коронавируса на профитабилност мерену приносом на укупну имовину (РОА). Резултати су потврдили занимљивост грађевинског сектора у Босни и Херцеговини, указујући да је

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он међу неколико сектора са повећаном потражњом за својим производима - стамбеним и нестамбеним зградама, током кризе изазване пандемијом и рецесије почетком 2020. године. Резултати ове студије могли би да помогну грађевинским компанијама да развију оперативне перформансе и управљање ризиком у пандемијским ситуацијама, као и флексибилност њиховог деловања у суочавању са будућим кризама сличне природе, с обзиром на то да је грађевински сектор одиграо кључну улогу у снабдевању свих врста стамбених објеката, објеката за индустријску производњу, нпр. фабрика, радионица, монтажних погона, паркинг гаража, складишта, школа, као и болница, што је посебно значајно у изазовним временима, успевши и да задовољи повећану тражњу.

Кључне речи: Ковид-19, пандемија, профитабилност, грађевинска индустрија, Босна и Херцеговина

ЈЕЛ класификација: Ц23, Л25, Л74

Introduction

Since the declaration of the COVID-19 pandemic by the World Health Organization (WHO), many countries of the world have introduced measures to combat the virus, which included a complete lockdown. Such changes affected all spheres of life, reduced quality of life and weakened world economies. Success in dealing with natural disasters, such as climate change and pandemics, has so far been limited due to the fact that human powers in many areas are still quite limited (Radić et al., 2021). Figus (2021) states that coronavirus pandemic reminds us of the interconnection of medicine with other branches, where multiple disciplines converge. COVID-19 drastically affected narrowly specialized businesses that had to adopt new environmental requirements, such as construction industry (Sahaidak, 2021). Businesses that are flexible adapted their operations to home environment, while numerous economic branches, where the presence of workers is required, had to suspend their activities completely. The construction industry is a significant driver of the economic growth of every country, so the suspension of actions and the postponement of all projects until further notice, certainly had to leave consequences on the economy (Gamil & Alhagar, 2020).

The new situation created a disruption in the supply of raw materials, as well as in their transportation. Sharif et al. (2020) analyzed the Dow Jones 30 index and concluded that COVID-19 had a great impact on US geopolitical risk and economic uncertainty, as well as that the COVID-19 pandemic affects the price of oil, citing restrictions on movement and transport as one of the factors such influence. Delivery delays are a major challenge impacting construction projects. Based on recent surveys, the most common factors that cause delays are deficiencies of materials, lack of trained labour, price soars in the market, delays in obtaining permits from authorities, etc. (Alenezi, 2020). Thus, even after the termination of measures prescribed by government bodies that restricted the movement of people, there would still be many obstacles slowing regular business down. The slowdown in the transport industry caused a stoppage in the delivery of necessary raw materials, without which business could not be possible. In a period of shortage of new material, the one already in stock became more valuable, which could lead to rapid price rises. Consequently, an increase in the prices of services and finished products would arise. The slow performance of the construction industry led to a reduced supply of construction facilities. The unstable economic situation during the pandemic also reduced the demand for construction facilities, which put the construction sector in an unfavourable situation.

Furthermore, the problem of unemployment has risen. In industries where it is not possible to adapt to work from home conditions, a large number of workers have lost their jobs, which is the case with construction industry, when in the first months of the pandemic they lost their jobs and the necessary income. In his research, where office workers and field workers of a construction company were interviewed separately Bsisu (2020) observed that almost 40% of field workers were worried about possible job loss.

Finally, the COVID-19 pandemic, like numerous other pandemics in the past, has left its mark on finances. Since the profitability of a company's operations is one of the conditions for its long-term survival and success on the market, it is necessary for it to be measured constantly (Mitrović et al., 2021). The economic crisis causes the decrease in the sales of products, as it is the case with the construction sector (Devi et al., 2020). The decline in total sales could undoubtedly have an impact on financial performance and profitability, and some companies may be liquidated due to financial difficulties (Bintang et al., 2019).

