doi: 10.36689/uhk/hed/2022-01-067 HED Hradec Economic Days

Reflection of the COVID-19 Pandemic in the Comparability Analysis – a Critical Evaluation of Potential Approaches

Veronika SOLILOVÁ[1], Marek LITZMAN[1], Michal IŠTOK[2]* and Karel BRYCHTA[3]

[1] Mendel University of Brno, Brno, Czech Republic; veronika.solilova@mendelu.cz; marek.litzman@mendelu.cz
[2] Matej Bel University in Banská Bystrica, Banská Bystrica, Slovakia; michal.istok@umb.sk
[3] Brno University of Technology, Brno, Czech Republic; brychta@fbm.vutbr.cz
* Corresponding author: michal.istok@umb.sk

Abstract: The key issues for transfer pricing is performing the comparability analysis with aim to find external comparable companies i.e. companies performing same or similar business activities in the same or similar economic and market conditions. However, during the COVID-19 pandemic, which have been affecting business in a totally new way, there are obstacles and uncertainty how to perform comparability analysis and related comparability adjustments reflecting current economic and market conditions. As the COVID-19 pandemic and crisis has had a significant impact on these conditions and unprecedently changed the economic environment. Moreover, due to the time-lag in commercial databases presenting financial data of potential comparable companies operating in the Europe, taxpayers face a new problem: how to defend their arm´s length position for fiscal years 2020 and 2021 while reflecting current economic and market conditions. The aim of the paper is to evaluate approaches how to reflect the COVID-19 pandemic in the comparability analysis and related comparability adjustments. Based on the results, we are rather sceptical about the practical application of recommended approaches: the taxpayers face a great challenge in how to make adequate comparability adjustments and at the same time be able to properly defend them to the tax administrator.

Keywords: comparability analysis; COVID-19; critical evaluation; transfer pricing

JEL Classification: F23; H21; K33

1. Introduction

There are already many published studies investigating the impact of the COVID-19 pandemic on economies in selected countries from the macroeconomics perspective. For instance Pinilla et al. (2021) describe the situation in Spain or Barbate et al. (2021) in India. McKibbin and Vines (2020) state that "*the COVID-19 crisis has caused the greatest collapse in global economic activity since 1720*". Scientific literature, however, provides a relatively small number of procedures, possible approaches on determining the arm´s length ranges and comparability adjustments for the times of economic downturns. Radolović (2010) partially analysed the Croatian situation in transfer pricing during the last financial crisis (2008-2010) and highlighted the unavailability of financial data that would reliably show profitability in

2009. The main problem area is that the data from previous successful economic years most likely affects the upward trend in used indicators during the recession.

In that perspective, Mori et al. (2009) defined two key issues transfer pricing practitioners are facing: 1) how to secure comparable data for determining and testing transfer prices reflecting the current economic reality (i.e. economic downturns and recessions), and 2) how the tested subject is required to proceed if the controlled party´s financial results drop under the current or forecasted arm´s length range. A possible solution is presented by Nerudová et al. (2017), a proposed panel regression model to estimate the usual profitability (margins) in selected industries for the purpose of determining transfer prices, which could also be used in case of an economic downturn. However, this approach is suitable (was established) just for small and medium-sized enterprises. Solilová and Nerudová (2013) further recommend including a longer period into the comparability analysis when determining the arm´s length ranges during an economic downturn. This approach ensures that the effect of the economic downturn is spread over a longer period. However, this approach may not be sufficient in the event of a global economic collapse due to the COVID-19 pandemic.

Therefore, the paper focuses on possible approaches as presented by researchers and practitioners in the conditions of the Czech and Slovak Republics. The aim of the paper is to research approaches that can be adopted to address issues of comparability analysis and related adjustments during an economic downturn (i.e. reflecting COVID-19 pandemic conditions) and critically evaluate them based on established criteria, namely its practical applicability and explanatory power for the purpose of comparability adjustments.

