

2

Financial Conditions and Financial Sustainability in Higher Education: A Literature Review

Giovanna Lucianelli and Francesca Citro

1 Introduction

Many countries have recently launched several incisive reforms in the higher education (HE) sector, aimed at improving its performance through the introduction of “business-like” management practices into public organizations (Bogt and Scapens 2012). The main objectives of these reforms include enhancing institutional autonomy, while also stressing quality assurance and accountability (Neave 1988; Eurydice 2000; OECD 2003; Eurydice 2008), thus resulting in several relevant effects, such as a different relationship between central government and each state university, the decentralization of responsibilities as well as increased attention being given to financial budgeting. Central governments are

G. Lucianelli (✉)

University of Roma Tor Vergata, Rome, Italy

e-mail: lucianelli@economia.uniroma2.it

F. Citro

University of Salerno, Salerno, Italy

e-mail: fcitro@unisa.it

reducing their financial support to universities (as well as local government entities), declaring that the future assigning of funds is going to be allocated on performance assessments.

In addition, an analysis of financial sustainability in public universities will become a key issue in the next decade; only those institutions that have sound financial structures and stable income flows will be able to fulfill their multiple missions and respond to the current challenges in an increasingly complex and global environment.

Consequently, a dominant and recurring theme in current literature is the increased use of performance information in the public sector. In general, even if there are conflicting opinions on the effectiveness of performance-based accountability structures, scholars have pointed out that these performance-based mechanisms could support, in some ways, both the reform of state budgets as well as the change in service delivery (Hunt 2008; Kelly et al. 2010). While these ideas have spread internationally and many countries have introduced reforms associated with them, it is worth considering a number of criticisms. Applying private sector management techniques to the public sector could be risky (Flynn 2002). Many academic scholars such as Pollitt (1990) and Armstrong (1998) argued that most public service and administration areas have distinct political, ethical, constitutional and social dimensions and these factors make the public sector different from the private sector (Pollit and Bouckaert 2004; Mongkol 2008).

This topic, although it should refer to all public sector entities, is assuming increasing importance in HE, where efforts are being made to directly link performance to funding (Zumeta 2001; Burke 2002).

The reform movement aims to reduce the bureaucratic regulations of universities. Inspired by the new public management (NPM) theoretical approach (Lapsley 2009; Pollit and Summa 1997), this reform has emphasized, among other relevant aspects, the potential autonomy of public sector entities, along with the importance of the link between performance and funding. However, this is easier said than done since continued economic fluctuations have made it difficult for governments to provide incentives and subsidies that are capable of encouraging private investment in research and development (Jongbloed et al. 2008). Current progressive budgetary restrictions imposed by national

governments have obstructed the ability to respond to societal demands in serving the stakeholders' needs and development.

Several studies have investigated the effectiveness of these performance-based reforms through both case studies (Banta et al. 1996) as well as comprehensive and detailed analyses of public colleges and universities (Rabovsky 2012).

Considering the studies relating to the aforementioned link between performances and funding as a basis, this study aims to contribute to current literature by clarifying the financial conditions and distress of public universities, whereas previous literature has mainly focused on local government entities (Carmeli 2003; Carmeli 2008; Jones and Walker 2007). It is worth noting that there are relatively few studies that develop models to analyze the financial conditions and distress of public universities, albeit with some remarkable exceptions (Bisogno et al. 2014). Furthermore, there is currently no extensive literature on financial sustainability; thus this study tries to contribute in developing the role of accounting in the assessment of the financial sustainability of universities, like other studies have for local governments (Rodríguez-Bolívar et al. 2014).

The chapter is organized as follows: The next section describes some of the key theoretical and practical elements so as to present the financial conditions and distress of public universities, while also clarifying the conditions of financial sustainability. The last section presents a number of considerations on this topic as well as several conclusions and indications for future developments.

2 The Development of the Concept of Financial Sustainability in the HE Sector

According to the Global Reporting Initiative (GRI) and the International Federation of Accountants (IFAC), the development of the concept of sustainability is threefold: environmental, social, and economic. In the past decade, the global recession highlighted the increasing importance for public organizations to manage the economic

and financial dimensions. The difficulty for governments to provide appropriate funds for HE sector needs have encouraged performance-based governmental funding policies. Taking into account that public universities are prevalently financed by the central government and are sensitive to the funding policy of each country, analysis of the financial conditions has become more relevant than in the past.

According to the classification of Massaro et al. (2016), this chapter adopts a narrative literature review approach, with the main aim being to investigate the key theoretical elements and methods used to analyze the financial health of state universities. In this way, avoiding the recurrent risk of each literature review, namely to list a summary of the findings, conclusions, and unanswered research paths (Petticrew and Roberts 2008), the following sections are structured in order to offer a critique of both financial distress and sustainability.

More specifically, Sect. 2.1 will analyze the concept of financial distress, in order to investigate the main approaches suggested by previous literature, while at the same time highlighting both the methodology used and the variables included in the proposed models. Building on the main findings of these studies, the subsequent Sect. 2.2 will focus on the concept of financial sustainability, whose relevance is progressively increasing in current times, with the main aim being to clarify its distinctive features.

2.1 Financial Distress and Financial Conditions

The analysis of financial distress in the public sector has been long debated, along with the concept of its financial conditions. When discussing and describing financial distress, government agencies have tried to outline a set of definite events to be considered as warning signals of financial distress (Schipper 1977).

Current international literature commonly focuses on local government entities, whose distress is investigated by referring to the following:

- the *inability to provide services at pre-existing levels* to citizens, essentially referring to the provision of the local infrastructure (Jones and Walker 2007);
- the effects on the financial distress of *structural or fixed factors* include the size of the local authorities, residents socioeconomic status, and government resource allocation; *organizational factors* include performance evaluation, transparency, and the role of the local government's management, while the *hybrid factors* include the relationship between the central and local governments (Carmeli 2008).

Further studies refer to the internal causes (such as internal fiscal mismanagement, political mismanagement, internal lack of structural leadership, and culture of inefficiency) and external causes (demographic changes, structural recessions, tax revolt, structural service demand, political pressure from creditors, interest group demand, judgment awards, and abrupt economic changes) of municipal bankruptcy (Park 2004).

Public organizations in many countries (Israel, USA, Spain, Australia and UK) evaluate their financial conditions through financial performance (Honaldle 2003; Dollery et al. 2006; Audit Commission 2007; Carmeli 2008; Zafra-Gómez et al. 2009). The focus is generally on two aspects: (1) the availability of the resources required to maintain and/or improve the services provided to the citizens (Kloha 2005; Audit Commission 2007; Coe 2008); (2) the development of systems capable of assessing and detecting financial crises (Kloha 2005; Coe 2008).

