ENTREPRENEURSHIP AND SUSTAINABILITY CENTER

Publisher
http://jssidoi.org/esc/home

enterprise europe network
Business Support on Your Doorstep

CASPA

Web of Science

Clarivate Analytics

ASSESSMENT OF FINANCIAL HEALTH OF SERVICE SECTOR COMPANIES IN THE CENTRAL EUROPEAN REGION

Vojtěch Bartoš [1], Marek Vochozka [2], Kateřina Škopková [3]

[1] Brno University of Technology, Kolejní 2906/4, 61200 Brno, Czech Republic
[2,3] Institute of Technology and Business in České Budějovice, Okružní 517/10, 370 01 České Budějovice, Czech Republic

E-mails: [1] bartos@vut.cz; [2] 4017@mail.vstecb.cz; [3] 29652@mail.vstecb.cz

Abstract. The objective was to evaluate the financial development of the service sector affected by anti-pandemic measures against COVID-19, and to propose a strategy for the sector´s further development. To fulfil the objective, the following indicators were used: return on assets (or total capital), return on equity, return on sales, share of sales per employee, cash liquidity, current liquidity and total liquidity. Overall, the service sector in Central Europe can be assessed as being in good economic shape. In terms of profitability indicators, companies in the service sector in Central Europe are above the EU average. All can be summarized quite briefly. In the near future, the Czech Republic must address stabilization of return on sales (which is extremely volatile). Close attention must also be drawn to labour productivity, which is half the European Union average. Finally yet importantly, it is evident that companies use too many fixed assets. Slovakia, Hungary and Poland can be considered stable countries that were not harmed by the COVID-19 pandemic, or were able to quickly eliminate the consequences. They can thus focus on the overall improvement of financial health indicators and sustainable development. Germany, and particularly Austria, can be found at the top of the group. Companies in the service sector are very stable, well above average compared to the EU. However, a certain degree of caution can be observed in relation to them. They can be advised to reduce liquidity of companies, which nowadays works against profitability indicators.

Keywords: service sector; covid-19; financial indicators; strategy for further development

1. Introduction

In recent years, increasing attention in world economies has been paid to the service sector (Farhati and Ortega-Argiles, 2018). Through an analysis of global data on the relationship between services, manufacturing and GDP, Dossani (2018) shows that the relationship of services to economic growth is complex and usually involves the consideration of the manufacturing sector. In the case of India, services and manufacturing grew somewhat unusually and independently for many years, with the independence being largely due to public policies that encouraged low value-added and capital-intensive manufacturing through protectionist policies. Halaskova et al.

(2021) aimed to evaluate the level of fiscal decentralization of expenditures in selected categories of public services in European countries. Their results indicate differences in the degree of decentralization between European countries in providing specific public services, and reflect the form of financing of local public needs. These findings also show that the degree of decentralization of public services is determined to some extent by a respective country's history and geographical location, as well as different roles of sector-specific public policies.

Farhati and Ortega-Argiles (2018) analyse the service sector in Brazil, Russia, India, Indonesia and China (BRIIC), which are the five largest economies in the developing world today. They concluded that with regard to the BRIIC economies, final demand in other sectors did not increase output of services. Their results further suggest that in the BRIIC economies, final domestic demand was the main driver of services growth, accounting for more than 70% of the total effect across all economies. (Szczukocka, 2020) discussed certain transformation taking place in the service sector in Poland in relation to other European Union countries, and analysed internal changes in this sector. Her results show that the main determinant of the level of service sector development is not only its high share in three-sector structures, but also the internal changes observed in the sector itself. It was also found that the share of the service sector prevails in the structures of economies of highly developed countries.

There is a lot of research on the issue of health services – some proving that they are luxury goods, while others proving that health care benefits are a necessity (Ucieklak-Jez et al., 2018). Van Duijn et al. (2018) show that although cross-sectoral integration often focuses on social services and health care, other measures are frequently used as well. Integration can either be tailored to a specific target group or designed for communities in general. Although systems for monitoring and evaluating the integration of social services are often present, they have not been fully developed yet.

In the current business world, an increasing number of brands are competing for market share. As a result, company promotion has become more significant in order to reach target customers. Effective providing of financial services (FS) is driven by strategic application of each element of the marketing communication mix (MCM) in an organization (Frimpong, Hope, and Anane-Donkor, 2022; Fedorko, Bacik, and Gavurova 2018; Gavurova et al. 2020). Third sector organizations need to establish measures and criteria to classify their performance against set objectives in order to clearly demonstrate to their funders that their investment was used fairly and effectively (Tkacova et al. 2017; da Costa et al., 2018). Drobyazko et al. (2020) looked into the theoretical justification and development of methodological approaches and practical recommendations for modelling the assessment of financial stability of companies in the service sector. To assess the financial situation in the hotel industry, he used a visual interpretation of a neural network, a self-organizing Kohonen map model. Types of control maps were identified for each coefficient having significant impact on assessing the financial stability of companies in the service sector.

Alan and Koker (2021) argue that, similar to all industries and activities, the service sector has been affected by the COVID-19 pandemic (Wang et al., 2021; Skare and Riberio Soriano, 2022). The main categories of services that experienced an increase in brand orientation during the pandemic were logistics, cleaning, leisure activities, distance learning and teaching, and storage, while the negatively affected sectors were real estate, tourism, cultural services, and health and legal services (Periokaitė and Dobrovolskienė, 2021; Vasanicova et al., 2022). Xiang et al. (2021) assessed the impact of COVID-19 on the growth and sustainability of the service sector. A comprehensive review of COVID-19 impact on the service industry can be found in Chen, Xu, and Skare (2022), Al-Omoush et al. (2022). As global sectors and industries struggle to anchor themselves amid the pandemic, their paper focuses on sectors that have been hit hard by the epidemic and discusses strategies that different countries are adopting to sustain their economies, pointing out the essential role of information technology and digitization that support economies in their fight against the pandemic and help sustain them in crises (Belas et al., 2022). Gunay and Kurtulmuş (2021) examine the impact of COVID-19 social distancing on the service sector in the US. Results of four industry indices (hotels, entertainment, restaurants and airlines) indicate that conditional

correlations between pairs of indices showed a substantial increase. Iterated Cumulative Sums of Squares (ICSS) tests in dynamic conditional correlations show that while the relationship between airlines and entertainment is unstable, restaurants and hotels show stable co-movement.

When considering tourism, the World Tourism Organization (UNWTO) reported that international arrivals fell by 65% in the first six months of 2020 and yet rose to a whopping 95.2% from April to June. The Telegraph reported that while tourism contributes to approximately 10% of global GDP (330 million jobs), some countries were affected more, for example Croatia, as 20% of its GDP comes from tourism (Ledsom b.r.). Only few industries have been hit as hard by the coronavirus pandemic as hospitality, hotels, restaurants and bars. Isolation and social distancing guidelines have taken their toll – nearly 16 000 restaurants in the U.S. have permanently closed, according to the latest Yelp Economic Average Report (Rosen, 2022).

