

# An appraisal of financial indicators for local government: a structured literature review

LG financial  
indicators

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69

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## Abstract

**Purpose** – Considering the increased financial responsibility of local government (LG), the impact of global crises and the growing adoption of accrual accounting and common standards such as IPSAS, this work focuses on financial indicators for LGs. It explores whether the literature on financial indicators has grown, investigates whether there is any consensus on which indicators to use for assessing LG's financial condition, develops a critical reading of the literature and offers suggestions for future research and policy agendas.

**Design/methodology/approach** – A structured literature review was carried out for publications in English about LG financial indicators.

**Findings** – Results reveal that the number of publications dealing with financial indicators has increased over the past ten years. However, rather than focusing on a set of common indicators, the literature reports a plethora of different ones used for four main purposes: transparency and accountability compliance, performance monitoring and benchmarking, assessing LG's financial health and helping deal with exogenous crises. There is no evidence of convergence towards a common set of indicators, even though liquidity and solvency are the most popular dimensions explored by scholars.

**Research limitations/implications** – Findings highlight the challenges in converging on financial indicators, yet no claim can be made beyond the reviewed material.

**Practical implications** – Results provide legislators, public managers, investors and rating agencies with insights about trends in financial indicators, their benefits and limitations.

**Originality/value** – The article focuses on a less popular aspect of recent financial management reforms for local administration, that is the growing fragmentation in LG indicators, accentuated by the need for common assessment tools during unprecedented widespread crises across countries and sectors.

**Keywords** Local administration, Financial performance, Public sector, Financial sustainability, Financial health

**Paper type** Research paper

## 1. Introduction

Recent public sector reforms aiming at improving transparency, intergenerational equity, management capabilities, efficiency and effectiveness have led to more decentralized systems of public finance, accompanied by a reduction in central government transfers (Pollitt and Bouckaert, 2017). This has shifted the responsibility for managing financial resources from central government to local authorities and has been accompanied by the introduction of accrual accounting and common standards such as IPSAS (International Public Sector Accounting Standards) to increase accountability, transparency and budget control (Pina *et al.*, 2009). Due to their greater financial autonomy, local governments (LGs) increasingly

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need to resort to various forms of borrowing, which in turn may require a thorough assessment of their creditworthiness to fulfill international standards and agreements such as Basel II (Manes Rossi, 2011). Moreover, in Europe a broad debate about the harmonization of public sector accounting standards is underway with accrual accounting as its core pillar to better satisfy the need for accountability (Manes Rossi *et al.*, 2016), even though common accounting principles are being promoted at great expense and with major challenges (Adhikari and Gårseth-Nesbakk, 2016). Lastly, it is becoming ever more necessary to assess LG's vulnerability and promote their resilience to exogenous crises such as the 2008 credit crunch or the 2020 pandemic (Ahrens and Ferry, 2020; Hruza, 2015). Therefore, the pressures to adopt common accounting standards and the growing need to assess LG's financial condition should have favored the development and dissemination of common accounting tools.

The literature contains numerous approaches to evaluating and reporting on the financial condition of public organizations, one of which is the use of financial indicators, that is indices derived from financial statements (Hruza, 2015; Rivenbark and Roenigk, 2011). Such measures, which are also referred to as fiscal or budgetary indicators, are based on a large variety of techniques, ranging from basic approaches such as accounting ratios to more sophisticated statistical models (Caruana *et al.*, 2019; Cohen *et al.*, 2012; Manes Rossi *et al.*, 2017). National standard setters and regulators have themselves developed several frameworks to assess LG's financial condition (Pina *et al.*, 2009).

Through a structured literature review (Massaro *et al.*, 2016) this paper aims to: (1) investigate the developments of the literature on financial indicators and, in particular, whether it has grown alongside recent LG's reforms and global crises; (2) develop a critical reading of the literature on LG financial indicators and appreciate whether there is consensus among scholars on the indicators used to assess LG's financial condition and (3) offer suggestions for future research and policy agendas.

This investigation has implications for both the research and practice of public administration and management since developing valid financial measures may help improve the performance of public organizations (Kioko *et al.*, 2011). Results are relevant from an academic perspective as they shed further light on a less popular aspect of recent financial management reforms for local administration, that is the potential benefits and limitations in developing common financial indicators and using them to assess LG's condition. Financial indicators are tools of "accounting performativity" (Bracci *et al.*, 2015), that is they help in directing decisions and informing policy choices. Hence, findings are also relevant for practice, since they provide legislators, public managers, investors and rating agencies with insights about financial indicators, their features and use at a time when there is an increasing search for tools which can help assess and monitor LG's vulnerability (Padovani *et al.*, 2021).

## 2. Materials and methods

A movement towards internationally standardized and recognized public sector financial reporting started at the end of the 1990s. This standardization process is led by the International Federation of Accountants (IFAC), which has encouraged the adoption of accrual accounting throughout the public sector and has published the IPSAS common standards for public entities from national to local governments (Vivian and Maroun, 2018). At the same time, decentralization reforms and recent global crises have forced LGs to manage their finances more effectively and transparently (Padovani *et al.*, 2021). As a result of these different pressures, it would be reasonable to expect that the use of financial indicators for LG would become more widespread and that some consensus would emerge around indicators universally accepted to assess LG's financial condition.

Financial indicators are part of the wider debate on the adoption of private sector practices in the public sector first promoted by New Public Management (Hood, 1995), which has been

heavily criticized (Guthrie *et al.*, 2005), but whose ideas, methods and techniques even today remain very influential in public sector daily practices (Hyndman and Liguori, 2016). As such, financial indicators share many of the issues debated over accrual accounting: many scholars maintain that private sector standards and reporting models are inconsistent with the public sector and should be tailored to suit its specific information needs (Adhikari and Gårseth-Nesbakk, 2016).

To further explore these issues, this article develops a structured literature review (SLR), following the methodology proposed by Massaro *et al.* (2016). A SLR is a type of systematic review, which allows to retrieve and gather publications through a prescribed, replicable and transparent methodology to provide a clear synthesis and appraisal of the extant literature and its main findings on a specific topic (Santis *et al.*, 2018). When compared to other meta-analysis or systematic review logics, SLR is better suited to incorporate findings from contributions that are based on non-experimental protocols or on a limited number of in-depth studies (Massaro *et al.*, 2016), such as in public administration accounting and management research (Bracci *et al.*, 2019; Dumay *et al.*, 2015; Garlatti *et al.*, 2020). Moreover, by applying the critical management framework by Alvesson and Deetz (2000), an SLR allows developing insights, critiques and transformative redefinitions, which fit the overall aims of this contribution. Massaro *et al.* (2016) outline ten steps for developing an SLR, which are described below for this review.

## 2.1 Research protocol

It was identified that there has been no literature review focusing exclusively on LG financial indicators, apart from Hruza (2015) who examined several contributions but fell short of a comprehensive review. Hence, a protocol, including research questions, search methods and analytical framework, was defined anew to make the literature review reproducible and transparent.

*2.1.1 Research questions.* Given recent LG's accounting reforms and converging pressures, and in line with Alvesson and Detz (2000)'s critical management framework, the questions which stimulated this research were:

- (1) How has research on LG's financial indicators developed? Has the literature on financial indicators grown?
- (2) What is the focus and critique of the literature on financial indicators? Has consensus developed among scholars on the indicators to be used to assess LG's financial condition? What purpose are they used for? What challenges have arisen?
- (3) What is the future of research on financial indicators? What avenues and recommendations have emerged?

