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Editorial introduction

The coronavirus pandemic has blatantly reminded us that fluctuations are the unavoidable element of economic processes. This calls for even more intensified research into their nature and countermeasures. At the same time a critical reflection on economics' theoretical foundations is much needed. The current issue of *Economics and Business Review* addresses these demands by presenting the results of studies conducted by eight scholars from five countries: Hungary, India, Japan, Poland and Turkey. The authors harnessed both theoretical and empirical approaches to explore their areas of interest. It is hoped that the contributions will assist and inspire scholars for further research as well as provide policymakers with useful guidance.

The opening article **Economic fluctuations in a model with an overlapping structure of employment** by Toyoki Matsue employs a dynamic general equilibrium model to analyse the impact of a positive productivity shock on a labour market. The critical and original assumption is that based on an explicit employment period. In such circumstances it is found that a positive productivity shock induces not only positive but also negative changes in new hiring and employment. These oscillations stem from an overlapping structure of employment. The author investigates further the sensitivity of labour market fluctuations to the period of employment.

The next paper prompts a critical reflection on the current stance of an economic paradigm and its likely future changes. Jan Polowczyk in his paper **A synthesis of evolutionary and behavioural economics** endorses a view that these two economic concepts will merge over time in line with the mechanism of evolutionary cooperation processes. He argues that this synthesis has its roots in the works of the founder of economic science—Adam Smith. Furthermore the author stresses that the incorporation of the achievements of other sciences (especially psychology and neuroscience) may enrich our understanding of economic processes and serve as a nexus between evolutionary and behavioural economics.

Financial sustainability is gaining more and more attention due to the increasing complexity of financial systems. Shivam Kakati and Arup Roy in their paper entitled **Financial sustainability: An annotated bibliography** aim to fill the research gap by preparing a broad overview of this emerging strand of literature. The study depicts the sectorial, methodological and geographical dimensions of the existing literature. The key prerequisites of financial sustainability are also identified.

The following article by Peter Galbács **What did it take for Lucas to set up 'useful' analogue systems in monetary business cycle theory?** enriches the literature on the history of modern economic thought by systematizing one of Lucas's key concepts. The author identifies and discusses assumptions which must be met so that an analogue system can be considered as 'useful' in Lucas's view. This concept is presented in opposition to Keynesian macroeconometric models. The considerations are backed by some excerpts from unpublished works which may be also useful for scholars exploring the intellectual heritage of Robert Lucas.

In the paper entitled **Distortionary effects of economic crises on policy coordination in Turkey: Threshold GMM approach** Metin Tetik and Mustafa Ozan Yıldırım offer an empirical contribution to the literature on the interdependencies between fiscal and monetary policies. Special emphasis is placed on the policy mix in crises times. The empirical analysis differentiates from previous studies by estimating a non-linear Taylor rule with the use of Threshold Generalized Method of Moments (Threshold GMM) methodology. There are two main lessons for policymakers that can be drawn from the case study of Turkey. First, the contractionary fiscal policy supported the effectiveness of monetary policy with respect to inflation control. Second, in the country under analysis policy coordination failed during crisis periods.

The last paper in this issue, **Analysis of the relationship between countercyclical capital buffer and performance and risk indicators of the banking sector**, by Furkan Yıldırım provides new empirical evidence to the debate about the regulatory framework of banking activities. The article focuses on the countercyclical capital buffer (CCyB) introduced in the Basel III Accord in order to reduce the fluctuations in credit flow to the economy during the business cycle. The analysis employing the ARDL model and the Toda Yamamoto (T-Y) causality test for the Turkish banking sector suggests that, in general, the countercyclical capital buffer (CCyB) served its purpose. It proved to be an effective tool to manage macroeconomic and systemic risks. The results of the study may be of interest to policymakers responsible for macroprudential policies.

Monika Banaszewska

Lead Editor

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Financial sustainability: An annotated bibliography[1]

***Shivam Kakati*[2], *Arup Roy*[3]**

Abstract: The literature on financial sustainability is scattered in such a way that a synthesis is indispensable. The present study on an annotated bibliography of financial sustainability seeks to fill this particular gap by presenting a collation of published literature in the sphere. The sectorial analysis depicted that ability to cover the costs from its own resources and ability to pay debt were the key dimensions to measure financial sustainability. The majority of the studies were found in the public sector covering local governments and central governments particularly in such European countries as Spain, Italy and England. Earning enough resources, asset sustainability and the ability to repay obligations are the three dimensions to assess financial sustainability. The study also pointed out the key research areas, variables and analytical tools among other trends in the literature. The present study assists the future researchers in reviewing the literature on financial sustainability and developing research methodology.

Keywords: financial sustainability, annotated bibliography, public sector, microfinance sector, educational sector, social sector, corporate sector.

JEL codes: P34, P43, P48, R51, P27.

Introduction

Sustainability has been the buzzword around the world in recent times yet it has no well-defined definition. Generally sustainability is defined as the ability to meet the present needs without compromising with the needs of future generations (Brundtland, 1987). Sustainability is essential and yet controversial and complex as its significance varies among various stakeholders (Aras & Crowther, 2009; Stanek-Kowalczyk, 2021). According to Global Reporting Initiative (GRI), the three major aspects could determine the sustainability of an enterprise—economic, social and environmental (Mutalimov, Kovaleva,

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Mikhaylov, & Stepanova, 2021; Nasser, 2021). However these aspects of sustainability have been adequately well documented at the theoretical, axiological, methodological and empirical levels, but the financial sustainability aspect is yet to be explored (Soliwoda, 2015). It was also observed that financial sustainability is either merged with economic sustainability or with financial distress (Maciejewski & Głodowska, 2020). On the contrary these terms do not define the term financial sustainability (Gerasimova & Redin, 2015; Bolívar, 2017; Bisogno, Cuadrado-Ballesteros, & García-Sánchez, 2017). Therefore an attempt has been made to observe the trends in the literature of financial sustainability to identify the suggested definitions, its usage in various sectors, key dimensions, variables and so on.