Based on the Annual Report on Construction Works in Bosnia and Herzegovina (Agency for Statistics of Bosnia and Herzegovina, 2021), it can be noted that in 2020 there was an increase in the number of working hours compared to 2019 by 1.7%. The number of workers increased by 1%, and also, the value of completed works in 2020 was 10.7% higher than in the previous year.

The purpose of this research is to investigate, from both a theoretical and an empirical standpoint, how the COVID-19 virus affects a company's profitability. The findings reaffirmed the unique characteristics of the construction business, demonstrating that it is one of the very few sectors to have increased its profitability despite the global financial crisis and economic downturn that began in the beginning of 2020 as a direct result of the pandemic.

This paper consists of three parts. The first part includes reviews of the results of previous research regarding the impact of the pandemic caused by the COVID-19 virus on financial performance, as well as the impact of other factors on the profitability of construction companies. Based on the literature review, hypotheses that will be tested in the rest of the work were derived. The following section presents a more detailed composition of the sample and the source of data used in the research and explains the chosen methodology that was implemented in order to confirm or reject the set hypotheses. The third part presents the results of the empirical research, followed by a discussion of the results.

1. Theoretical background

Although it is believed that the first cases of infection with the COVID-19 virus were confirmed in China, and subsequently in South Korea, the epidemiological situation in those parts of the world quickly improved, while the epicentre moved to Europe, and later to the USA. In this regard, since the beginning of 2020, authors around the world have analyzed the impact of the pandemic caused by the COVID-19 virus, considering different

markets, economies, as well as sectors. There are different points of view when it comes to the direction of the impact of the COVID-19 virus on financial performance, i.e. profitability and yield.

On the one hand, some authors established negative impact of the pandemic caused by the COVID-19 virus on the financial performance of companies belonging to different sectors, based in different countries of Europe and the rest of the world, while on the other hand there is a group of authors who managed to prove that the pandemic brought improvement and increased financial performance to certain sectors and economies.

The negative impact of COVID-19 on the construction sector was presented by Nguyen et al. (2021) who found that 80% of construction companies experienced a drop in profitability due to the pandemic. Only a small number of companies (0.81%) noticed an increase in profitability. The reason for this lies in the cost structure of construction companies, where 60-70% of costs are material costs, 10-20% labour costs, and the remaining 10-20% are machine costs (El-Gohari & Aziz, 2014). Research by Suiko (2020) on 45 construction projects completed during the pandemic revealed a productivity loss of around 7% as a result of labour shortages and the impact of social distancing. Devi et al. (2020) shows the negative financial impact of the pandemic on Indonesian construction companies through DER (Debt to Equity Ratio) and ROA (Return on Assets) indicators. The observed companies recorded an increase in DER indicator during the pandemic period, which indicates a decrease in the company's profitability. By analysing the ROA indicators, it is shown that the return on funds of the observed companies was significantly higher before the start of the pandemic than the return on funds during the pandemic. This decline in value also indicates financial problems caused by the health crisis. Liu et al. (2020) investigated the stock market indices of the countries most affected by the pandemic, such as Japan, Korea, Singapore, the USA, Germany, Italy, Great Britain and others, coming to the conclusion that stock market indices in large countries fell right after the outbreak of the virus, primarily due to the pessimistic view of investors on future yields and due to fear of uncertainty. After conducting an analysis of the impact of COVID-19 on various industries in China, Xiong et al. (2020) pointed out that the construction industry, along with tourism, transport and other similar industries, belongs to the group of VIND (vulnerable industries), which implies that the profitability of their business fell to a large extent the pandemic itself. The profitability of the company is also affected by cash flow, which can be damaged due to delays in construction activities. There are also problems with the payments to employees and suppliers on time due to the delay in the payment of realized activities (Pamidimukkala et al., 2021). From the point of view of Anh and Gan (2021), there is a negative impact of the daily increase in the number of cases infected with the COVID-19 virus on the return per share of companies based in Vietnam. Also, the study proves that movements on the Vietnamese stock market were in opposite directions before and during the country's quarantine. Although COVID-19 had a significant, negative impact on earnings per share prior to the closure, the introduction of quarantine, i.e. the ban on movement, had a significant positive impact on the performance of both individual company shares and the entire stock market in Vietnam, with the results showing that the financial sector was hit the hardest on the Vietnamese stock market during the outbreak of

the COVID-19 pandemic. A similar study was conducted by Ashraf (2020), where the results also showed the negative impact of the pandemic caused by the COVID-19 virus on stock market performance in 64 countries, that is, there is an inverse relationship between the increasing number of confirmed infected cases and returns per share.

