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Indicators for assessing the financial condition and municipality management

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Abstract: *The aim of the article is to create a set of indicators for assessing financial stability and municipality management. Local governments in the Czech Republic are fully financially responsible for their budget and management. Financial stability of municipalities is a crucial condition for long-term sustainable development as disproportionate debt can generate risks for providing public services and their standard functioning. The Ministry of Finance defined a set of financial indicators (SIMU system) which could be used for financial stability evaluation, but only two of them are obligatory (a share of liabilities to total assets in percentage, and the current ratio). Indisputable advantage is its standard form of financial evaluation for all municipalities and relatively simple method of calculation based on delivered data. Main disadvantage can be seen in the fact that the municipality receives feedback only for two indicators, which have a recommended value. The municipality does not get a clear idea of the state of its cash position and this approach is not taking into account short-term and long-term indebtedness as well as the size of the municipality. That is why a new methodology based on three groups of indicators (budgetary management, indebtedness and liquidity) was developed and tested. The article presents results about local governments in the Moravian-Silesian region. The methodology increases transparency in the municipality management and supports citizen´s engagement into public matters through standardized approach to each municipality based on seventeen ratios.*

Keywords: financial condition, municipality management, financial ratios, spending transparency.

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Introduction

As well as the budgetary stability of the government, the financial stability and responsible financial management of the municipalities are important starting points for their long-term sustainable development, as illustrated by the Resolution of the Council of European Municipalities and Regions (CEMR, 2015). The current indebtedness of local governments as a whole is low and does not threaten the macroeconomic stability of the Czech Republic (MF CR, 2017). Unfortunately, in the case of individual municipalities, it is not always possible to keep the debt at such a level that it does not create risks for further smooth functioning. This could be caused by problems with drawing subsidies, "problematic" investments, or inappropriate financial management of the municipality. Although there are several methods for evaluating municipalities, their disadvantage is that they are primarily used for the needs of central government bodies or legislative institutions, as a supporting instrument for obtaining subsidies or loans (Vavrek, et al., 2017. In addition to that, they are often methodologically complex, requiring relatively deep knowledge of financial analysis, and many are being offered on a commercial basis.

Opposite to that, smaller municipalities are relatively disadvantaged in terms of their use in financial management and planning, as they do not have the human resources needed to process them, and limited financial resources do not allow the processing of financial analyses for consideration. However, the obligatory published data can be used for the monitoring and evaluation, for example within the budget, or indicators based on the balance sheet and the profit and loss account.

The main aim of the article is to create a set of indicators for assessing financial stability and municipality management. The assessment will be based on two basic assumptions that are important for ensuring the short- and long-term budgetary balance and the sustainability of municipal financing. Specifically, the balance of the current budget should always be positive (the capital budget may be a deficit) and the maximum debt service (debt repayments plus interest payments) that should not exceed the surplus of the current budget. Another precondition is that indicators use only publicly available information and municipalities are not burdened with additional administrative work.

1. Literature Review

Attention to the financial management of local governments and municipalities is not new. Researchers and practitioners (Tkáčová, Konečný, 2017; Adrian et al., 2015; Turco, 2017) have been trying for last decades to solve questions about the measurement and forecasting of financial and fiscal problems at different governmental levels in terms of financial condition and fiscal stability (FS). The key problem with non-clear definition in the area was mentioned by Padovani et al. (2010) when it is pointed out, that financial health is mostly

highlighting its negative side such as “fiscal distress”, “financial risk”, “fiscal crisis”, or “fiscal strain” or “financial security” (Bilyk, 2016).
Theoretical approach to this problem could be seen in different definition, when financial health is recognized as the ability of the government to fulfil its obligations (Gorina et al., 2018 or Hendrick, 2004; Łakomy-Zinowik and Horváthová, 2016). Opposite to that, Berne & Schramm (1986) use fiscal stability concepts and financial health as synonyms. A ratio analysis could be used to simplify interpretation within results and to be able to evaluate the development (Bird, 2015; Jacob and Hendrick, 2013).