The OECD TP Guidelines (2017) in Chapter III (comparability analysis), par. 3.69 state that taxpayers should provide a proof in some cases *"… establish transfer pricing documentation to demonstrate that they have made reasonable efforts to comply with the arm's length principle at the time their intra-group transactions were undertaken, i.e. on an ex ante basis (hereinafter "the arm's length price-setting" approach), based on information that was reasonably available to them at that point*". Such an approach contains not only the financial data of comparable transactions from the previous years, but also information about economic and market changes that may have happened between those past years and the year of tested controlled transaction. Furthermore, the OECD TP Guidelines (2017), par. 3.75 – 3.79 (B5 Multiple year data) provide basic guidance on performing comparability analysis over multiple years. Regarding an economic downturn, an important note is under par. 1.129 of the OECD TP Guidelines (2017) (Chapter I – The arm´s length principle, D.3. Losses) that states *"… associated enterprises, like independent enterprises, can sustain genuine losses, whether due to heavy start-up costs, unfavourable economic conditions, inefficiencies, or other legitimate business reasons*". On the other hand, an independent company should not tolerate "*losses that continue indefinitely*". In that perspective, Gelin et al. (2020) recommend acting very carefully when allocating the losses of routine entities even in the time of the COVID-19 recession. Bunn (2020) considers the allocation of losses among subsidiaries as one of the most serious issues during an economic recession.

Currently, many consulting companies and practitioners offer several potential strategies on how to perform comparability analysis and look for comparable entities/transactions during the COVID-19 period (or during an economic downturn in

general). Vincenti and Valente (2020) state that companies can adopt the following four strategies (for more details see Table 1 below).

Table 1. Potential strategies for comparability analysis in the COVID-19 period (based on Vincenti and Valente, 2020)

Strategy	**Principles**
Including loss-making companies	The elimination of loss-making companies is not appropriate under these circumstances, there is a need to reflect real and actual market conditions.
Choosing an appropriate time period	• The application of a time period of three years before the tax year under review may not be appropriate during the periods of downturn. • Reference to time period 2017-2019 should not be correct; the pandemic COVID-19 is more specific. • In case of using previous recessionary periods, specific adjustments to the search strategy shall be adopted.
Focusing on referenced market	The extend of the economic recession may have a different scope (global, as well as being limited to some areas/countries). There is thus a need to choose the country/countries in which the comparable operate.
Adjusting comparable financial data of comparables	Adjustments made in connection with reflection of the actual economic circumstances.

Cody et al. (2020) provide four attitudes for adjusting comparable data, namely:

- Using information from the last recessionary period (2007-2009);
- Using available public company data on quarter basis of the affected year(s);
- Using microeconomic data or tested party (vertical or horizontal) and
- Using macroeconomic data.

The four-step process in ensuring comparability and reflecting economic and market conditions when continuing to use comparable data (from the previous one or two fiscal years depending on availability in public databases) was presented and used already during the last financial crisis. According to Mori et al. (2009), the use of multiple-year data (including the periods in an economic downturn) may not always necessarily reflect the actual economic and market conditions highlighting the exceptionality of each economic crisis and the adjustment of comparability data represents a challenge. When assessing and adjusting the historical available data, Mori et al. (2009) further describe the following four steps:

- Step 1: rechecking comparable data sets (potential additional screening criteria can be applied to eliminate companies affected differently compared to tested party);
- Step 2: updating comparable data (using interim quarterly data or forecasting their values);
- Step 3: selecting an eligible period for comparables (the sample size of comparable data sets may be decreased e.g. due to bankruptcy as an impact of the economic downturn). The using and relying on single year data is not recommended; and
- Step 4: adjusting comparables' financial data (e.g. adjusting for interquartile differentials, using regression analysis, adjustments for volume effects, variances in costs structure, inventory, etc.).