According to Havers (1996), an organization could achieve financial sustainability if revenues are good enough to cover the cost of funds, operating costs or losses and inflation (Mia, Nasrin, & Cheng, 2016). Ayayi & Sene (2010) added that an organization should not only cover its cost but also cover for financial growth. Silva, Calado and Teresa (2004) considered operating without any external support as financial sustainability. According to Amani and Fadlalla (2015), future earnings and sales growth is financial sustainability. An organization would be considered financially sustainable when it makes sufficient and appropriate growth in its revenue besides earnings over a period of time. Further they also suggested using return on assets as the measure for earnings growth. Marwa and Aziakpono (2015) added that not only an organization must thrive for profitability and growth but it must also look for uninterrupted operations and liquidity to tackle bankruptcy. Said, Annuar and Hamdan (2019) defined financial sustainability using thematic study in three segments, first, the ability to survive on its cash flow, second, capital growth of both organization and members and lastly, uninterrupted provision of services of its customers. Bolívar (2017) found that terms such as financial distress, financial condition, financial health have been used interchangeably for financial sustainability but these terms alone cannot define the concept of financial sustainability (Bisogno et al., 2017). Thus from the above definitions it could be deduced that financial sustainability is the ability of a business to earn profit and grow without external support, earn enough cash and liquidity for uninterrupted business operations and should have the ability to repay its present and future obligations.

The study is organized in the following sections. The first section of the study discusses the research methodology adopted by the study followed by the literature review in the second section. In the third section the trends in the financial sustainability literature is reported. The major findings are shown in the fourth section followed by the conclusions.

1. Research methodology

The prime objective of this paper is to present a synthesis of the literature on the term "financial sustainability". The present study reviewed the research articles on financial sustainability and descriptively analysed the articles and identified key research areas, variables and analytical tools among other trends. The articles were amassed from the websites of popular publishing houses, Emerald, Taylor & Francis, Sage, Wiley, Springer, Jstor. Among the articles only those articles were selected that had the term "financial sustainability" in their title. 93 such articles were found from 1996 to 2020. The articles were collected till 12th February 2020. There were 39 articles from the website of Springer, 21 articles from Taylor and Francis, 9 articles each from Wiley and Emerald, 8 articles from Sage and 7 articles from Jstor. The study found 66 journal articles, 23 book chapters, one study each in the form of a report, essay, conference proceeding and case study. The study adopted the following three steps to collect and analyse the data as shown in Figure 1.

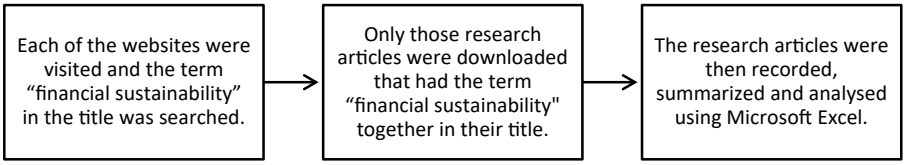

Figure 1. Steps of data collection and analysis
Source: Own work.

2. Literature review

Since financial sustainability has been perceived differently in different sectors an attempt has been made to understand it from the viewpoint of different sectors.

2.1. Financial sustainability and corporate sector

In the corporate sector six empirical studies were published between 2015 and 2020. These studies were found on Taylor and Francis, Springer, and Emerald websites. Amani and Fadlalla (2015) studied 98 companies from the Qatar Exchange using neural networking to compare the accounting and market-based measures to forecast the firm's future earnings and revenue. The study found that accounting-based measures were better measures to forecast future earnings as compared to market-based measures. On the other hand market-based measures were superior measures for forecasting future sales growth rates. Jordão and Almeida (2017) found that there were no clear sets of indica-

tors to measure financial sustainability. The study used financial performance as a proxy for financial sustainability. The study compared 393 Brazilian companies listed on BM&FBovespa (now called the B3 stock exchange) from 2005 to 2014 to find the relationship between intellectual capital and financial sustainability. Measures such as 'earnings before interest, tax, depreciation and amortization' (EBITDA), net profit ratio, gross margin and return ratios were used to measure profitability. The study found a positive relationship between intellectual capital and financial sustainability using a triangulated method (Correlation, Mann-Whitney U Test, and Kruskal-Wallis Test). Witek-Crabb (2018) studied the implementation impact of corporate social responsibility (CSR) on the financial well-being and the financial sustainability of Polish listed companies. The study was conducted with ten years of data of 93 companies as the samples and used the correlation method. The study found that CSR maturity and financial sustainability had no association, rather CSR maturity depends on the size and the type of industry. Borin, Donato and Sinapi (2018) conducted a study on small and medium-size entrepreneurs of France. The study interviewed both bank personnel and entrepreneurs to identify various problems and weaknesses of financing. Imhanzenobe (2020) studied the financial practices of managers of manufacturing sectors from 2008 to 2016 to achieve financial sustainability. The study found that short-term profitability ratios and efficiency ratios in particular, were superior measures when measuring financial sustainability. Pandyaswargo and Premakumara (2014) analysed the factors influencing the economic feasibility of municipal composting plant and identify the scale of economies that had higher financial sustainability. The study selected five organizations from Sri Lanka, China, and Indonesia. The study found that medium-scale and lower large scale organizations were more financially sustainable.