The objective of this paper is to evaluate the financial development of the service sector affected by anti-pandemic measures against COVID-19, and to propose a strategy for the sector´s further development.
Financial indicators undergo gradual development and it is important to monitor them for better orientation and understanding of the financial situation in the entire service sector. Thus, the first research question is stated as follows:

RQ1: What was the development of financial indicators characterizing the financial health of the service sector in selected EU countries between 2012 and 2021?

However, it is not only important to evaluate the development of financial indicators, but also to look into the most suitable development strategy in relation to the service sector, since the service sector is very important for development of the economies of individual states. The second research question is therefore stated as follows:
RQ2: What is the most suitable development strategy for the service sector?

2. Literature review

Several indicators can be analysed to evaluate the effectiveness of services (Pedrosa et al., 2020; Phan et al., 2021). Bach-Mortensen and Montgomery (2018) claim that the third sector is becoming a more common provider of social and health services. Past research has shown that the third sector is under increasing pressure to evaluate its impact and performance from governments and other contracting authorities. The social services sector is one of the fastest growing industries, but has received little attention in the debate on corporate growth (Rajiani et al., 2018; Reitzinger and Pennerstorfer, 2021). Based on his analysis of economic indicators, particularly gross added value and employment rate, Szczukocka (2020) states that the determinant of the level of service development is not only its high share in three-sector structures, but also the internal changes observed in the sector itself. Da Costa et al. (2018) aimed to propose a performance measurement tool for third sector organizations, which was achieved through a systematic review, and their results showed a wide range of indicators that can be divided into 7 dimensions proposed in their study: economic/financial, control mechanisms, staff/volunteers, organizational effectiveness, service effectiveness, social effectiveness and legitimizing institutions.

The COVID-19 outbreak that emerged in late 2019 has had significant and ongoing global impact (Jones, 2021). Ma et al. (2021) aimed to explore transient output dynamics of the service sector using stochastic kernel analyses. Their results show that the Global North will continue to make more progress, while output capacity in many countries in the Global South is struggling to reach the global average. On the basis of analysing 563 Italian third sector entities (ETS), Corvo et al. (2022) aimed to explore the current state and extent of potential changes in collaboration between organizations belonging to the third sector and the Italian public administration system in response to the emerging COVID-19 situation. Their findings revealed that the COVID-19 pandemic has affected internal operational and functioning mechanisms of organizations operating in the third sector.

Panno (2019) argues that the traditional financial indicators include relevant net profits, profitability ratios such as return on investment and return on sales, revenue per available room, occupancy rate and some cost-effectiveness ratios, while there is a great use of non-financial metrics such as customer satisfaction, number of complaints, number of new and repeat customers, competence and skills of employees.

Paul et al. (2021) cites banks as an example, as for each of them it is necessary to constantly monitor its efficiency by tracking relevant issues such as non-performing assets, capital risk-weighted asset ratio, number of companies per employee, return on assets (ROA) and profit per employee. Wushe and Shenje (2019) adopted a quantitative research design and showed that antecedents of employee engagement, such as effective leadership, training and career development, reward and incentive programs, organizational policies and procedures, have significantly influenced employee engagement in the public sector. Jedlicka and Jedlicka (2019) chose cluster analysis as their research method and were able to subsequently state that companies from the service sector use more tax planning than companies from other sectors.

Jandaghi et al. (2021) showed that variables such as EBIT to total sales, equity ratio, current ratio, cash ratio and debt ratio are the most effective factors in forecasting the health of companies.

Verstraete, Aghezzaf, and Desmet (2020) examined the use of leading macroeconomic indicators in the tactical sales forecasting process, and created a forecasting framework that automatically selects relevant variables and predicts future sales. The analysis performed showed that the proposed framework achieves a reduction of the average absolute percentage error by 54.5% compared to the naive forecasting method.

Zayas-Mateo and Martinez-Lorente (2021) analysed a set of 179 ISO 9001:2008 certified companies and 154 non-certified companies, as well as accounting data on net sales and operating income (EBIT: earnings before interest and taxes) from 2004 to 2012. Companies from the industrial and service sectors showed mixed results. Certified industrial companies achieved better results than their non-certified counterparts. (Kumar Sharma, 2018) dealt with determinants of capital structure, where nine firm-level explanatory variables (profitability – EBIT margin, return on assets, revenue volatility, debt-free tax shield, tangibility, size, growth, debt service age ratio, and tax shield) were selected and regressed against relevant measures of capital structure. The findings showed that profitability, size, age, debt service capacity growth and tax shield variables are significant determinants at the firm level. Experimental results according to Matenda et al. (2021) show that ratios of earnings before interest and taxes (EBIT) to total assets, bank debt to total assets, EBIT to total liabilities, receivables to net sales and ratios of current assets minus current liabilities to total assets, age of firms, real growth rate of gross domestic product, and inflation rate are strong determinants of the probability of insolvency of Zimbabwean private firms.
According to Al Ajlouni (2017), liquidity is one of the most critical issues that financial management of business firms must consider in order to meet their financial obligations. Analysing indicators of the structure of balance sheet assets and liabilities must result in the evaluation of return on business capital, percentage of working capital and inventories on total assets, state of receivables and cash instalments of supplies, as well as the evaluation of financial policy and aspects related to stability and financial autonomy (Andreica 2006).

The following indicators appear to be the most suitable for fulfilling the objective of this paper: return on assets (or total capital), return on equity, return on sales, share of sales per employee, cash liquidity, current liquidity and total liquidity.

3. Methods

Data for studying the service sector´s financial health will be taken from the Amadeus database. Specifically, there will be data related to companies in the service sector according to NACE, hence including the following: 09 – Mining support service activities, 39 – Remediation activities and other waste management services, 56 – Food and beverage service activities, 63 – Information service activities, 66 – Activities auxiliary to financial services and insurance activities, 79 – Travel agency, tour operator reservation service and related activities, 81 – Services to buildings and landscape activities, 96 – Other personal service activities. The service sector in the Czech Republic, Slovakia, Poland, Hungary, Germany and Austria will be monitored from the year 2012 to the year 2021, and the corresponding results will also be compared with regard to the European Union in the period under review. All companies listed in the database will be included in calculations provided there are necessary data available in terms of selected financial indicators for calculations in a given year.

Prior to performing the analysis, an indicator of the economic strength of an observed country in the form of gross domestic product per inhabitant (capita) will be illustrated. The data will be taken from the Wolframalpha database.