Orlandi et al. (2020) analyse the methodologies that could be applied in COVID-19 comparability adjustments to comparable entities identified in benchmark analyses. The authors investigate the use of linear regression analyses based on three approaches: (1) costs (divided by variable and fixed) arising from a change in turnover; (2) variable costs arising from a change in turnover with the additional reference of a particular analysis for fixed costs from the perspective of the different operations of specific industries; and (3) turnover and costs (again considering fixed and variable costs) arising from a change in GDP or available selected specific industry statistics. Furthermore, Subramanian et al. (2020) based on their practical experience recognize three main categories of transfer pricing adjustments: (1) adjustments of the tested party financials, (2) adjustments to benchmarking period and (3) adjustments to financial/profitability indicators of comparable companies. The third category consists of adjustments to (a) the range used for benchmarking, (b) comparable company results based on company metrics, (c) comparable company results based on macroeconomic indicators. They further highlight that transfer pricing adjustments may be based on differences between economic conditions of the tested subject and the comparable subjects as indicated by macroeconomics indicators. Such differences may arise because of different historical economic conditions or from the fact that comparable subjects and tested subjects operate in different industries or countries experiencing the economic shutdown of pandemics COVID-19 differently.

Like many other authors (e.g. Nerudová et al., 2017; Mori et al., 2009; Orlandi et al., 2020), Cody et al. (2020) suggest using a mathematical approach and statistical analysis when doing the comparability adjustments. Bunn (2020) based on the complexity of the issue called for the publishing of the OECD guidelines in detail. On 18 December 2020, the OECD published the Guidance on the transfer pricing implications of the COVID-19 pandemic. The guidelines focus on four priority areas when determining transfer prices during the COVID-19 pandemic (comparability analysis, losses and allocation of COVID-19 specific costs, government assistance programs and advance pricing agreements) (OECD, 2020).

2. Methodology

The aim of this article is to research and critically evaluate frequently recommended approaches for comparability analysis and related comparability adjustments reflecting the impact of the COVID-19 pandemic in the conditions of the Czech and Slovak Republic. The methods/attitudes as follows were under investigation:

- Regression analysis,
- Extending search analysis by loss-making companies,
- Extending the time period,
- Extending the arm´s length range,
- Utilization of the data (information) from the last recessionary period (2007-2009), and
- Adjustments to financial/profitability indicators of comparable companies based on tested party metrics.

As many authors (e.g. Mori et al., 2009; Cody et al., 2020; Orlandi et al., 2020; Subramanian et al., 2020) recommend using the regression analysis for the purpose of comparability adjustments, we firstly focused on it and its practical applicability. The key problem facing taxpayers is the unavailability of comparable data. Comparable data is not available in real time as there is a time lag between the closing date of financial statements of comparable companies and their availability in databases. Usually, there is at least a two-year time gap. However, the economic (both professional and scientific) literature provides evidence that there is a correlation between macroeconomic variables and a company's profitability (e.g. McDonald, 1999; Issah & Antwi, 2017; Naruševičius, 2018).

In the study the authors focused only on publicly available data of macro- and micro-economic variables, which could be used for the purpose of comparability analysis and related adjustments. In the Czech and Slovak conditions, different public databases or data and overviews of statistical offices could be used for this purpose. For the purpose of this study, the public database/register CRIBIS was utilized. This database provides detailed information on industry analysis containing many types of indicators about interquartile ranges divided by total assets or turnover. Moreover, this database provides information available sooner than in the case of international databases such as ORBIS, thus it is more suitable for up-to-date analyses. Furthermore, CRIBIS allows the division of observations into three size categories, according to assets. For the analysis, the largest category with the sum of assets above 5 mil. EUR was chosen as we can expect that small companies usually do not have to deal with transfer prices issues.

The study was focused on data spanning 2009 to 2019. The object of the research includes subjects in manufacturing (more than 20 codes between 10-33 NACE codes). The inputs taken into considerations include 18 financial indicators. The data includes both activities that generate significant losses and profits during the COVID-19 pandemic. Regarding the estimation of the impact of economic development on profitability of comparables, it was not possible to use the macroeconomic variables based on GDP and its derivates (GVA etc.) as they were not available in necessary extend. For this reason, the indices of industrial production (IP) that are available sooner after the end of the period in question (i.e. monthly) were utilized. The used IP indices examine the overall industrial production, turnover in industrial production, average wages in the industrial production, employment in the industrial production, hours worked in the industrial production, and producer prices. As a data source we used also the Slovak Statistical Office which provides more detailed data than Eurostat.