*2.1.2 Search method.* The search strategy was developed through a funnel method, that is it started off with an extensive search with the aim of encompassing all potentially relevant worldwide contributions, followed by a restrictive selection (Santis *et al.*, 2018). Hence, relevant publications were selected through a keyword search in three major databases, that is Scopus, Web of Science and Ebsco (Business Source Complete). Contributions could be any type of academic publication (articles, conference proceedings, books, etc.) without domain or scientific area limitation, but had to be available online in full text in English and should focus on LG indicators derived from financial statements, that is balance sheets, income statements, cash flow statements or any other financial report used for accounting purposes. Hence, contributions dealing with economic, social, environmental or other indicators not derived solely from financial information, did not qualify. On the contrary, contributions using indicators to compare financial performance over time or across different LGs or between

budget and actual results were all included in the selection. To avoid missing any relevant publications, the search was then extended to the references included in the selected records.

The keyword search was carried out on June 12th, 2021 and included all relevant publications to that date. In order to be as comprehensive as possible and include all terms used for similar concepts in their singular and plural forms, the search string looked for any publication in English which in its title, keywords or abstract included the words: (“financial” OR “fiscal” OR “budget\*”) AND (“indicator\*” or “ratio” or “ratios” or “index” or “indexes” or “indices”) AND (“local administration\*” or “local authorit\*” or “local government\*” or “municipal\*”).

The keyword search returned 3,292 records, of which 1,604 from Scopus, 1,026 from Web of Science and 662 from Ebsco. Once doubles were identified using software and eliminated, 2,101 publications remained. Reading their titles revealed that the keyword search had returned several irrelevant results for LG financial indicators. This is because Scopus, Web of Science and Ebsco cover a broad range of topics from all disciplines and because the adopted keywords were quite extensive. Thus, by eliminating publications with obviously not-pertinent titles, researchers were able to reduce the number of relevant records to 478. Their abstracts were read by the research team and classified as follows:

- (1) Focus on financial indicators for LG;
- (2) Simple mention of financial indicators for LG;
- (3) Reference only to non-financial indicators for LG or generic issues for LG finances;
- (4) No mention of LG financial indicators or issues.

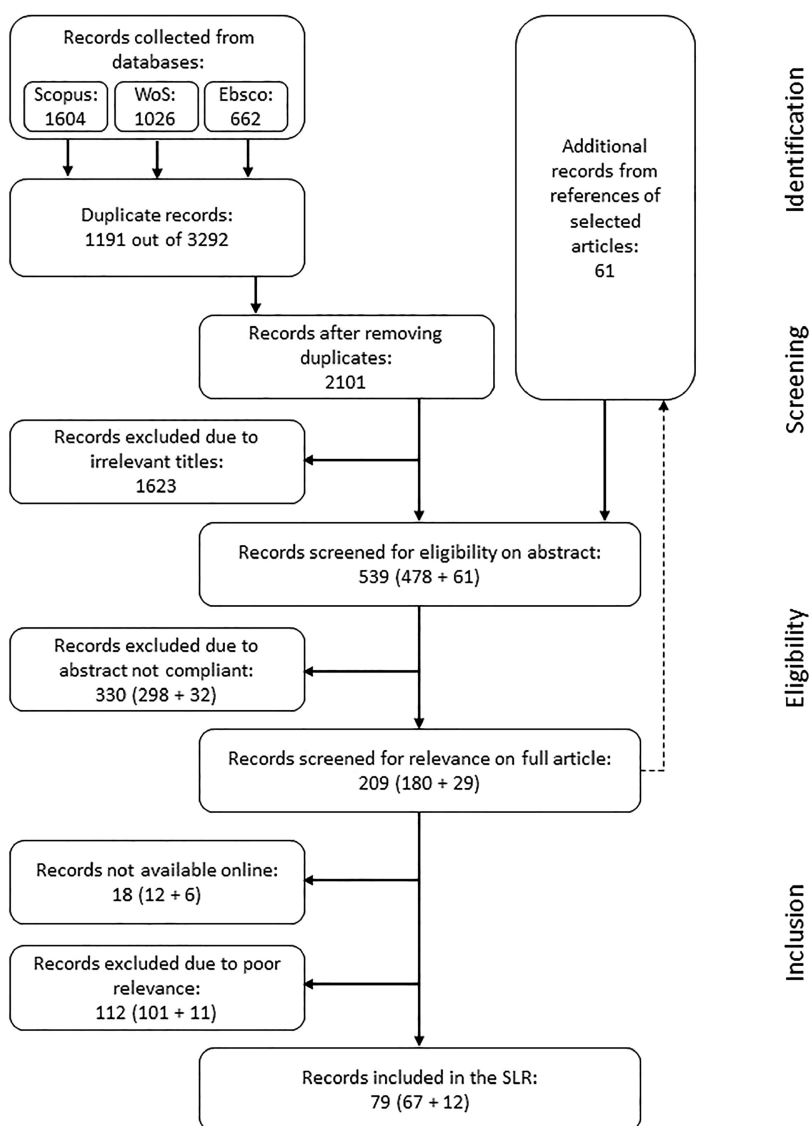
The first two clusters revealed 180 publications which were screened further. Twelve were not available online in full text, mainly being unpublished conference papers and books not available online, and were therefore excluded from further steps in the search procedure. The remaining publications were read entirely and narrowed down to those that focus on financial indicators for LGs. Those that do not deal with financial indicators but focus exclusively on other issues, such as fiscal control, indebtedness, efficiency, accounting standards or a mix of financial and non-financial indicators were discarded. To ensure reliability only those records which all researchers agreed upon were included; this is equivalent to a Krippendorff's  $\alpha$  of 1 (Krippendorff, 2013). This step further narrowed down the number of relevant publications to 67.

At the same time, to limit the risk of over-looking relevant contributions, researchers also checked a further 61 publications mentioned in the records read in full to verify whether they fulfilled the selection criteria. After reading their abstracts, 29 were included in the first two clusters (1 = focus on financial indicators for LG; 2 = simple mention of indicators for LG) and selected. Six of these were not available in full text online. Once they had read the remaining publications, researchers agreed that 12 of them fulfilled the selection criteria and could be included in the analysis.

Therefore, the selection process (Figure 1) led to a total of 79 contributions (identified with \* in the “References”), which were deemed relevant and included in the analysis out of the original 2162 publications composed of those retrieved through keyword search (2101) and those from references (61).

## 2.2 Literature impact

The impact of the selected publications, the fourth step in a SLR after defining a research protocol, outlining the research questions and carrying out a literature search, was verified through the pertinence of publication outlets and the impact of selected records on the collective literature.



**Figure 1.**  
Literature search

Hence, on the one hand, it was verified that, apart from one (Dziekański, 2017), all selected contributions were published in public accounting, administration or management journals, confirming that the topic of LG financial indicators is discussed in relevant academic contexts where it can reasonably have the greatest impact. On the other hand, the number of Google Scholar citations for each record was used as a proxy for their relevance and quality to help appreciate those contributions that have steered the academic debate (Massaro *et al.*, 2016). Table 1 shows the top ten selected publications by number of citations as of June 20th, 2021, and Table 2 shows the top ten records by citations per year, so as to counterbalance the fact

**Table 1.**  
Top ten publications  
by google scholar  
citations (June  
20th 2021)

|    | Author                                          | Title                                                                                                                               | Publication                              | Year | Citations |
|----|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------|-----------|
| 1  | Brown                                           | The 10-point test of financial condition: toward an easy-to-use assessment tool for smaller cities                                  | Government Finance Review                | 1993 | 322       |
| 2  | Groves, Godsey, Shulman                         | Financial indicators for local government                                                                                           | Public Budgeting and Finance             | 1981 | 254       |
| 3  | Zafra-Gómez, López-Hernández, Hernández-Bastida | Evaluating financial performance in local government: maximizing the benchmarking value                                             | International Review of Admin. Sciences  | 2009 | 150       |
| 4  | Rivenbark and Roenigk                           | Conceptualizing financial condition in local government                                                                             | Public Administration Quarterly          | 2010 | 125       |
| 5  | Kloha, Weissert, Kleine                         | Someone to watch over me: State monitoring of local fiscal conditions                                                               | American Review of Public Administration | 2005 | 123       |
| 6  | Cabaleiro Casal, Buch Gómez, Vaamonde Liste     | Developing a method to assessing the municipal financial health                                                                     | American Review of Public Administration | 2012 | 115       |
| 7  | Cohen, Doumpos, Neofytou, Zopounidis            | Assessing financial distress where bankruptcy is not an option: an alternative approach for local municipalities                    | European Journal of Operational Research | 2012 | 107       |
| 8  | Maher and Nollenberger                          | Revisiting Ken Brown's 10-point test"                                                                                               | Government Finance Review                | 2009 | 85        |
| 9  | Carmeli                                         | A conceptual and practical framework of measuring performance of local authorities in financial terms: analysing the case of Israel | Local Government Studies                 | 2002 | 83        |
| 10 | Cohen                                           | Identifying the moderator factors of financial performance in Greek municipalities                                                  | Financial Accountability and Management  | 2008 | 78        |

that older publications can accumulate more citations, even though they are not necessarily available online and hence could have garnered less exposure.