To obtain data required for answering the first research question above, the following indicators were selected as part of the research: return on assets (or total capital), return on equity, return on sales, share of sales per employee, cash liquidity, current liquidity and total liquidity.

Return on assets will be derived from the following formula:

$$ROA = \frac{EBIT}{A} \cdot 100, \tag{1}$$

where   ROA   represents return on assets expressed in percentages,
       EBIT   represents earnings before interest and taxes,
       A   represents assets.

Owing to the indicator and depending on the viewpoint, it will be possible to obtain information on how all assets and company resources are evaluated in the service sector.

Return on equity will be derived from the following formula:

$$ROE = \frac{EAT}{E} \cdot 100, \tag{2}$$

where   ROE   represents return on equity expressed in percentages,
       EAT   represents earnings after taxes,
       E   represents equity.

ROE will clarify certain attractiveness of the service sector for investors wishing to allocate their resources over a long period of time and buy shares in companies offering services.

The third profitability indicator involves return on sales:

$$ROS = \frac{EAT}{S} \cdot 100, \tag{3}$$

where   ROS   represents return on sales expressed in percentages,
       S   represents sales.

Return on sales determines what share of sales is constituted after tax. Management and owners request ideally the highest possible values in the case of profitability indicators.

Labour productivity indicator will be included as well:

$$S/EMP = \frac{S}{EMP}, \tag{4}$$

where   EMP   represents the number of employees.

The above indicator reveals how much (in thousands of Euros) one service sector employee generates in terms of sales. In this case, company management also requests ideally the highest possible value.

Additionally, three liquidity indicators were included in the evaluation. First, cash liquidity (CL) will be presented:

$$CL = \frac{current\ financial\ assets}{current\ liabilities}.$$

(5)

The above indicator provides information on what cash resources are available to companies in the service sector and how they are able to pay their obligations. If their value is too low, companies run the risk of not being able to meet their obligations. On the contrary, in the case of high values, companies will generate too large implicit costs.

Then, current liquidity (CL) will be calculated:

$$CL = \frac{current\ assets - inventories}{current\ liabilities}.$$

(6)

In this case, it is assumed that receivables, considered to be very liquid, can also be used to pay off liabilities. Optimal values, not maximum or minimum, are sought here.

Lastly, total liquidity will be used:

$$Total\ liquidity = \frac{current\ assets}{current\ liabilities}.$$

(7)

Here, it is assumed that all current assets (including inventories) can be quickly converted into money and the money can be used to pay company obligations. Even in this case, optimal values, not maximum or minimum, are sought.

For each monitored country and indicator under review, the Winsorized mean will be calculated according to the following formula:

$$\overline{x_w}(\vartheta) = \frac{1}{n}\left[(M+1)\left(x_{(M+1)} + x_{(n-M)}\right) + \sum_{i=M+2}^{n-M-1} x_{(i)}\right]$$

(8)

where   x   represents statistics in the i order,

        n   represents the number of sample values.

Using a causal analysis, the above second research question will then respond to weaknesses identified in relation to the results of the first research question. The output will comprise recommendations for companies in the service sector.

4. Results

The map below in Figure 1 shows gross domestic product per capita (expressed in Euros) for the year 2020, specifically in the Czech Republic, Germany, Austria, Slovakia, Hungary and Poland.

Figure 1. Gross domestic product per capita in Euros for the year 2020
Source: Wolframalfa.com

GDP is depicted on the map with the use of colours, where the smallest GDP is shown in yellow, and then the rule is that the darker the colour, the greater the GDP is. Compared to the other countries on the GDP map, Hungary and Poland clearly have the smallest GDP, i.e., under EUR 20 000. They are followed by Slovakia, where the GDP reaches around EUR 20 000, and the Czech Republic slightly exceeding EUR 20 000. The best GDP can be observed in Germany and Austria (i.e., around EUR 45 000).

The graph below in Figure 2 shows gross domestic product per capita (expressed in Euros) from the year 2012 to the year 2020.
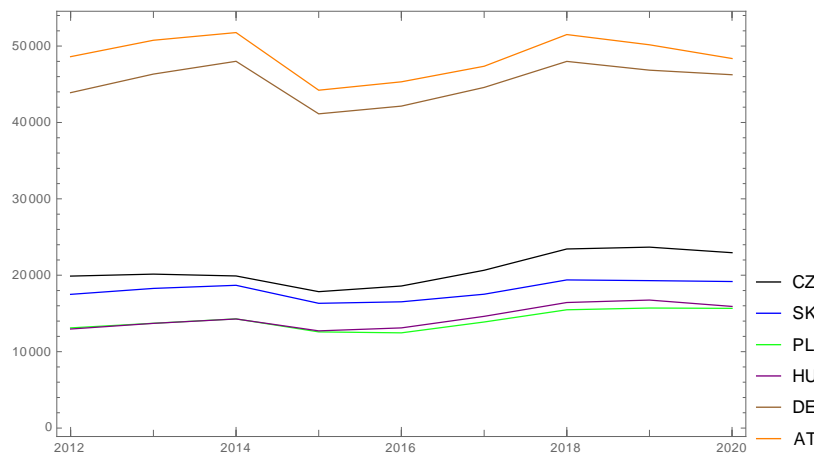
Figure 2. Gross domestic product per capita in Euros between 2012 and 2020
Source: Wolframalfa.com

Individual years are shown on the X-axis and amounts in EUR are shown on the Y-axis. The curves of individual countries are colour-coded and involve the same countries as in the previous Figure. Austria clearly has the highest GDP (i.e. above EUR 50 000). It is followed by Germany with a similar-looking curve, where the average GDP is between EUR 40 000 and EUR 50 000. Other countries do not reach such figures, with the Czech Republic being third and also being the only one of the remaining countries to reach over EUR 20 000. The Czech Republic is followed by Slovakia hovering slightly below EUR 20 000. Hungary and Poland finish last, their curves are almost the same except for minor fluctuations.

4.1 Financial health of the service sector in selected EU countries between 2012 and 2021

The map below in Figure 3 shows return on assets (expressed in percentages) for the year 2021.
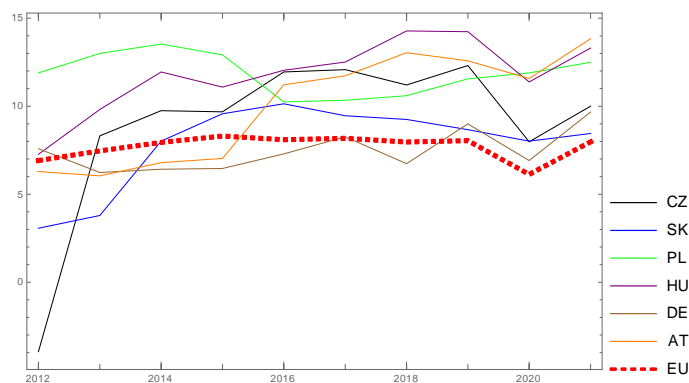

Figure 3. Return on assets in percentages for the year 2021

Source: Authors according to the Amadeus database.