2.2. Financial sustainability and education sector

In the education sector nine studies were published between 2005 and 2019. Five of them were empirical research while four were conceptual and theoretical research. These studies were conducted in Europe and North America. Authors such as Wurzburg (2005), Lucianelli and Citro (2017), Hira (2016), and Modugno and Di Carlo (2019) conducted conceptual research on topics such as higher education, personal finance education and lifelong learning along with financial sustainability. Johnson and Fosci (2015) and Harlow (2018) conducted empirical studies on learned societies. They studied what online newsreaders value the most and what are they willing to pay and to what extent the publishing houses rely on their revenues. Alonso-Cañadas, Sáez-Martín, Saraite and Caba-Pérez (2017) studied 45 Spanish universities in the year 2014 to find the measures and determinants of financial sustainability using multiple linear regression. The study perceived that to achieve financial sustainability the

universities must focus on multiple alternative sources of income rather than just rely on one. Similarly Ahmad, Ismail and Alawi (2019) studied the perception of twenty officers of the universities in Malaysia in 2013 on financial sustainability, revenue diversification and cost management practices. The study found that financial sustainability could be achieved by the full utilization of available resources rather than merely increasing tuition fees. Greenberg and others (2015) tried to identify the factors that predict the financial sustainability of community coalitions and found that all fourteen community teams were found financially sustainable. Supplee (2014) studied 32 educational institutions with four years dataset to find out whether enrolment focused institutions had improved financial sustainability or not. The study used a composite financial score method. The study found no significant correlation but it suggested that to achieve financial sustainability it is necessary to build balanced financial strategies and priority should be given to increase donations.

2.3. Financial sustainability and social sector

In the social sector seven studies were published between 2009 and 2019. Newberry (2016) and Mugisha and Borisova (2010) conducted conceptual and theoretical studies in Australia and Uganda on climate change, social enterprise projects and financial sustainability. Salvado (2011) found that the revenue-structure based model of social entrepreneurship was more financially sustainable as compared to those social enterprises which are dependent on donor grants. Sulaiman and Zakari (2019) studied seven Waqf Institutions of Malaysia for the year 2014 to assess financial sustainability and vulnerabilities. The study used content analysis and ratio analysis and found that only one institution was financially sustainable. Variables such as equity balance, administrative cost, revenue concentration and operating margin were used for the study. Desa and Koch (2015) conducted a case study on Drishtree, a social enterprise in India. The study primarily discussed the evolution of the organization from incorporation to the present. Jelen (2009) identified that in the USA the recent forms of social enterprises had gone beyond their definition through unprecedented levels of social value creation. The study also presents a few theories to capture these new forms of social enterprises. Bingham and Walters (2013) studied the financial sustainability and political change of community sports' trusts in England. The authors considered 74 trusts and clubs as the sample of the study in the year 2018. The study primarily found that these sports trusts need to develop new strategies to draw more commercial sponsorship income.

2.4. Financial sustainability and health sector

In the health sector twelve studies were published between 2007 and 2020. Clemente and others (2018) studied 521 health companies of Brazil using DEA and score ranking (median) method to assess financial sustainability through

a set of management practices followed by them in the year 2013. The study found that most of the companies showed higher performance. The study also found that a highly qualified financial management personnel, good financial policy and a higher level of revenues affect financial sustainability. Return on assets (ROA), expenses, income, customer satisfaction, etc., were used as the variables in the study. McKinnon (2012) observed that the utilization of supply chain and revenue management principles could make the cochlear implant programme viable. The focal objective should be to reduce costs and increase revenue. Augurzky, Engel, Schmidt and Schwierz (2011) conducted an empirical study with 331 samples (hospitals) from 2001 to 2005 in Germany and found that private hospitals had better financial sustainability. The study used the unbalanced panel data analysis method. Ouimet, Fournier, Diop and Haddad (2007) identified the gap between Community-Based Health Insurance subscribers' values and their promoter expectations. The study used factor analysis and found that the promoters generally emphasized financial sustainability while the subscribers were divided on financial sustainability and solidarity. Cafagna, Seghieri, Vainieri and Nuti (2018) studied the impact of improved equity in quality of care on financial sustainability in the year 2014. The study found that by improving the performance of low-socioeconomic status patients healthcare centres could have better financial sustainability. Tordrup, Angelis and Kanavos (2013) studied the preferences of key players in the health sector such as government, academia, operators, etc., on the issues related to healthcare and financial sustainability. The study found that the highest preference was given to policies to modify lifestyle followed by implantation of extensive screening for a higher burden of illness. Fernández, Merino and Muñoz Fernández (2020) prepared a model relating to financial sustainability that could help BioBanks identify areas of improvement and perform functional revisions in the organization. Birch, Murphy, MacKenzie and Cumming (2014), Lu and Cohen (2015), Okungu, Chuma and McIntyre (2017), Mathonnat, Audibert and Belem (2019) and Reddy, Mazhar and Lencucha (2018) conducted various conceptual studies on different aspects of the health sector and financial sustainability. The research areas varied from genomic medicine, to world health organizations, to health care planning. In these studies they merely described the present scenarios in these areas.

2.5. Financial sustainability and microfinance sector

In the microfinance sector thirteen studies were published between 1996 and 2019. Conradie (1999) discussed the role of the management of microfinance institutions (MFIs) that lead to financial sustainability and its other important aspects in a conceptual article. Said and others (2019) studied the financial sustainability of four Islamic Saving Credit Corporative Societies (SACCOS) of Tanzania using ROA. Using trend analysis the study found that none of the se-

