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Financial Institutions' Risk Profile and Contribution to the Sustainable Development Goals

Nicolás Gambetta [1,*], Fernando Azcárate-Llanes [2], Laura Sierra-García [2] and María Antonia García-Benau [3]

[1] Facultad de Administración y Ciencias Sociales, Universidad ORT Uruguay, Montevideo 11300, Uruguay
[2] Faculty of Business, Universidad Pablo de Olavide, 41013 Sevilla, Spain; Fazclla@upo.es (F.A.-L.); Lnsiegar@upo.es (L.S.-G.)
[3] Faculty of Economics, Universitat de València, 46022 Valencia, Spain; maria.garcia-benau@uv.es
* Correspondence: gambetta@ort.edu.uy

Abstract: This study analyses the impact of Spanish financial institutions' risk profile on their contribution to the 2030 Agenda. Financial institutions play a significant role in ensuring financial inclusion and sustainable economic growth and usually incorporate environmental and social considerations into their risk management systems. The results show that financial institutions with less capital risk, with lower management efficiency and with higher market risk usually make higher contributions to the Sustainable Development Goals (SDGs), according to their sustainability reports. The novel aspect of the present study is that it identifies the risk profile of financial institutions that incorporate sustainability into their business operations and measure the impact generated in the environment and in society. The study findings have important implications for shareholders, investors and analysts, according to the view that sustainability reporting is a vehicle that financial institutions use to express their commitment to the 2030 Agenda and to higher quality corporate reporting.

Keywords: sustainable development goals; CAMELS framework; financial institutions; Spain; sustainability

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1. Introduction

In 2015, the United Nations Member States agreed that a comprehensive financial plan for development was needed and approved a new agenda for sustainable development. This ambitious plan, termed the 2030 Agenda, sets out 17 Sustainable Development Goals (SDGs), summarising 169 targets and creating the necessary framework within which countries can work to eliminate poverty, reduce inequalities and fight against climate change [1]. The SDGs address a complex and interrelated series of challenges that cannot be overcome without the joint contributions of the public sector, the private sector, academics and the community at large. For this purpose, appropriate and sufficient financing must be provided. In this line, the Synthesis Report of the UN Secretary General on the post-2015 sustainable development agenda stated: "All financing streams need to be optimized towards sustainable development and coordinated . . . " [2]. The SDGs present very significant resource implications across the developed and developing worlds, representing global investment needs of approximately $5–7 trillion per year. In developing countries alone, estimates for investment range from $3.3 trillion to $4.5 trillion per year, mainly for basic infrastructure (water and sanitation, roads, rail and ports, power stations), food security (agriculture and rural development), health, education and climate change mitigation and adaptation [3].

The United Nations Development Programme [4] has highlighted the importance of distinguishing between different types of financing needs and has estimated the degree of public and private investment participation required for each of the SDGs. If the SDGs are to be achieved, the international financial community, the private financial sector and the public financial sector must all coordinate their actions. These financial efforts can be

classified into three types: concessional public financing (multilateral organisations), public borrowing through the markets and private financing [5]. Financial institutions are a vital component in the provision of resources for the 2030 Agenda because they are relevant agents in the financial inclusion process [6] and because environmental and social issues are incorporated in their products, credit policies and investment decisions [7]. Every time a financial institution grants credit to economic agents, economic growth is facilitated.

In this study, we examine the connection between the risk profile of financial institutions and their propensity to incorporate the SDGs into their business models and to disclose their actions in this regard in a sustainability report. The study contributes to the literature by characterising the relationship between the type of risk and complexity of financial institutions, the level of inclusion of the SDGs within financial institutions' operations and the corresponding disclosure in their sustainability reporting.

Our study hypothesis is that this risk profile influences the incorporation of the SDGs into the institution's business operations. Thus, the publication of high-quality information on an institution's contribution to the SDGs depends on financial institutions' risk factors, such as capital risk, asset quality, managerial skills, levels of earnings and profitability, liquidity risk and sensitivity to market risk. A useful means of identifying a financial institution's risk profile is the CAMELS approach, a rating system for assessing capital adequacy, asset quality, management skills, earnings and profitability, liquidity risk and sensitivity to market risk [8–13]. Our study applies this system to a sample of Spanish financial institutions, using published data from 2016 to 2019 (56 financial institution-year observations). Significantly, this study period immediately follows the approval of the 2030 Agenda, in 2015.