As a result, the panel data contains several hundred observations which examined the statistically significant relation of IP indices and other industrial variables received from CRIBIS to the dependent variable in the form of operational profitability. To analyse the data, the authors used the traditional OLS regression to avoid issues with interpretation and enhance possible use by professionals. In the regression, dependent variable is EBIT to turnover ratio, which is explained by several independent variables. The assessment is based on the following equation:

$$\frac{EBIT_t}{turnover_t} = \alpha + \beta_1 \frac{EBIT_{t-1}}{turnover_{t-1}} + \beta_2 IP_t + \beta_a control_{a,t} + \beta_b NACE_{b,t} + \varepsilon \quad (1)$$

, where $\frac{EBIT_t}{turnover_t}$ is a ratio of EBIT to turnover in time t, α is a constant of the equation, β_n are parameters of the variables, $\frac{EBIT_{t-1}}{turnover_{t-1}}$ is a ratio of EBIT to turnover in the previous year, IP_t is a industrial production variable in time t, $control_{a,t}$ is a set of control variables (financial indicators) describing other ratios of the industry, $NACE_{b,t}$ is a set of dummy variables as a fixed effect for every examined industry and ε is the error term.

The final model contains 220 observations, and from the set of 18 independent measures (financial indicators) available in the database only two of them describing industry performance were identified as statistically significant in relation to the dependent variable. Measures as inventory turnover, payables turnover ratio, financial leverage or other degrees of liquidity were tested, but remained insignificant in most model specifications. The descriptive statistics of the variables used in final model are listed in Table 2.

Table 2. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
$\frac{EBIT_t}{turnover_t}$	253	2.667	6.151	-39.920	46.890
Indices of turnover in industrial production	220	95.032	23.309	38.375	158.467
Immediate liquidity	253	0.096	0.177	0	1.110
Debt-to-asset ratio	253	21.588	27.517	0	93.900

After evaluating regression analysis from the view of its practical applicability, authors focused on other recommended approaches, such as extending search analysis by loss-making companies, extending the time period for the purpose of arm's length range, using information from the last recessionary period (2007-2009) and others.

3. Results

Within the analysis made, the very first attention was paid to regression analysis as an often recommended approach. In all cases, however, it was crucial to deal with the time lag of necessary data that taxpayers face in transfer pricing analysis and related comparable adjustments.

3.1. Regression Analysis

For the regression analysis a set of variables describing industrial performance was used. As a data source the information obtained from the CRIBIS database with the addition of one available macro-economic variable (indices of industrial production). The results reached suggest that only indices of turnover in industrial production from the set of indices describing industrial performance (i.e. the overall industrial production, turnover in industrial production, average wages in the industrial production, employment in industrial production, hours worked in industrial production, and producer prices) are the most

significant and robust. Furthermore, only two control variables describing other ratios of the industry from the analysed set of control variables available in CRIBIS were identified as the most significant in explaining profitability, namely Debt-to-asset ratio and Immediate liquidity. Lagged variable of profitability was also identified as highly significant, which is expected as every industry has some path dependence and differs in profitability from the others. Based on the results mentioned in Table 3, one can assume the relationship between indices of turnover in industrial production and profitability is negative. More precisely, rise of turnover in an industrial sector by 1 would result in a decrease of profitability by 0.016. Additionally, industry fixed effects are also negative and statistically significant for most of the manufacturing industry, although for many other manufacturing industry sectors they were not identified as statistically significant (they are not presented inTable 3).