This means that the financial conditions of a public organization should be expressed through a set of well-known *indicators* by the private sector concerning (Greenberg and Hiller 1995; CICA 1997; Nollenberger et al. 2003):

- *short-term solvency*, (e.g., cash solvency), which refers to the relationships between cash inflows and outflows, expressing the ability of a public sector organization, or a public university, to generate enough liquidity to pay its short-term debts;
- *budget solvency*, which refers to the ability of a public sector organization, or a public university, to raise sufficient revenues to cover

its legally required expenditures without entering into deficit (Inman 1995);

- *long-term solvency*, which refers to the ability of public sector organizations, or a public university, to respond in an adequate manner to all its long-term obligations;
- *service-level solvency*, which refers to the ability to provide and sustain essential services that stakeholders require and desire (e.g., citizens or students in the case of a public university).

It is worth noting that most of these indicators come from the private sector and are consistent with full accrual accounting; they have been introduced in the public sector under the banner of NPM (Guthrie et al. 1999; Broadbent and Guthrie 2008). In recent years, a growing body of literature has attempted to adopt these perspectives in order to explore accounting changes (Bergevärn et al. 1995; Carpenter and Feroz 2001; Covalleski and Dirsmith 1988; Dillard et al. 2004; DiMaggio and Powell 1983; Timoshenko and Adhikari 2010).

These studies have striven to portray the change as a symbol of legitimacy, trying to demonstrate that legitimacy can be gained through three mechanisms: coercive, mimetic, and normative (Adhikari et al. 2012).

The points expressed above have implications for the ongoing debate in budgeting and accrual accounting literature, concerning how they can be understood by the users, what they imply, whether such models should be implemented in the public sector, etc.

In order to define the financial conditions of a public sector entity, the *environmental factors* also need to be taken into account. It is worth considering that the services provided by a public sector entity depend on the necessities and socioeconomic characteristics of the population, which in turn provide resources, affecting the financial condition of the entity itself (Petersen 1977; Berne and Schramm 1986; Berne 1992; Boyne 1996).

On this subject, Capalbo and Grossi (2014) argued that the main causes of financial distress could be grouped into two approaches, the social economic decline approach and the local management approach. The *social economic decline approach* assumes that the causes of financial

distress are external to the local authorities and that they are beyond the control of local government officials (e.g., contraction of economic growth, movement of city dwellers to outskirts of the major cities, demographic changes such as increase in population, reduction in local business activity, unemployment and tax base erosion, bureaucracy and poor legislation). On the contrary, the *local management approach* identifies the real explicators of financial decline in the internal local management and political environment (e.g., incorrect managerial practices such as poor accounting and budgeting methods, incompetence and corruption among local officials, division of local governments in terms of political size and procedures and vulnerability of special interest groups). In conclusion, it is argued that financial distress is due to a mix of both external and internal factors (Capalbo and Grossi 2014).

In the specific case of public universities, the relationship between the financial conditions and *external factors* (e.g., the socioeconomic characteristics of the students as main stakeholders) is not easy to define and, consequently, to operationalize in an evaluation model.

During the 1970s and the 1990s, several studies dealing with the financial analysis of colleges, universities, and community colleges (Lupton et al. 1976; Collier and Patrick 1979; Dickmeyer and Hughes 1982; Dickmeyer 1983; Chabotar 1989; Roden 1991; Everett 1995; Cirtin and Lightfoot 1996) highlighted that financial ratio analysis, which had been used for many years by financial analysts in the business, could serve to evaluate efficiency, effectiveness, and accountability in HE.

A good analysis of the financial conditions could help to identify how and in what ways the situation is changing: an indicator whose trend indicates whether the conditions are getting better or worse alerts the institution to the possibility of future financial distress (Collier and Patrick 1979; Chabotar 1989). Consequently, financial ratio analysis is useful to guide policy decisions to manage HE institutions affairs (Everett 1995).

Furthermore, it has been noted that since 1960, national associations (e.g., National Association of College and University Business Officers, NACUBO) have attempted to create a set of indicators to assess financial health specifically for higher learning institutions, in order to

improve reporting and comparative analyses. Several reasons have been proposed for measuring the comparative financial condition of colleges and universities: (a) the natural concern about the effectiveness of other institutions competing for the same students, faculty, and resources, as each institution strives for better management and a competitive edge in HE; (b) the need for measurement criteria to gauge the effects of proposed public policies on HE institutions; and (c) the need for objective measurement criteria to gauge financial crisis and patterns to ensure institutional survival (Updegrave 1982). Efforts to create objective measurement criteria reflect a desire to monitor and measure changes in financial conditions as well as to maintain financial strength through the effective use of available resources. Moreover, there is a clear need to monitor changes in financial strength caused by changes in the internal and external factors.

Some scholars (Lupton et al. 1976) used a panel of experts, as well as discriminate analysis, to rank the health (e.g., healthy, relatively healthy, neutral, relatively unhealthy and unhealthy) of public and private institutions, using 16 discriminating indicators of the financial conditions. The indicators include institutional control, enrolment trends, trends in education and general expenditures, current fund revenues to expenditures, academic expenditures to education and general expenditures, freshman full-time equivalents (FTEs) to total undergraduate FTEs, as well as tuition and fees to student aid revenues.

Focusing on applied research, Wormley (1978) used three trends from previous studies, which allow institutions to cope with “current” economic circumstances. The factors included historical trends of financial surpluses or deficits, full-time equivalent enrolment, and revenues supporting a percentage of the education and general operating budgets. Wormley found that management, mission, leadership, and historical “accident” enabled the sample institutions to cope with financial distress.

Collier and Patrick (1979) carried out a theory-based research and developed a set of dimensions that describe financial conditions. These dimensions included financial independence, revenue drawing power, financial risk, revenue stability, and reserve strength. They identified some key ratios (e.g., the ability of the institution to attract and

retain students, indicators of potential financial problems, the ability to respond to financial problems, factors to monitor when dealing with financial problems) for financial flexibility e.g., total unrestricted revenues per total revenues, total fixed expenses per total expenditures, cash per total assets.

In a meta-analysis of 40 studies, Brubaker (1979) categorized the purposes for developing financial indicators. He included research and theoretical frameworks, financial accounting, policy analysis at state and federal levels, evaluation research, institutional analysis, credit analysis, and applied research. The study pointed out that scholars have proposed several hundred indicators, highlighting disagreement over the definitions of financial conditions and indicator selection; accordingly, current literature reveals that there is no single summative indicator of the financial condition.

Other studies discussing the self-assessment of the financial conditions of colleges highlight how it is possible to monitor institutional financial conditions in order to guide policy decisions but confirmed that no single measure captures the “financial health” of an institution (Dickmeyer 1980; Taylor 1984; Woelfel 1987).