McDonald (2017) summarized responsible financial management and stability into four areas: (1) to be able to accomplish immediate or short-term financial obligations; (2) to be able to meet its financial obligations over a budgeted fiscal year; (3) to be able to accomplish long-term financial obligations; and, (4) to be able to finance the base level programs and services as required by law. Cabaleiro et al. (2013) added that according to earlier works of Groves et al. (1981) would be useful to care about be structured in cash solvency, budgetary solvency, long-run solvency and service-level solvency, it means area of liquidity.

One can find several studies (e.g. Onyusheva et al., 2018; Tyson, 2014; Cabaleiro et al., 2013; Padovani et al., 2010; Halim et al., 2017; Zhatkin et al., 2017) on those areas, but they are not fully transferable into other country because of difference of national accounting standards. Under international conditions is often used Brown’s 10-point test which covers five dimensions of financial health – Revenue (3 ratios), Expenditure (1 ratio), Operating Position (3 ratios), Debts (2 ratios) and Unfunded Liability (1 ratio). Results of each indicator could be benchmarked within municipality in the same group (by size, location). Benchmark is based on diving results in quartiles (Brown, 1993). Opposite to that Wang *et al.* (2007) began with the four dimensions of solvency: cash, budget, long-run, and service. Unfortunately, they used mostly generally government’s financial ratios as a total of 11 indicators. Studies in municipality financial health and ratios are very popular between rating agencies (Fitch, 2016; Moody`s, 2013; Standard & Poors, 2010).

Despite the relatively large number of empirical studies and the increasingly frequent use of fiscal stances in modern management practices (see Stone et al., 2015; Fabuš, 2017; Osipov et al., 2108), problems with evaluation and assessment of FS and management persist. What is important, it is that there is a growing consensus that fiscal condition indicators need to be verified and "anchored" to objective reality, to take into account whether the economy is experiencing fiscal prosperity or depression, whether it is in a boom or recession (Clark & Gorina, 2017; Maher & Deller 2011; Stone et al., 2015). Moreover Clark (2015) criticizes research that relies on a single composite indicator of the fiscal situation or arbitrarily chooses a single indicator as a measure of the fiscal situation. Clark (2015) argues that the aggregate score may hide a certain weak area indicated by a partial indicator, and that some indicators may not be valid as a measure of the fiscal situation when compared to the current government activity.

Clark's ideas support Stone et al. (2015) when applying the comprehensive test presented by Kloha et al. (2005) to the city of Detroit. Unfortunately, the aggregate rating did not indicate a very poor fiscal situation in the city, and the results did not indicate a possible bankruptcy. Therefore, the above mentioned authors recommend rather individual evaluation of key areas than the use of a composite indicator.

Under Czech condition is inspiring a work of Opluštilová (2012) who presented a comprehensive evaluation of the financial conditions of municipalities in the range of 7 degrees. For the comprehensive evaluation, 5 indicators from the area of budget management with 40% weight, 3 liquidity indicators (weight 20%) and 4 indicators of indebtedness (total weight 40%) were selected. The scales have been set with regard to the importance of the area, taking into account the practice used, in particular, by some regional council authorities when assessing municipalities as applicants for subsidies. However, this way of assessing financial conditions is not used in practice.

2. Research Methodology

Not only the overall assessment of all municipalities is important, but also the attention paid to individual municipalities. Differences can also be found between regions. The Moravian-Silesian Region (MSR) is among the smaller municipalities (300), with the highest number of inhabitants averaging per municipality (4133 as of 26 April 2017). The iRating was used between years 2013-2016, unfortunately, municipalities received on average the fourth worst rating compared to other regions within the Czech Republic. On the other hand, in the applications for subsidies MSR municipalities showed the lowest share (22% in 2016) among municipalities that did not receive subsidies (CRIF-CCB, 2017). Main focus of the project is to promote better and easier financial management of municipalities and increase their financial stability.

