9

The Financial Sustainability of Public Universities in Spain

Juana Alonso-Cañadas, Alejandro Sáez-Martín, Laura Saraite and Carmen Caba-Pérez

1 Introduction

The economic crisis has affected numerous public institutions, including universities, and particularly those in Europe and the USA (Denneen and Dretler 2012). This impact has provoked budget cuts and debt ceilings that jeopardise the continued provision of some public services. In Spain and elsewhere in Europe, some public universities are starting to have difficulty maintaining quality standards in teaching

J. Alonso-Cañadas (✉) · A. Sáez-Martín · L. Saraite · C. Caba-Pérez
University of Almería, Almeria, Spain
e-mail: jac630@ual.es

A. Sáez-Martín
e-mail: alejandro.saez@ual.es

L. Saraite
e-mail: laura_saraite@hotmail.com

C. Caba-Pérez
e-mail: ccaba@ual.es

M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_9

and, especially, in research due to the lack of resources (Escardíbul-Ferra and Esparrells Pérez 2013; Pérez-Esparrells 2014). Aware of these problems, the European Union (EU) has nevertheless warned Member States of the need for tight control over the deficit and public debt, in order to ensure the financial sustainability of all European public administrations and thus underpin confidence in the stability of the European economy (EU 2012). Moreover, various international organisations, including the Canadian Institute of Chartered Accountants (2009) and the International Federation of Accountants (IFAC) (2012), have highlighted the need to implement sustainability policies that will create the necessary conditions for the consolidation of public finances and prevent intergenerational inequalities (Cabaleiro et al. 2013). In view of this situation, and under pressure from the EU to adopt measures to limit the public deficit, Spain amended article 135 of its Constitution and regulated the principle of financial sustainability (Art. 4) through Organic Act 2/2012 of 27 April on Budgetary Stability and Financial Sustainability (LOEPSF, Spanish initials), according to which financial sustainability was to be achieved by reference to two criteria (Art. 13): a debt ceiling and a limit on the average period of payment to suppliers (APPS).

Spanish public universities, as institutions subject to public law, must comply with the principle of financial sustainability set out in the LOEPSF, in addition to ensuring their own financial sustainability (European University Association 2008; Malles and Unai Del Burgo 2010). In this regard, universities in Spain are in fact playing a fundamental role in changing the social and economic model of the country, as the paramount agents in the generation, dissemination and transfer of knowledge (Spanish Ministry of Education 2010). Research studies in this field have addressed the question of governmental financial sustainability from various perspectives. Some have identified sociodemographic and economic indicators that influence the financial sustainability of local government (Perez-López et al. 2013; Rodríguez-Bolívar et al. 2015), and others have analysed the solutions adopted by local governments to achieve sustainability (Wällstedt et al. 2014). Other studies have considered fiscal difficulties (Khola et al. 2005; Zafra et al. 2009) and the public debt of national governments (Ballabriga and Martínez-Mongay 2005; Pirtea et al. 2013; Slembeck et al. 2014).

However, with respect to universities, little research has been conducted to address the question of financial sustainability. We concur with Gallego-Álvarez et al. (2011) that it is of vital importance to identify the determinants of financial sustainability of Spanish public universities. This knowledge, made available to the relevant decision makers, can strengthen management and underpin the financial sustainability of these institutions (Rodríguez-Bolívar et al. 2015). Universities that have a solid financial structure will be able to achieve their many goals and successfully address the changes that continually arise in a complex global environment (EUA 2011).

Taking into account the above considerations, and the fact that no previous studies have been conducted to identify the variables that influence governmental financial sustainability (Rodríguez-Bolívar et al. 2015), this chapter has two main aims: First, to determine the financial sustainability of universities, in terms of the two criteria established by the LOEPSF: APPS and net debt; and second, to identify the determinants of financial sustainability among Spanish public universities.

The rest of this chapter is structured as follows: Following the introduction, we consider how financial sustainability can be measured, taking into account the recommendations made in international pronouncements and the conclusions reached in previous studies. Section 3 then describes the means by which the principle of financial sustainability is to be achieved in Spain, as set out in the LOESPF. Section 4 presents the determinants of financial sustainability, after which we explain the method applied and the characteristics of our study sample. Finally, we present the main results obtained, the conclusions drawn and possible areas for future research.

2 Measuring Governmental Financial Sustainability: An International Approach

The concept of the financial sustainability of public administrations is defined as the government's capacity to assume the financial burden of debt, both at present and in the future (Larch 2009). In this respect, and from a theoretical standpoint, it has been observed that

governments should only assume an affordable level of debt, generating a surplus that is sufficient to cover the cost of future repayment (Perotti et al. 1998).

In the same vein, various international organisations (IFAC 2012, 2013; EU 2012; EC 2011) have defined financial sustainability in the public administration as the government's ability, in application of its present policies, to deliver services and to meet current and future financial commitments, without provoking a long-term increase in public debt. As observed by Rodríguez-Bolívar et al. (2015), in the context of statements issued by agencies such as the World Commission on Environment and Development (1987) and IFAC (2012), as well as by authors like Pezzey and Toman (2002), one of the key issues related to sustainability is that of intergenerational or inter-period equity, i.e. the capability of the income earned in 1 year to cover the costs arising from the delivery of services offered during the same year, as reflected in the income statement (Government Accounting Standards Board—GASB 1987).

Among the various financial statements that are published, the income statement is highly useful for identifying and evaluating public sector financial sustainability (IFAC 2012, 2013; EC 2011). Therefore, the income statement is the starting point for determining governmental financial sustainability, and constitutes a fundamental decision-making tool for politicians and managers (Burrit and Schaltegger 2010).

As indicated by Rodríguez-Bolivar et al. (2015), financial sustainability can be measured by reference to two variables. In accordance with international pronouncements made by bodies such as the EU (2012), IFAC (2012), the Financial Accounting Standards Board—FASB (2012) and GASB (1990), as well as previous research (Rodríguez-Bolivar et al. 2014), the first of these is the budget result. However, Rodríguez-Bolívar et al. (2015) suggest that this measure should be adjusted to take into account the effect of extraordinary results, which by their very nature will probably not be repeated in the future; accordingly, the adjusted budget result provides a more accurate measure of governmental financial sustainability.

The second variable used to measure financial sustainability is based on the quantification of net debt. According to international organisations (IFAC 2013; CICA 2009), this variable is a key element in the

sustainability of public administrations. The importance of the level of public debt and the impact of other factors on this level have been analysed for different levels of government (Pogue 1970; Inman and Fitts 1990; Kiewiet and Szakaly 1996; Brusca and Labrador 1998; Balaguer 2002; Dollery and Blight 2011).