lected cooperative societies was financially sustainable. Marwa and Aziakpono (2015) studied 103 MFIs of Tanzania in 2011 using operational self-sufficiency (OSS) and financial self-sufficiency (FSS) ratios as variables and regression and T-test as statistical tools. The study found that 51% of the samples were financially as well as operationally sustainable. Rai, Kanwal and Sharma (2010) developed a financial sustainability model to assess microfinance institutions. The study used a weighted mean score method on two samples from 2005 to 2008 and found only one of them to be financially sustainable. Variables such as portfolio at risk, write off ratio, operating cost ratio, etc., were used. Bayai and Ikhide (2018) studied 60 MFIs from 1997 to 2013 and found that an increase in donations received does not degrade the financial sustainability of the intuitions rather it positively affects the financial sustainability. The variables used in the study were debt, equity, donation, age, etc. A study by Havers (1996) attempted to define the term financial sustainability and identify determinants to measure it. The study defined financial sustainability as the ability to cover the cost of funds, operating cost, loan write-offs and inflation. The study used the percentage of total cost covered by income to measure financial sustainability. Ayayi and Sene (2010) identified that the quality of a credit portfolio arising from good credit risk management was the prime factor that derived the MFI's financial sustainability. Quayes (2012) also studied the relationship between financial sustainability and depth of outreach and found that financial sustainability had no impact on the depth of outreach. The study later found that there was a trade-off between low-disclosure MFIs and financial sustainability. Nurmakhanova, Kretzschmar and Fedhila (2015) also studied the trade-off of financial sustainability and outreach. The study found that financial sustainability did not affect depth and breadth negatively. The study used regression on 450 samples from 71 countries all over the globe, from 2006 to 2008. Mia and others (2016) also tried to establish a relationship between quality (depth), quantity (breadth), resources such as labour and capital and financial sustainability. The study found that a higher capital-asset ratio, which was used as a proxy for real capital investment, had a negative impact on the quality, quantity and financial sustainability; and the variable 'number of employees' had a positive impact on the three variables. Churchill (2019) found that there is a trade-off between financial sustainability and outreach depth of MFIs. The study also found that outreach breadth on the other hand rather complemented financial sustainability. The study used 1595 samples from 109 countries all over the globe from 2005 to 2014 using panel data analysis. Abate, Borzaga and Getnet (2014) studied the impact of ownership on the financial sustainability of MFIs. The study found that the shareholder-owned NBFIs reached more poor clients as compared to the financial cooperatives. The study also found that there is a trade-off between depth of outreach and financial performance (sustainability). Sheremenko, Escalante and Florkowski (2017) conducted a study with 160 samples from 2007 to 2008 and found that

when interest rates exceed the 80 per cent threshold limit the financial sustainability of the MFIs is seriously affected. To mitigate this risk the MFIs could use an individualized lending approach rather than a group lending approach.

2.6. Financial sustainability and public sector

In the public sector studies related to public administration such as local governments, councils, central government, etc. has been documented. In the public sector 27 studies were published between 2014 and 2019. Biondi (2016) and Slembeck, Jans and Len (2014) conducted conceptual studies on the management of public debt to achieve financial sustainability. Bisogno and Cuadrado-Ballesteros (2019), Ferry and Murphy (2018), Dabbicco (2019), Caruana, Brusca, Caperchion, Cohen and Rossi (2019) and Bergmann (2014) studied the accounting framework of the public sector and how does it contribute towards financial sustainability. Studies by Biondi and Boisseau-Sierra (2017), Subires and Bolívar (2017), Nistor, Ştefanescu, Oprişor and Tiron-Tudor (2017), Bisogno and others (2017), Bolívar (2017) and Dollery, Kortt and Souza (2014) attempted to conceptualize financial sustainability and identify factors that affect it, for central government, local government and municipalities. Edmiston (2014) and Aversano and Polcini (2019) conducted conceptual studies on welfare schemes and the public's participation in the financial sustainability of local governments respectively. Papenfuß (2014) found that organigram, general company information and financial ratios were the three vital terms to be reported for the financial sustainability of the public authorities in Europe. Kim (2018) found that leadership in the local governments of South Korea impacts positively on the financial sustainability and impacts negatively on net debt. Drew and Dollery (2016) identified the factors of financial sustainability in Australian local government and found that scale and density, legacy and management competency to act independently as the prime factors that affect financial sustainability. The study used variables such as interest cover ratio, debt ratio, cash expense ratio, etc. Drew and Dollery (2014) studied the relationship between large population size and financial sustainability ratio. The study found marginal significance in the relationship between financial sustainability and population size. The study also found that with an increase in debt, financial sustainability worsens. Bolívar, Galera, Subires and Muñoz (2018) conducted an empirical study to identify the accounting measurement of financial sustainability for local government. The study was conducted for a period of nine years with 139 samples and used a panel data analysis method. The study found that the income statements were a suitable and convenient measure of assessing financial sustainability. Navarro-Galera, Bolívar, Alcaide-Muñoz and Subires (2016) also reached similar findings. Andrews (2015) studied 36 counties in England as the samples for the study for ten years to assess whether vertical consolidated governments are financially sustainable. The

study found that over the years the counties had improved their administrative economies but weakened their fiscal health and financial sustainability. Bolívar, Subires, Muñoz and Galera (2019) found that demographic variables were the best measures for the financial sustainability of municipalities along with other variables such as revenue, expenses and debt. Bolívar, Subires, Muñoz and Galera (2017) studied the impact of demographic factors on financial sustainability and found that the dependent population both below 16 and above 65 of age are a risk to financial sustainability. As these two age groups were major consumers of free government services, they pose a major threat to the financial sustainability of local government in Spain. Bolívar, Galera, Muñoz and Subires (2016) also had similar findings. Carini and Teodori (2019) evaluated the local government of Italy to assess financial sustainability. The study used the median-quartiles benchmarking technique. The study found that there was a significant difference between consolidated and separate financial sustainability. Navarro-Galera, Alcaide-Muñoz, Subires and Bolívar (2019) in their study identified that an increase in the unemployment rate, external subsidies and immigration population could affect financial sustainability. Rossi, Brusca and Aversano (2018) studied the transparency and democratic participation in local governments of Italy and Spain. The study found similarities between both countries with regards to disclosure of financial information of local governments but both countries need to improve their e-democracy tools.

2.7. Financial sustainability and other sectors

Solís and Bravo-Ureta (2005) conducted a study in the agriculture sector where nine 'Farm Management Centres' were taken as samples. The study used net present value, internal rate of return, etc. as the tool for the study. The study found that better farm prices, crop diversification and reallocation of resources could lead to better financial sustainability along with earning enough profits to cover its expenses. Xu and Chen (2019), Izgeç, Emre, Sözen and Ömürgönülşen (2017) and Yousuf, Khan, Pirozzi and Wahid (2016) conducted conceptual studies related to financial sustainability in the energy sector. Xu and Chen (2019) studied the relationship between environmental management and financial sustainability, Izgeç and others (2017) calculated the cost-benefit of solar and wind type RWEP and their returns period. Yousuf and others (2016) studied the future markets and potential of Biogas as an alternative source of energy. Stijnen, Kanning, Jonkman and Kok (2014) identified the threats related to financial and technical sustainability against floods in the Netherlands. Armstrong and Novak (1997) conducted a study on forest management in Canada where the authors discussed the environmental and financial sustainability of various forest management practices.

