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## Public sector organization financial ratios' recent development as a matter of financial innovation

### Abstract

Economic turbulences and vulnerability of public sector organizations towards external and internal financial shocks strengthen the need of having proper management and analytical tools available. This paper critically discusses this issue from the perspective of local governments. Associated relevant concepts and techniques are used to be considered an integral part of the public financial management (PFM) approach. Some public administrations have accepted certain concepts and models, or their different parts, as top-down policy, some as best practice on an individual case basis; certain concepts are based on relevant research in this area without further application. The aim of this paper is to critically assess relevant approaches and concepts in this specific field and to make complex synthesis of their recent development with proper identification of their strengths and weaknesses.

**Keywords:** public financial management, local government, analytics, financial indicators.

**JEL Classification:** H70, H82, G30, M41.

### Introduction

Public sector organizations (PSOs) have a large scope of autonomy and many responsibilities associated or influencing the daily life of residents. They play an irreplaceable role in modern democracies providing public services and goods to a certain extent and differ case by case. Therefore, this particular issue of public financial management is very important to address, especially in recent times when globalized national economics is becoming more and more unstable and vulnerable, according to external and internal shocks. As public budgets' major income is usually taxes, their long-term financial position is vulnerable to a certain extent. In this context, new solutions and tools have been set up or invented that aim to help municipal administrations and their financial managers to manage their city or municipality towards long-term sustainability. Other important issues are also the principles of New Public Management leading to, e.g., greater accountability, efficiency, transparency, etc. Financial analytics and ratios have become a big issue in recent decades in the private as well as the public sector. As one thinks about the public sector, several developing approaches can be identified in practice: 1) central government policy (legislation laws or rules, issuance of relevant decrees, top-down criteria or indicators), 2) local governments (best practice, own tools, indicators or decrees), 3) private sector companies and services to PSO (tailored tools, rating, scoring, financial analysis, etc.).

If one talks about uncertainties, one should mention the global financial crisis, its influence and impacts on the public sector. A lot of research concerning various analyses of the financial crisis impact on

local and regional governments has been examined, (Thierry, 2009; CEMR, 2009; Dvořáková and Špaček, 2010; Jahoda and Dvořáková, 2011; Sedmihradská, 2011; Lopez-Hernandez et al., 2012; Hruža, 2014). Traditional forms such as cameralistic budgeting used in certain levels of government are becoming insufficient tools according to this hybrid environment; they will still play an important role in the future because of accountability, transparency and democracy. But, according to the aforementioned environment, they have a serious problem in their traditional form. Over time, there were also criticisms of traditional budgeting, calling either for an abandonment of the traditional process or an improvement of it (e.g., Hansen et al., 2003). Nemec (2010) draws attention to new approaches in the management of bureaucracy through predictability, reliability, coherence, transparency, accountability and the proper management of 3E in terms of any government operations. But this discussion is not about the end of traditional budgeting as the way of innovation. This paper identifies relevant indicators in the field of municipal finance management according to the principles of NPFM. Concerning this issue, the paper has to distinguish different dimensions of this particular issue as it recognizes that there are three general ones to discuss: accounting, tools, indicators. The specific form of accounting used affects the possible forms and types of created and used tools and indicators.

The public finance system is becoming more and more complicated in terms of data. On the one hand, there is a big supply of available data of various natures growing with technical development, even in the public sector, associated with requests for bigger accountability and transparency, while on the other hand, in certain cases there some evidence of growing confusion associated with the growing number of created tools can be identified due to the previously mentioned data availability. Especially in

the recent development of the implementation of accrual accounting in municipal financial management, the amount of available financial data in this field has significantly risen. Certain authors doubt about the new approach from certain perspectives, for example, Guthrie (1998) warns ahead of financial data users' potential confusion. Other authors argue that accrual accounting provides the information about the financial performance or the position, in terms of public resources or costs, more properly (Rowles, 2004; Smullen, 2009). But there are also opposing arguments discussing its usefulness (Stiglitz, 1988; Barton, 1999; Smullen, 2009). Anyway, this issue is closely related to the indicator issue examined in this paper. Preliminary identification is followed or sometimes foregone due to the decision of which of them to use for management. Continual growth of data should be associated with a continuous process of rationalization otherwise a bigger confusion for users about information or tools will arise. Especially the accounting and financial management reforms that have been applied in different countries have brought new space for innovation in the use of financial-analytical concepts (Vodáková and Šmoldas, 2012; Vodáková, 2012; Jovanovic, 2013). This development brings the potential for developing new ideas and approaches in this area to different users and new possible views of PSO financial management in a more detailed, complex or different way.