2.1. Data collection and analyses

A combination of secondary and primary sources, causal analysis, in-depth interviews with representatives of 30 municipalities and representatives of MSR were used to process the study as:

- Sources for secondary data were financial statements from 300 municipalities from MSR in years 2010 to 2016.
- Primary data were represented with results of 30 in-depth interviews to be able to set appropriate structure of the ration and recommended range.

Using the methods above and a selection of indicators and an expert estimation of the critical values was made as result of the current stage. We expect to precise them in the next stage of the research based on statistical methods. Finally, two key assumptions were defined as important for securing short-term

and long-term budgetary balance and sustainability of municipal financing, namely:

- The balance of the current budget should always be positive; the capital budget may be in deficit.
- The maximum debt service (debt repayments plus interest payments) should not exceed the surplus of the current budget.

Finally set of indicators has been proposed for financial stability and financial management in three categories by their nature and content, in respect to work of Cabaleiro *et al.* (2013); Padovani *et al.* (2010); McDonald (2017) and Opluštilová (2012):

- Indicators evaluating budgetary management.
- Indicators evaluating the municipality's indebtedness.
- Indicators evaluating the liquidity of the municipality.

3. Key results and indicators proposal

Municipalities form significant part of the public sector and their financial condition affects regional public policy, so the results can be interpreted in two layers. The first layer means setting up a set of financial condition indicators and the second layer illustrates a sample of evaluation. In this analysis, municipalities are not sorted by size or location, only a general picture of the financial condition of municipalities is created.

3.1 Main financial health indicators

Indicators evaluating budgetary management. Budgetary management is an important aspect of the municipality's activity, which could be found in the quality of the operational management and in the generation of resources for the developmental activities of the municipality. Therefore, seven budget indicators were selected (see Appendix 1). For a detailed specification of individual indicators see Szarowská *et al.* (2018). As is presented the budget balance (BB) is the main indicator in that area of evaluation. Other supplementary indicators assess the basic assumption of long-term successful management of municipalities and their dependence on various types of revenues like own revenues, subsidies and transfers. Expert estimation is to have a reserve for four months to cover operational costs (BFACCE indicator) and to be able for self-financing municipality services. *Indicators evaluating the municipality's indebtedness*. The indebtedness of the municipality significantly affects not only the financial health, but also operative management of the municipality. It is therefore one of the key areas of the methodology and therefore eight indicators in total of 8 are monitored. Some of the indicators are based on the SIMU methodology (MF CR, 2017a).

Contrary to SIMU indicators were modified (indicator 4, 6, 7) to do not affect results due to received deposits for investments. An advantage for

municipalities could be seen in clarification of the values and possible risks in municipality financial health, which are not available from Ministry of Finance (see Appendix 2). Indebtedness does not pose a more significant risk to long-term debt, but no further debt is recommended, and it is necessary to pay attention to the development of current expenditures when TDCBB value is so high. There is a risk for the long-term stability position, when an unexpected decline in current income or an increase in current expenditure could come, which is indicated by IPDC ratio.

Indicators evaluating the liquidity of the municipality. The ability to meet short-term and long-term commitments fundamentally affects financial stability and the overall financial situation of the municipality. The following three indicators were identified as key ratios (see Appendix 3). A critical value is stricter to create a reserve for municipalities, in respect of their legal form, then in case of companies.

3.2. Overall financial health evaluation: a case study

The proposed set of indicators is applicable to a wide range of community activities as it assesses budget management, indebtedness and liquidity. The advantage is that the calculation of the indicators is based on the data from the obligatory published documents (municipal budget, FIN report 2-12 - statement for evaluation of the budget implementation of the budget, balance sheet, and profit and loss account) and the municipalities will not be burdened by another administration to publish and calculate those indicators. An overall evaluation was made to demonstrate importance to monitor a set of indicators on individual (municipal) basis. A simple statistical description was made for the set of 300 municipalities in time series 2010-2016.