Szymanoski, Lam and Feather (2017) and Md Sahiq (2019) conducted studies on the housing sector debt and financial sustainability. Sontag-Padilla,

Staplefoote and Morganti (2012) identified some common challenges and promising practices of the financial sustainability of not-for-profit organizations. Garcia-Rada, Jäger and Young (2015) discussed important topics related to financial sustainability in Costa Rica. The study discussed the pros and cons of fundraising and its impact on society and the environment, including poor communities into the core business and selling socially oriented and motivated hotel services in poverty stricken locations. Mourao and Gonçalves (2019) analysed the financial statements of a Portuguese non-profit organization from 2011 to 2014 and found that size of the business had a relationship with the sales profile and employee expense. According to Chris Purdy in the *Corporate Philanthropy Report* (Financial sustainability, 2015), donors should invest in those not-for-profit organizations which could recover their costs and expenses through its revenue. Zuchandke, Lohse and Schulenburg (2014), Aquino and Cardoso (2019), and Alexander (2016) studied pension schemes or systems and financial sustainability. Keane and Ommundsen (2015), and Silva and others (2004) studied the financial sustainability of the social security system.

3. Trends in financial sustainability literature

The section discusses the trends identified among the 93 select research articles. Table 1 shows the sector-wise primary research areas of the articles.

Figure 2 shows the yearly progression of the number of articles on financial sustainability.

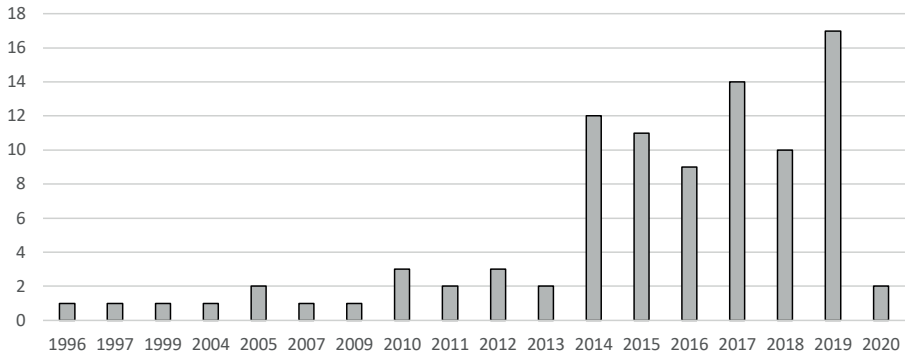

Figure 2. Number of publications yearly
Source: Own work.

The number of studies drastically increased post 2013 therefore it could be concluded that the concept is gaining popularity among the researchers. Before 2014 financial sustainability was mostly associated with microfinance, post 2013, sectors such as health, local government, municipalities, etc. were also studied where Manuel Pedro Rodríguez Bolívar, María Deseada López-Subires, Laura

Table 1. Key research areas

Serial number	Sectors	Key research areas identified
1.	Corporate sector	studies compared financial sustainability with intellectual capital and social corporate responsibility, predict earnings and sales, identify management practices to improve financial sustainability, willingness to pay for the news and reporting practices
2.	Education sector	perception of financial sustainability with an emphasis on revenue diversification (donation and enrolment fee) and management practices, financing strategies and identifying factors and determinants of financial sustainability
3.	Social sector	financial sustainability assessment of institutions, new forms of social organizations, the impact of political change on the financial sustainability of community sports and mechanisms and measures to improve the financial sustainability of pro-poor projects
4.	Health sector	financial sustainability management practices of health insurance companies, financial viability assessment, assess the ability of the hospitals to survive in the market in the long run, economic impacts genomic medicine and high-value biomaterial, the impact of a fee reduction and health care quality on financial sustainability and perception on financing strategies
5.	Micro-finance sector	assess microfinance institutions, models' drivers and determinants of financial sustainability, the trade-off between financial sustainability and outreach and impact of ownership on financial sustainability
6.	Public sector	accounting and reporting of government interventions, identifying anchors for excessive public debts, public debt management, drivers and risk factors of local government' financial sustainability, the relationship between financial sustainability and revenue, debt and services, citizen participation in local government and accountability and transparency of local governments
7.	Other sectors	analysing and identifying promising financial sustainability practises of for not-for-profit organizations, relationship with financing and financial sustainability of not-for-profit organizations, demographic risks of pension funds, the economic feasibility of municipal composting plant, financial sustainability of reverse mortgage (housing), threats of flood on financial sustainability, forest management, biogas, solar, wind energy future market potential and feasibility, the relationship between energy management and financial sustainability and financial sustainability assessment of farm management centres

Source: Own work.

Alcaide-Muñoz and Andrés Navarro-Galera had the greatest number of contributions. Figure 3 shows the number of studies conducted in each country.