Various studies have considered the question of debt levels and financial sustainability in public universities. Thus, Gallego-Álvarez et al. (2011) analysed the financial condition of Spanish universities and the factors that influence it, while Vaquero-García and Pérez-Esparrells (2011), Pérez-Esparrells and Torre (2012) and Pérez-Esparrells (2014) all reviewed funding models and their relationship with university quality.

3 The Control of Financial Sustainability in the Spanish Public Administration

Government regulation of the financial condition of public organisations has traditionally been based on establishing mechanisms to impose legal control on borrowing and, more recently, on budgetary and financial sustainability.

In view of the failure of the control mechanisms set out in Act 2/2011 of March 4 on Sustainable Economy and in response to commitments made to the EU, Act 2/2012 of 27 April on Budgetary Stability and Financial Sustainability (LOEPSF) was adopted. The aim of this law was to restrain the public deficit and to begin the recovery towards budgetary balance. To do so, three main goals were established:

a. to ensure financial sustainability, at all levels of government;
b. to strengthen confidence in the stability of the Spanish economy and
c. to strengthen Spain's commitment to the EU with respect to budgetary stability.

Although the LOEPSF did not explicitly include the public universities, under Article 2 of this Act, the following interpretations of its application could be made:

a. They are considered to be addressed in paragraph 1 of Article 2, and therefore would be classified as belonging to the Autonomous Communities (regions), in accordance with the European System of National and Regional Accounts.
b. They are addressed in paragraph 2 of Article 2, because tacitly the universities are considered to be financially independent from their regional governments.

The distinction between these two views is important because while the principles introduced by the LOEPSF are applicable to the universities, their implementation differs according to whether these institutions are considered to be addressed by Article 2.1 or by Article 2.2.

The Act sets out the goals to be achieved, the procedure for doing so, the corrective measures to be applied in the event of any deviations from this course, and the disciplinary process that will ensue in response to a major breach. It also specifies the two fundamental principles underlying the legislation:

- Budgetary stability (art. 3): the existence of budgetary stability is related to a situation of structural balance or surplus.
- Financial sustainability (art. 4): the term financial sustainability is defined as the ability to finance present and future spending commitments within the limits of deficit, public debt and unpaid commercial debt, in accordance with the LOEPSF, the regulations on late payment and European legislation.

Compliance with the principle of financial sustainability means that public authorities must comply with the limits set for two variables (see Fig. 1): the volume of public debt and the APPS. Thus, the volume of public debt of all levels of government may not exceed the target set by the Central Government or that established by European regulations. This spending target is to be distributed among the central government, the Autonomous Communities and the local corporations, and if the limits are exceeded, further net borrowing will not be allowed.

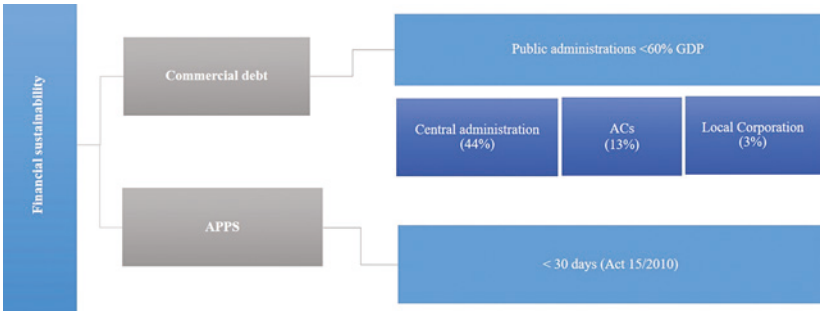

Fig. 1 Implementation of the principle of financial sustainability. *Source* Derived by the authors

Under the LOEPSF, the public debt of the public administration, as a whole, should not exceed 60% of GDP, with the Autonomous Communities being assigned 13% of this 60%, or as otherwise established by the European Union. Nevertheless, this is a medium-term objective, to be accomplished by 2020, and at present the regions are far from achieving it (see Fig. 2).

Control of the APPS is intended to be a definitive measure for controlling the commercial debt of public administrations. Previously, most concerns in this respect had focused on the control of financial debt. However, the persistence of commercial debt in the medium term may generate fiscal instability and increase public debt, which would subsequently be reflected in private debt, with consequent adverse effects on the economy as a whole. For this reason, payment defaults of commercial debt have been incorporated into the principle of financial sustainability, and mechanisms established for control and monitoring, together with preventive, corrective and, ultimately, coercive measures aimed at administrations in breach of the legally stipulated targets.

The LOEPSF expressly states that the public administrations, as well as publishing their APPS, must have a liquidity plan that includes information on the schedule for payment to suppliers, to ensure compliance with the maximum period legally allowable (30 days). Furthermore, each government must undertake to perform its payments at a rate sufficient to ensure implementation of the financial budget. If the APPS

	2014				2015			
	Debt millions €	Debt % GDP	Debt € per capita	APPS December	Debt millions €	Debt % GDP	Debt € per capita	APPS December
Andalusia	29.101	20,90%	3.465	45,65	31.365	21,70%	3.742	42.49
Aragon	6.010	18,40%	4.560	84,11	6.930	20,30%	5.300	99.61
Asturias	3.479	16,50%	3.309	14,13	3.876	18,00%	3.719	18.95
Cantabria	2.428	20,20%	4.149	25,31	2.691	21,80%	4.622	36.39
Castilla and Leon	9.359	17,60%	3.786	44,33	10.557	19,40%	4.316	34.7
Castilla la Mancha	12.858	34,50%	6.244	36,04	13.426	35,50%	6.579	27.87
Canary Islands	6.034	14,80%	2.873	14,61	6.649	15,70%	3.166	3.11
Catalonia	64.466	32,80%	8.586	38,79	72.274	35,30%	9.616	58.78
Extremadura	3.092	18,20%	2.829	81,22	3.576	20,40%	3.291	97.76
Galicia	9.961	18,50%	3.646	21,17	10.375	18,60%	3.818	29.29
Balearic Islands	7.777	29,50%	7.042	36,46	8.306	30,40%	7.505	70.47
Murcia	6.838	25,60%	4.660	57,94	7.601	27,30%	5.190	90.28
Madrid	24.632	12,70%	3.827	58,95	27.646	13,60%	4.277	37.51
Navarre	3.197	18,20%	4.992	-9,95	3.322	18,20%	5.188	-9.63
Basque Country	8.915	14,10%	4.072	-4,99	9.486	14,40%	4.333	-1.02
Rioja	1.296	16,80%	4.089	26,34	1.436	17,90%	4.548	18.47
C. Valenciana	37.376	38,20%	7.504	82,29	41.753	41,30%	8.429	76.21

Fig. 2 Debt and APPS of the Spanish autonomous communities. *Source* Derived by the authors

exceeds the maximum period, the administration is obliged to publish information about the resources it will dedicate to monthly payments to suppliers in order to bring the APPS down to the maximum level allowed under the payment rules. These stipulations are accompanied by the obligation to adopt measures to reduce costs, increase revenues or otherwise enhance the management of revenues and payments, in order to generate the liquidity necessary to reduce the APPS and thus meet the targets set. It is noteworthy that at present, most of the Autonomous Communities are failing to meet the APPS stipulated in the legislation on government payments.