An evaluation scale [2,1,0,-1,-2] was made for simplifying results interpretation, when:

- 2 points means that value exceed maximum of a critical value,
- 1 point means that value is near the maximum of a critical value,
- 0 points means that value is in the middle of a critical value,
- -1 point means that value is near the minimum of a critical value,
- -2 point means that value exceed the minimum of a critical value.

Budget management ratios

Simple description showed us that they are existing significant differences in BB, RTCE ratio due to extreme values of variance coefficient (403% and 437%). It could be a signal for further study to divide municipalities by the location or by the size. Many above-average values have municipalities in ratios BB and ORTR. Following that other have many below-average values because of skewness value. Most of indicators are leptokurtic with many extreme values. It is very interesting that only three indicators (BB, CBSCE, ORTR) are statistically significant (α=0.05).

Table 1. General Budget Management Ratios

Ratio	mean	Median	Std.deviation	Variance	Curtosis	Skewness	Variation coefficient	Variation range	P-value 95%	Scale
BB	0.055	0.067	0.220	0.048	7.177	-1.384	403%	2.005	0.021	0
CBSCE	0.260	0.251	0.169	0.029	7.636	0.738	65%	1.607	0.015	2
BFACCE	8.490	5.232	13.593	184.763	44.744	4.918	160%	148.439	1.799	2
BFACCI	0.471	0.324	0.583	0.340	38.142	4.859	124%	5.593	0.066	2
TCECE	1.164	1.046	0.529	0.280	31.374	4.482	45%	5.722	0.060	1
RTCE	3.777	1.325	16.519	272.879	228.516	14.637	437%	271.559	1.950	2
ORTR	0.804	0.834	0.139	0.019	2.265	-1.361	17%	0.753	0.016	1
Total Score(B)	-	-	-	-	-	-	-	-	-	9

(*Source:* Authors´ own contribution)
Note: statistically significant indicators are in bold

Comparing values in the Table 1 with critical values in the Appendix 1, only three indicators (BB, TCECE, ORTR) met the criteria (being in the critical interval). Budget balance in comparison with own revenues and expenditures are in balance so it is possible to evaluate them as stable, in general.

Municipality's indebtedness

This part shoved us very critical point of analysis, when every indicator has variation coefficient above 100%. Only two indicators (TDCBB, DSDC) seems to be not statistically significant (α=0.05). The most of indicators have leptokurtic distribution with many extreme values.

Table 2. General Municipality's Indebtedness

Ratio	Mean	Median	Std.deviation	Variance	Curtosis	Skewness	Variation coefficient	Variation range	P-value 95%	Scale
TDCBB	13.437	1.931	34.340	1179.215	123.718	9.041	256%	582.206	3.908	-2
DSDC	0.254	0.006	1.448	2.098	131.428	9.307	570%	24.690	0.165	-2
IPDC	0.021	0.003	0.128	0.016	270.747	16.107	598%	2.173	0.015	-2
EFSTA	0.080	0.052	0.085	0.007	16.955	3.026	106%	0.782	0.010	-1
EFSSTA	0.073	0.047	0.080	0.006	5.393	1.990	111%	0.463	0.006	-1
DEFS	0.317	0.221	0.330	0.109	-1.396	0.437	104%	0.971	0.038	2
DST	0.165	0.053	0.264	0.070	5.510	2.274	160%	1.595	0.028	-2
TDCE	0.217	0.080	0.341	0.116	4.405	1.989	157%	2.042	0.031	-2
Total (I)	-	-	-	-	-	-	-	-	-	-10

(*Source:* Authors´ own contribution)
Note: statistically significant indicators are in bold

Comparing Table 2 to Appendix 2, total score is so low, when most of values are near minimum value or below. It is the signal that indebtedness is very low, only DEFS indicator is out of all presented values. In that case, negative values in scale present a good condition of municipalities.