One can identify the recent development of research in this field as being very heterogeneous when different approaches, branches and concepts have been identified. There is no prevailing one, there are no common frameworks and the concepts are developed in very different ways and directions. Nowadays, many particular indicators and complex concepts are available, such as financial health, financial or fiscal position, etc. Municipal managers and officials responsible for municipal finance have been continuously monitoring, measure and assess the financial condition of their municipality with an increasing trend since the 1980s because of the responsibility and money transfers' trend from central to local governments and, recently, in the face of the recession (Maher and Nollenberger, 2009). Due to this issue, some authors point out the accuracy and quality of national tax revenue forecasts (Špalek and Moravanský, 2005). This, in fact, determines local government revenues and thus influences municipal financial management.

The development of PFM tools or ratios for PSOs has certain reasons and causes, which could be summarized as follows (Hrůza, 2013a):

- ◆ increasing indebtedness of municipalities with rising incomes;
- ◆ specific returns/income policy of municipalities;

- ◆ fragmentation of municipalities enforces greater demands on the financial management of municipalities;
- ◆ increasing amounts of money to be redistributed and transferred;
- ◆ the qualification of managers and public servants;
- ◆ benchmarking of financial management (e.g., sectoral comparisons);
- ◆ simplification of financial management evaluation from the perspective of the general public.

This specific research field concerning PFM is very fragmented and the developmental paths are going in a divergent way, with some exceptions. While in some cases a path-dependency theory has been applied, others are based on contingency theory, some on a different basis. This kind of concept is usually criticized for its lack of sound theoretical foundation and characterized as empirical pragmatism. The current situation is a consequence of this development and a reflection of the previously mentioned conditions and features of this issue.

The most important prerequisite is the identification of financial management in terms of local government and, in the case of this paper, it is better to use the definition identified by Meričková and Šebo (2006) as the management of financial processes in the organization, which has four parts: financial planning, financial decision making, organizing financial processes and financial analysis and control. As traditional budgeting is usually used for planning and decision making that is transparent, it has those certain problems and gaps with the mentioned parts of the financial processes' organization and financial analysis and control, and that is the space for the use of the financial-analytical concepts concerning this paper.

## 1. Discussion and results

The historical development of PFM concepts in the public sector is relatively short. At first, various random approaches to solving the problems began to appear, such as in the case of Lorig (1941), who defined the concept of financial position in relation to municipality and attempted to express the determination of these positions on the basis of the functioning processes and specificity of the entity examined when he pointed out the inertia and inevitability of certain expenditure. Among the first pioneers dealing with municipal financial health as a complex issue was the Advisory Commission on Intergovernmental Relations (ACIR), which identified a system consisting of six warning signs or indicators concerning fiscal distress, based on the empirical research of 30 cities with financial problems, as the following (ACIR, 1973):

- ◆ An operating fund revenue – expenditure imbalance in one fiscal period;
- ◆ A consistent pattern of current expenditures exceeding current revenues for several years;
- ◆ An excess of current operating liabilities over current assets (a fund deficit);
- ◆ Short-term operating loans outstanding at the conclusion of a fiscal year;
- ◆ A rate of property tax delinquency;
- ◆ An assessed value for unexpected reasons.

Later, New Public Management also played an important role in the development of FA approaches, which, according to Lane (2000), meant a managerial revolution that brought new approaches to public sector management. There have been attempts to find different tools and techniques of

financial management, which can be identified in the NPM sub-theme by some authors called the NPFM (Lapsley, 1988; Broadbent a Guthrie, 1992; Olson et al., 1998; Guthrie et al., 2005; Padovani, 2010). Among the main NPFM objectives were, for example, an increase in the ability to measure the “financial health” of municipalities, an increase in the explanatory power of financial reporting and an increase in the efficiency of the financial management of municipalities through the better management of assets, revenues and expenditures.

The NPFM has fragmented over the decades to address particular issues and goals. Here some of the identified well-known relevant concepts and approaches in this field that are important for addressing this issue.

Table 1. Recent relevant concepts overview

Concept	Author (year)
Financial condition or position	Lorig (1941), Brown (1993), Lin and Raman (1998), GASB (1994), (2004), Cabaleiro, Gomez and Vaamonde (2012)
Financial condition index	Province of Nova Scotia (2014)
Fiscal capacity	Johnson and Roswick (1991)
Fiscal (di)stress	Kloha, Weissert and Kleine (2005), Justice and Scorsone (2012), Justice et al. (2013)
Financial health	Cabaleiro et al. (2012), Adhikari and Fannin (2012), Kelly and Adhikari (2013)
Fiscal health	Hendrick (2004), Honadle et al. (2004), Justice et al. (2013)
Fiscal sustainability	Hagist and Vatter (2009)
Asset management	Kaganova and Nayyar-Stone (2000)
Local government financial indicators	Groves, Godsey a Shulman (1981), Brown (1996)
Fiscal/financial crisis	Carmeli (2003)
Traditional financial analysis	Peková (2004), Provazníková (2009)
Financial performance or creditworthiness	Ammar et al. (2001), Halásek et al. (2002), Murray and Dollery (2005)
Other	

Source: own processing.