As evidenced in the tables, five records are common to both rankings: [Brown \(1993\)](#), [Cabaleiro Casal \*et al.\* \(2013\)](#), [Cohen \*et al.\* \(2012\)](#), [Rivenbark and Roenigk \(2010\)](#), [Zafra-Gómez \*et al.\* \(2009\)](#). This indicates that some publications have exerted a more enduring influence on subsequent contributions, have driven the production of new knowledge within the research field and are considered as points of reference regarding financial indicators. Indeed, they include some of the older publications on financial indicators, such as [Groves \*et al.\* \(1981\)](#) and [Brown \(1993\)](#), which have been praised for their simplicity, as they use data easily accessible from financial reports ([Maher and Nollenberger, 2009](#)), so much that they have become seminal contributions, as discussed in more detail in Section “3.2.1.1 Proposed dimensions and indicators”. Yet, taking into consideration the citations per year statistics ([Table 2](#)), more recent publications ([Gorina \*et al.\*, 2018](#); [Bisogno \*et al.\*, 2019](#)) are also highly cited, confirming the on-going relevance of the topic and importance of its current developments.

### 2.3 Analytical framework

Wherever possible the dimensions around which contributions were analyzed and classified were developed using schemes used for other SLRs ([Bracci \*et al.\*, 2019](#); [Dumay \*et al.\*, 2015](#); [Manes Rossi \*et al.\*, 2020](#)). Researchers first read the seven most cited records, that is 10% of

|    |                               |                                                                                                                                |                                                   |            |       | LG financial indicators |
|----|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------------|-------|-------------------------|
|    | Author                        | Title                                                                                                                          | Publication                                       | Year       | CPY   |                         |
| 1  | Gorina <i>et al.</i>          | Local fiscal distress: Measurement and prediction                                                                              | Public Budgeting and Finance                      | 2018       | 19.33 | 75                      |
| 2  | Bisogno <i>et al.</i>         | Budgetary solvency of Italian local governments: an assessment                                                                 | International Journal of Public Sector Management | 2019       | 14.50 |                         |
| 3  | Cabaleiro Casal <i>et al.</i> | Developing a method to assessing the municipal financial health                                                                | American Review of Public Administration          | 2012, 2013 | 14.38 |                         |
| 4  | Navarro-Galera <i>et al.</i>  | Measuring the financial sustainability and its influential factors in local governments                                        | Applied Economics                                 | 2016       | 13.20 |                         |
| 5  | Zafra-Gómez <i>et al.</i>     | Evaluating financial performance in local government: Maximizing the benchmarking value                                        | International Review of Admin. Sciences           | 2009       | 12.50 |                         |
| 6  | Cohen <i>et al.</i>           | Assessing financial distress where bankruptcy is not an option: An alternative approach for local municipalities               | European Journal of Operational Research          | 2012       | 11.89 |                         |
| 7  | Brown                         | The 10-point test of financial condition: Toward an easy-to-use assessment tool for smaller cities                             | Government Finance Review                         | 1993       | 11.50 |                         |
| 8  | Rivenbark <i>et al.</i>       | Conceptualizing financial condition in local government                                                                        | Public Administration Quarterly                   | 2010       | 11.36 |                         |
| 9  | Dziekański                    | Diversification synthetic indicator for evaluating the financial capacity of local government. the case of Polish voivodeships | Acta Universitatis                                | 2017       | 11.25 |                         |
| 10 | Turley <i>et al.</i>          | A framework to measure the financial performance of local governments                                                          | Local Government Studies                          | 2015       | 10.83 |                         |

**Table 2.**  
Top ten publications  
by google scholar  
citations per year (CPY,  
June 20th 2021)

the selected publications, and then discussed the appropriateness of the frameworks from other SLRs. They were adapted them to obtain a framework that was coherent with the research objectives and peculiarities of this SLR.

The final framework, which is summarized in [Tables 3 and 4](#), was organized around four clusters of analysis and thirteen categories:

- (1) Research timeframe to explore the literature development over time; consistently with previous SLRs, the only category included was the year of publication;
- (2) Research design to understand how research on financial indicators has developed; three categories were included. Two were taken and adapted from previous research ([Bracci \*et al.\*, 2019](#); [Dumay \*et al.\*, 2015](#); [Manes Rossi \*et al.\*, 2020](#)), that is the research method employed and whether existing models were used, while the third category in this cluster, “Orientation”, was developed as a new category to help appreciate whether publications discussed financial indicators or simply applied an existing model without any discussion, which would indicate the level of acceptance of a particular model;
- (3) Research context to appreciate what the literature has covered and which settings are yet to be explored: as in [Bracci \*et al.\* \(2019\)](#) two categories were included, that is “geographical focus” and “jurisdiction”. This allowed to appreciate both the specific country or countries the publications focused on and whether the scope of the research was local including only one LG, regional if it covered LGs from one region,

**Table 3.**  
Research timeframe,  
design and context

|                                                     | Publications | %             |
|-----------------------------------------------------|--------------|---------------|
| <i>(a) Year of publication</i>                      |              |               |
| 1977–1989                                           | 4            | 5.1%          |
| 1990–1999                                           | 1            | 1.3%          |
| 2000–2009                                           | 9            | 11.4%         |
| 2010–2014                                           | 24           | 30.4%         |
| 2015–2019                                           | 38           | 48.1%         |
| 2020–                                               | 3            | 3.8%          |
| <i>Total</i>                                        | <i>79</i>    | <i>100.0%</i> |
| <i>(b) Research methods</i>                         |              |               |
| Case/Field study/Interviews                         | 9            | 11.4          |
| Content analysis/Historical analysis                | 0            | 0.0           |
| Survey with questionnaire                           | 2            | 2.5           |
| Empirical comparisons                               | 33           | 41.8          |
| Statistical modelling for financial issues          | 18           | 22.8          |
| Statistical modelling for indicator selection       | 11           | 13.9          |
| Commentary/Normative/Policy                         | 2            | 2.5           |
| Literature review                                   | 3            | 3.8           |
| Mixed methods                                       | 1            | 1.3           |
| <i>Total</i>                                        | <i>79</i>    | <i>100.0%</i> |
| <i>(c) Orientation</i>                              |              |               |
| Discussion/assessment of financial indicator models | 60           | 75.9%         |
| Straightforward application of existing indicators  | 19           | 24.1%         |
| <i>Total</i>                                        | <i>79</i>    | <i>100.0%</i> |
| <i>(d) Model used</i>                               |              |               |
| Application/consideration of existing models        | 24           | 30.4%         |
| Proposal of new sets of indicators                  | 31           | 39.2%         |
| Refinement/integration of existing models           | 24           | 30.4%         |
| <i>Total</i>                                        | <i>79</i>    | <i>100.0%</i> |
| <i>(e) Geographical focus</i>                       |              |               |
| USA                                                 | 17           | 21.5%         |
| Spain                                               | 9            | 11.4%         |
| Poland                                              | 7            | 8.9%          |
| Indonesia                                           | 6            | 7.6%          |
| Italy                                               | 5            | 6.3%          |
| More countries                                      | 5            | 6.3%          |
| Slovakia                                            | 4            | 5.1%          |
| Australia                                           | 3            | 3.8%          |
| Czech Republic                                      | 3            | 3.8%          |
| Ireland                                             | 3            | 3.8%          |
| China                                               | 2            | 2.5%          |
| Greece                                              | 2            | 2.5%          |
| New Zealand                                         | 2            | 2.5%          |
| UK                                                  | 2            | 2.5%          |
| Other country                                       | 9            | 11.4%         |
| <i>Total</i>                                        | <i>79</i>    | <i>100.0%</i> |
| <i>(f) Jurisdiction</i>                             |              |               |
| International                                       | 5            | 6.3%          |
| National                                            | 47           | 59.5%         |
| State/provincial/regional                           | 19           | 24.1%         |
| Local                                               | 8            | 10.1%         |
| <i>Total</i>                                        | <i>79</i>    | <i>100.0%</i> |