Liquidity ratios

Those ratios illustrated that municipalities have a huge amount of financial resources to be used in case of emergency (compare Table 3 and Appendix 3).

Table 3. General Liquidity Ratios

Ratio	Mean	Median	Std.devia-tion	Variance	Curtosis	Skewness	Variation coefficient	Variation range	P-value 95%	Scale
CR	8.628	4.985	11.350	128.832	21.599	4.179	132%	93.631	1.268	2
QR	6.679	3.498	10.560	111.505	27.177	4.731	158%	88.078	1.106	2
FR	4.683	1.238	10.135	102.722	39.806	5.616	216%	93.845	0.946	2
Total (L)	-	-	-	-	-	-	-	-	-	6

(*Source:* Authors´ own contribution)
Note: statistically significant indicators are in bold

To sum up results from Tables 1 to 3, we tested to create an index, weighted by the number of indicators to follow the methodology of Opluštilová (2012), when each total score was weighted and evaluated separately (see Table 4).

Table 4. Final Evaluation

score	N of indicators	weight	value	Weighted score	Comment
B	7	0.389	9	3.501	Very Good
I	8	0.444	-10	-4.44	Low Debts
L	3	0.167	6	1.002	Average
Σ	18	1.00			Average

(*Source:* Authors´ own contribution)

For this set of indicators, data were already collected for the calculation of indicators for all MSR municipalities from secondary sources. Missing data were supplemented by primary research. The final form of the indicator system will be available on the MSR website for free (access expected in 2019), where the values of all indicators (with the possibility of filtering) for each MSR municipality will

be calculated and graphically displayed with recommended values and explaining. This will include evaluation and recommendations in relation to the financial management within basic legal requirements regarding budgetary discipline and other community activities.

4. Conclusions

The aim of the article was to create a set of indicators for assessing financial stability and municipality management. Municipalities must treat citizens equitably with regard to the provision of services and citizens needs to be informed about financial situation in their municipality. The article identified main weaknesses of financial stability and management of municipalities and set of indicators fulfils a methodological gap in the Czech environment. The results of monitored selected municipalities show that they have good position in the budget management ratio, very low indebtedness. On the other hand, these municipalities should improve their liquidity ratios that are on only average level.

The presented methodology is suitable and advantageous for the following reasons:

1. Complexity - the evaluation focuses on a broad base of indicators that evaluate FS and management from many points of view.
2. Unambiguousness - each indicator is precisely defined on the basis of specific calculations based on mandatory budget items and balance sheets.
3. Easy availability - online web application will be available to interested municipalities free of charge, with no additional administration burden.
4. Simple modification of the selection and weight of the indicators and setting of the assessment according to the needs of the municipality or priorities of the contracting authority.
5. Improving the awareness of municipalities about their financial situation and possible risks associated with other irresponsible management.

Anyway, it seems to be necessary to provide measured by our indicator with two commonly used examples of socioeconomic variables: Population size and Location or municipality type as being, made by McDonald (2017), Bird (2015), Jacob and Hendrick (2013). In respect to Jones & Walker (2007) and Hendrick (2004), we confirmed that subjective or expert assignment of values to the ratios according to selected parameters or using arbitrary weights are the current problems in building global indicators of financial stability, so more sophisticated method of critical values calculation will be used.

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References

Adrian, T., Covitz, D., Liang, N. (2015). Financial stability monitoring. *Annual Review of Financial Economics*, *7*(1), 357–395. DOI: 10.1146/annurev-financial-111914-042008.

Berne, R., Schramm, R. (1986). *The Financial Analysis of Governments*. Englewood Cliffs, NJ: Prentice Hall.

Bilyk, R. (2016). Policy for strengthening economic security of the regions: problems of institutional and legal groundwork. *Forum Scientiae Oeconomia, 4*(2), 15-26.

Bird, R.M. (2015). Reflections on measuring urban fiscal health. In Bird, R.M. and Slack, E. (Eds.) *Is Your City Healthy? Measuring Urban Fiscal Health* (pp. 11–42). Toronto, Canada: MSGA, University of Toronto.