Therefore, all levels of public administration, under the principle of financial stability, are required to achieve two specific goals, which are fundamental in the framework of Spain's commitments to the EU: on the one hand, to observe the debt limits established (and thus control public borrowing); and on the other, to respect the maximum APPS stipulated, in order to control commercial debt.

4 The Determinant Factors of Financial Sustainability in Public Universities in Spain

Several previous studies have analysed the determinants of local government financial sustainability. Pérez-López et al. (2013) concluded that financial variables (net savings, transfers and non-financial capital expenditure), the immigration rate, the level of decentralisation, the degree of inter-municipal cooperation and the political strength of the party in government are the main factors influencing financial sustainability. On the other hand, Rodríguez-Bolivar et al. (2015) identified the budget result, the size of the population, the size of the immigrant population, the level of education, the GDP, the importance of the tourism sector and the degree of business concentration as the main determinants of financial sustainability.

Among previous studies conducted to identify the determinants of financial sustainability in areas other than that of local government, Gallego-Álvarez et al. (2011) analysed the financial condition of Spanish universities. Their results indicate that financial sustainability is influenced by per capita GDP, population, the number of undergraduate and graduate students and by the financial assistance available to students.

Taking into account the above considerations, we selected the following possibly determinant factors in order to analyse their effects on the financial sustainability of public universities in Spain.

University Productivity

The quality and productivity of universities is a difficult concept to define. Therefore, if we wish to determine the relation between universities' funding and financial situation and their greater or lesser productivity, the indicators on which this measurement is based must be carefully weighted (Osuna 2009). In this regard, authors such as Schipper (1977), Bourn (1993), Falcone (2001), Moscoso et al. (2001), Bordons (2010) and Gallego-Álvarez et al. (2011) have analysed different indicators that can be used to measure the productivity

of universities, focusing in particular on the level of productivity that directly affects their financial situation.

Pérez and Aldás (2016) recently published the 4th edition of their U-Ranking report on indicators for the Spanish university system (ISSUE, Spanish initials). This report measures the results and productivity of Spanish universities, according to the core dimensions of teaching, research, innovation and technological development.

Taking into consideration the ISSUE report on university productivity and the findings of previous studies concerning the relation between the latter concept and universities' financial situation, we pose the following hypothesis:

H1. University productivity influences the financial sustainability of Spanish universities.

Political ideology

The level of government debt may be influenced by the political characteristics of the administration, and particularly by its political sign (Tellier 2006). Thus, authors such as Seitz (2000), León-Ledesma (2010) and García-Sánchez et al. (2011) consider that progressive parties tend to favour increased government spending, while conservative ones are more likely to advocate budget cuts. Accordingly, the level of debt is expected to be higher when a progressive party is in government.

In the Spanish public sector, the universities are self-governing, but are accountable to the governments of the Autonomous Communities responsible for their funding (Art. 81 of the Organic Act on Universities, 6/2001-LOU). Article 82 of the same Act sets out the rules and procedures for the development and implementation of university budgets and for the supervision of their investments, spending and revenues.

In view of this control of the universities by the Autonomous Communities and the influence of the ideology of the governing party in the region, the following hypothesis is formulated:

H2. The political ideology of the corresponding autonomous community government influences the financial sustainability of Spanish universities.

Experience of university administrators

In the private sector, experience in management, measured by the age of the institution, is considered to be a determinant factor in the capital structure of firms (Petersen and Rajan 1994; Dollinger 1995; Otero-Fernandez et al. 2007; García 2012). According to the theory of static trade-off (Frank and Goyal 2009), over time a firm's reputation of meeting its financial obligations becomes established and therefore it acquires improved access to funding. On this basis, one would expect the variable "age" to have a positive impact on the level of debt, i.e. the greater the age of the institution, the higher its level of debt (García 2012; Chavez and Vargas 2014).

On the other hand, studies have shown that mature companies are less likely to acquire long-term debt, preferring to use internally generated resources (Mac an Bhaird and Lucey 2010), and that younger ones are the most likely to resort to borrowing as a funding mechanism (Otero-Fernandez et al. 2007; Chavez and Vargas 2014).

Extrapolating these considerations from private enterprise to the context of public universities and, apart from the question of whether the relation is positive or negative, it is reasonable to believe that organisations with a longer history of activity will be more experienced in managing their resources, and hence will present a more stable financial situation. This will lead them to better manage their financial indicators, which for our purposes means lower levels of debt and a lower APPS.

In the public sector, this approach of measuring management experience according to the age of the institution has not previously been used in the analyses of financial sustainability. We believe this is because most of the areas of public administration with self-governing powers and legal personality (such as municipalities, the Autonomous Communities and the State) were created within a relatively short time period. However, a particular situation arises with respect to the public universities, which are autonomous but have a different legal personality from that corresponding to the rest of the public sector (Art. 2 LOU), as they have come into existence over an extended period of time.

Accordingly, we believe it would be interesting to examine to what extent universities' experience in management has influenced their financial sustainability. Therefore, the following hypothesis is formulated:

H3. Management experience is positively associated with the financial sustainability of Spanish universities.

The university community

The size of a university, measured in terms of its population, is an indicator that influences public funding, as larger public administrations receive a greater demand for public spending from the corresponding population (Pettersson-Lidbom 2001; Ashworth et al. 2005).

In the area of university education, according to Schipper (1977), larger institutions are faced by higher costs, although certain expenses such as central services and administration represent a proportionally lower cost for larger universities than for smaller ones (Bourn 1993). Moreover, as Gallego-Álvarez et al. (2011) observe, they also collect a larger volume of funds from student enrolments and government transfers. Nevertheless, these levels of public funding fall well short of optimum values (Escardíbul and Pérez 2013), and in recent years the universities have been affected by an increasing degree of financial insufficiency, caused especially by payment deferrals and cutbacks by the Autonomous Communities (CRUE). In addition, it is argued that larger universities must address significant current spending obligations in order to maintain their infrastructure and services, despite the decline in public funding. Accordingly, we believe it logical to consider borrowing as an alternative source of income, which allows the universities to meet their expenses and to comply with the stipulated APPS.