Among the scientific works that show the positive impact of COVID-19 on the construction sector, several opinions could be emphasized. Firstly, research conducted by Gumble (2020) shows that after the pandemic, neither society nor industry will be the same anymore, and that it would be necessary to introduce more flexibility and new technologies in business of the construction industry. Tadić et al. (2019) state that flexibility, as a critical success factor, represents the internal strength of the company. Bailey et al. (2020) highlight the significant impact of the pandemic on the construction sector, but from the legal side. They consider that COVID-19 could be force majeure in contracts, allowing extensions of deadlines, without the obligation to reimburse costs. Additionally, Jones (2021) claims that the pandemic encourages the development of new technology in construction, and consequently greater efficiency of the workforce, increased productivity and reduced business costs.

Considering the problem and aim of the research, as well as the previous research conclusions of other authors, the hypothesis that will be tested in this paper is the following:

H1: The pandemic caused by the COVID-19 virus has a negative and statistically significant impact on the profitability of construction companies in Bosnia and Herzegovina.

2. Data and methodology

The purpose of this study is to examine the effect of the COVID-19 virus pandemic on the profitability of Bosnia and Herzegovina-based construction sector. In accordance with the Regulation on Classification of Activities (2010), the sample consists of companies registered in sector F - Construction, under activity code 41.20 - Construction of residential and non-residential buildings. The sample is composed of 131 active firms operating between 2014 and 2020, comprising 917 observations. The TP Catalyst database was utilized as a source of information for this study (Bureau van Dijk, 2022). Both dependent and independent variables of the model are presented in Table 1. The table additionally contains the variables' formulation and an overview of the leading scientists who applied the same variables.

Table 1: Summary of variable category, name, formulation, and source

Variable category	Variable name	Variable formulation	Source literature
Dependent variable	Profitability	ROA	Le & Phan, 2017; Chandra et al., 2019; Rababah et al., 2020; Shen et al., 2020; Vuković et al., 2020; Atayah et al., 2021
Independent variables	Liquidity	Current assets/ Current liabilities	Le&Phan, 2017; Mijić et al., 2018; Chandra et al., 2019; Nguyen H. T. & Nguyen A. H., 2020; Vuković et al., 2020
	Asset structure	Fixed assets/ Total assets	Le&Phan, 2017; Mijić et al., 2018; Chandra et al., 2019; Chang et al., 2019; Nguyen H. T. & Nguyen A. H., 2020;
	Capital structure	Total debt/ Total assets	Le&Phan, 2017; Abdullah & Tursoy, 2019; Chandra et al., 2019; Shen et al., 2020; Vuković et al., 2020
	Asset Efficiency	Sales/ Total assets	Denčić-Mihajlov, 2014; Abey & Velmurugan, 2018; Alarussi & Alhaderi, 2018; Vuković et al., 2020, Tušek et al., 2021
	Growth	$(Sales_t - Sales_{t-1})/ Sales_{t-1}$	Le & Phan, 2017; Mijić et al., 2018; Abdullah & Tursoy, 2019; Chandra et al., 2019; Vuković et al., 2020
Control variable	COVID-19 virus pandemic	COVID-19	Shen et al., 2020; Anh & Gan, 2021; Atayah et al., 2021; Devi et al., 2021