Of course, the list is not complete as today a lot more- or less-complicated similar concepts dealing with public financial management can be identified from the perspective of the financial analytics' perspective. During the last decades, it has been possible to identify different tendencies or trends. Part of this is the research of concepts such as financial health and financial condition, which actually comes from the original concept of a financial analysis, with its inner nature (Wang, Dennis and Jeff, 2007; Rivenbark, Roenigk and Allison, 2010; Cabaleiro, Buch and Vaamonde, 2012; Ritonga, Clark and Wickremasinghe, 2012). Due to unforeseen events that affect the economy, and thus also public finance, closely focused concepts, such as financial/fiscal distress or crisis

that aim to forecast the occurrence of these negative states arise (Kloha, Weissert, Kleine, 2005; Coe, 2008) as well as quantitative or qualitative approaches focusing on municipal bankruptcy cases.

In this sub-section of the paper, there is a brief survey of certain main concepts with their complete indicator structure. The indicators could be of a different form, e.g., a simple indicator (static or dynamic) or a composite indicator/ratio. The intention is to compare the presence of the indicators in the mentioned concepts as it can provide some ideas for further research or the use of those indicators for the construction of new tools based on the path-dependence theory. Some recent examples are displayed in the following table.

Table 2. Relevant concepts characteristics and objectives overview

Concept (author)	Non-financial data use	Trend indicators use (longitudinal data)	Number of main indicators	Concept general objective
Financial condition (Wang et al., 2007)	yes	no	11	ability of an organization to timely meet its financial obligations; financial condition as the level of financial solvency
Financial condition (Maher and Nollenberger, 2009)	yes	no	10	organization's ability to maintain existing service levels, withstand economic disruption, and meet the demands of growth and decline

Table 2 (cont.). Relevant concepts characteristics and objectives overview

Concept (author)	Non-financial data use	Trend indicators use (longitudinal data)	Number of main indicators	Concept general objective
Financial condition index (Province of Nova Scotia, 2014)	yes	yes	15	picture of the general financial situation of a municipality; how a municipality's financial situation has changed over time; indication of a municipality's strengths and possible areas where council and staff may want to focus their attention
Fiscal distress (Kloha et al., 2005)	yes	yes	9	predict financial problems of municipality before they become serious; predict fiscal stress of municipality
Fiscal distress (National Treasury, 2011)	no	yes	7	identify areas of risk in local government finances; identify those municipalities that are in financial distress
Fiscal distress (Talyor, 2009)	yes	yes	23	predict fiscal distress rather than report fiscal distress that has occurred
Financial distress (Cohen et al., 2012)	yes	no	5/6	financial performance assessment of municipalities
Financial distress (Manes Rossi et al., 2012)	no	yes	9	prevent financial distress of municipalities
Financial performance (Murray and Dallery, 2005)	yes	no	7	assessment of municipalities through performance monitoring whether they are or not "at risk" by State Government risk assessment

Source: own processing.

From previously mentioned concepts and indicators that are from the recent period 2004-2014, one can identify certain interesting trends, features or common aspects:

- ◆ a general effort to evaluate the financial state of a PSO in a complex way (not one aspect);
- ◆ a questionable indicator of population used in different roles is present in almost all of these concepts to a certain extent (subject to a discussion of such a use);
- ◆ dependency, to a different extent, on the actual form of accounting used;
- ◆ as prevalent types of composite indicators are still based on a comparison of indicators from the same information source/financial dimension (budget, income statement, balance sheet, assets...), one can identify in these concepts examples where the composite indicator consists of two different pieces of information (e.g., unrestricted net assets/total expenses, general fund liabilities/general fund revenues, own revenue/total liabilities, etc.);
- ◆ a sole debt indicator is usually used in the composition with the indicator population when certain authors and researchers discuss the usefulness and relevance of non-financial indicators in financial analytics;
- ◆ the aspect of the time trend applied in the indicators' shape is not very frequent, but we should ask why when the current financial state of an economic entity is not a matter of one moment, but rather of longer term development;
- ◆ capital spendings or costs associated with individual project financing are not very frequently represented (e.g., capital expenditure ratio, total contributions to capital reserves over a 5 year period, etc.) in a concept's structure but probably these could represent one of the risks for municipal economy (as current expenses could indicate a usually certain predictable or rigid trend; according to SNG financial criteria, capital expenses and projects are more of a circumstantial nature and depend on an individual decision of whether or not to accept the project; the wrong prediction of project funding of either the investment or operating expenses could cause serious financial problems for municipal financial management or even bankruptcy);
- ◆ lack of return principles on municipal assets (there is a general discussion about the use of indicators, such as ROA, ROE or other concepts associated with profit principles in business, but in times when even non-profit organizations are using several profit aspects, e.g. profit activities for the financing of non-profit activities);
- ◆ as in many countries, municipalities have two types of activity (non-profit and profit), this fact is recognized and reflected, by the nature of the indicators, very little (e.g., revenues are usually not divided);
- ◆ presence of certain elements of financial management rating of qualitative nature (e.g., no long-range plan, consistent failure to obtain unqualified opinions on financial statements from an independent auditor, consistent failure to address audit findings, etc.).