Dickmeyer (1980) pointed out that the indicators of financial health focus on the inputs (tuition, financial aid, other revenues, students, staff, and faculty recruitment), which contribute to the financial and non-financial resources and outflows (expenses, dropouts, transfers, graduates, salaries). Fittingly, institutions will generate more inflows than outflows to enhance their stock of resources; this proposal should mitigate the demands of the economic environment and the potential of distress. In his work, he recommends the following five indicators of changes: *institutional distress potential* (for independent institutions only); *institutional financial resources*; *academic emphasis*; *extent of academic opportunity*; *need for more financial resources*.

The key indicator in his paper is the *institutional distress potential* designed to measure financial resources in the short, medium, and long terms. This indicator also measures the institution's capacity to deal with economic pressures as well as its ability to add academic programs according to the market needs.

According to other scholars (Dickmeyer and Hughes 1982), pressures that may affect a HE institution adversely are inflation, increasing regulatory requirements, declining enrolment, increasing tenure ratios, and changing student academic interests. Therefore, they point out that HE institutions must use their capacity to adjust their resources to meet these pressures. To be financially healthy, a HE institution should have the financial flexibility to respond to changes in the political, social, and economic environments in which it operates.

Taylor (1984) claimed that ratios are excellent tools for facilitating the communication, analysis, and understanding of complicated and detailed information. However, the interpretation of a financial indicator rests on an assumption of what constitutes a “sound” financial condition, with no single ratio or set of financial ratios ever being able to provide all the answers to all the questions. It is not necessary that financial ratios be completely comprehensive and perfectly predictive in order to be useful; no single financial ratio can reflect financial conditions perfectly.

Thus, a related way to view stable financial condition is to highlight several forms of distress affecting the ability of a HE institution to provide high-quality instruction, research or public service (Taylor 1984). In summary, forms of distress include the following:

1. “Working capital distress,” the institution is unable to finance daily operating expenses (liquidity);
2. “Demand-related revenue distress,” this is a result of a lowered demand for the institution’s services;
3. “Non-sales-related revenue distress,” the institution cannot realize its historical levels of gifts and endowment income;
4. “Financial flexibility distress,” the institution’s resources are so restricted that it has no flexibility in their use.

These forms of distress aid in determining the financial strength of HE institutions.

Pagano and Moore (1985) defined financial distress as the inability of a public sector entity to balance its budget and, in a broader sense, as

the inability of a public entity to provide services and meet both current as well as future obligations.

Woelfel (1987) underlined some possible areas of concern that may indicate financial distress of a HE institution: (a) financial problems such as illiquidity, funds shortage, continuing operating deficits, debt default, and others; and (b) operating problems such as unclear vision of mission, inadequate control over operations, competition, and lack of product market demand.

Woelfel (1987) split the financial ratios into four categories: balance sheet, operating, contribution, and allocation. He felt that ratio analysis reflects the fundamental relationships that exist in an institution and provides the basis for a comprehensive and integrated study of HE institutions (although financial ratio analysis aids in isolating financial problems, non-quantitative data and information have to be gathered to isolate operating problems).

During the last decades, there has been a consistent increase in the use of non-financial indicators to obtain more information on trends of strategic importance. For instance, Taylor and Massy (1996) included important non-financial indicators that report on physical capital—plant, land, and equipment; information capital—library and computer resources; and human capital—staff, student persistence, and demographic data on the students and faculty. These non-financial indicators have been later considered as predictive of financial indicators (Lee 2009).

Another element of the financial indicators literature to be discussed is the Composite Financial Index (CFI), as a method for determining the degree of financial distress within private colleges (KPMG 1999). According to some scholars, the CFI is the most useful financial indicator in HE since it is relatively easy to understand (Hudack et al. 2003) and provides the best standardized snapshot of an institution's overall financial health (Lee 2009; Townsley 2009). An important purpose of the CFI is to quantify the status, sources, and uses of resources as well as the institution's ability to repay current and future debts.

Martin and Samels (2009) in a study of the major factors that help institutions to assess financial risks described a model of financial assessment indicators for small, private institutions using their experience

in HE, while also proposing a model to assess institutional stress via a checklist of 20 indicators. They point out that institutions become stressed when they are overly dependent on state appropriations and tuition, too small, their brand is not easily recognizable, and enrolment, endowment and gifts are flat, declining or negligible. Accordingly, drivers of financial stress on HE campuses include the following: presidential turnover, diminishing state appropriations, the rising costs of technology, consumer demands, tenured faculty, and the commodification of HE.

Finally, there are relatively few studies that discuss an operation model for evaluating the *financial viability* in the specific case of public universities (Bisogno et al. 2014).

The authors focus on developing analysis models of the financial conditions and distress of HE institutions, by adapting the model suggested by Carmeli (2008) to Italian public universities, whose legislation has been recently modified with the aim of improving their autonomy as well as defining new rules about the future assigning of funds by the central government.

Accordingly, distress can be investigated in a broad comprehensive perspective, considering a state university in good financial conditions when it meets its debts and in turn provides high-quality outputs and outcomes, relating to both research and teaching activities, as well as the so-called “third mission” activities (Bisogno et al. 2014).

Specifically, their model includes the following:

- *Structural factors*, which refer to the size—expressed in terms of a natural logarithm of the number of students—and quality in structures (by taking into account the global performance of each university, as measured by the “*Centro Studi Investimenti Sociali*” (Centre for Social Investment Studies), an Italian research foundation that annually publishes a report on the performance of all the Italian universities, assigning them a composite score based on the quality of the services provided to students); grants assigned to students; quality of structures; efficiency and effectiveness of websites; and degree of internationalization;

- *Organizational factors*, which refer to the performance evaluation of the strategic areas of interest of universities: research, teaching activities, and the so-called third mission;
- *Hybrid factors*, which refer to the financial relationship between the central government and each university and can be expressed by analyzing the Ordinary Financing Fund—the most important funding provided by the Ministry of Education and Research which represents the main revenue of Italian universities.

Through this model, the authors evaluated the financial viability of Italian universities and found that the financial health is mainly affected by the hybrid factors. These findings are consistent with previous studies, where other scholars (Radin 2000; Long and Franklin 2004; Gilmour and Lewis 2006) have found only limited evidence that performance information significantly affects budget decisions, particularly at state and federal levels of government. This means that central governments are forced to pay greater attention to financial factors, disregarding the fundamental structural and organizational elements of the strategic mission of universities.

All these findings are consistent with the logic of trying to understand how can the long-term conditions of financial sustainability for the HE sector be theoretically defined and practically ensured.

2.2 Financial Sustainability and Financial Viability (or Autonomy)

The concept of financial sustainability for universities and other public institutions is essential in the light of the increasing importance of the public sector contribution to economic growth. Despite this important role, during recent years, the public funding of the HE sector in most countries has not increased, or at least not increased sufficiently, to finance new investments. This seems strange but is comprehensible when considering that HE and research have to compete with other priorities in public budgets (security, health, etc.). Budgetary restrictions have been imposed by national governments as well as the aspiration

of policy makers to introduce more “rational” management (Bogt and Scapens 2012), with the main objective of improving efficiency, effectiveness, and accountability.