Source: the authors' research

3. Results with discussion

The results of descriptive statistics for all model variables are displayed in Table 2. When assessing average values, the median is used instead of arithmetic mean because of the possibility of extreme values. ROA has median value of 4.8%, implying an almost satisfactory degree of profitability of construction enterprises, considering that it is close to 5%. The median estimate of the liquidity parameter is 1.2, which verifies the presence of a lack of current liquidity, suggesting that the sampled enterprises have a reduced capacity to satisfy their short-term debt with available current funds. Further, the findings indicate that the asset structure is skewed slightly toward current assets, which is to be anticipated considering the nature of the industry. Construction companies in their balance sheets generally record high values of real estate, primarily land and construction sites, while they

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do not possess high values of construction equipment, since it is common for modern construction companies to hire subcontractors for diverse activities. Moreover, supporting the results, construction companies have a small turnover of products, i.e. residential, and non-residential buildings, with large amounts of recorded receivables during whole year. For the same reason, the median value of asset efficiency is high, given that sales almost exceed total assets. Further, the capital structure median value confirms that the examined sector adheres to the conventional financing approach by keeping a balance between their own and borrowed resources. Growth measured by sales revenue is present in the median value of 4.7%, which is considered satisfactory.

Table 2: Results of descriptive statistics

Variable name	Number of observations	Median	Mean	Minimum	Maximum	Standard deviation
ROA	917	0.048	0.086	-0.131	0.734	0.104
Liquidity	917	1.222	1.840	0.057	25.828	2.203
Asset structure	917	0.454	0.455	0.000	0.995	0.206
Capital structure	917	0.512	0.518	0.034	2.226	0.234
Asset Efficiency	917	0.995	1.143	0.005	9.012	0.816
Growth	917	0.047	0.183	-0.006	32.212	1.216
COVID-19	917	1.000	0.857	0.000	1.000	0.350

Source: the authors' computations

The initial approximation about the direction and significance of the linear correlation among the variables would be derived from the Pearson's correlation matrix reported in Table 3. Correlation matrix reveals a statistically significant and positive linear correlation between profitability on the one side and liquidity, as well as asset efficiency on the other side. However, there is a negative and statistically significant linear correlation among the profitability on the one side, and asset structure and capital structure on the other. Relationship between COVID-19 pandemic and profitability was proved to be negative, but non-significant, which leads to the partly rejection of H1, claiming that the COVID-19 has a negative and statistically significant impact on the profitability of construction companies in Bosnia and Herzegovina.

Table 3: Overview of the Pearson's correlation matrix

Variable name	ROA	Liquidity	Asset structure	Capital structure	Asset Efficiency	Growth	COVID-19
ROA	1						
Liquidity	0.1023**	1					
Asset structure	-0.0838*	-0.2572**	1				
Capital	-0.2238**	-0.5056**	-0.1662**	1			

structure						
Asset Efficiency	0.2676**	-0.1135**	-0.2432	0.1515*	1	
Growth	0.1180**	-0.0347	-0.0467	0.0268	0.1363**	1	
COVID-19	-0.0408	-0.0372	-0.0049	-0.0034	0.0473	0.0311	1
** - level of significance 1%; * - level of significance 5%						

Source: the authors' computations

Using panel regression approach, the influence of the coronavirus pandemic and other corporate factors on the performance of construction firms based in Bosnia and Herzegovina, being active from 2014 to 2020. Formulation of regression model assessed in this paper is presented using the following equation:

$$ROA_{it} = \beta_{it} + \beta_1 \, LIQ + \beta_2 \, AS + \beta_3 \, CS + \beta_4 \, AE + \beta_5 \, GW + \beta_6 \, COVID19 + u_{it.}$$

The following is a list of abbreviations: *i* stands for each company i = 1, 2, 3,...); *t* stands for each year (t = 1, 2, 3...); ROA stands for return on assets, LIQ stands for liquidity, AS stands for the asset structure, CS stands for the capital structure, AE stands for asset efficiency, GW stands for growth, COVID19 stands for pandemic caused by the COVID-19 virus.

Prior to evaluation of panel regression model, it is required to validate the method's underlying assumptions. One of the primary fundamental requirements for the use of panel analysis is that the independent variables are not strongly correlated, or that multicollinearity is absent. Table 4 summarizes the assessment of multicollinearity of independent variables using Variance Impact Factors (VIF) and 1/VIF parameters.