To the best of our knowledge, this is the first research study to develop a content index to measure the propensity towards and the implementation of SDGs by financial institutions. The descriptive statistics obtained show that in 2016 none of the institutions considered had incorporated the SDGs into their strategies, although the situation did improve from 2016 to 2019. The empirical evidence shows that certain variables, as expected, are directly relevant to the CAMELS framework. Thus, the higher the capital adequacy ratio, the stronger the financial institution and the greater its propensity towards the SDGs [9]. On the other hand, financial institutions with higher management earnings tend to present a low propensity towards the SDGs [8].

The rest of this paper is structured as follows. After this brief introduction presenting the timeliness and interest of the research undertaken, the Section 2 explains the theoretical framework employed and reviews the literature on SDGs and the financial sector. The Section 3 describes the study design. Section 4 shows the results, and in the Section 5, we justify the robustness of the findings obtained. Finally, in Section 6, we present the main conclusions drawn.

2. Literature Review

2.1. Theoretical Framework for Sustainability Reporting

Sustainability reporting is a means for organisations to legitimise their contributions to society from a political and economic perspective [14]. Sustainability awareness encourages firms to incorporate environmental and social considerations into their operations and their interactions with stakeholders, over and above their legal obligations [15]. Through sustainability reporting, companies have the opportunity to communicate their commitment to sustainability and to show how they generate a positive impact in society and the environment [16].

The financial sector is no exception to this, and firms often disclose sustainability (i.e., nonfinancial) information in terms of economic, environmental, labour, social and product performance indicators. The generally accepted standards of nonfinancial information are the Global Reporting Initiative (GRI) standards, which help companies identify and implement sustainable practices and disclose them in a comparable fashion [17].

Deegan [18] observed that the motivation to engage in sustainability reporting is commonly associated with legitimacy, standards, regulations and stakeholders. Previously, Deegan [19] concluded that disclosing sustainability information to stakeholders avoids their disapproval and helps the company acquire legitimacy. Consequently, company managers are motivated to disclose information about the firm's activities to its stakeholders [20]. Another reason for this is that every organisation must have a social licence to operate, to justify its use of public natural resources [21]. If stakeholders believe the company is not keeping its side of this social contract, the very existence of the firm may be threatened. Thus, legitimacy is an important strategic resource to an organisation's survival [22], and disclosing social and environmental information to stakeholders is often a major element in its business strategy.

According to the stakeholder theory, a company has a responsibility towards all stakeholders, including customers, suppliers, employees, government and society at large [23], and for many stakeholders, sustainability reporting is a significant issue. In this respect, the authors of [24] observed a relationship between legitimacy and stakeholder theory.

From another perspective, that of agency theory, problems between the principal and the agents can arise from a conflict of interest and/or information asymmetry between the parties [25]. Thus, one of the factors prompting firms to publish financial and nonfinancial information, including sustainability information, is the intention to narrow the information gap. The precise information disclosed depend on the inherent characteristics of each firm.

Due to the important role they play in the economy, financial institutions are usually viewed as a benchmark for transparency [10,26,27]. Moreover, in every country they are subject to regulatory monitoring, due to their public interest status, which imposes additional disclosure requirements concerning financial intermediation activities [28]. Finally, the "ethical banking" movement exerts additional pressure on financial institutions to be more responsible and to issue more information, both financial and nonfinancial, to their stakeholders [29].

Prior studies suggest that banks which apply sustainability principles achieve significantly better performance in terms of asset and equity returns [30], revenue and reduced impact of nonperforming loans [31]. Forcadell and Aracil [32] suggest that banks with a better reputation, due to their incorporation of sustainability-related practices in everyday operations, perform better, overall. On the other hand, Weber et al. [33] concluded that the financial sector performs relatively poorly in regards to sustainability.