The most significant effects of these policies across Europe, and elsewhere, are that the costs in universities will rapidly increase in years to come and this perspective can only compromise firstly their short-term solvency and secondly their long-term solvency. This is because the increasing level of new debts to finance investments or activities (that in the past were financed by central governments) determines more interest costs to pay to credit institutions: that can compromise their financial conditions and bring about financial distress. This implies that only those organizations that are aware of the incoming costs of their activities can judge whether they are operating on a financially sustainable basis.

Financial sustainability requires long-term and systems thinking for a set of very different resources such as natural, human, social, manufactured, and financial capital (Porrit 2005).

In order to define in greater detail what financial sustainability in HE really means, it is necessary to understand whether there is a link with the concept of financial viability (or autonomy), that is currently at the center of the international debate, where both scholars and international institutions in the field have identified a sound policy trend in increasing the accountability of organizations (EUA 2008). Current literature takes into account the concept of “autonomy,” as an essential pre-requisite considering that universities are organizations that have to operate in an economical, efficient and effective way. In fact, an increase in autonomy implies that direct state control is substituted by a stronger regulation and universities have to deal with greater accountability requests. Nowadays, universities have to reach goals, demonstrate quality, and show the state and other stakeholders how they have used public funding, just like those universities that survive on private funding (that must show how the money has been spent).

Rymanov (2010) associated financial sustainability with an organization’s solvency, representing it as a system of financial and economic relationships, which create, allocate, and use funds, providing solvency in the long term. Benderskaya and Chizhova (2012) underlined that

financial sustainability provides an organization with innovation-based reproduction on an expanded scale, creditability, competitive ability, and investment attractiveness.

In terms of financial sustainability, it is possible to understand more by observing the experience of the UK, that has achieved a very successful HE sector across all key areas of activity, due to the system being transparent in the use of public funding to ensure the long-term financial sustainability of the sector. The “Financial Sustainability Strategy Group” (FSSG) and the “Transparent Approach to Costing (TRAC) Development Group” have carried out research in a number of areas and produced a range of important policy documents and good-practice resources.

In the late 1990s, the introduction of the TRAC Development Group was a significant development toward considering the financial sustainability of research, allowing all universities and other institutions of the HE sector to understand what their various activities cost and what income they receive for them. There are a number of things that HE institutions should be doing to ensure that they are financially sustainable.

The FSSG (2008) described a number of factors that are driving costs in the HE system on the teaching side and potential tensions and threats to sustainability. These include the challenges of a more diverse and consumer minded student population; raised employer expectations; new government social and economic agendas, and international competition against the context of tight public funding. Pressures on costs include pension deficits and operating costs rising much faster than funding.

There are relatively few studies on the problem of ensuring the financial sustainability of a HE institution worldwide.

According to Salmi (2009), there is a broad consensus in some Organisation for Economic Co-operation and Development (OECD) countries that the expansion of HE systems has led to its underfunding. However, it should be underlined that there is no objective benchmark in this respect. While more money certainly means better resources, it does not automatically imply a better quality of services or cost-effectiveness. Nobody knows what the optimal level of HE funding

ought to be. However, it is worth noting that there are some relevant changes across OECD countries (OECD 2009).

These changes are taking the following forms: changes in the legal and funding relationships of public education institutions and public authorities that encourage raising more private funds and acting in a more entrepreneurial way, changes in the perception of the sector, which is increasingly seen as a regular economic sector. Despite these changes, the HE sector can hardly be conceived as a “regular” marketplace. Some ways of reasoning about it (e.g., the inclusion of tertiary education in the General Agreement on Trade in Services, or the competition for students or funding) are transforming the perception (and to a large extent self-perception) of HE, from a public service into a service industry, even in countries which are not directly involved with these changes. In most countries, these changes are defined by globalization, either directly or indirectly.

Taking into account all these factors, the concept of financial sustainability is strictly connected to the concept of financial autonomy. It has been defined as “the ability to allocate and manage financial resources freely, to establish partnerships and raise income from the private sector” (EUA 2008; Estermann and Nokkala 2009; Estermann and Bennetot 2011), in order to ensure a long-term financial health of universities.

More specifically, it is possible to refer to a financially sustainable organization looking at the definition in the TRAC guidance, and adopted in the Research Councils of Universities in the UK: “An institution is being managed on a sustainable basis if, taking one year with another, it is recovering its full economic costs across its activities as a whole, and is investing in its infrastructure (physical, human, and intellectual) at a rate adequate to maintain its future productive capacity appropriate to the needs of its strategic plan and students, sponsors and other customers’ requirements.” (RCUK/UUK 2010). There are some doubts on the possibility to apply this definition of financial sustainability to public institutions since we consider that this is a strong requirement also for profit organizations.

Financial viability (or autonomy) is a crucial condition as well as, in some cases, a precondition for implementing financial sustainability.

This is because the degree of autonomy makes a difference to the income and cost structure of universities. In fact, financial autonomy allows universities to react quickly in a constantly changing environment and makes them able to obtain good financial conditions.

This view is consistent with the “European Commission’s Modernisation Agenda” adopted in May 2006, directed at nine areas for helping universities in the process of modernization. One of these areas states the need to “reduce the funding gap and make funding work more effectively in education and research,” and suggests that governments spend at least 2% of the GDP (including both private and public funding) on HE. This means universities should assume the responsibility for their financial sustainability, including proactive diversification of funding. In the logic of implementing this project, the European Union has also set the frame for its “2020 strategy,” which is following the Lisbon Strategy. At the same time, almost all European countries have implemented new policies and measures associated with HE funding and focused their attention, in some form, on the issue of financial sustainability.

According to EUA (2008), the process toward financial sustainability requires, firstly, the identification of the full costs of all the university activities and projects (with reference to research, teaching and the so-called “third-mission”). After that, universities need to focus on how to diversify their income sources (Eurydice 2008; Estermann and Nokkala 2009; Estermann and Bennetot 2011) since they may receive funding from many different sources (National public funding, National private funds, International public or private funds).

Reaching these goals and comparing these practices across the world means overcoming some obstacles related to national legislative differences, firstly across Europe, affecting costing and accounting practices and terminology. In fact, different forms of depreciation, diverse terms in financial statements, dissimilar rules for property insurance in the public sector and the use of similar terms with different meanings make the standardization process of terminology and comparison among universities extremely difficult.

For the time being, the European University Association (EUA) suggests adopting the term “full costing” for the ability to identify and

calculate all the direct and indirect costs of a university's activities, including projects, in order to leave the necessary room for diversity in approaches (EUA 2008). In fact, some terms are also used in different ways across the world, while different concepts are discussed using the same terms. In the EUA's project, the terminology has been clarified on page 18. The EUA project, funded by the European Commission, Directorate-General for Education and Culture, has highlighted how financial autonomy is related to full costing and that "full costing itself is the appropriate tool to recognize the costs of the institutions" activities and projects (EUA 2008). This analysis has been based on 18 case studies (some of them are listed below as an example of best practices).