Table 4: Overview of Variance Impact Factor results

Variables	VIF	1/VIF
Liquidity	1.64	0.6091
Asset structure	1.32	0.7588
Capital structure	1.54	0.6495
Asset Efficiency	1.12	0.8927
Growth	1.02	0.9799
COVID-19	1.00	0.9950

Source: the authors' computations

Given that the VIF coefficients for all indicators are below 10 and the TOL coefficient (1/VIF) is greater than 0.1, it is possible to assume that there is no multicollinearity in the hypotheses-testing model. The absence of heteroskedasticity and autocorrelation, other two fundamental premises of the panel approach, were examined in Table 5.

Table 5: Overview of heteroskedasticity and autocorrelation test results

Test	Test statistic value	p - value
Wooldridge test	11.094	0.0011
Breusch-Pagan / Cook-Weisberg test	339.68	0.000

Source: the authors' computations

Considering that the outcomes of the Wooldridge test indicate that the p-value is less than the 5% significance criteria, autocorrelation has been proven. The Breusch-Pagan / Cook-Weisberg test was employed to determine the existence of heteroskedasticity. Since results showed that p-value is less than the 5% level of significance, the existence of heteroskedasticity is verified. According to a breach of the core premises, it is required to modify the model in order to conduct an appropriate assessment. Table 6 presents the altered regression model whose evaluation would lead to the acceptance or rejection of H1 hypothesis.

Table 6: Overview of the evaluation of transformed model

Variables	ROA	
	Coefficient	p
Liquidity	-0.0070	0.024
Asset structure	-0.1500	0.000
Capital structure	-0.1657	0.033
Asset Efficiency	0.0658	0.002
Growth	0.0032	0.327
COVID-19	-0.0222	0.008
Constant	0.1957	0.000
Number of observations	917	
R^2	0.1997	
F test	5.62	
p value (F)	0.000	

Source: the authors' computations

The outcomes of the F test ($p<0.01$) show that the assessed model is statistically significant. Further, given the coefficient of determination value, it could be stated that the 13.55% of variation in profitability is explained by variations in the independent variables in model. The results of the assessment of the adjusted model reveal that the coronavirus pandemic has a negative effect on the profitability of construction sector of Bosnia and Herzegovina. Hence, H1 is accepted. The results align with the findings of Devi et al. (2020), who examined the impact of the COVID-19 pandemic on firms' financial performance which are divided proportionally into nine sectors or 49 sub-sectors, and

concluded that the profitability ratios of the construction industry have declined. These results are in line with the research of Nguyen et al. (2021), who emphasize the multilevel nature of the consequences of the epidemic in the construction sector, highlighting decreased profitability during the coronavirus crisis period. . Moreover, authors believe that the epidemic would diminish the salaries and mental health of construction workers, as well as delay and increase the cost of projects. Furthermore, the outcomes of the transformed model imply that liquidity, asset structure, capital structure and asset efficiency are statistically significant factors of profitability measured by ROA. However, result indicated that growth are not statistically significant determinants of profitability.

To further prove the relevance of the effect of the COVID-19 crisis on the profitability of construction firms, a placebo test was conducted to assess whether construction enterprises in Bosnia and Herzegovina have worse financial performance as a consequence of the shift in financial year. The test was performed so that financial data for 2020 was omitted from the population, and 2019 was labelled as the epidemic period. Table 7 presents the outcomes of the performed placebo test.

Table 7: Placebo test

Variables	ROA	
	Coefficient	p
Liquidity	-0.0010	0.660
Asset structure	-0.0188	0.320
Capital structure	-0.1409	0.000
Asset Efficiency	0.0367	0.000
Growth	0.0081	0.002
COVID-19	-0.0172	0.054
Constant	0.1374	0.000
Number of observations	917	
R²	0.2269	
F test	7.82	
p value (F)	0.000	

Source: the authors' computations

It could be confirmed that the COVID-19 virus has a significant negative effect on the profitability of construction firms from Bosnia and Herzegovina when interpreting the results of evaluation of the transformed model and of the placebo test performed in Table 7. In the transformed regression model, including the epidemic year 2020, the results indicate a statistically negative effect of the pandemic on profitability, whereas the placebo test, which omits 2020, also revealed a negative but not statistically significant impact of the COVID-19 pandemic.