2.2. Sustainable Alliances in the Financial Services Sector

The 2030 Agenda represents an opportunity for financial institutions to demonstrate how they fulfil their social role and meet stakeholders' expectations, thus legitimising their existence. In addition, however, the Agenda represents a business opportunity. To create positive externalities in society from their operations, financial institutions need to transform their business model and offer sustainable products to their customers. This redirection, in turn, requires internal adjustments to the business model and more transparent communication with stakeholders. For this purpose, sustainability reporting is a very appropriate channel.

The ongoing transformation of the business model of financial institutions has been confirmed by the recent appearance of alliances among bodies that share a sustainable business approach, such as the Global Alliance for Banking on Values [34]. Founded in 2009, this network seeks "to change the banking system so that it is more transparent, supports economic, social and environmental sustainability, and is composed of a diverse range of banking institutions serving the real economy" [34]. To adhere to the GABV, financial institutions must adhere to five basic principles: 1. Social and environmental impact and sustainability must be placed at the heart of the business model; 2. Operations must be focused on communities, serving the real economy, enabling new business models and meeting real needs; 3. Long-term relationships should be established with clients, obtaining a direct understanding of their economic activities and of the risks involved;

4. Operations should be long-term, self-sustaining and resilient to outside disruptions;
5. Governance should be transparent and inclusive.

Financial institutions' promotion of sustainable banking is also apparent in their 'Green Loan Principles', which were developed by leading institutions in the green loan market to promote the development and integrity of this product. These principles create a framework of market standards and guidelines, providing a consistent methodology that can be used across the green loan market, while maintaining loan flexibility and preserving market integrity [35]. The Principles are characterised by four key components: 1. Use of proceeds (the use of the loan amount must offer clear environmental benefit); 2. Process for project evaluation and selection (the borrower must clearly communicate to the banks the environmental sustainability objectives envisaged); 3. Management of proceeds (the amount of a green loan must be stipulated in a specific account or it must be subject to appropriate supervision in a way that maintains transparency and promotes product integrity); 4. Reporting (the borrower must prepare information, which must be current and available, on the annual use made of the funds provided).

The Principles for Responsible Banking, promoted by the UN Environment Programme Finance Initiative, are a framework for a sustainable banking system and help the industry demonstrate how it makes a positive contribution to society [36]. These Principles embed sustainability at the strategic, portfolio and transactional levels, across all business areas and cover issues related to business strategy, clients and customers, stakeholders, governance and culture and transparency and accountability.

The above initiatives to promote responsible and sustainable banking build upon the closely related Equator Principles, a risk management framework established in 2003. A recent publication in this respect supported the objectives of the 2015 Paris Agreement and emphasised that the effective application of the Principles would contribute to delivering the objectives and outcomes of the SDGs [37]. Finally, the UN Global Compact is a global movement of sustainable companies and stakeholders that do business responsibly by aligning their strategies and operations with principles in the areas of human rights, labour, environment and anticorruption concerns and that take strategic actions to advance broader societal goals, such as the SDGs, with an emphasis on collaboration and innovation [38].

These initiatives highlight the role that financial institutions need to play in the 2030 Agenda, namely to incorporate environmental and social considerations into their bank lending products and services, such as loans and project finance [39,40]. Under this understanding, the development of environmental credit risk management (ECRM), integrating environmental risk assessment procedures into the credit assessment process is viewed as a key element within banks' risk management systems [8,41].

2.3. Sustainability and Risk Management in the Financial Services Sector

In response to growing pressure from regulators and customers, many financial institutions are transforming their operations to make them more sustainable. In this respect, the markets often consider that financial institutions have a significant duty to promote sustainable development.

When designing new products, banks need to consider questions of sustainability and the need to avoid producing a negative impact on society and the environment. For example, the provision of funding to polluting firms could produce environmental damage and result in the banks involved being exposed to financial liabilities. According to Thompson [42], these financial dangers can be classified into three types: (a) direct risk (legal liability for pollution produced by borrowers), (b) indirect risk (borrowers may have difficulty in repaying loans due to their increased financial responsibilities for the environmental damage caused), and (c) reputation risks (negative public relations from doing business with environmentally unfriendly firms). To avoid these situations, many banks now implement strategies to address sustainability-related challenges, such as making their loans subject to environmental criteria, applying environmental management strategies and marketing environment-friendly financial products [39].