Taking into account these considerations, and in line with previous studies in this field, we pose the following hypothesis:

H4. The university community is positively associated with the financial sustainability of Spanish universities.

Current transfers

The financing model for Spanish universities is basically a public one, and depends in part on the current transfers received from the

Autonomous Communities (Osuna 2009; Escardíbul-Ferra and Pérez-Esparrells 2013). Indeed, the largest item in the revenue budget in 2013 was that of current transfers, with a relative weight of 62.6% in the non-interest income received by the Spanish public universities as a whole (CYD 2014).

In view of these facts, and that larger universities obtain a greater volume of current transfers from governments (Gallego-Álvarez et al. 2011), we wished to determine whether the volume of such transfers received by public universities affects their financial sustainability. Therefore, the following hypothesis was formulated:

H5. The transfers received from the autonomous communities influence the financial sustainability of Spanish universities.

5 Study Method and Sample Population

The study method applied was developed in accordance with the above-stated aims.

Study goal 1: Method to determine the financial sustainability of universities, according to the two criteria established by the LOEPSF: net debt and APPS.

According to the LOEPSF rules on sustainability, both net debt and the APPS for current operations must be controlled. Brussels requires the regions to control both of these parameters, and so the Autonomous Communities are demanding an increasing volume of monthly data in this respect. On the basis of the information received, more or less liquidity is supplied to each university according to whether its performance improves or worsens the region's net debt and contributes to compliance or otherwise with the APPS limits imposed under the LOEPSF.

To measure the level of debt, we took into account the information in this respect that is published in the university's balance sheet and annual financial statement. It should be noted that on numerous occasions, a large proportion of research spending is grant funded,

in part from FEDER funds; in these cases, the grant award decision states that this amount must be accounted for in chapter 9 of revenue items, "Financial liabilities", at the time of receipt. In other words, it is accounted for as a loan and cannot be converted into a grant; therefore, it forms part of the university's revenue until the competent Ministry, which advances the funds, informs the university that it has received the corresponding amount from the European Community, after proper justification. These funds cannot be considered as real debt incurred by the university (net debt—ND *measured in absolute terms*), because they are non-repayable, and so the consideration of real financial debt leads us to apply the following formula:

(ND)Repayable financial debt$_n$*: Financial debt* $_n$*–Non-repayable financial debt*$_n$

As regards the APPS, although the LOEPSF recommends this information be included in financial statements, most universities do not do so. Accordingly, we have calculated it by the following formula:

$$APPS_n = \left(\frac{S_n + S_{n-1/2}}{LR2 + 6_n} \times 365 \right) - 30,$$

where

S is the net debt to suppliers at year end; and

LR 2 + 6 are the liabilities recognised in Chaps. 2 and 4.

According to Royal Decree 635/2014, the average number of days of payment to suppliers (APPS) is calculated as the number of days elapsed since the 30th day following the date of entry into the administrative record, i.e. 30 days should be subtracted from the total.

Study goal 2: Method to analyse the incidence of factors on financial sustainability

The financial sustainability of public universities is subject to the influence of the institutions' environment. Therefore, according to the factors in Sect. 4, we consider the following ten hypotheses, five for debt and five for the APPS.

The independent variables referred to in the hypotheses were tested against each of the dependent ones—ND and APPS—and thus

EXPLANATORY VARIABLES	MEASURE	SOURCE
University productivity (PRODUCTIVITY)	U-Ranking of global productivity	U-Ranking (2014)
Political ideology (IDEOLOGY)	Political ideology of the governing party: 1 = Conservative; 0 = Progressive	Ministry of the Interior (2015)
University experience (EXPERIENCE)	Number of years elapsed since its foundation	U-Ranking (2016)
Size of the university community (COMMUNITY)	Undergraduate students + Graduate students + Teaching staff + Administrative and Service staff	Ministry of Education, Culture and Sport (2016)
Current transfers (TRANSFERS)	Quantity of operative funds received from the Autonomous Community	Annual Accounts (2014)

Fig. 3 Explanatory factors: measures and sources. *Source* Derived by the authors

two models are proposed. These independent variables were measured in terms of the magnitudes commonly used in previous studies of this nature (Mac an Bhaird and Lucey 2010; García-Sánchez et al. 2011; Gallego-Álvarez et al. 2011; Pérez and Aldás 2016) (see Fig. 3).

Taking into account the structure presented by the dependent variables, the association between dependent and independent variables was tested using Tobit regression (through the STATA 11.1 program), which produced the following equations:

$$\mathrm{ND}_i = \beta_0 + \beta_1\,\mathrm{PRODUCTIVITY}_i + \beta_2\,\mathrm{IDEOLOGY}_i + \beta_3\,\mathrm{EXPERIENCE}_i + \beta_4\,\mathrm{COMMUNITY}_i + \beta_5\,\mathrm{TRANSFERS}_i$$

$$\mathrm{APPS}_i = \beta_0 + \beta_1\,\mathrm{PRODUCTIVITY}_i + \beta_2\,\mathrm{IDEOLOGY}_i + \beta_3\,\mathrm{EXPERIENCE}_i + \beta_4\,\mathrm{COMMUNITY}_i + \beta_5\,\mathrm{TRANSFERS}_i$$

The total study population consisted of 51 Spanish public universities (see Fig. 4), and the final study sample was composed of the 45 public universities for which annual accounts were available for the full year at the time of the study (2014), together with details of the dependent variables. To obtain these financial statements, we first consulted the university's transparency portal; if there was no such portal, the data were obtained from the university website.

AC	Number of universities	AC	Number of universities
Andalusia	9	Galicia	3
Aragon	1	Balearic Islands	1
Asturias	1	Murcia	2
Cantabria	1	Madrid	6
Castilla and Leon	3	Navarre	1
Castilla la Mancha	1	The Basque Country	1
Canary Islands	2	Rioja	1
Catalonia	7	C. Valenciana	5

Fig. 4 Number of universities analysed, per Autonomous Community (AC). *Source* Derived by the authors

6 Results

6.1 Descriptive Analysis

With respect to debt levels, Fig. 5 shows that on average the Spanish public universities had a debt of €82.14 million, spanning a broad range, from €345.35 million to €5.87 million. The universities of the Basque Country and of the Madrid region were the most indebted, on average.