According to official statistics of Bosnia and Herzegovina (Agency for Statistics of Bosnia and Herzegovina, 2021), the construction sector was one of the few that had the potential to increase profitability during the coronavirus crisis due to rising construction activities and demand. In response to the increased demand, growing prices of raw materials, decreased delivery times, and the adoption of preventative epidemic measures, the construction industry was able to adapt to the new circumstances on the national and international markets in a short period of time. In addition to great efforts, the construction industry managed to take advantage of the period of the pandemic, when natural persons, as well as investors, were willing to invest money in buildings and objects of various purposes. However, it was not enough to achieve the positive impact of the pandemic on profitability.

Conclusion

The problem caused by the COVID-19 epidemic highlighted the fragility of all sectors, particularly in the purchase of basic resources and delivery of produced goods to final consumer. Hence, the purpose of this paper was to examine the influence of the coronavirus pandemic on the profitability of the construction industry, given that the demand for residential and non-residential construction buildings in Bosnia and Herzegovina grew in 2020, the year the pandemic started.

This study aimed to evaluate, from both a theoretical and an empirical perspective, how the COVID-19 virus affects a company's financial performance in order to comprehend how it might be controlled. The empirical research was conducted applying Pearson's matrix and panel regression analysis. The findings demonstrated a negative and statistically significant relationship between the COVID-19 virus and the profitability of active construction enterprises in Bosnia and Herzegovina, actively operating from 2014 to 2020. The analysis revealed that the construction industry is one of the relatively few sectors to have enhanced its profitability despite the worldwide financial crisis and economic slowdown that began in the beginning of 2020 as a direct consequence of the pandemic. This was illustrated by the fact that the construction industry was one of the few sectors to have accelerated its profitability.

Although many authors examining different industrial sectors in other countries or regions have come to similar conclusions, the aim of this paper was to ascertain whether the negative impact of the pandemic has also affected the construction industry, considering that it is one of the few in Bosnia and Herzegovina that managed to maintain the demand for its products, i.e. buildings, as well as achieve an increase in activities and sales. However, despite increased operations and construction work, the coronavirus has had a negative impact on return on assets. The main cause that could lead to this situation is disruption in the supply chain, and consequently price increase of raw materials. The construction industry is specific due to the procurement of different types of metal, wood and building materials from different countries, which are influenced by trends from the world markets. Additionally, factors such as slower turnover due to the lockdown period, as well as a need for increased number of workers for production without interruption in order

to respect epidemiological measures, reduced the financial performance of construction companies.

A constraint of the conducted analysis is that, in the moment of evaluating of transformed model, coronavirus epidemic continued, and its future trend has been unpredictable. This study could serve as the foundation for a more in-depth examination of a similar problem, along with the development of new, alternative profitability evaluations in a demanding and rapidly shifting environment. This paper enhances the current knowledge base regarding the COVID-19 virus pandemic by providing further findings despite its limitations. In this approach, construction companies could begin to concentrate on creating alternative business strategies that are even more robust to market volatility, with the potential for a quicker response. Moreover, investors might utilize the reported information to anticipate changes and trends in the amount of return on assets in construction firms, particularly during slowdowns and world market fluctuations.

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➲ Journal article, two authors, paginated by issue

> Strakić, F., & Mirković, D. (2006). The role of the user in the software development life cycle. *Management Information Systems, 4*(2), 60-72.

➲ Journal article, two authors, paginated by volume

> Ljubojević, K., & Dimitrijević, M. (2007). Choosing your CRM strategy. *Strategic Management, 15*, 333-349.

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Jovanov, N., Boškov, T., & Strakić, F. (2007). Data warehouse architecture. *Management Information Systems, 5*(2), 41-49.