If the SDGs are to be achieved, the private sector, too, must play a major role [43]. In this area, although the financial sector is of vital importance, the industry is lagging behind in adopting sustainability principles [44]. Thus, the Bank of England has stated "many banks have some way to go to identify and measure the financial risks from climate change comprehensively" [45]. The SDGs might present an invaluable opportunity for the industry to reinforce its sustainability principles [46]. The United Nations Global Compact and KPMG International [47] have identified four categories in which the financial industry should address the SDGs: financial inclusion; financing renewable energy and sustainable infrastructure; including sustainability risk analyses in financial decision making; and influencing corporate clients to address environmental, social and governance criteria in their businesses. Apart from managing their own risks, banks also have an important role to play in supporting the broader economy's adaptation to environmental changes. By reallocating credit to more sustainable sectors of the economy and managing credit and market risks, banks reduce the likelihood of a negative impact on environmental sustainability, mitigate the impact of any damage that may materialise and support the subsequent recovery [48]. Banks may address such risks by adopting 'green' banking practices such as the Equator Principles or by joining alliances for sustainable banking. Guidelines such as the Equator Principles help banks incorporate environmental and social risks into their assessments of credit and operational risks within large infrastructure investment projects.

Environmental credit risk management, i.e., the incorporation of environmental risk evaluation into the credit assessment process, is an area of growing importance for banks and other financial institutions [8,41]. Crucially, financial institutions must create an appropriate framework with which to assess and manage the risks involved in Environmental, Social and (corporate) Governance (ESG) issues, due to the potential material impact of these factors on the bank's risk profile. From a financial standpoint, quantifying the impact of ESG risks on the bank's activity helps create a sustainable strategy, so that appropriate resources can be allocated to limit the impact of any risk that might materialise [49]. Furthermore, climate-related risks must be taken into account when establishing capital requirements, in order to enhance banks' resilience to these and other risks and thereby ensure financial stability. Such an approach forms part of the bank's primary objective of establishing the necessary capital requirements [50]. The consideration of sustainability-related factors affects the institution's risk-adjusted capital ratio (comparing total adjusted capital to the risk-weighted assets held) and its CAMELS rating (a composite value reflecting six areas: capital adequacy, asset quality, management skills, earnings and profitability, liquidity risk, and sensitivity to market risk).

Considering that financial institutions embed sustainability into the enterprise risk management system, we pose the following hypotheses following the CAMELS risk approach:

Hypothesis 1. *The disclosure of high-quality information on a financial institution's contribution to the SDGs depends on capital risk.*

Hypothesis 2. *The disclosure of high-quality information on a financial institution's contribution to the SDGs depends on asset quality.*

Hypothesis 3. *The disclosure of high-quality information on a financial institution's contribution to the SDGs depends on managerial skills.*

Hypothesis 4. *The disclosure of high-quality information on a financial institution's contribution to the SDGs depends on the level of earnings and profitability.*

Hypothesis 5. *The disclosure of high-quality information on a financial institution's contribution to the SDGs depends on liquidity risk.*

Hypothesis 6. *The disclosure of high-quality information on a financial institution's contribution to the SDGs depends on market risk.*

3. Research Design

3.1. Sample Selection

The following sample selection procedure was employed. The first criterion applied was to select all the organisations categorised as "Spanish Financial Entities" in the ORBIS database (50 entities). This sample was then filtered by membership of the Spanish Global Compact Network (https://www.pactomundial.org, accessed on 30 May 2021) and further reduced by limiting consideration to entities that had issued an annual sustainability report during the period from 2016 to 2019. The final sample thus obtained was composed of fourteen financial entities; in other words, the data obtained for this sample corresponded to 56 financial institution-years.