|                                                                     | Publications | %             | LG financial indicators           |           |
|---------------------------------------------------------------------|--------------|---------------|-----------------------------------|-----------|
| <i>(a) Data source</i>                                              |              |               |                                   |           |
| Income statement, balance sheet                                     | 49           | 62.0%         | <b>77</b>                         |           |
| Cash statement, income statement, balance sheet                     | 17           | 21.5%         |                                   |           |
| Cash statement                                                      | 8            | 10.1%         |                                   |           |
| Balance sheet                                                       | 3            | 3.8%          |                                   |           |
| Income statement                                                    | 1            | 1.3%          |                                   |           |
| Cash statement, income statement                                    | 1            | 1.3%          |                                   |           |
| <i>Total</i>                                                        | <i>79</i>    | <i>100.0%</i> |                                   |           |
| <i>(b) Accounting system</i>                                        |              |               |                                   |           |
| Cash                                                                | 3            | 3.8%          | <b>77</b>                         |           |
| Modified cash                                                       | 2            | 2.5%          |                                   |           |
| Accrual                                                             | 11           | 13.9%         |                                   |           |
| Mixed                                                               | 11           | 13.9%         |                                   |           |
| Not indicated                                                       | 52           | 65.8%         |                                   |           |
| <i>Total</i>                                                        | <i>79</i>    | <i>100.0%</i> |                                   |           |
| <i>(c) Model origin</i>                                             |              |               |                                   |           |
| Groves <i>et al.</i> (1981)/ICMA                                    | 18           | 22.8%         | <b>77</b>                         |           |
| CICA (2009)                                                         | 5            | 6.3%          |                                   |           |
| ICMA and CICA (2009)                                                | 9            | 11.4%         |                                   |           |
| Other                                                               | 47           | 59.5%         |                                   |           |
| <i>Total</i>                                                        | <i>79</i>    | <i>100.0%</i> |                                   |           |
| <i>(d) Liquidity and solvency (multiple answers possible)</i>       |              |               |                                   |           |
| Long term solvency                                                  | 55           | 69.6%         |                                   | <b>77</b> |
| Budgetary solvency                                                  | 35           | 44.3%         |                                   |           |
| Short term solvency                                                 | 26           | 32.9%         |                                   |           |
| Liquidity                                                           | 24           | 30.4%         |                                   |           |
| None                                                                | 12           | 15.2%         |                                   |           |
| <i>Number of articles included-Answers %</i>                        | <i>79</i>    | <i>192.4%</i> |                                   |           |
| <i>(e) Use of composite measure/index</i>                           |              |               |                                   |           |
| Multiple indicators with composite measure/index                    | 11           | 13.9%         | <b>77</b>                         |           |
| Multiple indicators without composite measure/index                 | 68           | 86.1%         |                                   |           |
| <i>Total</i>                                                        | <i>79</i>    | <i>100.0%</i> |                                   |           |
| <i>(f) Purpose for using indicators (multiple answers possible)</i> |              |               |                                   |           |
| Compliance re. transparency and accountability                      | 12           | 15.2%         |                                   |           |
| Monitoring and benchmarking performance                             | 11           | 13.9%         |                                   |           |
| Assessing financial health                                          | 63           | 79.7%         |                                   |           |
| Dealing with exogenous crises                                       | 11           | 13.9%         | <b>Table 4.</b><br>Research focus |           |
| <i>Number of articles included-Answers %</i>                        | <i>79</i>    | <i>122.8%</i> |                                   |           |

**Table 4.**  
Research focus

province or state, national if it focused on the LGs of one country or international if it considered LGs across countries;

- (4) Research focus to investigate the core issues and limitations of the extant literature. This cluster was dedicated to issues peculiar to financial indicators and included seven categories specifically developed for this SLR (Table 4), that is: “Data source”, which is the accounting source used to calculate financial indicators; “Accounting system”, which indicates the accounting system in use specified in the publications; “Model origin”, to highlight whether the publications refer to the most cited models, if any; “Liquidity and solvency”, to verify whether the publications include such indicators; “Use of composite measure or index”, which highlights whether

publications develop a single index from multiple indicators; “Purpose for using indicators”, which helps appreciate what indicators are used for; and lastly “Issues and challenges”, which reports concerns with indicators which emerged from each publication, but could not be meaningfully represented in tabular format as arguments were too varied and hence were analyzed in the “Concerns about financial indicators” Section (3.2.2).

#### 2.4 Reliability, coding and validity

Reliability in recording and analyzing data was ensured through several methods (Massaro *et al.*, 2016), that is by selecting dimensions and categories from well-grounded relevant literature, and by establishing a reliable coding instrument with well-specified decision categories and decision rules. Researchers initially independently coded the seven most cited records to determine the reliability of the adopted framework and clarify any discrepancies.

Validity was pursued using different tactics. Internal validity, which seeks to establish causal relationships, was ensured through “pattern matching” and “explanation building” (Yin, 2014), that is starting to develop some appreciations from the most cited papers and then enlarging the sample to test the initial implications (Massaro *et al.*, 2016). In other words, the results were both checked first through rival explanations, logic models and triangulation within a small group of articles and then confirmed enlarging the analysis to the whole data set, comparing number of articles and their citation impact (Yin, 2014). External validity, which concerns the generalizability of results, that is in how far the selected articles can be considered representative of the available literature, was safeguarded by the initial extensive search and by verifying that findings could be explained by theory or previous studies (Massaro *et al.*, 2016; Yin, 2014). Construct validity, that is to ensure that appropriate operational measures are established for the concepts under research, was pursued by using multiple sources to support results (Massaro *et al.*, 2016), including publications which were excluded from the literature search because, for example, they dealt with mixed indicators. It was important to appreciate argumentations from scholars who looked at other indicators and appraised the benefits and the limitations of working with financial ones (Caruana *et al.*, 2019; Hendrick, 2004).

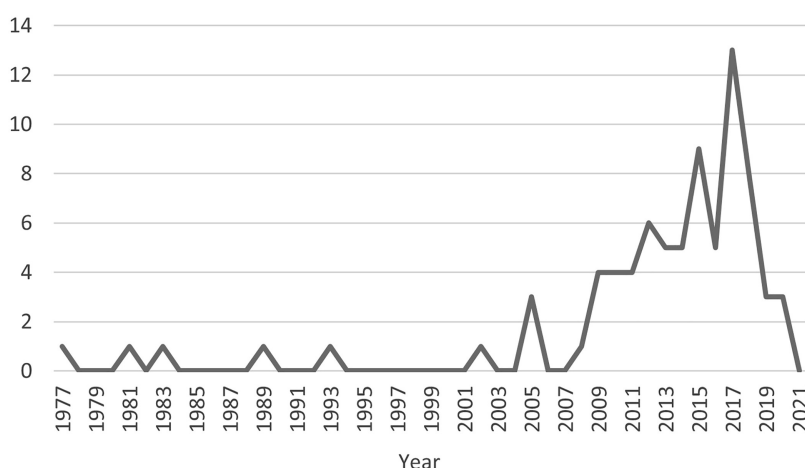
### 3. Results

#### 3.1 Insights: the financial indicators literature

Examining the selected literature reveals that the research on financial indicators is vibrant, yet still focused on the local and national levels with little international outlook, comparisons or convergence (Table 3).