The survey covered funding, structure costs and level of autonomy (along with legal status, size, profile, ownership of property and governance). The exploration of funding across the survey group revealed that there is not always a clear connection between funds received for each activity and the actual costs of it.

It is worth considering that the usefulness of this project has been in describing through case studies what universities have to do in each phase of the process in order to implement the full costing method. Universities must define their objectives in terms of benefits, analyze their status (i.e., identifying existing costing and accounting procedures, check availability of data and their profile), scan the environment, set up the project management, define the costing methodology settings, and manage the data.

Considering the 18 case studies described in the project, there are different examples on the steps of the full costing process, as a way to understand the costs of all the activities. They are as follows:

1. Identify the average cost per student, e.g., *NUI Galway (Ireland)*.
2. Identify the costs, income and results per activity (including allocation of indirect costs), e.g., *University of Liverpool (UK)*, *University of Coimbra (Portugal)*, *Twente University (The Netherlands)*.
3. Forecast the full costs at project level including a prognosis of the time needed for the project, e.g., *Universities in the UK*.
4. Estimate the cost of a study place, taking into account the real objectives and criteria of study programs, e.g., *University of Tartu (Estonia)*.

5. Calculate the full costs for a number of projects financed by different funding agencies in order to raise awareness of the level of indirect costs, e.g., *Uppsala University (Sweden)*.

The EUA project recognized various benefits for universities that introduce a full costing methodology; they can be divided into *internal* institutional benefits and *external* institutional benefits.

It is worth noting that the most important internal benefits have been (a) greater understanding of the financial implications of investment decisions and (b) up-to-date and consistent information for management decisions. However, for the financial external benefits, the ability to identify full costs represents a credible basis for evaluating to negotiate funds with both public and private partners, along with higher cost recovery and more efficient resource allocation.

The EUA is now coordinating a project called “European Universities Implementing their Modernisation Agenda” (EUIMA) which addresses two main elements of the modernization agenda for European Universities:

- The sustainability of university funding, financial management, and development of full costing (EUIMA-Full Costing);
- The transparency and appropriateness of measurement tools for the assessment of university-based research reflecting the diversity of university missions (EUIMA-Collaborative Research).

The concept of financial sustainability as the provision of maintaining solvency to an education institution or its ability to cover its current liabilities (Sazonov et al. 2015) is consequently evaluated in accordance with the analysis of the HE institutions’ balance sheets as occurs for profit organizations.

In this view, the financial stability of a HE institution is related to its financial condition, which includes analyzing the condition of its funds, their allocation, and use, which provides the performance of its main activity. Therefore, the development of a HE institution depends on capital growth using both budgetary and extra-budgetary funds, while maintaining solvency under the acceptable level of risk (Baitov and Grin 2014).

Gášpar (2014) highlighted the importance of increasing the activities of development and implementation of appropriate key performance indicators (KPIs) at universities, in order to create preconditions for improving the strategic and financial management of these institutions.

The latest report by the TRAC Development Group (2015) in the UK is along the same lines, with it claiming that “sustainability is not about surviving or standing still, which allows competitors to overtake and students to become disenchanted. A sustainable sector will need agile and responsive leadership and management who are comfortable working with a more commercial, higher-risk, and higher-investment model of the university, while still respecting core academic values.” This requires creativity and innovation, and probably some rethinking of the ways that HE has been delivered in the past. An example of this is the Strategic Financial Analysis approach in the seventh edition of the Ratio Analysis in HE (KPMG 2010). Financial analysis has been applied to public and private institutions to identify, measure, and monitor any financial operating risks. The use of the CFI expressed as a ratio that comprises four weighted components differently is considered important since it represents a combination of a composite score (Wallace 2008) that classifies universities as either financially weak, strong, or somewhere in between. Each ratio is calculated to measure the strength of the score and the importance of the combination of the composite score. This process results in one score for each component ratio, which are then added together to comprise the CFI. The four measures or ratios include the following:

1. Resource sufficiency (primary reserve ratio, weight 35%), as a measure of the level of financial flexibility.
2. Debt management (viability ratio, weight 35%), as a measure of the organization's ability to cover debt with available resources.
3. Asset performance and management (return on net assets ratio, weight 20%), as a measure of overall asset return and performance.
4. Operating results (net operating revenue ratio, weight 10%), as a measure of the operating performance.

This strategic financial analysis is designed to gauge institutional performance and focus planning activities on those steps necessary to improve the institution's financial profile in relation to its mission (KPMG 2010).

In agreement with Dumestre (2016), who proposes different models of how colleges can become financially sustainable in cost cutting, online education, international student recruiting, etc., it is believed that universities that want to become financially sustainable have to transform themselves and introduce a strategic financial approach.

3 Closing Remarks

This chapter proposes a set of claims about some of the characteristics of healthy financial conditions in HE Institutions, along with several definitions of financial distress.

A review of current literature has been useful in order to understand the relevant issues for analyzing financial conditions of public organizations, but there is no extensive literature with reference to the analysis models of healthy financial conditions and distress of public universities.

It has discussed several approaches to introducing financial key indicators and suggested adapting models of analysis that public organizations have experienced in other sectors (e.g., local entities) as well as in specific countries (e.g., UK).

There are some limitations to this work as in any attempt to draw logical connections between the concept of healthy financial conditions and financial sustainability in HE institutions. Currently, there are still relatively few studies on the problem of ensuring financial sustainability to HE institutions worldwide.

Adapting the model proposed by Carmeli (2008) for local governments to the HE sector, the major determinants of financial sustainability can be classified into four groups summarized (with their source) in Table 1.

Table 1 Determinants of financial sustainability

Determinants	Sources
<i>Structural factors</i>	
Institution size and population density	Petersen (1977) Berne and Schramm (1986) Berne (1992) Boyne (1996) Rodríguez-Bolívar et al. (2016)
Dependency ratio	Kloha et al. (2005) Zafra-Gómez et al. (2009) Rodríguez-Bolívar et al. (2016)
Education level	Rodríguez-Bolívar et al. (2016)
Quality of life	Jones and Walker (2007)
<i>Economic factors</i>	
Availability of resources required to maintain and/or improve the services	Kloha (2005) Audit Commission (2007) Coe (2008)
Solvency	Wormley (1978) Greenberg and Hiller (1995) CICA (1997) Nollenberger et al. (2003) Rymanov (2010)
Capability to recover full costs	EUA (2008) RCUK/UUK (2010)
Budget balance	Pagano and Moore (1985) Inman (1995) Baitov (2014) Rodríguez-Bolívar et al. (2016)
<i>Managerial factors</i>	
Human capital	Taylor and Massy (1996)
Structure, organization and systems	Porrit (2005) Kloha (2005); Coe (2008) Benderskaya (2012) Bisogno et al. (2014)
Financial ratio analysis	Lupton et al. (1976) Brubaker (1979) Collier and Patrick (1979) Updegrove (1982) Woelfel (1987); Taylor (1984) Chabotar (1989) Everett (1995); KPMG (1999) Hudack et al. (2003) Wallace (2008) Lee (2009); Townsley (2009) Martin and Samels (2009)