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Ljubojević, K., Dimitrijević, M., Mirković, D., Tanasijević, V., Perić, O., Jovanov, N., et al. (2005). Putting the user at the center of software testing activity. *Management Information Systems, 3*(1), 99-106.

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Strakić, F., Mirković, D., Boškov, T., Ljubojević, K., Tanasijević, V., Dimitrijević, M., et al. (2003). Metadata in data warehouse. *Strategic Management, 11*, 122-132.

⮞ **Magazine article**

Strakić, F. (2005, October 15). Remembering users with cookies. *IT Review*, *130*, 20-21.

⮞ **Newsletter article with author**

Dimitrijević, M. (2009, September). MySql server, writing library files. *Computing News, 57,* 10-12.

⮞ **Newsletter article without author**

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➲ Book, two authors

Ljubojević, K., Dimitrijević, M. (2007). *The enterprise knowledge portal and its architecture*. Subotica: Faculty of Economics.

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➲ Group, corporate, or government author

Statistical office of the Republic of Serbia. (1978). *Statistical abstract of the Republic of Serbia.* Belgrade: Ministry of community and social services.

➲ Edited book

Dimitrijević, M., & Tanasijević, V. (Eds.). (2004). *Data warehouse architecture*. Subotica: Faculty of Economics.

➲ Chapter in an edited book

Boškov, T., & Strakić. F. (2008). Bridging the gap: Complex adaptive knowledge management. In T. Boškov & V. Tanasijević (Eds.), *The enterprise knowledge portal and its architecture* (pp. 55-89). Subotica: Faculty of Economics.

➲ Encyclopedia entry

Mirković, D. (2006). History and the world of mathematicians. In *The new mathematics encyclopedia* (Vol. 56, pp. 23-45). Subotica: Faculty of Economics.

C. Unpublished Works

➲ Paper presented at a meeting or a conference

Ljubojević, K., Tanasijević, V., Dimitrijević, M. (2003). *Designing a web form without tables*. Paper presented at the annual meeting of the Serbian computer alliance, Beograd.

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Boškov, T., Strakić, F., Ljubojević, K., Dimitrijević, M., & Perić, O. (2007. May). *First steps in visual basic for applications*. Unpublished paper, Faculty of Economics Subotica, Subotica.

➲ **Doctoral dissertation**

Strakić, F. (2000). *Managing network services: Managing DNS servers*. Unpublished doctoral dissertation, Faculty of Economics Subotica, Subotica.

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Dimitrijević, M. (2003). *Structural modeling: Class and object diagrams*. Unpublished master's thesis, Faculty of Economics Subotica, Subotica.

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Tanasijević, V. (2003, March). Putting the user at the center of software testing activity. *Strategic Management*, *8*(4). Retrieved October 7, 2004, from www.ef.uns.ac.rs/sm2003

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> According to Mirković (2001), "The use of data warehouses may be limited, especially if they contain confidential data" (p. 201).

> Mirković (2001), found that "the use of data warehouses may be limited" (p. 201). What unexpected impact does this have on the range of availability?

If the author is not named in the introductory phrase, the author's last name, publication year, and the page number in parentheses must be placed at the end of the quotation, e.g.

> He stated, "The use of data warehouses may be limited," but he did not fully explain the possible impact (Mirković, 2001, p. 201).

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> According to Mirković (1991), limitations on the use of databases can be external and software-based, or temporary and even discretion-based (p.201).

> Limitations on the use of databases can be external and software-based, or temporary and even discretion-based (Mirković, 1991, p. 201).

➲ **One author**

> Boškov (2005) compared the access range…

> In an early study of access range (Boškov, 2005), it was found...

➲ When there are **two authors**, both names are always cited:

> Another study (Mirković & Boškov, 2006) concluded that…

➲ If there are **three to five authors**, all authors must be cited the first time. For subsequent references, the first author's name will cited, followed by "et al.".

> (Jovanov, Boškov, Perić, Boškov, & Strakić, 2004).