The public universities of the Madrid Autonomous Community make the greatest contribution to the increased indebtedness of their region. In contrast, the (sole) university of the Navarre Autonomous Community contributes most towards the goal of limiting regional debt to 13% of GDP.

Figure 5, from column 6 on wards, shows the APPS results by region, together with the average values for all Spanish public universities regardless of the region in which they are located. It can be seen that, on average, the universities pay their suppliers after 24.31 days,

		Net Debt (millions €)					Average Period of Payment to suppliers			
	Uni/AC	University				*AC*	University			
	% (1)	*M (2)*	*SD (3)*	*Maximum (4)*	*Minimum (5)*	*APP (6)*	*M (7)*	*SD (8)*	*Maximum (9)*	*Minimum (10)*
Andalusia	0,93%	*38,80 38.806.093*	*18,68*	*75,16*	*12,24*	*45,65*	29,19	16,62	56,67	7,74
Aragon	1,46%	*87,99 87.998.876*	-	-	-	*84,11*	18,33	-	-	-
Balearic Islands	0,45%	*34,64 34.642.201*	-	-	-	*36,46*	21,15	-	-	-
Canary Islands	0,88%	*26,64 26.641.657*	*4,64*	*29,92*	*23,35*	*14,61*	15,23	1,15	16,04	14,42
Cantabria	1,75%	*42,59 42.595.377*	-	-	-	*25,31*	8,09	-	-	-
Castilla la Mancha	0,44%	*56,97 56.977.278*	-	-	-	*36,04*	13,50	-	-	-
Castilla and Leon	1,17%	*36,41 36.414.201*	*23,44*	*62,58*	*17,3*	*44,33*	11,00	4,28	15,83	7,70
Catalonia	1,25%	*115,00 115.008.165*	*96,47*	*297,099*	*16,31*	*38,79*	44,87	64,68	190,14	6,56
C. Valenciana	1,63%	*121,96 121.966.852*	*60,88*	*212,56*	*65,33*	*82,29*	17,16	5,78	24,28	8,15
Galicia	1,04%	*34,69 34.696.972*	*42,30*	*83,27*	*5,87*	*21,17*	20,28	7,96	27,51	11,75
Rioja	1,33%	*17,27 17.271.551*	-	-	-	*26,34*	11,06			
Madrid	4,22%	*173,17 173.177.102*	*130,58*	*345,35*	*41,92*	*58,95*	29,13	22,84	75,31	14,82
Murcia	1,15%	*39,22 39.223.401*	*25,84*	*57,499*	*20,94*	*57,94*	5,74	2,16	7,27	4,21
Navarre	0,21%	*6,712 6.712.944*	-	-	-	*-9,95*	12,40	-	-	-
The Basque Country	1,95%	*174,14 174.147.000*	-	-	-	*-4,99*	11,28	-	-	-
Asturias	1,18%	*41,13 41.134.528*	-	-	-	*14,13*	25,14	-	-	-
Average		***82,14***	**82,97**	**345,35**	**5,87**		**24,31**	**28,65**	**190,14**	**4,21**

Fig. 5 Debt and APPS of the Spanish universities by Spanish autonomous community. *Source* Derived by the authors

although the values are widely dispersed, with some paying in 4.21 days (from the 30 days after administrative receipt) while others do so after 190.14 days. However, only six universities exceed the legal limit of 30 days for payment, with the region of Andalusia containing most universities that fail to meet the deadline.

By regions, in Catalonia the APPS appears to be higher than the value obtained after consolidation. Although the universities in the regions of Asturias, Navarre and the Basque Country present payment periods that are greater than those for the region as a whole, they remain within the legal limits. The negative values for Navarre and the Basque Country reflect the fact that the Spanish legislation for APPS allows 30 days for document processing and another 30 days for payment to be paid; therefore, in these Autonomous Communities, the payment was made during the first 30 days allowed for document processing.

6.2 Explanatory Analysis

Our explanatory analysis began by considering the relation between the determinant factors of the APPS and the debt levels in question. To this end, Fig. 6 shows the Pearson correlation matrix obtained, which contains three mid-level correlations between the productivity variables—experience, community and current transfers—as well as some low-grade correlations of little importance. The values of these correlations between independent variables are less than 0.8 in every case, and so there is no problem of multicollinearity that might affect the proposed model (Neter et al. 1996).

The multiple linear regression results shown in Fig. 7 reveal the explanatory power of the models obtained, measured by the adjusted R-squared values (79.15% for Model 1 and 26.75% for Model 2). The linearity of the regression was corroborated by Fisher's F-test (26.61*** for Model 1 and 4.21*** for Model 2). These results confirm the significance of the models and the suitability of the regression analysis for dependent variables of this type (Fig. 7).

With respect to the significance of the explanatory variables, all five were found to be significant in at least one of the two models. In the case of Model 1, measured by reference to net debt, the five variables were all significant. However, in Model 2, referring to the APPS, only two of the five (PRODUCTIVITY-IDEOLOGY) variables were significant. Therefore, and in line with Gallego-Álvarez et al. (2011), these results indicate that there is a relation between the determinant factors analysed and the financial sustainability of Spanish universities.

	ND	APP	PRODUCTIVY	IDEOLOGY	EXPERIENCE	COMMUNITY	TRANSFERS
ND	1.0000						
APP	0.3680**	1.0000					
PRODUCTIVY	0.8137***	0.4687***	1.0000				
IDEOLOGY	0.1418	-0.2844**	0.0645	1.0000			
EXPERIENCE	0.2031	0.3519**	0.4961***	0.1324	1.0000		
COMMUNITY	0.47***	0.2607*	0.6485***	0.1011	0.2840*	1.0000	
TRANSFERS	0.4021***	0.3278**	0.6902***	0.0472	0.4236	0.2806*	1.0000

*Correlation is significant at the 0.10 level. **Correlation is significant at the 0.05 level. ***Correlation is significant at the 0.01 level.

Fig. 6 Pearson correlation matrix. *Source* Derived by the authors

	Model 1 (ND)		Model 2 (APPS)	
F (5, 39)	29.61***		4.21***	
Adj R-squared	0.7915		0.2675	
	Coef.	t	Coef.	t
PRODUCTIVY	0.1382418	9.47***	0.43583	1.79*
IDEOLOGY	0.12983	1.75*	- 0.3343094	-2.56**
EXPERIENCE	-0.2581676	-3.02***	0.204605	1.36
COMMUNITY	-0.2220995	-2.20**	-0.0367581	-0.21
TRANSFERS	-0.3361471	-3.15***	-0.0336567	-0.18
*. Significant at the 0.10 level. **. Significant at the 0.05 level. ***. Significant at the 0.01 level.				