**3.1.1 Research timeframe.** Among the selected literature, the first record was published in 1977 (Petersen, 1977), while most contributions appeared in the last decade (over 80%, Table 3 (a), and particularly between 2015 and 2019 (48%). This is probably due to the interest in financial indicators brought about by the 2008 financial crisis and the adoption of accrual accounting and IPSAS in many countries since the turn of the century. This provides an initial partial answer to the first research question: financial indicators have indeed become more popular over time. However, over the past couple of years publications focusing on LG financial indicators seem to have dropped off (Figure 2). Hence, it will be important to monitor future publications to understand whether this is a short-lived (and possibly pandemic induced) anomaly or whether research has moved on to other tools, beyond financial indicators, to analyze LG’s financial condition.

**3.1.2 Research design.** Research design helps assess the prevalence of some methods and the level of theoretical sophistication, that is whether contributions develop new models



**Figure 2.**  
Publications by year

rather than applying or attempting to refine existing ones. This allows appreciating what characterizes research on financial indicators and whether there is a risk of “under-theorized empirics”, that is empirical studies with no theoretical basis, or of “armchair theorizing”, that is theoretical conceptualizations with no empirical backing. The latter could then end up in “disembedded theory” with little, if any, supporting evidence (Bracci *et al.*, 2019).

Most of the selected publications (64 out of 72, Table 3b) use an empirical and quantitative research method, collecting data from LGs and testing their hypotheses about financial indicators. Many studies (33, Table 3b) rely on comparing indicators calculated from financial reports to compare financial condition over time (for example, Atan *et al.*, 2010), across different LGs (Brown, 1993) or between types of local entities (Carini and Teodori, 2019; Carmeli, 2002). In 18 publications statistical modelling was used to investigate financial issues such as budgetary solvency (Bisogno *et al.*, 2019), financial performance (Cohen, 2008), financial risk and distress (García-Sánchez *et al.*, 2012; Murray and Dollery, 2005; Trussel and Patrick, 2013, 2018) or the interest rate charged to LGs (Bastida *et al.*, 2014). In 11 publications statistical modelling was used to test the validity of a model (Pridgen and Wilder, 2013) or construct indexes from financial indicators (Cabaleiro Casal *et al.*, 2012), while only two publications collected data through an ad hoc questionnaire to assess which indicators are used and for what purpose (Kloha *et al.*, 2005; Susanto and Djuminah, 2015).

With such a preponderance of empirical methods, there is no risk of “armchair theorizing”, but rather of “under-theorized empirics” (Bracci *et al.*, 2019), because of a “dominant approach of pragmatic empiricism” (Hruza, 2015). This has an impact on the theoretical sophistication of the selected records: over 75% of them discuss which models to use, their advantages and drawbacks and almost 40% of them propose new sets of indicators rather than applying or refining existing ones (Table 3c and d). This speaks against the hypothesis that global financial crises and pressures towards common accounting standards would lead to the emergence of more universally accepted financial indicators for LGs.

**3.1.3 Research context.** Over half of the selected publications focus their research on Western countries, which is not surprising as these were the first countries to adopt accrual accounting and IPSAS or to have implemented public sector accounting reforms in that direction (Manes Rossi *et al.*, 2016). The rest of the records look at a diverse group of countries from Eastern Europe and Asia, such as Poland and Indonesia, where accrual accounting has recently been introduced at LG level.

What is more surprising is that most research on financial indicators for LGs does not draw comparisons across countries. Only five contributions (Citro *et al.*, 2018; De Matteis and Preite, 2018; Hegedűs and Lentner, 2020; Hruza, 2015; Padovani *et al.*, 2018) look at LGs in more than one country, while all other selected publications focus on analyses at national, provincial or solely local level (Table 3f). Hence, notwithstanding the adoption of accruals and IPSAS, common financial indicators for LGs are just beginning to emerge, meaning international comparative studies are still difficult to conduct (Carmeli, 2002). This is particularly striking for the EU countries where a harmonization process has been in place since EU Directive 85/2011 and the Fiscal Stability Treaty came into effect on January 1st, 2013.

### 3.2 Critical reflections: focusing on LG financial indicators

A critical analysis of the literature (Table 4) reveals that a plethora of indicators has been developed since they depend not only on the country they are applied to (Carmeli, 2002), but also on the accounting standards and data available (Cohen, 2008; Hruza, 2015; Rivenbark and Roenigk, 2011; Robbins *et al.*, 2016; Winarna *et al.*, 2017), on the reasons for using such tools (Petersen, 1977) and on potential users such as supervisory bodies, liability holders and citizens (Atan *et al.*, 2010; Cohen *et al.*, 2017; Padovani *et al.*, 2018). However, some consensus is emerging on the dimensions to be used when assessing LG's financial condition, but many concerns remain to be addressed.

**3.2.1 Research focus.** The indicators used in most of the selected publications use information from income statements and balance sheets (62%, Table 4a), confirming the initial hunch that accrual accounting is key to the development of financial indicators. Indeed, income statements and balance sheets report information that show resource consumption for public services and activities which traditional cash-based accounting systems do not contemplate (Özkul and Alkan, 2017). However, using a balance sheet as a data source does not automatically imply that the accounting system in use is accrual-based; as a matter of fact, a balance sheet could be included in the financial statement, although the accounting system adopted by public sector entities is cash- or modified-cash based.

Therefore, the accounting system in use was investigated. It is interesting to notice that while some scholars (Cohen, 2008; Hruza, 2015; Rivenbark and Roenigk, 2011) recognize the fact that which financial indicators can be used to assess LG's condition depends on the accounting system in place, only a third of publications explicitly report it (34%, Table 4b). Whether it is implied or assumed to be known, it is also true that in many countries LG accounts rely on a set of competing or multiple logics with different accounting systems coexisting at LG level (Manes Rossi *et al.*, 2016).

**3.2.1.1 Proposed dimensions and indicators.** The selected literature confirms that financial performance measures and assessments require multi-dimensional, multi-indicator approaches (Carini and Teodori, 2019; Clark, 2015). As expected, no publication included in this literature review suggests using only one indicator to assess LG's condition.

The analysis highlighted two main models which many authors refer to (Table 4c), namely the one proposed by Groves *et al.* (1981) and the indicators developed by the Canadian Institute of Chartered Accountants (CICA, 2009). The former model (Groves *et al.*, 1981) focuses on solvency and considers four dimensions: short-term liquidity, budgetary solvency, long-run solvency and service level solvency. Its indicators were adopted by the American Financial Trend Monitoring System (FTMS), released by the International City/County Management Association (ICMA) to propose an internal monitoring system for US LGs (Cabaleiro Casal *et al.*, 2013). Yet, only Stevens and McGowan (1983) use the same set of indicators as Groves *et al.* (1981). All other publications who apply their model refer to the same dimensions but use a selection of different indicators.

The other key model (CICA, 2009) sought to provide a common methodology for assessing the financial condition of Canadian LGs, which was defined as their ability to meet existing financial obligations, including both service commitments to residents and financial commitments to creditors and employees. Financial condition is analyzed through three dimensions: sustainability, flexibility and vulnerability. Sustainability refers to whether an organization can maintain its programs, while complying with credit requirements, without increasing the level of its indebtedness. Flexibility is the degree to which an organization can increase its financial resources to respond to rising commitments, whether by increasing its revenues or its debt. Finally, vulnerability is the extent to which an organization depends on resources beyond its own control.