Brown, K.W. (1993). The 10-point test of financial condition: toward and easy-to-use assessment tool for smaller cities. *Government Finance Review*, *9*(6), 21–26.

Cabaleiro, R., Buch, E., Vaamonde, A. (2013). Developing a method to assessing the municipal financial health. *The American Review of Public Administration*, *43*(6), 729-751. DOI: https://doi.org/10.1177/027507 4012451523.

CEMR, Council of European Municipalities and Regions (2015). Reviving local public investments. Retrieved from http://www.ccre.org/img/uploads/ piecesjointe/filename/CEMR_position_paper_local_finances_final_EN

Clark, B.Y. (2015). Evaluating the Validity and Reliability of the Financial Condition Index for Local Governments. *Public Budgeting and Finance*, *35*(2), 66–88. DOI: https://doi.org/10.1111/pbaf.12063.

Clark, A.F., Gorina, E. (2017). Emergency financial management in small Michigan cities: Short-term fix or long-term sustainability? *Public Administration Quarterly*, *41*(3), 532–568.

CRIF-CCB (2017). iRating. Retrieved from http://www.informaceoobcich.cz/obce-loni-hospodarily-prebytkem-27-miliard-korun-za-rekordnim-prebytkem-stoji-vyrazny-pokles-investic/

Fabuš, M. (2017). Current development of business environment in Slovakia and Czech Republic. *Entrepreneurship and Sustainability Issues,* 5(1), 127-137. DOI: https://doi.org/10.9770/jesi.2017.5.1(10)

Fitch (2016). International rating methodology for local and regional governments. Retrieved from https://www.fitchratings.com/site/re/878660

Gorina, E., Maher, C., Joffe, M. (2018). Local fiscal distress: measurement and prediction. *Public Budgeting and Finance, 38*(1), 72-94. DOI: https://doi.org/10.1111/pbaf.12165.

Groves, S.M., Godsey, W.M., Shulman, M.A. (1981). Financial indicators for local government. *Public Budgeting and Finance*, *1*(2), 5-19. DOI: https://doi.org/10.1111/1540-5850.00511.

Halim, E. H., Mustika, G., Sari, R. N., Anugerah, R., Mohd-Sanusi, Z. (2017). Corporate governance practices and financial performance: The mediating effect of risk management committee at manufacturing firms. *Journal of International Studies*, *10*(4), 272-289. doi:10.14254/2071-8330.2017/10-4/21

Hendrick, R.M. (2004). Assessing and Measuring the Fiscal Heath of Local Governments Focus on Chicago Suburban Municipalities. *Urban Affairs Review*, *40*(1), 78-114. DOI: 10.1177/1078087404268076.

Jacob, B., Hendrick, R.M. (2013). Measuring and predicting local government fiscal stress: Theory and practice. In Levine, H., Justice, J.B. and Scorsone, E.A. (Eds.), *Handbook of Local Government Fiscal Health*, pp. 11-41. Burlington, MA: Jones and Bartlett Learning.

Jones, S., Walker, G. (2007). Explanators of local government distress. *Abacus*, *63*, 396-418. DOI: https://doi.org/10.1111/j.1467-6281.2007.00238.x.

Kloha, K., Weissert, C.S., Kleine, R. (2005). Developing and Testing a Composite Model to Predict Local Fiscal Disparities. *Public Administration Review*, *65*(3), 313–323. DOI: 10.1111/j.1540-6210.2005.00456.x.

Łakomy-Zinowik M., Horváthová Z. (2016), Public-private partnerships as a way of fi nancing in the healthcare system (based on the examples of Poland and the United Kingdom), *Journal of International Studies*, *9*(3), 150-158. DOI: 10.14254/2071-8330.2016/9-3/12

Maher, C. & Deller, S. (2011). Measuring Municipal Fiscal Condition: Do Objective measures of Fiscal Health Relate to Subjective Measures? *Journal of Public Budgeting, Accounting &Financial Management, 32*(3), 427-450. DOI: 10.1108/jpbafm-23-03-2011-b006.