3.2. Empirical Model and Variables Definition

The study hypotheses are tested using a balanced panel data on the SDG disclosures Index (SDGI1), developed by content analysis, a common approach in CSR reporting [51]:

$$\begin{aligned} SDGI1 = \alpha + \beta_1 \text{ Tier1Ratio} + \beta_2 \textit{ Provisions for loan losses (PLL)} + \beta_3 \textit{ Management} \\ \textit{Efficiency Ratio (MER)} + \beta_4 \textit{ Profitability Ratio (PR)} + \beta_5 \textit{ ROA} + \beta_6 \textit{ Loans} + \\ \beta_7 \textit{ Liquidity Ratio (LR)} + \beta_8 \textit{ Interest bearing liabilities (IntBearLiab)} + \beta_9 \textit{ Years} + u_{it} \end{aligned} \quad (1)$$

From each entity's sustainability report, the information disclosed regarding the 17 SDGs was used to construct the corresponding SDGI1. Content analysis was then performed to identify the SDG-related disclosures and, following the method described by PwC [52], a score was assigned to each SDG in accordance with the following criteria:

0: The financial institution does not mention the SDG.

1: The financial institution makes a statement about the SDG and its importance but does not include any specific aspirations or ambitions.

2: The financial institution makes a statement about the SDG and includes a qualitative ambition or aspiration on achieving it, identifying a quantitative Key Performance Indicator (KPI) in this respect.

3: The financial institution links the KPIs thus obtained to the social, environmental and/or economic impact generated.

The index has the following composition:

$$SDGI1i = \sum_{j=1}^{17} \left(\frac{\text{SDGj}}{17} \right) \beta * 100 \quad (2)$$

where $\sum_{j=1}^{17} \left(\frac{\text{SDG}}{17} j \right)$ indicates the total number of goals reported by a specific financial institution with $j = 1, \ldots, 17$.

β indicates the level of detail employed by the financial institution in its sustainability reporting. This variable takes a value ranging from 0 to 3 according to the institution's contribution to the SDGs, as explained above. The 17 SDGs included in the 2030 Agenda are the following: SDG 1: No poverty; SDG 2: Zero hunger; SDG 3: Good health and well-being for people; SDG 4: Quality education; SDG 5: Gender equality; SDG 6: Clean water and sanitation; SDG 7: Affordable and clean energy; SDG 8: Decent work and economic growth; SDG 9: Industry, innovation and infrastructure; SDG 10: Reducing inequalities; SDG 11: Sustainable cities and communities; SDG 12: Responsible consumption and production; SDG 13: Climate action; SDG 14: Life below water; SDG 15: Life on land; SDG 16: Peace, justice and strong institutions; and SDG 17: Partnerships for the goals. In constructing the SDG Index, all the SDGs were taken into account, as financial institutions may make direct or indirect contributions to any or all of them depending on the characteristics of their

operations. According to the United Nations Global Compact and KPMG International [47], the financial institutions contribute to the SDGs in the areas of financial inclusion (SDGs 1, 2, 3, 4, 5, 8, 10 and 13), investment in renewable energy and infrastructure (SDGs 6, 7, 9 and 13), risk management (SDGs 11 and 12) and social, environmental and governance impact via their influence on clients' investment practices (SDGs 13, 14, 15, 16 and 17).

In our analysis, the financial stability of each institution was measured using the CAMELS framework, which is commonly employed by regulators and managers to assess financial institutions' overall strength. The proxy variables of CAMELS are Capital adequacy (C), Asset quality (A), Management efficiency (M), Earnings and profitability (E), Liquidity (L) and Sensitivity to market risk (S) [15,17,53,54]. Data on the CAMELS variables can be obtained from the Orbis Database, which contains specific information on financial institutions.