(continued)

Table 1 (continued)

Determinants	Sources
Diversification	Eurydice (2008) Estermann and Nokkala (2009) Estermann and Bennetot Pruvot (2011)
<i>Political factors</i>	
Internal: management of resources	Capalbo and Grossi (2014)
External: relationship central government/university (public funding system)	Dickmeyer (1980) Dickmeyer and Hughes (1982) Radin (2000) Long and Franklin (2004) Gilmour and Lewis (2006) Carmeli (2008) Bisogno et al. (2014)

The four groups can be described as follows:

- *Structural factors*, consisting of HE institution size, the socio-economic status of students and educational level;
- *Economic factors*, consisting of resources required to maintain and/or improve the services, related to the level of solvency of the HE institution and the capability of recovering full costs;
- *Managerial factors*, essentially based on the HE ability to manage available resources and analyze the results of the activities;
- *Political (or hybrid) factors*, essentially based on the relationship between central government and HE institutions and the national public funding policy.

It is therefore worth observing that it is quite difficult to develop a single measure for financial sustainability at an institutional level given the diversity of different missions and the complexity of the system of funding for each university in different countries.

In addition, applying reported best practices to a full costing approach requires additional efforts on the part of public universities, like the process of income diversification.

It is also necessary to increase the understanding of the wider institutional and political landscape of each country (the “independent

variables”) in order to develop shared key indicators to measure financial sustainability.

It is worth noting how universities have to be well managed financially, with clear and transparent annual reporting and accountability arrangements (as in the UK HE sector). Subsequently, they can obtain greater confidence from their stakeholders. This is vital for the sector since it helps to keep borrowing costs low and leads to other sources of financing, both increasingly important for ensuring sustainability.

Universities that have an effective management and good governance could be financially healthy in the short term. Nevertheless, they also have to ensure and take the responsibility of their economic and financial sustainability in the long term. Most of them, that are public organizations, have to adapt their culture and behavior to the demands of a more commercial and competitive environment, as well as face new challenges in doing so because they may adopt financial strategies and behaviors that are not consistent with those of private for-profit sector organizations.

It is probably too early to know all the implications, since there are constantly new financial risks, with universities having to acquire more knowledge on how “business-like” management practices can really work for the HE sector.

References

- Adhikari, Pawan, Konstantin Timoshenko, and Levi Gårseth Nesbakk. 2012. Reforming Central Government Accounting in Diverse Contexts: A Three-country Comparison. *International Journal of Public Sector Performance Management* 2 (1): 44–60.
- Armstrong, Anona. 1998. A Comparative Analysis: New Public Management—The Way Ahead. *Australian Journal of Public Administration* 57 (2): 12–24.
- Audit Commission. 2007. *Use of Resources. Guidance for Councils*. London: Audit Commission.
- Baitov, A., and A. Grin. 2014. Analysis of Financial Sustainability of Public Higher Educational Establishments. *Siberian Financial School Journal*. <http://safbd.ru/>. Accessed 12 Oct 2016.
- Banta, Trudy W., Linda B. Rudolph, Janice Van Dyke, and Homer S. Fisher. 1996. Performance Funding Comes of Age in Tennessee. *The Journal of Higher Education* 67 (1): 23–45.

- Benderskaya, Olga, and Elena Chizhova. 2012. *Sustainable Organization and Mechanism of Its Sustainability*. Sankt-Peterburg: Khimizdat.
- Bergevärn, Lars Eric, Frode Mellemvik, and Olov Olson. 1995. Institutionalization of Municipal Accounting: A Comparative Study Between Sweden and Norway. *Scandinavian Journal of Management* 11 (1): 25–41.
- Berne, Robert, and Richard Schramm. 1986. *The Financial Analysis of Governments*. Englewood Cliffs, NJ: Prentice Hall.
- Berne, Robert. 1992. *The Relationships Between Financial Reporting and the Measurement of Financial Condition. Research Report No. 18*. Norwalk, CT: Government Accounting Standards Board.
- Bisogno, Marco, Francesca Citro, and Aurelio Tommasetti. 2014. The Financial Distress of Public Sector Entities. Evidence from Italian Public Universities. *International Journal of Accounting, Auditing and Performance Evaluation* 10 (2): 203–227.
- Bogt, Henk J., and Robert W. Scapens. 2012. Performance Management in Universities: Effects of the Transition to More Quantitative Measurement Systems. *European Accounting Review* 21 (3): 451–497.
- Bolívar, Rodríguez, Manuel Pedro, Andrés Navarro Galera, and Laura Alcaide Muñoz. 2014. New Development: The Role of Accounting in Assessing Local Government Sustainability. *Public Money and Management* 34 (3): 233–236.
- Bolívar, Rodríguez, Manuel Pedro, Andrés Navarro Galera, Laura Alcaide Muñoz, and Maria Deseada López-Subirés. 2016. Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study. *Local Government Studies* 42 (1): 29–51.
- Boyne, George A. 1996. *Constraints, Choice and Public Policies*. London: JAI Press.
- Broadbent, Jane, and James Guthrie. 2008. Public Sector to Public Services: 20 Years of Contextual Accounting Research. *Accounting, Auditing & Accountability Journal* 21 (2): 129–169.
- Brubaker, Paul. 1979. *Financial Health Indicators for Institutions of Higher Learning: A Literature Review and Synthesis. Technical Report No. 13*. Palo Alto, CA: American Institutes for Research in the Behavioral Sciences.
- Burke, C. Joseph. 2002. *Funding Public Colleges and Universities for Performance: Popularity, Problems, and Prospects*. Albany, NY: The Rockefeller Institute Press.
- Capalbo, Emma, and Giuseppe Grossi. 2014. Assessing the Influence of Socioeconomic Drivers on Italian Municipal Financial Destabilization. *Public Money & Management* 34 (2): 107–114.