The relationship between the dimensions of the two models is not universally accepted. Some authors (Zafra-Gómez *et al.*, 2009) maintain that the level of sustainability, flexibility and vulnerability measure budgetary solvency, which is understood as LG's ability to generate enough income to pay for expenses and not incur a deficit. Conversely, other authors (Cabaleiro Casal *et al.*, 2012) find aspects of the dimensions of sustainability and flexibility included in long-run solvency, while budgetary solvency contains vulnerability, along with some aspects that are associated with flexibility, and service-level solvency includes other aspects of flexibility.

However, the same critical issue applies to the contributions which adopt either model: while there is convergence on the dimensions to assess LG's financial condition, different indicators are used. At one extreme, Cabaleiro Casal and Buch Gómez (2011) proposed 34 indicators to assess the financial health of Spanish municipalities, while Cohen *et al.* (2012) selected only six indicators to analyze the financial distress of Greek local administrations.

Regardless of the model they refer to, many publications share a balance between a short-term perspective and a long-term perspective with liquidity and solvency as the most cited dimensions (Table 4d). Liquidity measures a LG's ability to pay current liabilities. It is often operationalized using the ratio of cash and other liquid assets to short term liabilities as in a "quick ratio" or "acid test" (Hughes and Katwal, 2011), but some authors intend it as cash or short-term solvency, that is the ratio between all current assets and short-term liabilities (Cohen, 2008). Over half of the publications refer to either liquidity or short-term solvency (63%), as these concepts often blur together and depend on the different accounting information used (cash or accrual). On the other hand, most authors (55 out of 79, 70%) refer to long-term solvency, that is the debt repayment capacity or the impact of existing long-term obligations on future resources. Long-term solvency is also measured using different ratios: total liabilities to net assets (Hughes and Katwal, 2011), total liabilities to total assets (Pridgen and Wilder, 2013; Wojtasiak-Terech and Makowska, 2017), long-term debt to long-term assets (Kazlauskienė and Aidukienė, 2014), debt service to total revenue (Brown, 1993; Greganová *et al.*, 2015) or a combination of them. The same is true for budgetary solvency which is dealt with in a little under half of the selected literature (44%), but is measured by different indices such as the ratio between total revenues and total expenditures (Cabaleiro Casal and Buch Gómez, 2014), or the ratio between total revenues except transfers and total expenditures (García-Sánchez *et al.*, 2012; Liuta *et al.*, 2015), or the ratio between the difference of total revenues and total expenditures over total revenues (Stevens and McGowan, 1983).

Hence, there is some consensus on using long-term solvency, liquidity/short-term solvency and budgetary solvency to assess LG's financial condition, but not on the indicators to be used to measure such dimensions (Hruza, 2015; Wojtasiak-Terech and Makowska, 2017).

Lastly, eleven publications calculate a composite index to allow more immediate comparisons and a quicker assessment of LG's condition (Table 4e). It should also be noted that half of such publications wish to investigate LGs in financial distress and that they focus on budgetary solvency, but that no clear reference to other dimensions emerges. Moreover,

the same authors proposing such synthetic measures highlight two major drawbacks: on the one hand, public managers and elected officials need anyway to examine the financial condition of their cities across multiple dimensions to understand it (Clark, 2015). On the other hand, the problems related to single indicators are not solved, on the contrary they are often magnified in a composite measure that gives the illusion of making comparing LG's condition easier (Cabaleiro Casal *et al.*, 2013; Dziekański, 2013; Mahbub *et al.*, 2017; Natrini and Ritonga, 2017). Thus, for example, rating agencies offer credit rating models that are a compromise between a single score and a vast variety of indicators (Gorina *et al.*, 2018).

3.2.1.2 Benefits and purposes of using indicators. One of the reasons why so many indicators are present in the selected literature is because they can be used to satisfy different purposes (Petersen, 1977). The reasons for using such indicators can be grouped into four main categories (Table 4f). In most of the selected literature (80%) indicators are used to assess financial health and can play a central role for the provision of information useful for decision making to enable better control of the budgetary process (Bisogno *et al.*, 2019; Papcunova *et al.*, 2015; Zafra-Gómez *et al.*, 2009). Yet, there is considerable ambiguity about what constitutes financial difficulties and how to recognize them before they become emergencies (Kloha *et al.*, 2005; Sebestova *et al.*, 2018b; Trussel and Patrick, 2013). Looking specifically at those 48 publications which cite only “assessing financial health” among the purposes for using indicators, they make more often use of solvency indicators than the overall sample, and, in particular, of long-term solvency: 81% refer to long-term solvency (against 70% in the overall sample), 52% to budgetary solvency (against 44%) and 42% to short-term solvency (against 33%). Hence, in most of the selected literature financial health tends to be assessed using solvency and, especially, long-term solvency.

Secondly, in countries such as Australia (Pilcher, 2005), the UK (Hepworth, 1989), Spain (Bastida *et al.*, 2014), Poland (Dziekański, 2016; Grzebyk, 2012) and Indonesia (Fafurida and Pratiwi, 2017; Susanto and Djuminah, 2015) indicators are also used for compliance regarding transparency and accountability disclosure. This is a rather complex issue which is often country specific and difficult to deal with in an overall analysis like this one for its many nuances. For example, Steccolini *et al.* (2020) refer to compliance induced by “coercive pressures”, when comparisons are made with a set of performance standards decided upon by central governments, or “normative pressures”, when standards are recommended by professional organizations.

Moreover, a small but growing literature is also devoted to benchmarking LG's performance (Robbins *et al.*, 2016) and examining how such comparisons affect outcomes (Gerrish and Spreen, 2017; Turley *et al.*, 2015). Beyond helping managers compare financial performance across jurisdictions, stakeholders such as rating agencies, investors and even private citizens can use financial indicators to compare LG performance and decide whether to invest there (Padovani *et al.*, 2018; Zafra-Gómez *et al.*, 2009; Zarska and Rafaj, 2016), which Steccolini *et al.* (2020) refer to as “mimetic pressures”. In general, the use of financial performance for benchmarking purposes holds both promises and perils: on the one hand, administrators and stakeholders have new tools with which to compare jurisdictions, on the other, it is feared that organizations may take actions that improve reported performance, but may leave actual performance unchanged (Turley *et al.*, 2015). Even worse, in their study of municipalities in North Carolina, Gerrish and Spreen (2017) concluded that introducing financial ratios for benchmarking purposes created isomorphic pressures even among the best performers to converge towards the target performance rather than exceeding it.

Lastly, following the 2008 financial crisis some authors have proposed to use financial indicators to help weather exogenous shocks (Hruza, 2015). Indicators help provide early signals of external financial distress affecting local finances (Cohen *et al.*, 2017; García-Sánchez *et al.*, 2012) and they can monitor the presence of a system of adequate

coping capacities such as financial reserves, limited rigid expenditures and low debt levels (Dziekański, 2013; Greganova *et al.*, 2015; Zarska and Rafaj, 2016).

Therefore, the main purpose for using financial indicators for LGs is to assess their financial health retrospectively and meeting compliance requirements. However, two more forward-looking benefits have emerged from the more recent literature: using financial indicators for benchmarking purposes and coping with financial shocks. This may become particularly relevant in the aftermath of the Covid-19 epidemic.

*3.2.2 Concerns about financial indicators.* The literature review has highlighted three main constraints in using financial indicators: a lack of clear definitions for key concepts, accounting standards which make it difficult to produce meaningful synthetic measures and limitations relative to using purely financial indicators.