Table 3. Regression results

Independent variables	Coef.	p-value	95% Confidence Interval
$\frac{EBIT_{t-1}}{turnover_{t-1}}$	0.159	0.001***	0.0671; 0.252
Indices of turnover in industrial production	-0.016	0.032*	-0.031; -0.001
Immediate liquidity	7.511	0.000***	4.551; 10.470
Debt-to-asset ratio	-0.084	0.000***	-0.105; -0.064
Constant	0.215	0.841	4.341; 10.219
131 - Preparation and spinning of textile fibres 133 - Finishing of textiles	1.469	0.193	-.0745; 3.683
132 - Weaving of textiles	4.077	0.001***	1.586; 6.568
139 - Manufacture of other textiles	9.823	0.000***	7.358; 12.288
151 - Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness; dressing and dyeing of fur	3.524	0.002***	1.303; 5.745
152 - Manufacture of footwear	8.412	0.000***	6.001; 10.822
231 - Manufacture of glass and glass products	8.890	0.000***	6.439; 11.341
232 - Manufacture of refractory products	6.958	0.000***	4.607; 9.309
235 - Manufacture of cement, lime and plaster	7.065	0.000***	4.002; 10.128
236 - Manufacture of articles of concrete, cement and plaster	8.124	0.000***	5.672; 10.576
234 - Manufacture of other porcelain and ceramic products 237 - Cutting, shaping, and finishing of stone	1.322	0.239	-0.880; 3.524
239- Manufacture of abrasive products and non-metallic mineral products n.e.c.	8.537	0.000***	6.018; 11.055
321 - Manufacture of jewellery, bijouterie and related articles 322 - Manufacture of musical instruments 323 - Manufacture of sports goods 324 - Manufacture of games and toys 329 - Manufacturing n.e.c.	1.301	0.247	-0.900; 3.501
325 - Manufacture of medical and dental instruments and supplies	8.824	0.000***	6.315; 11.333

Note: some NACE groups were grouped together in available data.
*** p<0.001, * p<0.05

Although regression analysis is often recommended, authors arrived at a rather sceptical conclusion based on the investigation carried out. Due to the time lag in the availability of necessary comparable data, it is important to focus the regression analysis on other data available at that time. This data is also very limited, especially from the point of view of

services, e.g. no similar indicator is available for services, as is the case for industrial production. However, even from the point of view of the manufacturing industry, the data and the results do not appear to be satisfactory. For example, industrial production indices are not monitored in such a detailed way as individual NACE codes as would be needed for the purposes of transfer pricing analysis – it creates a significant obstacle to create a basis for reliable comparable analysis. Furthermore, for a number of examined sub-industrial sectors, the examined independent variables were not statistically significant, which also limits the use of the results from the regression analysis. However, the biggest drawback is the specific results from the regression factors related to the profitability estimate. The expected result is a reduction (or an increase) in the given profitability of comparable entities, if taxpayer's profitability (a tested party) decreased (or increased) in a giving industry sector and consequently a reduction (or an increase) in the arm's length range, so that the taxpayer will be able to prove that its transfer prices are fulfilling the arm's length principle and a drop (or an increase) in its profitability is related to the economic circumstances. However, the result of the regression provides the opposite effect, i.e. an increase in profitability of comparables in cases where the taxpayer's profitability decreased. Therefore, we consider the use of regression analysis, from the point of view of its practical applicability and informative value, an unsatisfactory approach. This method does not seem to increase taxpayer´s certainty for the area of transfer pricing.

3.2. Other Approaches

If the approaches that require access to macroeconomic data or microeconomic data by comparable entities are not taken into account, there are still a few approaches left that the taxpayer can apply, such as extending search analysis by loss-making companies, extending the time period for the purpose of arm's length range, extending the arm's length range, using information from the last recessionary period (2007-2009), and adjustments to financial/profitability indicators of comparable companies based on tested party metrics.

The addition of loss-making companies to the search and transfer pricing analysis may not have the desired effect. In addition, it must be taken into account that loss-making companies from previous years may not be available in the industry for a given comparable transaction / entity and, if they do, may have the missing financial data needed for transfer pricing analysis. Companies running at a loss will be available in databases such as ORBIS again with a time lag when they will reflect the impact of COVID-19 in the economic environment of the industry. This approach will be used mainly in common transfer pricing analyses, search strategies, when data will already be available in databases, and not just in situations where comparability adjustments for 2020 are being addressed, when the pandemic began.

A similar situation can be seen in the case of **extending the period** considered for the purpose of establishing the arm's length range. A 3-year period is commonly used, which can be extended to 5 years or longer, which would include the period of the previous recession. The effect of this approach is that the fluctuations in the examined profitability are diluted or, if necessary, given greater weight just for the period of recession. However, the COVID-19

pandemic which has caused the greatest economic collapse and the previous economic crises have a different nature. Therefore, if data from the last recessionary period is used, then this approach must carefully consider industry and other factors and conditions affecting the setting of the arm's length range. This is especially needed if we only consider the last recessionary period as a period for establishing the arm's length range.