The 'Global' variable in Figure 3 denotes that twelve studies were conducted and these studies selected samples from more than one country. Authors

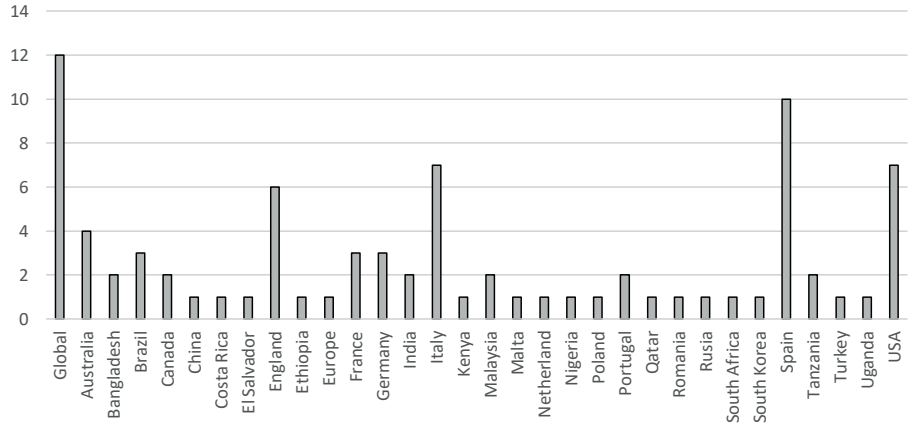

Figure 3. Number of studies conducted country-wise
Source: Own work.

such as Churchill (2019) conducted a study on the microfinance sector taking 1,595 samples from 109 countries. Simillarly Ayayi and Sene (2010) and Quayes (2012) also studied 217 and 702 samples of 101 and 83 countries respectively. The largest number of studies conducted in a single country was in Spain followed by the USA, Italy and England. All the studies conducted in England and Spain were empirical, while studies conducted in the USA and Italy were both conceptual and empirical. Table 2 shows the top ten most-cited authors among the selected 93 research articles on financial sustainability.

Table 2. Top-ranked authors with the highest number of citations

Authors	Total number of publication	Total number of citation	Average citation per publication
Shakil Quayes	1	236	236
Ayi Gavriel Ayayi	1	183	183
Maty Sene	1	183	183
Manuel Pedro Rodríguez Bolívar	8	123	15.4
María Deseada López-Subires	7	120	17.1
Laura Alcaide-Muñoz	6	115	19.2
Andrés Navarro-Galera	6	115	19.2
Geoff Walters	1	72	72
Timothy Bingham	1	72	72
Brian Dollery	3	62	20.7

Source: Own work.

Figures 4 and 5 shows the number of studies found in each sector and the time period used in the study.

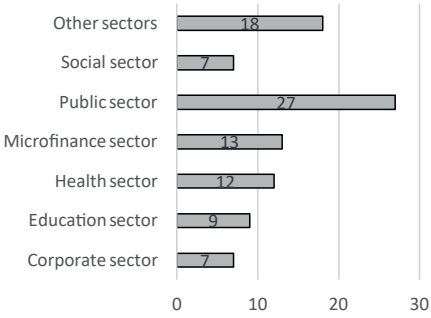

Figure 4. Frequency of publication sector-wise
Source: Own work.

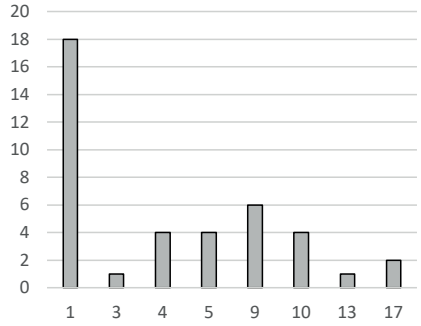

Figure 5. Number of studies according to their coverage (time-frame in years)
Source: Own work.

The majority of the studies were found in the public sector (Figure 4). The most prominent author of the sector is Manuel Pedro Rodríguez Bolívar with

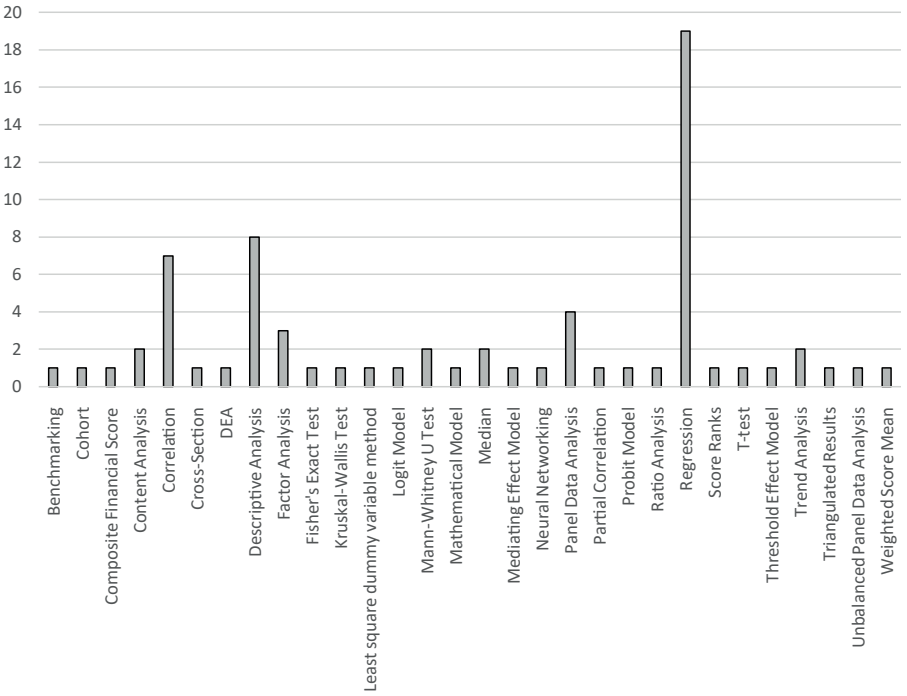

Figure 6. Types of analytical tools used in the studies
Source: Own work.

eight publications, followed by María Deseada López-Subires with seven publications. In Figure 5 it is found that the majority of empirical studies were conducted for a period of one year. Authors had also taken seventeen and thirteen years as the time frame for their studies. It is also apparent that a minimum of one year can be taken as a time frame for research to assess financial sustainability. Figure 6 shows the various analytical tools used by the studies.

Regression was found to be the most common tool used to assess financial sustainability, followed by descriptive analysis and correlation analysis (see Figure 6). Regression and correlation were mostly used to evaluate the relationship between the outreach of the MFIs and their financial sustainability. Tools such as median benchmarking and composite financial scoring were also used in conjunction with financial ratios to prepare a score for financial sustainability. Table 3 shows the variables used by multiple studies to assess financial sustainability.