McDonald, B.D. (2017). *Measuring the fiscal health of municipalities*. Working Paper No. WP17BM1, Lincoln Institute of Land Policy, Cambridge, MA: Cambridge Press.

MF CR (2017a). Ukazatele SIMU. Retrieved from http://www.mfcr.cz/cs/verejny-sektor/uzemni-rozpocty/monitoring-hospodareni-obci

MF CR (2017b). Zadluženost územních rozpočtů v roce 2016. Retrieved from https://www.mfcr.cz/cs/verejny-sektor/uzemni-rozpocty/zadluzenost-uzemnich-rozpoctu/2016/zadluzenost-uzemnich-rozpoctu-v-roce-201-30092

Moody's (2013). Regional an local governments outside the US. Retrieved from https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_147779

Onyusheva, I., Thammashote, L., Kot, S. (2018). ASEAN: Problems of regional integration. *Espacios*, *39* (36).

Oplištilová, I. (2012). Finanční zdraví obcí a jeho regionální diferenciace. Disertační práce. Brno: Masarykova univerzita v Brně.

Osipov, G.V., Glotov, V.I., Karepova, S.G. (2018). Population in the shadow market: petty corruption and unpaid taxes. *Entrepreneurship and Sustainability Issues*, *6*(2), 692-710. DOI: http://doi.org/10.9770/jesi.2018.6.2 (16)

Padovani, E., Rossi, M., Orelli, F., Levy, R. (2010, September 6). The Use of Financial Indicators to Determine Financial Health of Italian Municipalities. Retrieved from http://dx.doi.org/10.2139/ssrn.1679128

Standard & Poors (2010). International public finance: Methodology and assumptions: Rating international local and regional governments. Retrieved from http://www.standardandpoors.com/ratings/criteria/en/us/?filtername=governments

Stone, S., Singla, A., Comeaux, J. & Kirschner, C. (2015). A Comparison of Financial Indicators: The Case of Detroit. *Public Budgeting and Finance*, *35*(4), 90–111. DOI: 10.1111/pbaf.12079.

Szarowská, I., Majerová, I., Šebestová, J. (2018). Indikátory finanční stability pro potřeby obcí. *Český finanční a účetní časopis, 1*, 25-45, DOI: https://doi.org/10.18267/j.cfuc.508.

Tkáčová, A., Konečný, P. (2017). Krajské mestá Slovenska a ich finančné zdravie. *Scientific papers of the University of Pardubice. Series D*, *41*(3), 193-205. DOI: http://hdl.handle.net/10195/69605.

Turco, M. (2017). The management of the financial collapse of local bodies and its economic-territorial effects: the case of the municipality of Taranto. *International Journal of Public Sector Performance Management*, *3*(2). DOI: https://doi.org/10.1504/IJPSPM.2017.084677.

Tyson, C.J. (2014). Exploring the Boundaries of Municipal Bankruptcy. *Willamette Law Review, 50*(4), 661-683.

Vavrek, R., Adamisin, P., Kotulic, R. (2017). Multi-criteria evaluation of municipalities in Slovakia - Case study in selected districts. *Polish Journal of Management Studies, 16* (2), 290-301. DOI:10.17512/pjms.2017.16.2.25

Zhatkin, Y., Gurvitš, N., Strouhal, J. (2017). Addressing Ethical Matters in Ukrainian Accounting Practice. *Economics and Sociology*, 10(3), 167-178. DOI: https://doi.org/10.14254/2071-789X.2017/10-3/12.

Wang, X., Dennis, L., Tu, Y.S. (2007). Measuring financial condition: A study of U.S. states. *Public Budgeting and Finance, 27*(2), 1-21. DOI: https://doi.org/10.1111/j.1540-5850.2007.00872.x.