- Carmeli, Abraham. 2003. Introduction: Fiscal and Financial Crises of Local Governments. *International Journal of Public Administration* 26 (13): 1423–1430.
- Carmeli, Abraham. 2008. The Fiscal Distress of Local Governments in Israel. Sources and Coping Strategies. *Administration & Society* 39 (5): 984–1007.
- Carpenter, Vivian L., and Ehsan H. Feroz. 2001. Institutional Theory and Accounting Rule Choice: An Analysis of Four US State Governments' Decisions to Adopt Generally Accepted Accounting Principles. *Accounting, Organizations and Society* 26 (7): 565–596.
- Chabotar, John K. 1989. Financial Ratio Analysis Comes to Nonprofits. *Journal of Higher Education* 60 (2): 188–208.
- CICA. 1997. *Indicators of Government Financial Condition*. Toronto: Canadian Institute of Chartered Accountants.
- Cirtin, Arnold, and Connie Lightfoot. 1996. Financial Statement Analysis for Private Colleges and Universities. *The National Public Accountant* 41 (8): 29–34.
- Coe, Charles K. 2008. Preventing Local Government Fiscal Crises: Emerging Best Practices. *Public Administration Review* 68 (4): 759–767.
- Collier, Douglas J., and Cathleen Patrick. 1979. A Multi-Variate Approach to the Analysis of Institutional Financial Condition. *New Directions for Higher Education* 26: 47–51.
- Covaleski, Mark A., and Mark W. Dirmsmith. 1988. An Institutional Perspective on the Rise, Social Transformation, and Fall of a University Budget Category. *Administrative Science Quarterly*: 562–587.
- Dickmeyer, Nathan. 1980. *Concepts Related to Indicators of College and University Financial Health*. Technical Report No. 12. Palo Alto, CA: American Institutes for Research in the Behavioral Sciences.
- Dickmeyer, Nathan, and K. Scott Hughes. 1982. Financial Self-Assessment. *New Directions for Higher Education* 38: 17–24.
- Dickmeyer, Nathan. 1983. *Financial Conditions of Colleges and Universities*. Washington, DC: National Association of College and University Business Officers.
- Dillard, Jesse F., John T. Rigsby, and Carrie Goodman. 2004. The Making and Remaking of Organization Context: Duality and the Institutionalization Process. *Accounting, Auditing & Accountability Journal* 17 (4): 506–542.
- DiMaggio, Paul. J., Walter W. Powell. 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organisational Fields. *American Sociological Review* 48 (2): 147–160.

- Dollery, Brian, Lin Crase, and Joel Byrnes. 2006. Local Government Failure: Why Does Australian Local Government Experience Permanent Financial Austerity? *Australian Journal of Political Science* 41 (3): 339–353.
- Douglas, James W., and Ronald Keith Gaddie. 2002. State Rainy Day Funds and Fiscal Crises: Rainy Day Funds and the 1990–1991 Recession Revisited. *Public Budgeting and Finance* 22: 19–30.
- Dražena, Gašpar. 2014. Information Technology and Kpis Development at Universities. *Interdisciplinary Management Research* 10: 38–47.
- Dumestre, Marcel J. 2016. *Financial Sustainability in US Higher Education*. US: Palgrave Macmillan.
- Estermann, Thomas, and Enora Bennetot. 2011. *Financially Sustainable Universities II*. Bruxelles: European University Associations.
- Estermann, Thomas, and Terhi Nokkala. 2009. *University Autonomy in Europe I: Exploratory Study*. Bruxelles: European University Associations.
- EUA. 2008. *Financially Sustainable Universities. Towards Full Costing in European Universities. An Eua Report*. Bruxelles: European University Associations.
- Eurydice. 2000. *Two Decades of Reform in Higher Education in Europe: 1980 Onwards*. Bruxelles: Eurydice.
- Eurydice. 2008. *Higher Education Governance in Europe. Policies, Structures Funding and Academic staff*. Brussels: Eurydice.
- Everett, Ronald E. 1995. Getting Beyond Traditional Measures of District Financial Health. *School Business Affairs* 61 (1): 50–57.
- Flynn, Norman. 2002. Explaining New Public Management: The Importance of Context. In *New Public Management: Current Trends and Future Prospects*, ed. Kate McLaughlin, Stephen O. Osborne, and Ewan Ferlie, 57–76. London: Routledge.
- FSSG. 2008. The Sustainability of Learning and Teaching in English Higher Education. Higher Education Funding Council for England. <http://www.hefce.ac.uk/funding/finsustain/pubs>. Accessed 12 Oct 2016.
- Gilmour, John B., and David E. Lewis. 2006. Assessing Performance Budgeting at OMB: The Influence of Politics, Performance, and Program Size. *Journal of Public Administration Research and Theory* 16 (2): 169–186.
- Greenberg, Jason, and David Hillier. 1995. Indicators of Financial Condition for Governments. Paper Presented at the 5th Conference of Comparative International Governmental Accounting Research, Paris-Amy.
- Guthrie, James, Olov Olson, and Christopher Humphrey. 1999. Debating Developments in New Public Financial Management: The Limits of Global

- Theorising and Some New Ways Forward. *Financial Accountability & Management* 15 (3–4): 209–228.
- HEFCE. 2014. *Innovation Report 2014*. UK: Higher Education Funding Council for England. <https://www.gov.uk/>. Accessed 12 Oct 2016.
- Honadle, Beth Walter. 2003. The States' Role in U.S. Local Government Fiscal Crises: A Theoretical Model and Results of a National Survey. *International Journal of Public Administration* 26 (13): 1431–1472.
- Hudack, Lawrence, Orsini Larry, and Brenda Snow. 2003. How to Assess and Enhance Financial Health. *NACUBO Magazine*, April, 31–39.
- Hunt, Lester H. 2008. *Grade Inflation: Academic Standards in Higher Education*. New York: Suny Press.
- Inman, Robert P. 1995. How to Have a Fiscal Crisis: Lessons From Philadelphia. *American Economic Review* 84 (2): 378–383.
- Jones, Stewart, and Robert G. Walker. 2007. Explanators of Local Government Distress. *Abacus* 43 (3): 396–418.
- Jongbloed, Ben, Jürgen Enders, and Carlo Salerno. 2008. Higher Education and Its Communities: Interconnections, Interdependencies and a Research Agenda. *Higher Education* 56 (3): 303–324.
- Kelly, Andrew, Mark Schneider, and Kevin Carey. 2010. *Rising to the Challenge: Hispanic College Graduation Rates as a National Priority*. Washington, DC: American Enterprise Institute for Public Policy Research.
- Kloha, Philip, Carol S. Weissert, and Robert Kleine. 2005. Developing and Testing a Composite Model to Predict Local Fiscal Distress. *Public Administration Review* 65 (3): 313–323.
- KPMG. 1999. *Ratio Analysis in Higher Education*, 4th ed. New York: KPMG, LLP and Prager, Sealy, & Co., LLC.
- KPMG. 2010. *Ratio Analysis in Higher Education*, 7th ed. New York: KPMG, LLP and Prager, Sealy, & Co., LLC.
- Lapovsky, Lucie. 2014. *The Higher Education Business Model. Innovation and Financial Sustainability*. TIAA-CREF Institute. <http://agb.org/>. Accessed 12 Oct 2016.
- Lapsley, Irvine. 2009. New Public Management: The Cruellest Invention of the Human Spirit? *Abacus* 45 (1): 1–21.
- Lee, Richard A. 2009. Examining Financial and Non-Financial Indicators for Predicting Private Higher Education Viability. *Journal of Academic Administration in Higher Education* 5 (2): 1–10.
- Lupton, Andrew H., John Augenblick, and Joseph Heyison. 1976. A Special Report: The Financial State of Higher Education. *Change: The Magazine of Higher Learning* 8 (8): 20–35.