Table 3. Variables used to measure financial sustainability

Variables	Frequency	Variables	Frequency
Net profit ratio	15	Current liquidity	5
Debt	12	Returns (except ROA)	3
Return on assets	10	Repayable financial debt	2
Revenue	8	Debt to equity ratio	2
Operating margin	6	Gross margin	2
Cash flow	5	Revenue concentration	2
Asset maintenance and renewal ratio	5		

Source: Own work.

Table 3 show that the most commonly used variables were net profit ratio, debt and return on assets. Return on assets has been generally used as the proxy for financial sustainability. There were many other variables but only the variables shown in Table 3 were used by multiple studies.

4. Discussion and major findings

It was observed that profitability and efficiency ratios worked fairly well to measure financial sustainability in the corporate sector. Ratios such as net profit ratio, return on assets, etc. were found to be important variables to measure financial sustainability (Amani & Fadlalla, 2015; Imhanzenobe, 2020). It was also found that CSR and financial sustainability has no relationship whereas intellectual

capital and financial sustainability have a positive relationship (Witek-Crabb, 2018). Interestingly the literature supported the hypothesis that medium and lower-medium scaled businesses were found to be more sustainable as compared to large and small-scale businesses (Pandyaswargo & Premakumara, 2014). The studies on the educational sector found that institutes should focus on enrolment fees and opportunities for new sources of donations to enhance their financial sustainability (Supplee, 2014). It was observed that the educational institutes should look for diversified sources of income and should not depend on a single source (Ahmad et al., 2019; Alonso-Cañadas et al., 2017). To achieve financial sustainability the institutes should also focus on managing the cost. Similar findings were also found in the health sector. It was interesting to find that in the social sectors studies suggested that organizations should depend on a revenue-based model rather than waiting for donations. The finding of Supplee (2014) and Salvado (2011) contradicted each other. Supplee (2014) suggested focusing more on donation sources whereas Salvado (2011) found that donor-focused enterprises were less sustainable as compared to revenue-focused enterprises. Researchers in the microfinance sector were particularly interested in assessing the trade-off between MFI's financial sustainability and outreach. Studies such as those Quayes (2012), and Nurmakhanova and others (2015) found no association between microfinance outreach and financial sustainability, on the contrary, studies done by Mia and others (2016), Churchill (2019) and Abate and others (2014) found some association between the terms. The majority of the studies in the public sector discussed issues such as public debt, the contribution of accounting framework towards financial sustainability, the relationship between demography and financial sustainability, etc. One of the most important findings from the public sector studies was that—with an increase in debt, financial sustainability degrades (Drew & Dollery, 2016; Kim, 2018). Further it was found that public administrations also should look for opportunities for new sources of income to become financially sustainable. The studies in this sector found that population below the age of 16 and above the age of 65, unemployed, immigrant population and external subsidies increases the risk of financial sustainability of public sectors institutions (Bolívar, Subires, Muñoz, & Galera, 2017; Navarro-Galera et al., 2019). The key areas of research in these sectors are shown in Table 1.

Since 2014 the number of publications with the term financial sustainability in their title has substantially increased from an average of two to ten articles per year (see Figure 2). The popularity of the term among researchers has been growing significantly along with financial performance and financial distress. Interestingly 60% of the studies from 1996 to 2020 were based empirical research and the other 40% were conceptual and theoretical research. Irrespective of the type of research or the type of sector the studies have primarily focused on the ability to cover costs with 'own resources' (revenue) as the prime measure of financial sustainability. The studies emphasised revenue generation along

with creating diverse sources of revenue (Bolívar, Subires, Muñoz, & Galera, 2019; Amani & Fadlalla, 2015; McKinnon, 2012). To be financially sustainable an entity must cover all its costs with its 'own revenue' (Ahmad et al., 2019; Salvado, 2011; Sulaiman & Zakari, 2019). However only covering costs does not exclusively mean financial sustainability (Ayayi & Sene, 2010). This study found that the three prominent dimensions to assess financial sustainability were: earning enough revenue to cover all costs and expenses, ability to pay present and future obligations and renewal and maintenance of assets. An entity should at least justify these three dimensions to be called financially sustainable as shown in Figure 6.

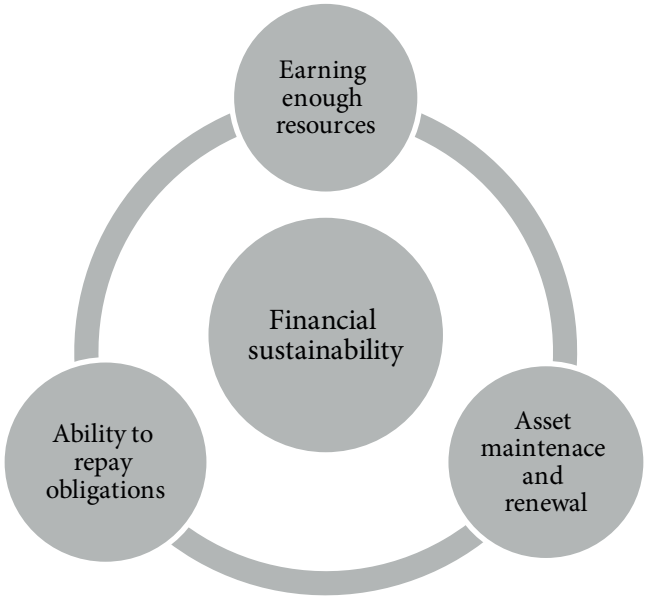

Figure 7. Financial sustainability model
Source: Own work.