Again, involved are the same countries as in Figure 1 above. A similar rule regarding colours will also apply here, i.e., the darker the colour, the greater the return on assets is. Slovakia clearly has the lowest return on assets (slightly below 8%), followed by Germany together with the Czech Republic (approximately 8%). Hungary is next to last, together with Poland, where return on assets reached over 10%. The best of the entire map is Austria, which managed to reach a value of over 14%.

Figure 4 shows a graph representing return on assets development (expressed in percentages) from the year 2012 to the year 2021.

Figure 4. Return on assets in percentages between 2012 and 2021

Source: Authors according to the Amadeus database.

Percentages are shown on the vertical axis and individual years are shown on the horizontal axis. The same countries as in the previous Figures will be regarded again, with the EU being added here as well. The countries

are mutually distinguished by means of coloured curves. None of the curves can be said to be constant. On the contrary, they are all very variable (unless counting the Czech Republic) and range from 3 % to 14%. The biggest leap can be observed in relation to the Czech Republic, which managed to move from a negative value to approximately 13% (2019). The highest return on assets was achieved by Hungary. The curve showing the EU is the most constant one moving between 7% and 8% all the time. The only dip occurred in 2020, when it reached 6%.

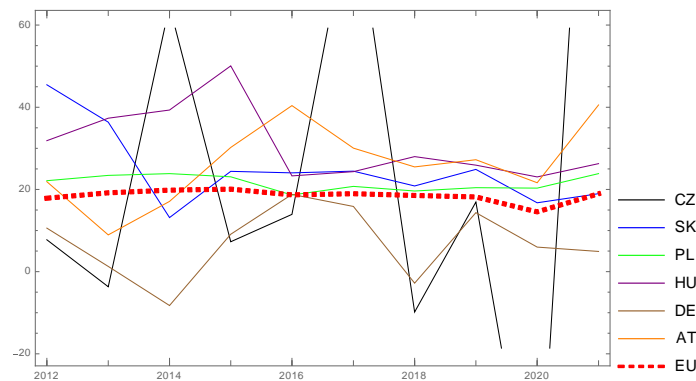The map below in Figure 5 shows return on equity (expressed in percentages) for the year 2021.

Figure 5. Return on equity in percentages for the year 2021
Source: Authors according to the Amadeus database.

The principle of the map is still similar, i.e., the darker the colour, the greater the return on equity is. The Czech Republic clearly has the highest return on equity (around 175%). It is followed by Germany, where the percentages should be around 90%. Austria comes in third with 40.56%. The remaining countries (Poland, Slovakia and Hungary) have their return on equity below 30%.

In Figure 6, it is possible to observe return on equity (expressed in percentages) from the year 2012 to the year 2021.

Figure 6. Return on equity expressed in percentages between 2012 and 2021
Source: Authors according to the Amadeus database

As regards the Y-axis, it illustrates return on equity in percentages, whereas the X-axis captures individual years (2012-2021). Individual countries are marked with the use of curves that are different from each other in colour, with the curve representing the EU being red and dashed. It may be gathered that none of the curves except the

one showing the EU is constant. The curve belonging to the Czech Republic reaches the greatest extremes. However, when excluding the Czech Republic, then the minimum of all curves is around - 10% (Germany, 2014), whilst the maximum of the entire graph is 50% (Hungary, 2015). The curve showing the EU, which can be considered constant, achieves a value of around 20% from 2012 to 2019, with the only smaller dip occurring in 2020, but compared to the other curves it is negligible.

The map below in Figure 7 illustrates return on sales (expressed in percentages) in individual countries for the year 2021.

Figure 7. Return on sales in percentages for the year 2021
Source: Authors according to the Amadeus database

The Czech Republic clearly shows the lowest Return on Sales. As the only one of the countries under review, it is highlighted in yellow, which means that Return on Sales is about -17 %. In other countries, the situation is slightly better, namely Slovakia and Germany reach the values of 3 – 5 %; Return on Sales in Poland is slightly above 9%; in Austria, Return on Sales is by nearly 2 % higher than in Poland. The highest Return on Sales is recorded in Hungary, reaching the value above 15 %.

The graph in Figure 8 show Return on Sales in percentage for the years 2012–2021. The countries are the same as in the previous figures.
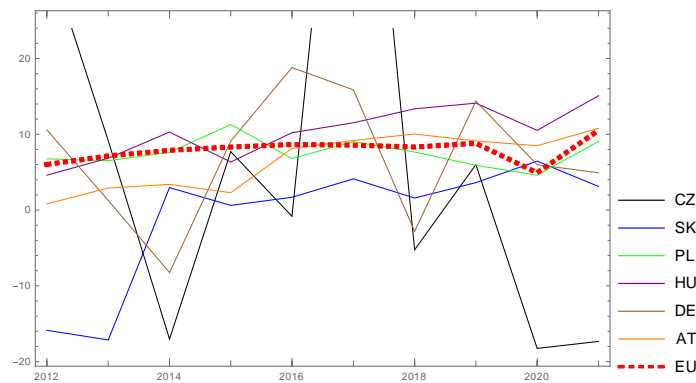
Figure 8. Return on Sales (in percentage) in the years 2012-2021
Source: Author according to Amadeus

The Y-axis shows Return on Sales in percentage; the X-axis presents the individual years (2012-2021). Return on Sales is represented using curves market with different colours. Neither of the curves can be considered constant; however, the smallest fluctuations can be seen in the case of the curve representing the EU, which remained quite

stably at 6 – 9 % between 2012 and 2019. In 2020, it fell to nearly 5 % but started to grow again in 2021, reaching more than 10 %. The greatest extremes are reached in the case of the curve representing the Czech Republic. But if the Czech Republic is left aside, the minimum of all curves is -17 % (Slovakia, 2013) and maximum 18.8 % (Germany, 2016).

The map in Figure 9 shows the sales (in thousand Euro) per employee in individual countries in 2021.

Figure 9. Sales (in thousand Euro) per employee in 2021
Source: Author according to Amadeus

The lowest sales per employee was recorded in the case of Hungary (EUR 113,42 k). Hungry is followed by the Czech Republic, where sales reach the amount of EUR 117,18 k. Poland and Slovakia show similar values, with Poland reaching the volume of sales per employee of 177,94 k. In Slovakia, the amount was by 14,5 k Euro higher. The next country is Austria, where the amount was 222,42 k Euro. The highest sales were achieved in Germany, where the amount was more than 2 times higher than in the case of Austria.