*3.2.2.1 Malleable definitions.* The array of indicators that has been developed is not only the result of different methodological approaches, purposes and contexts, but also of a great ambiguity in terminology (Cabaleiro Casal *et al.*, 2012; Ritonga, 2014). The lack of clear definitions regarding some basic financial concepts means that they are sometimes used interchangeably (Cabaleiro Casal *et al.*, 2013). Even the concept of financial condition does not have a universal appreciation in the literature (Brusca *et al.*, 2018), because it is difficult to represent it since it changes over time and it depends on the appreciation of the objectives of a public entity (Citro *et al.*, 2018). Groves *et al.* (1981) meant financial condition as solvency, differentiating between short, medium and long-term solvency, that is the ability of a LG to fulfil its various obligations (Ritonga *et al.*, 2012). Over time, scholars started talking interchangeably about financial condition, financial health and financial sustainability, even though they are neither understood nor operationalized in the same way and suffer from various conceptualizations. Most authors understand financial health as the absence of distress, meaning an imbalance between revenue capacity and expenditure needs, which though for some is related solely to risk and debt management (Kluza, 2017a, b; Pridgen and Wilder, 2013; Yi, 2009), while others pinpoint to short-term considerations, namely a LG's ability to meet its payroll on time (Manes Rossi *et al.*, 2012), while for others it corresponds to service delivery and adhering to minimum quality standards (Winarna *et al.*, 2017), and for yet others it refers to a combinations of these issues (Murray and Dollery, 2005; Padovani *et al.*, 2018; Trussel and Patrick, 2018). Other scholars include in a healthy financial condition also the ability of LGs to deal with events that are unexpected in the impending future, such as natural or social disasters (Ritonga, 2014).

As far as financial sustainability is concerned, there is agreement among authors that it should consider both budgetary solvency and the maintenance of satisfactory liquidity, but there is no agreement about whether to include service level and to what extent (Caruana *et al.*, 2019; Manes Rossi *et al.*, 2017).

If just analyzing one concept has revealed how malleable definitions can be, some scholars wonder how different definitions of financial condition and other constructs can then be measured through the same or similar indicators (Natrini and Ritonga, 2017).

*3.2.2.2 Unsuitable accounting standards.* Some authors note that accounting standards are not always suited to LGs and this diminishes the relevance of financial indicators in assessing LG's financial condition (Drew and Dollery, 2014; Pilcher, 2005). The issues at stake are twofold: the type of accounting standards used and the limitations intrinsic to public accounting.

On the one hand, despite efforts by standard setting authorities to encourage the use of accrual accounting, many LGs continue to prepare their financial statements on a cash or modified-cash basis (Padovani *et al.*, 2018; Susanto and Djuminah, 2015). Yet, if a municipality has not adopted accrual accounting, its financial condition can only be measured partially. Factors such as the economic life of its assets as well as liabilities for pensions and other post-retirement benefits are likely to be under reported or missing altogether.

On the other hand, even with accrual accounting, certain standards are only partially suitable for public sector organizations. Private sector accounting relies heavily on concepts and measurements derived from fair value accounting and the balance sheet approach. Yet, the absence of a market in the provision of many public goods and services causes significant consequences concerning the definition, valuation, classification, depreciation and presentation of public assets and liabilities, as well as issues of capital maintenance and erosion (Lapsley *et al.*, 2009). Differently from private assets, public goods such as public monuments, heritage assets, infrastructure assets and community assets, seldom have any liquid markets and tractable market values and they benefit the public at large and not only the public entity which owns them (Oulasvirta, 2014). Similarly, there are no standards to account for returns on public sector assets or depreciation (Hruza, 2015). Hence, money values assigned to public assets are typically arbitrary and unreliable, so that valuation and depreciation result in questionable financial figures that distort the reported “bottom line” of municipalities (Pilcher, 2005).

Furthermore, debt management in the public sector is different from private entities, due to the possibility of many LGs to raise revenue through taxes, receive additional funding from central governments when in distress, and the redistributive role they play in managing the economy (Caruana *et al.*, 2019). The representation of liabilities in the balance sheet of a LG may be misleading (Kluza, 2017a). In fact, a negative asset balance does not necessarily deter potential investors from investing in a public entity’s debt (Caruana *et al.*, 2019). Thus, a LG with a lower debt level and a higher long-term solvency ratio does not necessarily have a better risk profile than a more indebted one with a lower long-term solvency index.

From discussing the adoption of accrual accounting by the public sector, two considerations emerge. On the one hand, the few authors (Bătrancea *et al.*, 2013; Cohen, 2008; Mustafin *et al.*, 2017; Winarna *et al.*, 2017) who have promoted the application of typical profitability ratios from the private sector, such as return-on-equity (ROE), return-on-assets (ROA) and return-on-investment (ROI), have also verified that the assessment of financial performance through such ratios can reveal to be inaccurate and even meaningless (Cohen, 2008). On the other hand, some authors suggest that LG’s balance sheet and income statements should be redesigned to better represent the specific working of public finances (Cohen *et al.*, 2012; Pilcher, 2005), reinforcing that private standards ill suit LGs and that new principles should be developed.

3.2.2.3 Limitations of financial indicators. The selected literature highlights several limitations in working with financial indicators related to the incompleteness of purely financial information, its reliability, its comparability in different context and the impact of external factors.

First of all, financial LG’s condition can only be partially evaluated by examining their financial position, financial performance and cash flows (Caruana *et al.*, 2019). Unlike the rather straightforward evaluation of the financial condition of a business entity based on the analysis of its profitability by means of well-understood financial ratios, such an evaluation for public sector entities involves judgments about the interplay of complex social, organizational and financial factors (Cohen, 2008; De Matteis and Preite, 2018; Walker and Andrews, 2015). On the one hand, public sector organizations have long term aims which may not be revealed by the analysis of yearly indicators (Carmeli, 2002; Hruza, 2015). On the other hand, while some scholars call for parsimonious tools for analyzing LG’s condition (Maher *et al.*, 2020), purely financial data do not always tell the complete story about LG’s condition, since they fail to measure factors such as economic wealth, policy, service levels, quality and effectiveness with respect to specific users and a variety of other intangible elements that are important for accountability (Carmeli, 2002; Robbins *et al.*, 2016; Zafra-Gómez *et al.*, 2009).

Secondly, the wide array of indicators present in the literature and used in practice has determined a diversity of measurements by different authorities (Zafra-Gómez *et al.*, 2009)

and of approaches to LG's financial assessment by supervisory bodies (Padovani *et al.*, 2018). The concern here is twofold: on the one hand, it is feared that the quality of the data collected is not good enough (Pilcher, 2005), on the other hand, Petersen (1977) noted that financial information is often of little use because it is frequently late, hard to obtain and seldom uniform. Moreover, while relying on a set of audited financial statements to assess a municipality's financial condition may mitigate the risk of poor information quality (Cohen *et al.*, 2012), it could also be dangerous, because audited financial statements only verify that a LG has followed mandatory accounting standards, not that such standards are appropriate for assessing financial condition (Drew and Dollery, 2014; Hruza, 2015; Padovani *et al.*, 2018).

Thirdly, financial management is not a one-size-fits-all exercise (Manes Rossi *et al.*, 2017). Some authors maintain that measuring and controlling financial condition cannot be done in the same way regardless of size and governance setting. On the one hand, Carini and Teodori (2019), Navarro-Galera *et al.* (2016) and Modlin (2010) noticed that their analysis could only be limited to the largest municipalities in Italy, Spain and North Carolina respectively, because, for example, size may influence the variety of services offered by LGs and their financing approaches (Cabaleiro Casal and Buch Gómez, 2011; Turley *et al.*, 2020; Zarska and Rafaj, 2016). On the other hand, the selected literature revealed that financial indicators are not sufficient when the prevailing model of governance differs from direct provision (Manes Rossi *et al.*, 2017). At a minimum, consolidated financial statements covering also outsourced services and activities are needed to give an overall, coordinated view of a LG's financial condition (Carini and Teodori, 2019).

Lastly, some scholars maintain that financial ratios are not flexible enough to account for the impact of factors that are external to local authorities and outside their decision-making perimeter (Arunachalam *et al.*, 2016, 2017; Hruza, 2015; Ritonga, 2014).