Another option is to automatically **extend the acceptable arm's length range** from the current transfer pricing documentation, specifically from the original interquartile between first and third quartile to the range between the zero and fourth quartile, i.e. the whole range of profitability of all accepted comparables. This approach is the simplest but is only applicable under certain conditions. Namely, it is applicable only in those sectors where there have been only limited restrictions and a partial reduction in business activities with a slight impact on their profitability. It is not suitable for loss-making entities. Furthermore, the set of comparables must be highly comparable.

The last approach is to realize **the adjustments to financial/profitability indicators of comparable companies based on tested party metrics**. This approach requires the basic assumption that comparable entities will be impacted by a pandemic in the same way as the tested party. Therefore, the sales decrease of the tested party should be simulated on the operating costs for each comparable company. However, it is important to distinguish between the variable and fixed costs, which may not be available for comparable entities, and which have different effects on the decline in sales. This is one of the most significant obstacles for the adoption of this attitude. Additionally, extraordinary costs related to the COVID-19 pandemic should not be considered during the analysis. This approach requires considerable statistical and mathematical skills, detailed data and is characterized by several assumptions and proxies. In addition, if the taxpayer is unable to properly explain and defend the individual corresponding adjustments and procedures, the result will not be accepted by the tax administrator.

The basic findings are summarized in Table 4 below.

The most significant problem is, not surprisingly, absence of the data input. The tax-payers and tax authorities are facing the same in this respect. However, even under current new circumstances, the taxpayer cannot omit his by law set obligation to set the transfer price in a qualified, logically consistent and adequate manner. This is one of the conclusions (generally valid) arising from the case-law of the Supreme Administrative Court of the Czech Republic (see e.g. the judgements of the Supreme Administrative Court of the Czech Republic, 2009; 2011; 2020). This "imperative" is of course also applicable for the current and completely new situation influenced (or more precisely totally determined) by the pandemic COVID-19. At the same time, it is true that both taxpayers and tax administrators find themselves in a new situation. However, there is one issue working at taxpayers´ favour. Tax authorities are burdened with a number of obligations connected with transfer pricing tax audit – the obligation to state the correct amount of the transfer price in their opinion and to indicate how they arrived at it (see e.g. Supreme Administrative Court of the Czech Republic, 2020).

Table 4. Summary of the result reached

Method/approach/attitude	Summary
Regression analysis	• problems with input data availability • very high demands regarding the knowledge and application of sophisticated statistical methods • reached results could be in conflict with the assessment corresponding with sense of common and to particular situation of the tax-payer
Extending search analysis by loss-making companies	• problems with input data availability • delay in data availability
Extending the time period **and** **Utilization of the data from the last recessionary period**	• extending the 3-year period to 5-year period or longer up to the previous recession is recommended, but • previous crisis periods are totally different in their nature compared to COVID-19 • a need to consider specifics of the country, industry, etc. • problems with input data availability
Extending the arm´s length range	• problems with input data availability • not generally applicable (could be utilized more or less only in sectors with limited restrictions)
Adjustments to financial/profitability indicators based on tested party metrics	• problems with input data availability • a key presumption that comparable entities have been impacted in the same way as the tested party shall be met • there is a need to distinguish between variable and fixed costs (available data do not provide this type of information)

The most significant problem is, not surprisingly, absence of the data input. The tax-payers and tax authorities are facing the same in this respect. However, even under current new circumstances, the taxpayer cannot omit his by law set obligation to set the transfer price in a qualified, logically consistent and adequate manner. This is one of the conclusions (generally valid) arising from the case-law of the Supreme Administrative Court of the Czech Republic (see e.g. the judgements of the Supreme Administrative Court of the Czech Republic, 2009, 2011, 2020). This "imperative" is of course also applicable for the current and completely new situation influenced (or more precisely totally determined) by the pandemic COVID-19. At the same time, it is true that both taxpayers and tax administrators find themselves in a new situation. However, there is one issue working at taxpayers´ favour. Tax authorities are burdened with a number of obligations connected with transfer pricing tax audit - the obligation to state the correct amount of the transfer price in their opinion and to indicate how they arrived at it (see e.g. Supreme Administrative Court of the Czech Republic, 2020).