The graph in Figure 10 shows sales per employee (in thousand Euro) in the years 2012–2021. The countries are the same as in the previous figures.
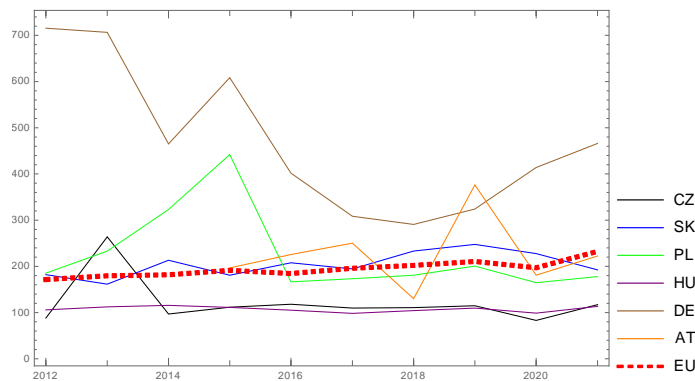
Figure 10. Sales per employee (in thousand Euro) in the years 2012-2021
Source: Author according to Amadeus

The Y-axis shows the sales per employee in thousand Euro; the X-axis shows the individual years (2012-2021). The sales per employee are represented by means of graphs marked with different colors. Only 2 of the curves can

385

be described as nearly constant, with the curve that represents Hungary showing the smallest fluctuations. The values in the case of Hungary vary quite reliably between 98,28 and 115,54 thousand Euro. Another nearly constant curve represents the EU, whose values range between 171,48 and 232,37 thousand Euro. The greatest extremes can be seen in the case of Germany, with the minimum values being 290,78 thousand Euro (2018) and maximum 715,57 thousand Euro (2012), which is also the maximum value in the whole graph. The minimum value for the whole graph was recorded in the case of the Czech Republic, where the value reaches 83,08 thousand Euro (2020). The map in Figure 11 shows cash liquidity in 2021.

Figure 11. Cash liquidity in 2021
Source: Author according to Amadeus

The situation in Poland, the Czech Republic, Slovakia and Hungary is the worst, with the values ranging from 2,17 to 5,53. The values for Germany are higher, specifically 40,20. The highest values were recorded in Austria, reaching more than 2 times higher values of cash liquidity than Germany, specifically 101,34.

Graph in Figure 12 shows the development of cash liquidity in the years 2012-2021.
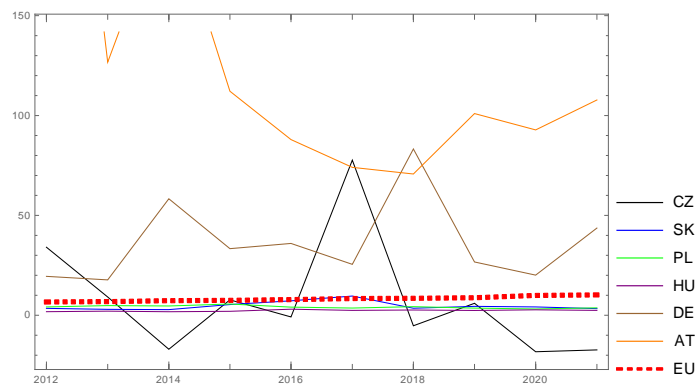
Figure 12. Cash liquidity in the years 2012-2021
Source: Author according to Amadeus

Cash liquidity is represented by means of curves marked with different colours. The Y-axis shows liquidity, while the X-axis present given years (2012-2021). The highest values of cash liquidity within the whole graph are recorded in Austria, which, however, also showed a significant fall between 2015 and 2019, specifically from the value of 353,06 to 66,04. Another country where the curve is not constant is Germany, with the minimum value of 16,82 in 2013 and maximum in 2018 (83,18). Similar trend can be seen in the case of the Czech Republic, which,

however, reaches lower values. The EU, Poland, Slovakia, and Hungary have nearly constant curves, with the average value being about 4.

The map in Figure 13 shows the current liquidity in the year 2021.

Figure 13. Current liquidity in 2021
Source: Author according to Amadeus

Poland, the Czech Republic, Slovakia, and Hungary show the lowest values, ranging from 2,44 to 5,64. The situation in Germany is slightly better, with the values reaching about 43,67. Austria then shows the highest results, with the values of cash liquidity being twice as high than in Germany, specifically 107,8.
Graph in figure 14 shows the trend of current liquidity in the years 2012-2021
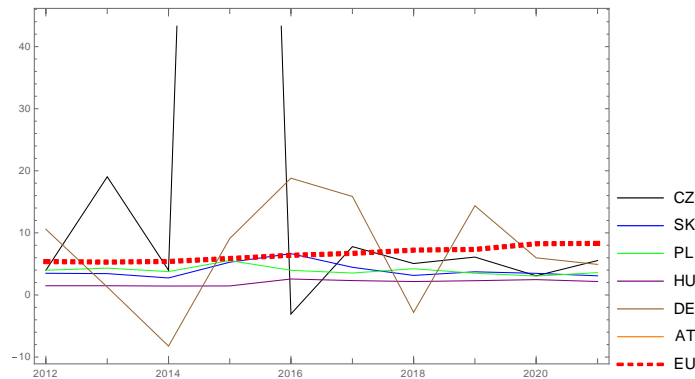
Figure 14. Current liquidity in the years 2012-2021
Source: Author according to Amadeus

Current liquidity is represented in the form of curves, which are marked with different colours. The Y-axis shows liquidity; the X-axis presents a given year (2012-2021). Individual countries can be divided into two groups where the first one will include countries that are rather constant, i.e., Hungary, Poland, Slovakia, and the EU. These countries, as well as the whole EU, range between 0 and 10. The second group includes countries that show greater extremes, i.e., the Czech Republic and Germany. The first of the countries started at the value of 4,14 in 2012, then showed an increase to 19,23, which was followed by a fall to 4,15. In 2015, the curve grew sharply to 305,46, but fell again and reached negative values. In the next years, it fluctuated between 0 and 10.
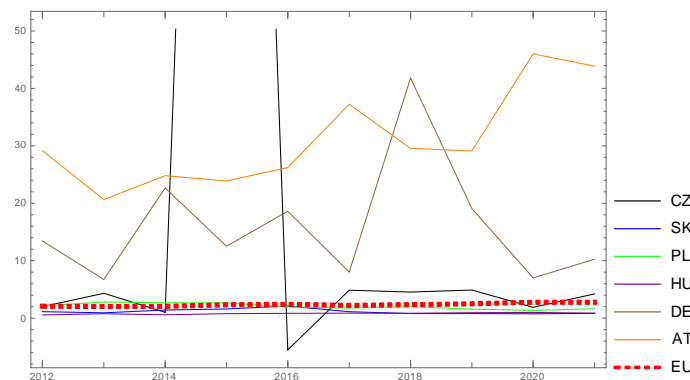
The map in Figure 15 shows the total liquidity in the year 2021.