Fig. 7 Results of the regression analysis. *Source* Derived by the authors

A positive relation was obtained for the PRODUCTIVITY variable, but our results conflict with those of Gallego-Álvarez et al. (2011), especially as regards the view that greater research intensity is associated with an enhanced financial condition. The results for this variable suggest, on the one hand, that the productivity of the university does affect its financial sustainability and, on the other, that the universities with the highest levels of debt and the highest APPS present the highest rates of productivity.

The IDEOLOGY variable was found to be a determinant factor in the financial sustainability of the universities. However, taking into account that a score of zero was assigned to the regions governed by parties with a progressive ideology, the significance of these findings varies according to the model considered. In this respect, when we measure the financial sustainability by reference to net debt (Model 1), our results are in line with those of Seitz (2000), León-Ledesma (2010) and García-Sánchez et al. (2011), for whom the universities located in Autonomous Communities governed by progressive parties tend to favour increased government spending, and therefore incur higher levels of debt. However, this is not the case with respect to APPS (Model 2),

whereby the regions governed by conservative parties take longer time to pay their suppliers.

There was observed to be a relation between the variable EXPERIENCE and the financial sustainability of universities. However, this relation only had a significant impact on debt, and not on APPS. Therefore, we find that universities of more recent creation tend to have higher levels of debt than older ones, and conclude that the length of management experience can be of decisive importance regarding universities' financial sustainability.

An inverse relation was obtained for the variable COMMUNITY. On the one hand, the results obtained suggest that the size of the university community affects financial sustainability. But on the other, it appears that universities which incur higher levels of debt have smaller numbers of students, faculty and administrative and services staff. These results are contrary to those of Gallego-Álvarez et al. (2011), especially as regards the inverse association between the volume of undergraduate students and service staff and the universities' financial condition. However, our results are in line with Bourn (1993), who reported that certain items, such as central and administrative services, represent proportionally lower costs for large universities than for small ones.

Finally, we obtained a negative relation for the variable TRANSFERS. Thus, on the one hand, the volume of current transfers received by the universities is a determinant factor in their financial sustainability, while on the other, universities that incur higher levels of debt in turn receive less funding from the Autonomous Communities.

7 Conclusions

A country's national development depends largely on its education system. Universities play a crucial role in the construction of advanced societies, in terms of wealth and prosperity. Hence the importance of ensuring the long-term existence and efficacy of the university system, an outcome to which the presence of financial sustainability can make a major contribution.

Although the LOEPSF does not explicitly include public universities, the principles introduced by this legislation are applicable to them, as entities constituted under public law, and their financial results must be consolidated with those of the corresponding Autonomous Communities, according to EU rules. Thus, the Spanish public universities must meet specific requirements with respect to two variables: the level of debt and the average period of payment to suppliers. The quantification of these variables is an important issue for university managers because, in addition to reflecting compliance or otherwise with the LOEPSF, this information is of great use in the decision-making process regarding the management and reinforcement of the financial sustainability of the institution.

In this context, as well as measuring the financial sustainability of the university, it would be helpful to provide university managers with additional information, such as knowledge of the factors that might significantly influence this variable. Thus, if there were any positive or negative deviations, either from regulatory requirements or from internal goals, the university would be able to identify the areas in which action should be taken to correct the discrepancy.

That said, and in view of the scant research conducted regarding this area of the public sector, this chapter presents evidence on the financial sustainability of Spanish public universities. A sample of 45 universities was examined to determine the APPS and the net debt, in each case, for the year 2014, on the basis of which the determinants of their financial sustainability were identified.

The results obtained show that Spanish public universities have an average net debt of €82.14 million. The University of Navarre makes the largest contribution to its Autonomous Community, meeting the regulatory deficit target, while the debt of the Madrid universities is proportionally the largest, making it more difficult for this region to remain within the legally established debt limit. The overall APPS is 24.31 days, and so the legal deadline of 30 days is complied with, in general. Given the absence of information in the annual accounts about the financial budget, universities that exceed the 30-day limit should be reminded that when their financial budget is revised they should state the resources that will be dedicated to making payments to suppliers,

and the measures with which the necessary liquidity will be generated, thus reducing the APPS to comply with the legal limit.

Regarding the factors that may affect the financial sustainability of universities, our results indicate that the university's productivity, the ideology of the party governing the Autonomous Community, the experience of the university, the size of its community and the volume of current transfers are all determinant factors of financial sustainability. With respect to debt, all of these factors are significant, but in the case of APPS, only productivity and political ideology are significant.

Analysis of our results shows that universities with high productivity, considerable management experience, a large university community and ample funding from their Autonomous Community via current transfers are the most sustainable from a financial standpoint. As regards political ideology, the significance of this factor differs according to whether the focus is on debt or on APPS; universities that are in a region governed by a progressive party will experience a higher level of debt, but those in regions governed by a conservative party will have a higher APPS.

The relation observed between productivity and debt is explained by the fact that many universities, in the recent crisis during which less funding was received from public institutions, resorted to borrowing in order to maintain their productivity indicators. In addition, in order to carry out the necessary investments in high-level European research-related infrastructure, the universities obtained loans from the European Investment Bank, thus increasing their level of indebtedness.

The experience acquired by a university contributes to its financial sustainability, since older institutions tend to have a lower level of debt. This relation would be explained by the fact that universities with a long history have greater experience in the management of the resources available to them, and thus are in a better position to maintain their financial sustainability.

On the other hand, a university with a smaller community tends to have more debt, since fixed structural costs must be met with respect to a smaller student population. Moreover, limitations on current transfers have sometimes forced universities to resort to external financing in order to meet funding shortfalls.

The results presented in this chapter make several contributions to our knowledge of the field, at both academic and practical levels. In the first case, these findings enhance our understanding of financial sustainability and its determinants in the public sector, specifically in the context of Spanish universities. And in the second, from a practical standpoint, this study highlights to universities the importance of compliance with the LOEPSF and reveals the extent to which each one is complying with its obligations of financial sustainability. Although the Autonomous Communities should supervise and ensure the application of the LOEPSF to the public universities in their respective region, this is not actually taking place.

To improve the financial sustainability of these institutions, from the internal standpoint, universities should implement policies to attract alternative sources of funding, such as encouraging sponsorship and patronage, and strengthening relations with private enterprise. In addition, universities should assume greater control of their spending, by preparing a programme budget in line with their objectives, in order to monitor and evaluate spending effectiveness and efficiency.