Appendix 1. Budgetary Management Ratios

ratio	formula	critical value
Budget Balance (BB)	Total consolidated revenues – Total consolidated expenditure / Total consolidated revenue	BB ≥ 0
Share of Current Budget Surplus on Current Earnings (CBSCE)	Current revenues — Consolidated current expenditures / Current revenues or Tax revenues + non-tax revenues + non-investment transfers received — Consolidated current expenditures) / (Tax revenues + non-tax revenue + non-investment transfers received)	0.25> CBSCE ≥0
Share of Balances in the Financial Accounts and Cash on Current Expenditure (BFACCE)	Short-term financial assets + Long-term deposits / Consolidated current expenditure * 12	4 months > BFACCE ≥ 1 month
Share of Balances in the Financial Accounts and Cash on Current Income (BFACCI)	Short-term financial assets + Long-term time deposits / Current revenues	0.3 > BFACCI ≥ 0,08
Share of Total Consolidated Expenditures on Current Earnings (TCECE)	Total Consolidated Expenses / Current Incomes or Total Consolidated Expenditures / (Tax Incomes + Non-tax Receipts + Non-Investment Transfers Received)	1.2 > TCECE ≥ 1
Share of Received Transfers on Capital Expenditures (RTCE)	Received transfers / Capital expenditures	0.8 > RTCE ≥ 0.4
Share of Own Revenues on Total Revenues (ORTR)	Own Revenue / Total Consolidated Income or (Tax revenues + Non-tax revenue + Capital revenues) / Total consolidated income	0.9 > ORTR ≥ 0.8

(*Source:* Authors´ own contribution)

Appendix 2. Municipality's Indebtedness

ratio	formula	critical value
Share of Total Debt to the Current Budget Balance (TDCBB)	Total Debt / (Current Income - Consolidated Current Expenses + Interest Paid) * 12	72 ≥ TDCBB > 36 (months)
Share of Debt Service to Debt Capacity (DSDC)	(Interest paid + Repayments of bonds issued + surplus between repayments of short-term borrowed funds + surplus repayments of long-term borrowed funds and long-term borrowed funds) /	0.8 ≥ DSDC > 0.4

ratio	formula	critical value
	(Current incomes - Consolidated current expenditure + Interest paid)	
Share of Interest Paid to Debt Capacity (IPDC)	Interest paid / (Current incomes - Consolidated current expenses + Interest paid)	0.08 ≥ IPDC > 0.04
Share of External Financial Sources on Total Assets (EFSTA)	External Financial Sources / Total Assets or External Financial Sources / (Fixed Assets + Current Assets)	0.25 ≥ EFSTA ≥ 0.1
Share of External Financial Sources without Subsidies on Total Assets (EFSSTA)	(External Financial Sources - Long-Term deposits for Transfers) / Total Assets or (External Financial Sources - Long-Term deposits for Transfers) / (Fixed Assets + Current Assets)	0.25 ≥ EFSSTA ≥ 0.1
Share of total Debt on External Financial Sources (DEFS)	Total Debt / External Financial Sources	0.1 ≥ DEFS ≥ 0.0
Debt Service in Total (DST)	Total Debts / Total Consolidated Income	0.3 ≥ DST> 0.2
Share of Total Debt on Current Earnings (TDCE)	Total Debts / Current Incomes or Total debts / (Tax revenues + Non-tax revenues + Non-investment transfers received)	0.4 ≥ TDCE > 0.25

(*Source:* Authors´ own contribution)

Appendix 3. Liquidity Ratios

ratio	formula	critical value
Current Ratio (CR)	Current assets / Current liabilities	5 ≥ CR> 1
Quick ratio (QR)	Current financial assets / current liabilities	1,75 ≥ QR> 1
Financial reserves (FR)	(Short-term financial assets + Long-term time deposits) / (Short-term payables + Long-term liabilities)	0,5 ≥ FR> 0,05

(*Source:* Authors´ own contribution)