The above constitute the main threats related to using financial indicators which have emerged from the literature, yet they do not undermine the benefits of using them, but rather warn for caution.

#### 4. Discussion: future developments and research

This SLR has offered some answers to the initial research questions. First of all, it has revealed that the literature focusing on LG's financial indicators has grown over time, particularly since the 2008 financial crisis and notwithstanding the very recent drop in publications. Yet, no real consensus has emerged among scholars on the indicators to be used to assess LG's financial condition, even though some convergence has emerged in using some measures of liquidity and solvency.

Second, this review has highlighted that financial indicators are used for four main purposes: transparency and accountability compliance, performance monitoring and benchmarking, assessing LG's financial health and helping weather exogenous crises. Moreover, it has emerged that most indicators are calculated using information from income statements and balance sheets, confirming that accrual accounting plays a role in the development of financial indicators, even though it was not possible to appreciate how strong the connection between the use of LG financial indicators and the implementation of accrual or IPSAS is, since no clear reference is made in most publications to the accounting system in use and in many countries multiple accounting systems coexist at LG level.

Lastly, many criticisms have been raised about LG financial indicators themselves. Several authors warn that they may misinform as much as they inform, if users are unaware of their limitations (Pilcher, 2005). On the one hand, there is the basic skepticism about applying them to LGs because accounting information, even if detailed in nature, offers only a limited understanding of the complexity of LGs (Robbins *et al.*, 2016). On the other hand, there are substantial issues which need to be addressed if financial indicators are to be used

effectively to assess LG's financial condition. In particular, some scholars question the integrity of different public sector indicators as their robustness and accuracy rely not only on definitions, which are not unanimously accepted, but also on the accuracy and robustness of the information upon which they are calculated, which is not always suitable to the public sector, let alone available or verifiable (Cabaleiro Casal *et al.*, 2013; Padovani *et al.*, 2018; Pilcher, 2005; Robbins *et al.*, 2016).

Therefore, considering future research on financial indicators several avenues and recommendations have emerged. At an overall level, the complexity and ambiguity which surround financial indicators call for domestic and international standard setters to continue pursuing a consensus on the adoption of standard accounting definitions in order to overcome the "dominant approach of pragmatic empiricism" (Hruza, 2015). Scholars and standard setters should continue building on the convergence on liquidity and solvency measures and on studies with an international reach to develop common indicators. Future research should overcome the present lack of comparative analysis, as it is important to arrive at solutions that are useful in different contexts. The issue is not necessarily whether publications and their findings focus on a single country, but whether similarities across countries make it possible to draw conclusions that can be useful for jurisdictions across borders.

Future research could also investigate further the relationship between financial indicators and the adoption of accrual accounting and IPSAS. This contribution was not able to drill down on this issue because most publications failed to mention which accounting system and standards were in use with the necessary level of detail. Some scholars, also recently, have advocated the adoption of accrual accounting and IPSAS for the public sector (Cohen *et al.*, 2021). Hence, future research could look at accounting systems and national contexts to take into consideration specific models and guidelines to inform the development of financial indicators to assess LG's financial condition.

Moreover, future research should also verify whether financial indicators keep on being popular or whether scholars and practitioners' interest has recently shifted, as signaled by the drop in publications in the last year and a half. Future research might verify whether other tools are becoming more popular to analyze LG's financial condition.

Four additional research avenues have been mentioned in the selected records themselves. First of all, financial measurement in the public sector has tended to be developed to provide legitimacy within an "institutional environment" rather than to inform organizational change and service improvement (Cohen, 2008). In other words, while financial measures tend to be part of top-down systems primarily oriented to accountability and control (Stevens and McGowan, 1983), future research could analyze their impact on improving LG's financial condition to assess whether such systems could serve as a vehicle for performance enhancement and to resist exogenous shocks. This would imply developing simple and easy-to-use indicators in a bottom-up approach to serve LG's specific needs (Kao *et al.*, 2010; Sebestova *et al.*, 2018a).

Second, future research could look at the role financial indicators can play in facilitating auditing as well as assessing the impact of financial shocks. Future research could look more closely at whether and how a set of financial ratios calculated based on information from financial statement could allow auditors to get an indication of LG's financial risk (Cohen *et al.*, 2017) and, hence, to support politicians and managers in promptly detecting financial distress and vulnerability (Padovani *et al.*, 2021). Similarly, financial ratios could help appreciate in how far LGs have managed to address audit findings (Hruza, 2015) and in how far crisis countermeasures have supported LG's resilience (Hegedűs and Lentner, 2020).

Third, a greater challenge for future research is to explore models that can evaluate the overall sustainability and not merely the financial sustainability of local authorities (Arunachalam *et al.*, 2017). This would mean developing common indicators for economic,

environmental and social sustainability in such a way as to avoid the proliferation of standards and measures, which has occurred so far, while allowing for some contextual specificity.

Lastly, as an even more daunting task not only for research but for policy, LG's financial standards and statements could be redesigned to better represent the specific working of public finances (Cohen *et al.*, 2012; Pilcher, 2005). Basic issues such as the valuation of individual public items are dealt with differently across local jurisdictions and IPSAS themselves have developed different options. This greatly limits the meaning of comparing financial indicators across LGs that do not adopt the same standards within and across countries. Moreover, risk assessment with respect to both internal and external factors requires a more detailed analysis than debt analysis which treats debt simply as something bad and undesirable (Kluza, 2017a). Future research could look further into LG's credit rating and consider, for example, that debt may be spent on investments which create cash inflows, efficiencies or public value. To this end some scholars suggest that it would be helpful, for example, to design a model to assess the "public productivity" of debt usage (Kluza, 2017b).

## 5. Conclusions

This review has revealed that recent pressures seem to have stimulated the academic debate on financial indicators, but not the development of common ones. The literature on financial indicators has grown, yet no clear picture has emerged on which indicators should be used for which purpose and in which circumstances. Scholars still mostly refer to financial indicators first developed in the 1980s. Many identify liquidity and solvency as the dimensions that influence LG's financial condition, which may offer a starting point for arriving at commonly accepted indicators.

Some inherent issues in using financial indicators have revealed its complexity. A plethora of financial indicators has been developed so far to assess LG's financial condition because of a great ambiguity in terminology and of different methodological approaches, contexts, purposes and users. Financial indicators allow fulfilling transparency and accountability requirements, support performance monitoring and benchmarking, facilitate assessing the financial health of a LG and help it weather an exogenous financial shock. However, with their proliferation and shortcomings they are rarely acted upon or used for decision-making, but mainly reported for attesting financial distress and for compliance purposes (Brusca and Montesinos, 2013).

However, such findings need to be considered within the constraints of a literature review that is based on what has been published and retrieved, so that any claim of generalizability beyond the reviewed material needs to be further verified.

Notwithstanding a recent drop in publications on financial indicators, some authors predict that the demand for financial tools will grow because of increasing volumes of financial resources and information, and because of the mounting complexity of financial relations (Hruza, 2015). Moreover, with a more global and turbulent environment, it is also highly desirable to strengthen the predictive ability of such tools (Arunachalam *et al.*, 2016; Hruza, 2015; Ritonga, 2014). Hence, future research should enhance comparative analysis and favor convergence, appreciate the impact of different accounting systems and standards, explore further the role financial indicators can play in facilitating auditing as well as assessing the impact of global crises, promote unambiguous international definitions and standards and a bottom-up approach, which looks beyond pure financial condition and consider the specificities of public finances.

At the same time, scholars and practitioners may expect too much from financial indicators. A system of indicators may not provide specific answers to why a problem is occurring, nor does it provide a single index to account for financial condition. Yet, it flags

potential problems, it offers clues to their causes and it gives LGs time to take anticipatory action (Groves *et al.*, 1981).

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\* = included in the literature review

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