From the external standpoint, supervisory bodies should take preventive and/or corrective and, if necessary, coercive action to ensure that universities comply with the LOEPSF stipulations. In this regard, various measures are currently being taken to improve the financial sustainability of universities; the question of APPS has been addressed in Andalusia (Regional Government Decree 75/2016); universities' liquidity has been increased, with the effective provision of legally recognised regional funding, through initiatives such as the regional liquidity fund (Resolution of 10 June 2015, by the Treasury and Financial Policy General Secretariat); and the funding model for public universities by the Autonomous Communities has been improved, with an increased percentage of GDP being devoted to higher education.

Our review of the literature in this area shows that relatively little research has been undertaken regarding financial sustainability in universities. Therefore, it would be useful to extend the present study to consider a broader time horizon and a larger number of determinant factors. It would also be advisable to analyse the effect of financial sustainability on universities' efficiency. Finally, studies should be conducted to

examine the question of financial sustainability not only in Spanish universities, but also in other European countries, in view of the importance granted by the EU and by international organisations to the application of sustainability-based policies in order to control the public deficit.

References

Ashworth, John, Benny Geys, and Bruno Heyndels. 2005. Government Weakness and Local Public Debt Development in Flemish Municipalities. *International Tax and Public Finance* 12 (4): 395–422.

Balaguer, Maria Teresa. 2002. Análisis de la situación financiera y la eficiencia en las administraciones locales. Premio José María Fernández Pirla (X Edición—2001). Madrid: Instituto de Contabilidad y Auditoría de Cuentas (Ministry of Economy and Finance).

Ballabriga, Fernando. C., and Carlos Martinez-Mongay. 2005. Sustainability of EU Public Finances. (Economic Papers, No. 225). Brussels: European Commission.

Bordons, María, Rosa Sancho, Fernanda Morillo, and Isabel Gómez. 2010. Perfil de actividad científica de las universidades españolas en cuatro áreas temáticas: un enfoque multifactorial. *Revista Española de Documentación Científica* 33 (1): 9–33.

Bourn, Michael. 1993. Economies of Scale and the Locus of Expansion in Universities in the UK. *Public Money & Management* 13 (2): 39–48.

Brusca, María I., and Margarira Labrador. 1998. Análisis del endeudamiento en las Corporaciones Locales. *Revista de Hacienda Local* 28 (84): 581–597.

Burritt, Roger L., and Stefan Schaltegger. 2010. Sustainability Accounting and Reporting: Fad or Trend? *Accounting, Auditing & Accountability Journal* 23 (7): 829–846.

Cabaleiro, Roberto, Enrique Buch, and Antonio Vaamonde. 2013. Developing a Method to Assessing the Municipal Financial Health. *The American Review of Public Administration* 43 (6): 729–751.

Chávez, Diana, and Karla Vargas. 2014. Determinantes del nivel de endeudamiento de las empresas peruanas listadas: evidencia empírica para el período 2001–2007. *Apuntes: Revista de Ciencias Sociales* 64: 105–127.

CICA (Canadian Institute of Chartered Accountants). 2009. Public Sector Statements of Recommended Practice. Indicators of Financial Condition. Toronto: CICA.

Consejo de rectores de la universidad española (CRUE). La financiación del sistema universitario público español. https://www.ucm.es/. Accessed 12 Aug 2016.

Denneen, Jeff, and Tom Dretler. 2012. *The Financially Sustainable University*. Boston: Bain & Company, July 6.

Dollery, Brian and Blight Grant. 2011. Financial Sustainability and Financial Viability in Australian Local Government. *Public Finance and Management* 11 (1): 28–47.

Dollinger, Marc J. 1995. *Entrepreneurship: Strategies and Resources*. New York: Irwin.

EC (European Commission). 2011. *Stability and Growth Pact*. Strasbourg: EU.

Escardíbul, J. Oriol, and Carmen Perez. 2013. La financiación de las universidades públicas españolas. Estado actual y propuestas de mejora. *Revista de educación y derecho* 8: 1–17.

EU (European Union). 2012. Fiscal Sustainability Report. Brussel: EU. http://ec.europa.eu/. Accessed 15 Mar 2016.

EUA (European University Association). 2008. Financially sustainable universities towards full costing in European universities. Brussels: EUA. http://www.eua.be/. Accessed 15 Mar 2016.

EUA (European University Association). 2011. Financially sustainable universities II: European universities diversifying income streams. Brussels: EUA. http://www.eua.be/. Accessed 15 Mar 2016.

Falcone, Santa. 2001. Universities and R&D Funding Programs: Is Good Science Enough? *International Journal of Public Administration* 24 (6): 549–563.

FASB (Financial Accounting Standards Board). 2012. Conceptual Framework. Joint Project of the IASB and FASB. Norwalk: FASB. http://www.fasb.org/project/conceptual_framework.shtml. Accessed 15 Mar 2016.

Frank, Murray Z., and Vidhan K. Goyal. 2009. Capital Structure Decisions: Which Factors are Reliably Important? *Financial Management* 38 (1): 1–37.

Gallego-Álvarez, Isabel, Isabel M. Garcia-Sanchez, and Luis Rodríguez-Domínguez. 2011. Factores determinantes de la condición financiera en las universidades españolas. Paper presented at XVI Congreso AECA *Nuevo modelo económico: Empresa, Mercados y Culturas*. Granada, Spain, September 21–23. http://www.aeca1.org/. Accessed 15 Mar 2016.

García Berumen-González, José, Pablo García-Soto, and Rogerio Domenge-Muñoz. 2012. Determinantes de la estructura de capital en la pequeña y mediana empresa familiar en México. *Contaduría y Administración* 57 (3): 67–96.

Garcia-Sánchez, Isabel M., Jose M. Prado-Lorenzo, and Beatriz Cuadrado-Ballesteros. 2011. Do Progressive Governments Undertake Different Debt

Burdens? Partisan vs. Electoral Cycles. *Revista de Contabilidad* 14 (1): 29–57.

GASB. 1990. Concepts Statement No. 11: Measurement Focus and Basis of Accounting. Government Fund Operating Statements. Norwalk: GASB.

GASB (Government Accounting Standard Board). 1987. Concepts Statement No 1. Objectives of Financial Reporting Model. Norwalk: GASB.

IFAC. 2011. *Sustainability Framework 2.0. Professional Accountants as Integrators*. New York: IFAC.

IFAC (International Federation of Accountants). 2012. Sustainability Framework 2.0. Professional Accountants as Integrators. New York: IFAC.

IFAC. 2013. *Reporting on the Long-Term Sustainability of an Entity's Finances*. New York: IFAC.

Inman, Robert P., and Fitts, Michael A. 1990. Political Institutions and Fiscal Policy: Evidence from the US Historical Record. *Journal of Law, Economics, & Organization* 6: 79–132.