4. Discussion and Conclusions

In the article, authors investigated and evaluated six often recommended approaches used for the purposes of comparability analysis and related comparability adjustments reflecting the impact of the COVID-19 pandemic. The key problem taxpayers face is how to perform comparability analysis and look for comparable entities/transactions during the COVID-19 period if the comparable data and necessary macro- or/and micro-economic data are not available at the time of comparable adjustments or are not available in demanded quality. Based the research carried out, one can observe that indices in industrial production

can be used if the macroeconomic variables based on GDP and its derivates (GVA etc.) are not available, as it is also significant and robust in relationship with the operational profitability. However, authors are, at the same time, rather sceptical about using regression analysis as such to estimate changes in operational profitability of the comparables based on changes in financial indicators describing industry segments and indices in industrial production. Not only their practical application is limited to a certain industry segment, because a number of sub-segments of the given variables were not statistically significant, they cannot be applied for services because of the lack of relevant for this area. We assume that better results would be achieved with an ex-post approach, when the necessary data is available. However, the ex-post approach does not solve the issues of comparability adjustments being addressed during or/and at the end of 2020.

Regarding other approaches, the simplest approach can be considered to be automatically extending the acceptable arm's length range from the current transfer pricing documentation, although this approach is applicable under certain conditions. Extending search analysis by loss-making companies is more suitable for common transfer pricing analysis after the availability of 2020 data reflecting the impact of the COVID-19 pandemic. Extending the time period for the purpose of the arm's length range to cover the last recessionary period requires careful consideration of industry and other factors and conditions affecting the setting of the arm's length range as the COVID-19 pandemic and the previous economic crises have a different nature. The last examined approach "adjustments to financial indicators of comparables based on tested party metrics" requires the basic assumption that comparable entities will be impacted the same by a pandemic as the tested party. However, this assumption may not be fulfilled in practice and after all the necessary comparability adjustments the achieved result may not be accepted by the tax administrator.

Based on our findings, one can observe that taxpayers face a great challenge in how to make adequate comparability adjustments and at the same time be able to properly defend them to the tax administrator, if there is a lack of comparable data and necessary macro- or/and micro-data. Even though there is experience from the previous recession, so from the point of view of completely different nature of economic downturns due to the COVID-19 pandemic, it is not possible to use the experience without any other consideration and analysis.

Acknowledgements: This paper was funded by the Czech Science Foundation (GACR) grant [no.18-14082S] entitled: *"Fair corporate taxation: Measurement of the impact of the corporate profit shifting on the budget of the Czech Republic"*.

Conflict of interest: none

References

Barbate, V., Gade, R. N., & Raibagkar, S. S. (2021). COVID-19 and Its Impact on the Indian Economy. *The Journal of Business Perspective, 25*(1), 23–35. https://doi.org/10.1177/0972262921989126

Bunn, D. (2020). *Challenges for Transfer Pricing in an Economic Downturn*. June 2020. https://taxfoundation.org/oecd-transfer-pricing-guidance-in-an-economic-downturn/

Cody, B., De Robertis, G., & Rosar, W. (2020). *Determining arm´s length ranges during economic downturns: challenges and possible solutions*. Contribution presented in WU Transfer Pricing Workshop. 66.