Figure 15. Total liquidity in the year 2021
Source: Author according to Amadeus

The lowest values of the total liquidity in the whole map can be seen in the case of Slovakia and Hungary, with the specific values being 0,82 for Slovakia and 0,87 for Hungary. These countries are followed by Poland, with the value reaching 1,63. The situation is slightly better in the Czech Republic where the total liquidity is more than 2,5 times as high than in Poland. Germany shows the second-best values of total liquidity, specifically 10,26. The best values were recorded in Austria, which shows 4 times as high total liquidity values than Germany, specifically 43,89.

Figure 16 shows a graph that represents the development of the total liquidity in the years 2012-2021.

Figure 16. Total liquidity in the years 2012-2021
Source: Author according to Amadeus

Total liquidity is represented by means of curves marked with different colours. The Y-axis shows liquidity; the X-axis a specific year (2012-2021). Individual countries under review can be divided into two groups. The first group includes countries that show rather constant values, i.e., Hungary, Poland, Slovakia, and the EU. The values of the above countries, as well as the whole EU, range between 0 and 3. The second group contains the countries that show various extremes, i.e., the Czech Republic, Germany, and Austria. The Czech Republic started at the value of 1,88 in 2012. Over the next three years, the values rocketed to the value of 286,36, which was, however, followed by a fall to negative values, specifically -5,54. In 2021, the final value was 4,22. The values of total liquidity in Germany changed every year, showing both increase and decrease. The only year for which this statement is not valid for the year 2019. In that year, the curve fell for the second time in a row.

5. Discussion

RQ1: What was the trend of financial rations characterising the financial health of the service sector in the selected EU countries between 2012 and 2021?
The results can be summarized according to the development of individual ratios and the relationships between individual ratios.

The Czech Republic is characterised by a relatively high appreciation of assets. However, other indicators show rather a poor condition of the service sector for the whole monitored period. The level of Return on Sales and sales per one employee in the sector can be considered alarming. Return on Sales show relatively large fluctuations. In the last years of the monitored period, the values are significantly below zero, slightly above -20 %. Sales per employee in the service sector are at the level reaching 50 % of the EU average values. Nevertheless, Czech companies show relatively stable liquidity, facing an increased business risk at the time when the country was hit by the COVID-19 pandemic. During the pandemic, a lot of companies operating in the service sector went bankrupt and a lot of employees left the sector. Unfortunately, this did not result in increasing the productivity of the remaining employees. At the same time, Czech companies need to consider the reduction or elimination of operationally unnecessary assets.

The values of the monitored indicators for the Slovak Republic are closer to the EU average than the values of the Czech Republic. The only exception was the beginning of the monitored period in the case of Return on Sales. Slovakia can be considered a country where the service sector is stable in the long run and business risk is relatively low. The country did very well with the consequences of the COVID-19 pandemic and the measures taken did not have any significant negative effect on the Slovak service sector.

Poland shows similar values and should be evaluated approximately in the same way as Slovakia. The service sector is stable and has not been affected by the COVID-19 pandemic. As a stable sector, it can focus on the long-term sustainable development.

Hungary reaches above-average, or rather above-average values of all monitored indicators. The only exception is the volume of sales per employee in the service sector. As in the case of the Czech Republic, the values reach 50 % of the EU values. This means that the Hungarian service sector is stable in the long run and subjects to minimal business risk. However, it shall be added that the productivity is not high and attention should be paid to its increase. Hungary was not negatively affected by the COVID-19 in terms of the service sector.

Germany benefits from high GDP per capita that has been generated in the long run. Profitability ratios are not very high; however, Germany shows a long-term high liquidity and reduces business risks of companies operating in the service sector to the expense of profitability. It can be stated that the German service sector has not been affected by the pandemic, either. Its performance is close to the EU average values.

Austria appears to be the winner in terms of the performance and characteristics of the companies in service sector in Central Europe. The profitability ratios always achieve very high values. The companies generate high sales per employee and maintain high liquidity. Moreover, Austria shows the highest GDP per capita of all monitored countries.

RQ2: What is the most suitable strategy for the development of the service sector?
Based on the results and ongoing discussion, the future strategy in the service sector in the countries under review can be formulated.
Companies in the Czech Republic should focus their attention on the sale of operationally unnecessary assets. They are also recommended to reduce the number of employees or increase the volume of sales. If the assumption

remains that the companies have satisfied the demand, layoffs are the solution. At the same time, the companies should stabilize sales, probably by stabilizing the prices of their outputs.

Slovak companies are in good condition on average. They can focus on gradual increasing (it can be just moderate) of all profitability ratios, sales per employee, and liquidity.

Companies in Poland are in good condition on average. They can also focus on gradual increasing (it can be just moderate) of all profitability ratios, sales per employee, and liquidity. The priority should be focus on increasing labour productivity in the sector.

On average, Hungarian companies are also in good condition. However, it is necessary for them to focus on labor productivity and reduce the number of employees in the sector so that they at least reach the EU average values. Companies in the German service sector are also in good condition. The companies should try to lower their liquidity and thus improve the Return on Assets and Return on Equity.

Austrian companies show an excellent condition. However, certain shortcomings can be seen in excessively high liquidity. As in Germany, they are recommended to reduce their liquidity and thus improve their Return on Asset and Return on Equity.

Conclusions

The goal of the paper was to evaluate the financial development of the service sector affected by the anti-pandemic measures adopted to stop the spread of COVID-19 and propose the strategy for further development of this sector.

The goal of the paper was achieved. Overall, the service sector in Central Europe can be evaluated as being in good condition. The values of profitability ratios of the companies operating in Central Europe are above the EU average. The values of other ratios are lower, but the average in total is close to the average of the EU. The sample included countries with excellent results, such as Austria, as well as countries with relatively worse results for the companies in the service sector, such as the Czech Republic. The findings can be summarized relatively briefly as follows: In the near future, the Czech Republic should focus on the stabilization of its Return on Sales (which shows extreme fluctuations). Great attention needs to be paid to labour productivity, which achieves 50 % of the EU average. Also, the companies clearly use too many fixed assets. Slovakia, Hungary and Poland can be considered stable countries that were not affected by the COVID-19 pandemic or were able to eliminate the consequences very fast. They can thus focus on the overall improvement of the financial health indicators and sustainable development. Germany and mainly Austria can be considered the winners in the monitored group of countries. The companies operating in the service sector are very stable, even above-average in comparison with the EU. However, there can be seen certain caution. Therefore, these countries can also improve their balance in the service sector. They can be recommended to reduce the liquidity of companies, which now works against profitability ratios.