In subsequent citations, only the first author's name is used, followed by "et al." in the introductory phrase or in parentheses:

> According to Jovanov et al. (2004), further occurences of the phenomenon tend to receive a much wider media coverage.

> Further occurences of the phenomenon tend to receive a much wider media coverage (Jovanov et al., 2004).

In "et al.", "et" is not followed by a full stop.

⊃ Six or more authors

The first author's last name followed by "et al." is used in the introductory phrase or in parentheses:

Yossarian et al. (2004) argued that…

… not relevant (Yossarian et al., 2001).

⊃ Unknown author

If the work does not have an author, the source is cited by its title in the introductory phrase, or the first 1-2 words are placed in the parentheses. Book and report titles must be italicized or underlined, while titles of articles and chapters are placed in quotation marks:

A similar survey was conducted on a number of organizations employing database managers ("Limiting database access", 2005).

If work (such as a newspaper editorial) has no author, the first few words of the title are cited, followed by the year:

("The Objectives of Access Delegation," 2007)

Note: In the rare cases when the word "Anonymous" is used for the author, it is treated as the author's name (Anonymous, 2008). The name Anonymous must then be used as the author in the reference list.

⊃ Organization as an Author

If the author is an organization or a government agency, the organization must be mentioned in the introductory phrase or in the parenthetical citation the first time the source is cited:

According to the Statistical Office of the Republic of Serbia (1978), …

Also, the full name of corporate authors must be listed in the first reference, with an abbreviation in brackets. The abbreviated name will then be used for subsequent references:

The overview is limited to towns with 10,000 inhabitants and up (Statistical Office of the Republic of Serbia [SORS], 1978).

The list does not include schools that were listed as closed down in the previous statistical overview (SORS, 1978).

⊃ When citing **more than one reference from the same author**:

(Bezjak, 1999, 2002)

⊃ When several **used works by the same author were published in the same year**, they must be cited adding a, b, c, and so on, to the publication date:

(Griffith, 2002a, 2002b, 2004)

⊃ **Two or more works in the same parentheses**

When two or more works are cited parenthetically, they must be cited in the same order as they appear in the reference list, separated by a semicolon.

(Bezjak, 1999; Griffith, 2004)

➲ **Two or more works by the same author in the same year**

If two or more sources used in the submission were published by the same author in the same year, the entries in the reference list must be ordered using lower-case letters (a, b, c…) with the year. Lower-case letters will also be used with the year in the in-text citation as well:

> Survey results published in Theissen (2004a) show that…

➲ To **credit an author for discovering a work**, when you have not read the original:

> Bergson's research (as cited in Mirković & Boškov, 2006)…

Here, Mirković & Boškov (2006) will appear in the reference list, while Bergson will not.

➲ When **citing more than one author**, the authors must be listed alphabetically:

> (Britten, 2001; Sturlasson, 2002; Wasserwandt, 1997)

➲ When there is **no publication date**:

> (Hessenberg, n.d.)

➲ **Page numbers must always be given for quotations**:

> (Mirković & Boškov, 2006, p.12)
>
> Mirković & Boškov (2006, p. 12) propose the approach by which "the initial viewpoint…

➲ **Referring to a specific part of a work**:

> (Theissen, 2004a, chap. 3)
>
> (Keaton, 1997, pp. 85-94)

➲ **Personal communications, including interviews, letters, memos, e-mails, and tele-phone conversations**, are cited as below. (These are *not* included in the reference list.)
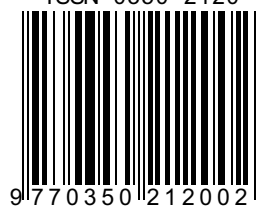
> (K. Ljubojević, personal communication, May 5, 2008).

3. Footnotes and Endnotes

A few footnotes may be necessary when elaborating on an issue raised in the text, adding something that is in indirect connection, or providing supplementary technical information. Footnotes and endnotes are numbered with superscript Arabic numerals at the end of the sentence, like this.[1] Endnotes begin on a separate page, after the end of the text. However, journal **does not recommend the use of footnotes or endnotes.**