Gelin, S., Le Boulanger, A., Daluzeau, X., Bernard, A., Haag, M., Herr, C., Faure, A., & Haj Taieb, M. (2020). *Transfer Pricing and the COVID-19 Economic Downturn*. July 2020. https://cms.law/en/int/publication/transfer-pricing-and-the-covid-19-economic-downturn

Issah, M., & Antwi, S. (2017). Role of macroeconomic variables on firms′ performance: Evidence from the UK. *Cogent Economics & Finance, 5*(1), 18. https://doi.org/10.1080/23322039.2017.1405581

McDonald, J. T. (1999). The determinants of firm profitability in Australian manufacturing. *Economic Record, 75*(2), 115–126. https://doi.org/10.1111/j.1475-4932.1999.tb02440.x

McKibbin, W., & Vines, D. (2020). Global macroeconomic cooperation in response to the COVID-19 pandemic: a roadmap for the G20 and the IMF. *Oxford Review of Economic Policy, 36*(1), S297–S337. https://doi.org/10.1093/oxrep/graa032

Mori, N., Mert-Beydilli, N., & Poole, G. (2009). Transfer Pricing in Troubled Times. *Tax Management, 18*(1), 7.

Naruševičius, L. (2018). Bank profitability and macroeconomy: Evidence from Lithuania. *Technological and Economic Development of Economy, 24*(2), 383–405. https://doi.org/10.3846/20294913.2016.1213192

Nerudová, D., Solilová, V., Bohušová, H., Svoboda, P., & Litzman, M. (2017). Panel Regression Model: A Tool for the Estimation of the Arm′s Length SME Profitability. *Politická Ekonomie, 54*(4), 440–459. https://doi.org/10.18267/j.polek.1154

OECD. (2017). *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*. July 2017. https://www.oecd.org/tax/transfer-pricing/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations-20769717.htm

OECD. (2020). *Guidance on the transfer pricing implications of the COVID-19 pandemic*. December 2020. https://www.oecd.org/coronavirus/policy-responses/guidance-on-the-transfer-pricing-implications-of-the-covid-19-pandemic-731a59b0/

Orlandi, A., Iervolino, R., & Latino, M. C. (2020). Methodologies for Applying Transfer Pricing Adjustments to Comparable Companies Following the COVID-19 Economic Downturn. *International Transfer Pricing Journal, 27*(6), 461–467.

Pinilla, J., Barber, P., Vallejo-Torres, L., Rodríguez-Mireles, S., López-Valcárcel, B., & Serra-Majem, L. (2021). Impact of the SARS-COV-2 (COVID-19) Pandemic in Spain. *International Journal of Environmental Research and Public Health, 18*(9), 13. https://doi.org/10.3390/ijerph18094708

Radolović, J. (2010). Optimization of Transfer Pricing in a Recession with Reflection on Croatian Situation. *World Academy of Science, Engineering and Technology International Journal of Economics and Management Engineering, 4*(6), 957–962. https://doi.org/10.5281/zenodo.1082945

Solilová, V., & Nerudová, D. (2013). Transfer Pricing: General Model for Tax Planning. *Ekonomický časopis/Journal of Economics, 61*(6), 597–617.

Subramanian, P., Krustev, V., Eisenberg, H., & Hughes, M. (2020). *INSIGHT: Transfer Pricing Adjustments to the Covid-19 Economic Downturn*. July 2020. https://news.bloombergtax.com/transfer-pricing/insight-transfer-pricing-adjustments-in-the-covid-19-economic-downturn

Supreme Administrative Court of the Czech Republic. (2009). *Judgement of 31 March 2009, File No. 8 Afs 80/2007*. http://www.nssoud.cz/files/SOUDNI_VYKON/2007/0080_8Afs_0700105A_prevedeno.pdf

Supreme Administrative Court of the Czech Republic. (2011). *Judgement of 27 January 2011, File No. 7 Afs 74/2010*. http://www.nssoud.cz/files/SOUDNI_VYKON/2010/0074_7Afs_100_20110301083144_prevedeno.pdf

Supreme Administrative Court of the Czech Republic. (2020). *Judgement of 29 January 2020, File No. 9 Afs 232/2018*. http://www.nssoud.cz/files/SOUDNI_VYKON/2018/0232_9Afs_1800063_20200129121916_20200217160027_prevedeno.pdf

Vincenti, F., & Valente, C. (2020). *Performing a comparability analysis during an economic downturn*. 23 April 2020. https://www.internationaltaxreview.com/article/b1lbj1rylkg5vn/performing-a-comparability-analysis-during-an-economic-downturn