Capital adequacy was determined from the capitalisation ratio (or Tier 1 capital ratio), i.e., the ratio of a bank's core equity capital to its total risk-weighted assets [9]. This information is disclosed by financial institutions and is available in the Orbis database. Stronger financial institutions have higher capital adequacy values and therefore are expected to make more significant contributions to the SDGs. Asset quality is measured by the natural logarithm of the provision for loan losses (PLL), also available in the Orbis database. This parameter represents the change in the allowance for loan losses during the period considered. The higher the PLL, the lower the asset quality [10,13]. We expect to obtain a negative value for the relationship between PLL and the institution's contribution to the SDGs. The third CAMELS variable is the management efficiency ratio (MER), calculated as the relationship between costs and income. This value measures the efficiency of financial institutions in reducing their costs and increasing income, thus minimising the risk of failure. In our hypothesis, financial institutions with higher MER are expected to make lower contributions to the SDGs [8]. Following de Claro [55] and Gambetta et al. [9], the fourth point relating to the CAMELS framework (Earnings and profitability) is measured by two variables: the ratio of operating income to total assets (PR) and the return on assets (ROA). The sign assumed for both variables is positive, i.e., more profitable institutions make a greater contribution to the SDGs. Total loans (LOANS) (natural logarithm of total loans) and the liquidity ratio (LR) (natural logarithm of total liquid assets) both provide a proxy for liquidity [9]. For the first of these variables, we expect to find a negative relationship with the SDG contribution, while for LR, we expect this relationship to be positive. The lower the LOANS value (i.e., the less liquid the asset) and the higher the LR, the lower the entity's liquidity risk. Finally, with respect to the entity's sensitivity to market risk, unfavourable changes in the interest paid on deposits, compared to that paid on loans, could have a negative impact on profitability, due to the entity's greater sensitivity to market risk. As a proxy for this variable, we use the other interest-bearing liabilities to total assets ratio (IntBearLiab) recommended by Kertein and Kozberg [12]. The higher this ratio, the greater the sensitivity of the financial institution to the influence of liquidity issues on interest expense and, hence, on profitability. In consequence, we expect to find a negative relationship between market risk and the SDG contribution.

The Hausman test was conducted to decide between the fixed and random effects approaches (Model 1: Prob > chi^2 = 0.2867; Model 2: Prob > chi^2 = 0.2956). In the present case, the fixed effects method was considered most suitable. To detect possible problems in model specification, tests were conducted to determine problems such as serial correlation (Pesaran's test: Model 1: −1.180, $p = 0.2330$; Model 2: −1.354, $p = 0.462$), autocorrelation (Wooldridge test: Model 1: 16.765, $p < 0.05$; Model 2: 16.809, $p < 0.05$), and heteroscedasticity (modified Wald test: Model 1: Prob > chi^2 = 0.0000; Model 2: Prob > chi^2 = 0.0000). The latter two problems were observed and addressed by the application of panel-corrected standard errors.

4. Results

4.1. Descriptive Results

Table 1 summarises the levels of contribution to the SDGs disclosed by the financial entities in our sample. The level of contributions is low, in almost all cases. In no case, among the 17 SDGs, did average contributions exceed 1.5 points on the 0–3 scale. The highest contributions to the SDGs by these financial institutions corresponded to SDG 8 (Decent work and economic growth), which scored 1.411 (total sample), and SDG 4 (Quality education), with a score of 1.036. These results are similar to those obtained previously by Avrampou et al. [56] and Cosma et al. [57].

Table 1. Mean SDGs contribution by year.

	2016	2017	2018	2019	SAMPLE
SDG 1	0.357	0.786	0.929	1.214	0.821
SDG 2	0.143	0.357	0.286	0.500	0.321
SDG 3	0.357	0.786	1.000	0.929	0.768
SDG 4	0.429	1.071	1.286	1.357	1.036
SDG 5	0.500	1.000	1.071	1.286	0.964
SDG 6	0.143	0.429	0.429	0.357	0.339
SDG 7	0.214	0.643	0.857	0.786	0.625
SDG 8	0.714	1.357	1.714	1.857	1.411
SDG 9	0.429	0.929	1.214	1.143	0.929
SDG 10	0.357	0.929	1.071	1.214	0.893
SDG 11	0.357	0.714	0.571	0.929	0.643
SDG 12	0.214	0.929	0.786	1.071	0.750
SDG 13	0.286	1.071	1.143	1.357	0.964
SDG 14	0.000	0.071	0.143	0.214	0.107
SDG 15	0.143	0.214	0.429	0.357	0.286
SDG 16	0.357	0.714	0.786	0.714	0.643
SDG 17	0.357	0.643	1.071	1.500	0.893
TOTAL	0.315	0.744	0.870	0.987	0.729

Score: 0: The financial institution does not mention the SDG in the sustainability report; 1: The financial institution makes a statement about the SDG and its importance but does not include any specific aspirations or ambitions; 2: The financial institution makes a statement about the SDG and includes a qualitative ambition or aspiration on achieving it, identifying a quantitative KPI for the SDG; 3: The financial institution links the SDG KPI to the social, environmental and/or economic impact generated.