Khola, Philip, Carol S. Weissert, and Robert Kleine. 2005. *Someone to Watch Over Me: State Monitoring of Local Fiscal Conditions. The American Review of Public Administration* 35 (3): 236–255.

Kiewiet, Roderick, and Kristin Szakaly. 1996. Constitutional Limitations on Borrowing. An Analysis of State Bonded Indebtedness. *Journal of Law Economics and Organization* 12 (1): 62–97.

Larch, Martin. 2009. *Achieving and Safeguarding Sound Fiscal Position* (Economic Papers No. 377). Brussels: European Commission, Directorate General for Economic and Financial Affairs.

León-Ledesma, Javier, Jose A. Dorta-Velázquez, and Jorge V. Pérez-Rodríguez. 2010. Contraste de los modelos de asignación presupuestaria en el presupuesto social municipal. *Gestión y política pública* 19 (2): 351–394.

Ley Orgánica 2/2012, de 27 de abril, de Estabilidad Presupuestaria y Sostenibilidad Financiera. Boletín Oficial del Estado [Official State Gazette] No. 103 of 30 April 2012.

Mac an Bhaird, Ciarán, and Brian Lucey. 2010. Determinants of Capital Structure in Irish SMEs. *Small Business Economics* 35 (3): 357–375.

Malles, Eduardo, and Unai del Burgo. 2010. Los sistemas de información contable en la gestión universitaria. *Revista de Dirección y Administración de Empresas* 17: 119–140.

Moscoso, Salvador C., José A. Pérez-Gil, and Francisco P. Holgado. 2001. Evaluación de la calidad universitaria: validez de contenido. *Psicothema* 13 (2): 294–301.

Neter, J., M.H. Kutner, C.J. Nachtsheim, and W. Wasserman. 1996. *Applied Linear Regression Models*, 3rd ed. Chicago: McGraw-Hill Irwin Companies.

Osuna Carrillo de Albornoz, Eduardo. 2009. Calidad y financiación de la universidad. *Revista de Investigación en Educación* 6: 133–141.

Otero-González, Luis A., Sara Fernández-López, and Milagros Búa-Vivel. 2007. La estructura de capital de la PYME: un análisis empírico. *Conocimiento, innovación y emprendedores: camino al futuro*. Universidad de La Rioja.

Parellada, Martí. (Coordinador). 2015. *Informe CYD 2014. La contribución de las universidades españolas al desarrollo*. Barcelona: Fundación Conocimiento y Desarrollo. http://www.fundacioncyd.org/informe-cyd/informe-cyd-2011. Accessed 8 Mar 2016.

Perez, Carmen. 2014. La financiación universitaria: más dinero público y privado. *Nueva revista de cultura, política y arte* 151: 225–337.

Pérez, Francisco and Joaquin Aldás. (Dir). 2016. Rankings ISSUE 2016. *Indicadores sintéticos de las universidades españolas*. Madrid: Fundación BBVA e Ivie; 2016. http://www.u-ranking.es/analisis.php. Accessed 20 Jan 2016.

Pérez, Gemma, Ana M. Plata, Jose L. Zafra, and Antonio M. López. 2013. Deuda viva municipal en un contexto de crisis económica: Análisis de los factores determinantes y de las formas de gestión. *Revista de Contabilidad* 16 (2): 83–93.

Pérez-Esparrells, Carmen, and Eva M. Torre. 2012. The Challenge of Fundraising in Universities in Europe. *International Journal of Higher Education* 1 (2): 55–66.

Perotti, Roberto, R. Strauch, and Juergen von Hagen. 1998. *Sustainability of Public Finances*. London: Center for Economic Policy Research.

Petersen, Mitchell A., and Raghuram G. Rajan. 1994. The Benefits of Lending Relationships: Evidence from Small Business Data. *The Journal of Finance* 49 (1): 3–37.

Pettersson-Lidbom, Per. 2001. An Empirical Investigation of the Strategic Use of Debt. *Journal of Political Economy* 109 (3): 570–583.

Pezzey, John C.V., and Michael A. Toman. 2002. Progress and Problems in the Economics of Sustainability. In *International Yearbook of Environmental and Resource Economics 2002/3*, ed. T. Tietenberg and H. Folmer, 265–232. Cheltenham: Edward Elgar.

Pirtea, Marilen, Ana C. Nicolescu, and Paulo R. Mota. 2013. An Empirical Study on Public Debt's Determinants: Evidence from Romania. *Transylvanian Review of Administrative Sciences* 38 (E): 144–157.

Pogue, Thomas F. 1970. The Effect of Debt Limits: Some New Evidence. *National Tax Journal* 23 (1): 36–49.

Rodríguez, Manuel P., Andres Navarro, and Laura Alcaide. 2014. New Development: The Role of Accounting in Assessing Local Government Sustainability. *Public Money and Management* 34 (3): 233–236.

Rodríguez, Manuel P., Andres Navarro, Laura Alcaide, and María D. López. 2015. Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study. *Local Government Studies* 42 (1): 29–51.

Schipper, Katherine. 1977. Financial Distress in Private Colleges. *Journal of Accounting Research* 15 (Supplement): 1–40.

Seitz, Helmut. 2000. Fiscal Policy, Deficits and Politics of Subnational Governments: The Case of the German Laender. *Public Choice* 102 (3–4): 183–218.

Slembeck, Tilman, Armin Jans, and Thomas Leu. 2014. A Politico-Economic Perspective on Financial Sustainability. *Journal of Public Budgeting, Accounting & Financial Management* 26 (1): 140.

Tellier, Geneviève. 2006. Public Expenditures in Canadian Provinces: An Empirical Study of Politico-Economic Interactions. *Public Choice* 126 (3–4): 367–385.

Vaquero García, Alberto, and Carmen Pérez Esparrells. 2011. Hacia un nuevo modelo de financiación universitaria en Europa. *Lecturas sobre Economía de la Educación*, 33–59.

Wällstedt, Niklas, Giuseppe Grossi, and Roland Almqvist. 2014. Organizational Solutions for Financial Sustainability: A Comparative Case Study from the Swedish Municipalities. *Journal of Public Budgeting, Accounting & Financial Management* 26 (1):181–218.

WCED (World Commission on Environmental and Development). 1987. *Our Common Future*. London: Oxford University Press.

Zafra, Jose L., Antonio M. López-Hernández, and Agustin Hernández-Bastida. 2009. Evaluating Financial Performance in Local Government: Maximizing the Benchmarking Value. *International Review of Administrative Sciences* 75 (1): 151–167.