The limitations of the research are clearly in the sample of companies. A non-representative sample of companies might have been used, or there might have been values incorrectly entered in the Amadeus database. However, there is a noticeable benefit for benchmarking of the monitored sector.

References

Al Ajlouni, A. T. (2017). Interest free liquidity management scheme (time-weighted debt units). *International Journal of Islamic and Middle Eastern Finance and Management*, 10(1), 60-76. https://doi.org/10.1108/IMEFM-05-2015-0060

Al-Omoush, K. S., Ribeiro-Navarrete, S., Lassala, C., & Skare, M. (2022). Networking and knowledge creation: Social capital and collaborative innovation in responding to the COVID-19 crisis. *Journal of Innovation & Knowledge*, 7(2), 100181. https://doi.org/10.1016/j.jik.2022.100181

Alan, H., & Koker, A., R. (2021). The Effects of COVID-19 Pandemic on Service Sector Branding Tendency: Evidence from Turkey. *Ege Academic Review*, 21(3), 227-245. http://doi.org/10.21121/eab.959927

Amadeus [online]. Netherland: Bureau van Dijk, 2022. https://www.bvdinfo.com/en-gb/our-products/data/international/amadeus

Andreica, I. (2006). The analyze of structure's indicators of the balance sheet asset and liabilities. In: R. SESTRAS, ed. Bulletin of the University of Agricultural Sciences and Veterinary   Medicine, 63. HORTICULTURE [online]. Cluj-Napoca: Academic Press, 111–115. http://www.webofscience.com/wos/woscc/full-record/WOS:000245240200023

Bach-Mortensen, A. M., Montgomery, P. (2018). What are the barriers and facilitators for third sector organisations (non-profits) to evaluate their services? A systematic review. *Systematic Reviews*, 7, 13. http://doi.org/10.1186/s13643-018-0681-1

Belas, J., Škare, M., Gavurova, B., Dvorsky, J. & Kotaskova, A. (2022). The impact of ethical and CSR factors on engineers' attitudes towards SMEs sustainability. *Journal of Business Research*, 149, 589-598. https://doi.org/10.1016/j.jbusres.2022.05.056

Chen, S., Xu, Z., & Skare, M. (2022). The impact of COVID-19 on the service business industry: insights from a bibliometric review. *Total Quality Management & Business Excellence*, 1-35. https://doi.org/10.1080/14783363.2022.2078188

Corvo, L., Pastore, L., Mastrodascio, M., & Tricarico, L. (2022). The Impact of COVID-19 on Public/Third-Sector Collaboration in the Italian Context. *Sustainability*, 14(4), 2228. https://doi.org/10.3390/su14042228

Da Costa, L. M., Goncalves Tondolo, V. A., Portella Tondolo, R. da R., Longaray, A. A. & Ferro de Guimaraes, J. C. (2018). Evaluation of Performance in Organizations of the Third Sector: A Proposal Indicators Based on Systematic Review of Literature about the Subject. *Revista Eletronica De Estrategia E Negocios-Reen*, 11(3), 109-135. https://doi.org/10.19177/reen.v11e32018109-135

Dossani, R. (2018). The service sector in India. *Decision*, 45(2), 147-160. https://doi.org/10.1007/s40622-018-0173-0

Drobyazko, S., Barwinska_Malajowicz, A., Slusarczyk, B., Chubukova, O., & Bielialov, T. (2020). Risk Management in the System of Financial Stability of the Service Enterprise. *Journal of Risk and Financial Management*, 13(12), 300. https://doi.org/10.3390/jrfm13120300

Farhati, M., & Ortega-Argiles, R. (2018). Growth of service sector in BRIIC economies. *Economic Journal of Emerging Markets*, 10(1), 40-52. https://doi.org/10.20885/ejem.vol10.iss1.art5

Fedorko, I., Bacik, R., & Gavurova, B. (2018). Technology acceptance model in e-commerce segment. *Management & Marketing Challenges for the Knowledge Society*, 13(4), 1242-1256. https://doi.org/10.2478/mmcks-2018-0034

Frimpong, D. K. S., Hope, E., & Anane-Donkor, L. (2022). Investigating Marketing Communication Mix on Brand Performance Indicators: Evidence From the Financial Service sector in Ghana. *International Journal of Online Marketing*, 12(1). https://doi.org/10.4018/IJOM.299400

Gavurova, B., Belas, J., Bilan, J., & Horak, J. (2020). Study of legislative and administrative obstacles to SMEs business in the Czech Republic and Slovakia. *Oeconomia Copernicana*, 11(4), 689-719. https://doi.org/10.24136/oc.2020.028

Gunaya, S., & Kurtulmuş, B.E. (2021). COVID-19 social distancing and the US service sector: What do we learn? *Research in International Business and Finance*, 56, 101361 https://doi.org/10.1016/j.ribaf.2020.101361

Halaskova, M., Halaskova, R., Gavurova, B., & Kubak, M. (2021). Fiscal Decentralisation of Services: The Case of the Local Public Sector in European Countries. *Journal of Tourism and Services*, 12(23), 26-43. https://doi.org/10.29036/jots.v12i23.234

Cehn, Q., Tsubaki, M. (2020). Bayesian-Network Time-Series Analysis Based on Employee's Sales Skills. In: 2020 the 6th Ieee International Conference on Information Management (icim 2020). New York: Ieee, 35-40. http://www.webofscience.com/wos/woscc/full-record/WOS:000588565200006

Jandaghi, G., Saranj, A., Rajaei, R., Ghasemi, A., & Tehrani, R. (2021). Identification of the Most Critical Factors in Bankruptcy Prediction and Credit Classification of Companies. *Iranian Journal of Management Studies*, 14(4), 817-834. https://doi.org/10.22059/IJMS.2021.285398.673712

Jedlicka, V., & Jedlicka, P. (2019). Sectors in the Czech Republic and International Tax Planning. In: P. Jedlicka, P. Maresova and I. Soukal, ed. Hradec Economic Days, 9(1). Hradec Kralove 3: Univ Hradec Kralove, pp. 339-347. http://www.webofscience.com/wos/woscc/full-record/WOS:000461883000033

Jones, C. (2021). The impact of the COVID-19 pandemic on the third sector and carers in the UK. *International Journal of Care and Caring*, 5(3), 529-534. https://doi.org/10.1332/239788221X16171137895838

Kumar Sharma, R. (2018). Factors affecting financial leveraging for BSE listed real estate development companies in India. *Journal of Financial Management of Property and Construction*, 23(3), 274-294.