- Long, Edward, and Aimee L. Franklin. 2004. The Paradox of Implementing the Government Performance and Results Act: Top-Down Direction for Bottom-Up Implementation. *Public Administration Review* 64 (3): 309–319.
- Martin, James, and James E. Samels. 2009. *Turnaround: Leading Stressed Colleges and Universities to Excellence*. Baltimore, MD: JHU Press.
- Massaro, Maurizio, John Dumay, and James Guthrie. 2016. On the Shoulders of Giants: Undertaking a Structured Literature Review in Accounting. *Accounting, Auditing and Accountability Journal* 29 (5): 767–801.
- Mongkol, Kulachet. 2008. Change Management in Public Sector Management in the 21st century. *Government Official* 53: 84–87.
- Neave, Guy. 1988. On the Cultivation of Quality, Efficiency and Enterprise: An Overview of Recent Trends in Higher Education in Western Europe, 1986–1988. *European Journal of Education* 23 (1/2): 7–23.
- Nollenberger, Karl, Sanford M. Groves, and Maureen Godsey Valente. 2003. *Evaluating Financial Condition: A Handbook for Local Government*. Washington, DC: International City/County Management Association.
- OECD. 2003. *Education Policy Analysis*. Paris: OECD.
- OECD. 2009. *HE to 2030, Volume II, Globalization*. Paris: OECD.
- Pagano, Michael, and Richard J. Moore. 1985. *Cities and Fiscal Choices: A New Model of Urban Public Investment*. Durham, NC: Duke University Press.
- Park, Keeok. 2004. To File or not to File: The Causes of Municipal Bankruptcy in the United States. *Journal of Public Budgeting, Accounting & Financial Management* 16 (2): 228–256.
- Petersen, John E. 1977. Simplification and Standardisation of State and Local Government Fiscal Indicators. *National Tax Journal* 30 (3): 299–311.
- Petticrew, Mark, and Helen Roberts. 2008. *Systematic Reviews in the Social Sciences: A Practical Guide*, Kindle ed. Oxford: Wiley-Blackwell.
- Pollitt, Christopher, and Geert Bouckaert. 2004. *Public Management Reform: A Comparative Analysis*. New York: Oxford University Press.
- Pollitt, Christopher, and Hilikka Summa. 1997. Trajectories of Reform: Public Management Change in Four Countries. *Public Money and Management* 17 (1): 7–18.
- Pollitt, Christopher. 1990. *Managerialism and the Public Services: The Anglo-American Experience*. Cambridge, MA: Basil Blackwell.
- Porrit, Jonathon. 2005. *Capitalism as If the World Matters*. London: Earthscan Publications.
- Rabovsky, Thomas M. 2012. Accountability in Higher Education Exploring Impacts on State Budgets and Institutional Spending Patterns. *Journal of Public Administration Research and Theory* 22 (4): 675–700.

- Radin, Beryl A. 2000. The Government Performance and Results Act and the Tradition of Federal Management Reform: Square Pegs in Round Holes? *Journal of Public Administration Research and Theory* 10 (1): 111–135.
- RCUK/UUK Task Group. 2010. *Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institutions*. UK: Research Councils.
- Robinson, Daniel D. 1975. Analysis and Interpretation of Financial Data. *NACUBO Professional File* 7 (3): 1–5.
- Roden, John Kalt. 1991. Using Financial Ratio Analysis to Describe the Relative Fiscal Health of Selected Publicly Funded Institutions of Higher Education in New York State. PhD dissertation, Ohio State University.
- Rymanov, Adrian. 2010. Financial and Economic Sustainability of Institution: Its Essence and Types. *Economic Analysis: Theory and Practice* 1: 16–19.
- Salmi, Jamil. 2009. Scenarios for Financial Sustainability of Tertiary Education. In *Higher Education to 2030*, ed. Centre for Educational Research and Innovation, 285–322. Paris: OECD.
- Sazonov, Sergei P., Ekaterina E. Kharlamova, Irina A. Chekhovskaya, and Elena A. Polyanskaya. 2015. Evaluating Financial Sustainability of Higher Education Institutions. *Asian Social Science* 11 (20): 34–40.
- Schipper, Katherine. 1977. Financial Distress in Private Colleges. *Journal of Accounting Research* 15: 1–40.
- Taylor, Barbara, and William Massy. 1996. *Strategic Indicators for Higher Education*. Princeton, NJ: Peterson's Guides.
- Taylor, Barbara. 1984. Monitoring the Financial Condition of Colleges and Universities. *AAHE-ERIC Bulletin*: 7–10.
- Timoshenko, Konstantin, and Pawan Adhikari. 2010. A Two-Country Comparison of Public Sector Accounting Reforms: Same Ideas, Different Paths? *Journal of Public Budgeting, Accounting & Financial Management* 22 (4): 449.
- Townsley, Michael. 2009. *The Small College Guide to Financial Health: Beating the Odds*. Washington, DC: NACUBO.
- TRAC Development Group. 2015. A Guide for Senior Managers and Governing Body Members. The Transparent Approach to Costing for UK Higher Education Institutions. <http://www.hefce.ac.uk/>. Accessed 12 Oct 2016.
- Updegrove, Daniel. A. 1982. Computer Modeling for Comparative Financial Assessment. *New Directions for Higher Education* 38: 45–48.

- Wallace, J. Nicholas. 2008. *Roadmap to Financial Viability for Colleges and Universities*. White Paper Report. Association of Business Administrators of Christian Colleges.
- Woelfel, J. Charles. 1987. Financial Statement Analysis for Colleges and Universities. *Journal of Education Finance* 13 (1): 86–98.
- Wormley, W. M. 1978. Factors Related to the Ability of Certain Small, Private Liberal Arts Colleges to Cope with the New Depression in Higher Education. PhD dissertation, Stanford University.
- Zafra-Gómez, José Luis, Antonio M. López-Hernández, and Agustín Hernández-Bastida. 2009. Developing a Model to Measure Financial Condition in Local Government Evaluating Service Quality and Minimizing the Effects of the Socioeconomic Environment. An Application to Spanish Municipalities. *American Review of Public Administration* 39 (4): 425–449.
- Zumeta, William. 2001. Public Policy and Accountability in Higher Education: Lessons from the Past and Present for the New Millennium, In *The NEA 2001 Almanac of Higher Education*, 75–86. Washington, D.C.: National Education Association Press.

Financial Sustainability in Public Administration

Exploring the Concept of Financial Health

Rodríguez Bolívar, M.P. (Ed.)

2017, XXII, 268 p. 17 illus., Hardcover

ISBN: 978-3-319-57961-0