Firms, entities or businesses that comply with all the three dimensions of the financial sustainability model could be termed as financially sustainable (Ayayi & Sene, 2010; Silva et al., 2004; Amani & Fadlalla, 2015; Marwa & Aziakpono, 2015; Said et al., 2019). To measure the earning enough resources dimension, net profit, cash flow and revenue growth were the variables that were most emphasised (Marwa & Aziakpono, 2015; Jordão & Almeida, 2017; Drew & Dollery, 2016; Said et al., 2019). The net profit assesses the firm's ability to cover both operating as well as non-operating costs and expenses (Havers, 1996). The cash flow assesses the quality of profits as well as it provides liquidity for day to day activities (Drew & Dollery, 2016; Said et al., 2019). Revenue growth assesses the firm's ability to grow and expand in the market with its present capacity

(Marwa & Aziakpono, 2015; Amani & Fadlalla, 2015). The second dimension is asset maintenance and renewal (Witek-Crabb, 2018; Mia et al., 2016). The growth in assets assists the firm to increase its revenue as well as develop extra capacity in the long run (Xu & Chen, 2019; Imhanzenobe, 2020). To assess this dimension the asset sustainability ratio has been proposed by the Australian Local Government Association (2006). The asset sustainability ratio assesses whether the firm has reinvested the amount that has been deducted from revenue as depreciation and amortization into the business for renewing or repairing the respective depreciable fixed asset (Drew & Dollery, 2016). Finally the last dimension of financial sustainability is the ability to repay obligations. This dimension generally assesses whether the firms can honour their present as well as future obligations and whether they can survive without external support (Drew & Dollery, 2016; Salvado, 2011; Soliwoda, 2015; Navarro-Galera et al., 2019). To assess this dimension of financial sustainability studies have used the current ratio to assess the ability to repay present obligations and debt to total assets ratios as a measure for assessing the ability to repay future or long-term obligations (Bayai & Ikhide, 2018; Bolívar, Subires et al., 2019). The Australian Local Government Association (2006) suggested using the net financial liabilities ratio which measures the ability of an entity to repay both its present as well as future obligations without affecting it as a going concern. It also measures whether the firm or the entity is over-indebted.

The methodology for assessing financial sustainability could be derived from the popularity in the literature. To assess financial sustainability the most popular tool among the researchers was regression analysis (35% of the studies) (Andrews, 2015; Ayayi & Sene, 2010; Alonso-Cañadas et al., 2017; Nurmakhanova et al., 2015). Followed by other tools such as correlation (13%) and descriptive studies such as mean, median and standard deviation (15%) (Witek-Crabb, 2018; Tordrup et al., 2013; Izgeç et al., 2017). Generally most of the studies (45%) used a one-year time frame to assess the financial sustainability of the entities (Ouimet et al., 2007; Bingham & Walters, 2013; Carini & Teodori, 2019). The average sample size of the studies found on financial sustainability was 202. The sample size ranged from 1 (McKinnon, 2012) to 1,595 (Churchill, 2019). Researchers can adopt a similar methodology to assess financial sustainability.

Other information that was available from these research articles was regarding their publishers, authors, country of study, etc. It was found that 64% of the studies were found from the website of Springer and Taylor & Francis. Routledge, a publishing house of Taylor and Francis, had the most number of publications published (23%). Most numbers of the studies were conducted in Europe and particularly in Spain, Italy and England. In these countries researchers primarily focused on the public sector. From the selected research articles Manuel Pedro Rodríguez Bolívar had eight publications under his name followed by María Deseada López-Subires who had seven. Both the authors have

worked together in seven research studies. Their area of study was Europe and Spain in particular. Shakil Quayes published a research article in 2010 regarding the financial sustainability of microfinance. It was found to have the highest number of citations (236), followed by Ayi Gavriel Ayayi and Maty Sene (183 citations each). Presently these are some prominent researchers in the field of financial sustainability (see Table 2).

Conclusions

Financial sustainability has been defined as the ability of a business to sustain and survive over a foreseeable period with the help of continuous, profitable and self-sufficient business operations. Financial sustainability has been perceived differently in different sectors but the core concept is that an entity should regularly cover its cost with its 'own resources' (revenue) and has been the connecting thread between them. However the ability to repay present and future obligations was also found to be an essential ingredient for financial sustainability. The study covered 93 research studies in six major sectors such as microfinance, health, public sector etc. and found that regularly covering the cost, maintaining assets of the entities and building capabilities to pay present and future obligations are just a few dimensions to measure financial sustainability. The steps for collecting and analysing the data is shown in Figure 1. The conceptual financial sustainability model proposed by the study would significantly contribute to the existing literature as a new approach to assess the financial sustainability (see Figure 7). The annotated bibliography would play a key role in the development of upcoming studies in the area. The study pointed out key research areas, variables, analytical tools and time periods used by the existing literature. These trends concerning financial sustainability are also novel findings that will support the researchers to develop a strong methodology for their studies. This study found that most of the research related to financial sustainability was conducted on local governments, central government and microfinance institutions. The studies on the public sector largely contributed towards public debt, accounting and disclosure and relationship with demography while studies in the microfinance sector were primarily focused on the relationship between financial sustainability and outreach. The studies in educational and social sectors debated that to enhance financial sustainability, whether the donation-based model should be adopted or revenue-based model. These are few of the key findings that the study presents to the existing body of knowledge.

The study presents a unique insight on the areas of research where financial sustainability has been used, sector-wise research discussions, analytical tools and variables used and so on. Researchers and academicians would find the findings of the study very useful while designing their research methodologies

and conducting literature reviews related to financial sustainability. The study has also contributed to the existing literature on financial sustainability by synthesising various definitions and identifying three key dimensions. The study did not use any research database to collect literature due to limited resources and accessibility. Rather the study depended on publishing houses' websites. Articles published after February 2020 have not been included in the study. These are a few limitations of the study. The findings of the study suggest that the term financial sustainability's popularity among researchers has been growing lately. The study would help readers and researchers to gain an insight and further explore the financial sustainability domain. Future researchers could work on a longer time frame using research databases and identify more dimensions. Further, studies can use the dimensions of financial sustainability identified by the study to assess entities and organizations irrespective of their legal form and size. Also researchers can work on synthesising the debate on the trade-off between financial sustainability and outreach. Optimizing public debt and revenue sources with an objective to improve financial sustainability is another area where researchers could focus.

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