## 2. Strengths and weaknesses

What are the advantages and disadvantages of the concepts mentioned in this paper? The arguments are the following:

Table 3. Strengths and weaknesses of relevant concepts and approaches

Strengths	Weaknesses
Transparent and easy to read indicators for the evaluation or assessment of government officials in elections (Honadle et al., 2004)	Data availability, accuracy, relevance or suitability, internal or external consistency of data
Unbiased rating or assessment for external financing (Honadle et al., 2004)	Time series availability; timeliness of data
Suitable prerequisites for benchmarking, performance management or financial controlling (Meričková et al., 2008; Vaceková and Pavlík, 2013)	Misleading or false development paths, or problems of redundancy regarding indicators (concerning municipal management)
Greater complexity of municipal economy financial management	Lack of generally accepted theories
Potential space for predictability in municipal financial management (Hendrick, 2004; Wang et al., 2007; Sohl et al., 2009)	Subjectivity in measurements – differences in certain aspects between practice (municipal staff) and research (researchers) as a different view
Larger scope of data, knowledge and experience for best or emerging practice cases or comparative studies	Subjectivity in the design or construction of an FA concept or risk of bias (e.g., some concepts focus only on certain areas of FM, such as solvency, sustainability, budget, debt, etc.)
Diversity and no limits in creating alternatives	Numeric character (potential danger of misinterpretations or misleading final or partial outcomes, meta-analysis)
Potential (unbiased) argumentation capability for intergovernmental issues or fiscal autonomy issues debates	Public sector or public administration specifics (non-profit nature, rigidity, bureaucracy, etc.)
Greater efficiency in money and cash management	Disputes between policy goals and FM goals
An open space for new dimensions or different views of public financial management (e.g., FM principles, techniques, interactions between revenues/expenditures and assets, etc.)	Imbalance of research outcomes, prevailing approaches or lack of replication studies (e.g., qualitative and quantitative nature of research)
	Lack of practitioners' feedback, as well as a lack of researchers' interest
	Lack of "one size fits all" solutions because of the national and regional specificity of local governments

Source: own processing.

The main disadvantage of FA approaches in the examined field is the little explicit theoretical structure or lack of universally accepted or even generally relevant theories, and the dominant approach of pragmatic empiricism used for the creation of FA concepts (Horrigan, 1968; Groves et al., 1981; Groves et al., 2003; Hendrick, 2004; Wang et al., 2007; Sohl et al., 2009). Actually, it means a relatively high dependency on the creators' authority, abilities and skills and also experiential knowledge.

## Conclusions

With the increasing volume of financial resources, financial information and the growing complexity of financial relations within the national economy's demand for financial analytical tools will increasingly grow. But one must also think about the limits and disadvantages of FA concepts as it can become a useful tool when it is well designed and used in a proper way, but it can also be misleading tool if we underestimate more of the risks and threats. Even though there are critics referring to a lack of generally accepted theories in this field, it is necessary to take into consideration in this case that the development of these approaches does not last long, is very fragmented and highly dependent on the authors' capability, skills and experience, as well as public administration conditions such as data availability, consistency, suitability or also the willingness to collaborate and share knowledge and experience between public administration practice and research. Several trends in this particular research discipline can be identified. The one unquestionable is the gradual quantum or

complexity and depth of knowledge base in this field as many conditions (technological development, knowledge and experience, management skills, etc.) are in favor of this trend. One could also say that recent concepts or indicators are still mainly of a static nature with a low sense of dynamics. The problem is that public or municipal finance is more rigid than private business companies; thus there is potential space for innovation in this field to make the concepts more operative and flexible. According to growing risks and a more turbulent environment, it is also highly desirable to strengthen the predictive ability of these concepts to keep municipalities from bankruptcy and thus focus on various issues concerning bankruptcy from different perspectives and experience in or even out of public sector (e.g. Elliehausen and Lawrence, 2013; Skogsvik and Skogsvik, 2013; Wang and Shiu, 2014). According to municipal financial management, it would also be beneficial not to underestimate the external design and internal coherence of the concept applied. Within the identification of relevant recent approaches and concepts, one can see old ideas as well as recent or even brandnew ones. Anyway, there are still many problems to be tackled and many ways that can be chosen. But as one can see from the recent period examined in this paper, the direction is driven, to some extent, by innovation.

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