Ledsom, A. (2020). Which Countries Did Worse in The "Deadly Summer" Of Tourism? Forbes. https://www.forbes.com/sites/alexledsom/2020/10/03/which-countries-did-worse-in-the-deadly-summer-of-tourism/

Ma, N., Shum, W. Y., Han, T., & Cheong, T. S. (2021). Global Inequality in Service Sector Development: Trend and Convergence. *Frontiers in Psychology*, 12, 792950. https://doi.org/10.3389/fpsyg.2021.792950

Matenda, F. R., Sibanda, M., Chikodza, E., Gumbo, V. (2021). Corporate default risk modeling under distressed economic and financial conditions in a developing economy. Journal of Credit Risk, 17(1), 89-115. https://doi.org/10.21314/JCR.2020.267

Panno, A. (2019). Performance measurement and management in small companies of the service sector; evidence from a sample of Italian hotels. Measuring Business Excellence [online]. 24(2), 133-160. https://doi.org/10.1108/MBE-01-2018-0004

Paul, P., Bose, S. K., Roy, S., & Dhalla, R. S. (2021). Strategic grouping of Indian Public Sector Banks (PSBS): service quality and financial performance. *Total Quality Management & Business Excellence*, 32(7-8), 898-920. https://doi.org/10.1080/14783363.2019.1651196

Pedrosa, G. V., Kosloski, R. A. D., de Menezes, V. G., Iwama, G. Y., da Silva W. C. M. P. & Figueiredo, R. M. C. (2020). A Systematic Review of Indicators for Evaluating the Effectiveness of Digital Public Services. *Information*, 11(10), 472. https://doi.org/10.3390/info11100472

Periokaitė, P., & Dobrovolskienė, N. (2021). The impact of COVID-19 on the financial performance: a case study of the Lithuanian transport sector. *Insights into Regional Development,* 3(4), 34-50. https://doi.org/10.9770/IRD.2021.3.4(3)

Phan, T. C. L., Nguyen, N. D., Cao, V. Tien (2021). The role of management training in improving customer service quality. Polish Journal of Management Studies, 23(2), 386-402. https://doi.org/10.17512/pjms.2021.23.2.23

Rajiani, I., Bačík, R., Fedorko, R., Rigelský, M., Szczepanska-Woszczyna, K. (2018). The alternative model for quality evaluation of health care facilities based on outputs of management processes. *Polish Journal of Management Studies*, 17(1), 194-208. https://doi.org/10.17512/pjms.2018.17.1.16

Reitzinger, S., & Pennerstorfer, A. (2021). The size-growth relationship in the social service sector in Austria. *Service Business*, 15(3), 445-466. https://doi.org/10.1007/s11628-021-00447-8

Rosen, E. (2022). New Los Angeles Tourism Campaign Targets Locals Save Hotels and Restaurants. Forbes. https://www.forbes.com/sites/ericrosen/2020/09/01/new-los-angeles-tourism-campaign-targets-locals-save-hotels-and-restaurants/

Skare, M., & Riberio Soriano, D. (2022). Explaining COVID-19 shock wave mechanism in the European service industry using convergence clubs analysis. *Service Business,* 16, 283-307. https://doi.org/10.1007/s11628-021-00471-8

Szcuzukocka, A. (2020). Development of the service sector in Poland compared to other European Union countries: an extended analysis. *Economic Annals-Xxi*, 185(9-10), 15-26. https://doi.org/10.21003/ea.V185-02

Tkacova, A., Gavurova, B., Danko, J., & Cepel, M. (2017). The importance of evaluation of economic determinants in public procurement processes in Slovakia in 2010-2016. *Oeconomia Copernicana*, 8(3), 367-382. https://doi.org/10.24136/oc.v8i3.23

Ucieklak-Jez, P., Bem, A., Predkiewicz, P., & Siedlecki, R. (2018). Are Health-Care Services Luxury Goods? In: D. Prochazka, ed. Impact of Globalization on International Finance and Accounting. Cham: Springer International Publishing Ag, p. 265-271. https://doi.org/10.1007/978-3-319-68762-9_28

Van Duijn, S., Zonneveld, N., Montero, Al. L., Minkman, M., & Nies, H. (2018). Service Integration across Sectors in Europe: Literature and Practice. *International Journal of Integrated Care*, 18(2), 6. https://doi.org/10.5334/ijic.3107

Vasanicova, P., Jencova, S., Gavurova, B. & Bacik, R. (2022). Coopetition of European Union Countries within Destination Management. *Journal of Tourism and Services*, 24(13), 71-89. https://doi.org/10.29036/jots.v13i24.368

Verstraete, G., Aghezzaf, E-H., & Desmet, B. (2020). A leading macroeconomic indicators' based framework to automatically generate tactical sales forecasts. *Computers & Industrial Engineering*, 139, 106169. https://doi.org/10.1016/j.cie.2019.106169

Wang, X., Xu, Z., Qin, Y., & Skare, M. (2021). Service networks for sustainable business: A dynamic evolution analysis over half a century. *Journal of Business Research*, 136, 543-557. https://doi.org/10.1016/j.jbusres.2021.07.062

Wolfram alpha [online]. USA: Wolfram, 2022 [cit. 2022-09-28]. https://www.wolframalpha.com/

Wushe, T., & Shenje, J. (2019). The antecedents of employee engagement and their effect on public sector service delivery: The case study of government departments in Harare. *Sa Journal of Human Resource Management*, 17, a1082. https://doi.org/10.4102/sajhrm.v17i0.1082

Xiang, S., Rasool, S., Hang, Y., Javid, K. Javed, T., & Artene, A. E. (2021). The Effect of COVID-19 Pandemic on Service Sector Sustainability and Growth. *Frontiers in Psychology*, 12, 633597.

Zayas-Mateo, R. A., & Martinez-Lorente, A. R. (2021). ISO 9001: a vaccine for time of crisis. *Measuring Business Excellence*, 25(3), 287-299. https://doi.org/10.1108/MBE-07-2020-0100

Vojtěch BARTOŠ is a dean of Faculty of Business and Management of Brno University of Technology. His profesional positions are senior resercher and associate professore of Depertment of Finance fo the faculuty. He is focused on corporate finance, financial and economical analysis of enterprises and mehtods of enterprises valution.
ORCID ID: https://orcid.org/0000-0002-2984-275X

Marek VOCHOZKA is a senior researcher and professor of Research department of economics and natural resources management at Institute of Technology and Business in České Budějovice. He is interested in business economics, corporate finance, theory of production factors and capital and financial markets.
ORCID ID: https://orcid.org/0000-0001-9923-7814

Kateřina ŠKOPKOVÁ is a junior researcher at Research department of economics and natural resources management at Institute of Technology and Business in České Budějovice. She is interested in business economics and corporate finance.
ORCID ID: https://orcid.org/0000-0002-1688-1047