In 2019, two SDGs (SDG 8 and 17) obtained contributions that scored higher than the 1.5 midpoint. In other words, the financial entities in our sample only incorporated these SDGs into their business strategy during the last year considered. Furthermore, in 2016 none of the 17 SDGs obtained a contribution score greater than one. Nevertheless, although these financial institutions disclosed low levels of contributions to the SDGs, the values rose consistently, every year from 2016.

As can be seen in Table 2, during the study period, the mean SDGI1 was 0.243, with a minimum of 0 and a maximum of 0.666. The average Tier 1 capital ratio of the sample was 15.58%, slightly above the EU average Tier 1 ratio of 15.14% in June 2020. The average total loan amount was €140,609 million, and average loan loss provisions were €1067 million. The mean management efficiency ratio was 66.44%. The average profitability ratio was 2.76%, and the mean ROA was 57.35%, with minima of −126% and −81.95%, respectively, and maxima of 952.30% and 332.46%, respectively. The average liquidity ratio of the

observations was 15.93%. Finally, the mean interest-bearing liabilities to total assets ratio was 0.131 with a minimum of almost 0 and a maximum of 0.582.

Table 2. Descriptive statistic.

Variables	Mean	Std. Dev.	Min	Max
SDGI1	0.2429972	0.2241159	0	0.6666667
SDGI2	0.1789216	0.1739195	0	0.5196078
Tier 1 Ratio	15.58821	6.445451	10.17	41.07
PLL	12.08547	1.930983	7.260523	16.07278
MER	66.44883	22.2035	20.83623	178.939
PR	2.760182	2.054071	−0.1264783	9.523036
ROA	0.5735058	0.6796266	−0.8195597	3.324677
Loans	17.73475	1.557469	13.91854	20.65865
LR	15.93573	2.839658	4.671276	19.72133
IntBearLiab	0.1312261	0.1401797	0.0000353	0.5827239
Loans (Thousand EUR)	140,608,509	226,206,859	1,108,523	937,423,000
Liquid Assets (Thousand EUR)	45,532,070	87,005,810	107	367,169,000
Loans Loss Prov. (Thousand EUR)	1,067,428	2,502,532	−458,004	9,557,000

Tier 1 Ratio: total equity to total risk-weighted assets. Provision for loan losses (PLL): natural logarithm of provisions for loan losses. Management efficiency ratio (MER): cost-to-income ratio. Profitability ratio (PR): operating income to total assets. Return on assets (ROA): operating profit to total assets. Loans: natural logarithm of total loans. Liquidity ratio (LR): natural logarithm of total liquid assets. Interest-bearing liabilities (IntBearLiab): other interest-bearing liabilities to total assets.

4.2. Empirical Results

Table 3 shows the Pearson correlations and the variance inflation factor (VIF) obtained for each independent variable considered. Although the correlations are significant, they do not seem to be strong enough to cause multicollinearity problems, and the VIF should not be higher than 10 [58]. We conclude, therefore, that the study data are not excessively affected by problems of multicollinearity.

Table 3. Pearson correlation and VIF independent variables.

	VIF	A	B	C	D	E	F	G	H
Tier 1 Ratio	4.89	1	-	-	-	-	-	-	-
PLL	4.59	−0.1822	1	-	-	-	-	-	-
MER	2.60	0.0889	−0.1666	1	-	-	-	-	-
PR	1.90	−0.0325	0.0485	−0.7002 ***	1	-	-	-	-
ROA	3.39	0.2040	−0.1060	−0.5920 ***	0.8677 ***	1	-	-	-
Loans	2.56	−0.5006 ***	0.6978 ***	0.0570	−0.3500 ***	−0.4725 ***	1	-	-
LR	2.59	−0.2601	0.5185 ***	0.3746 ***	−0.6918***	−0.7307 ***	0.869 ***	1	-
IntBearLiab	1.62	0.6482 ***	0.4091 ***	0.3008 **	−0.3749 ***	−0.1750	0.1998	0.4127 ***	1

*** Significant at 1%, ** significant at 5%.

Table 4 presents the linear regression with correlated panel-corrected standard errors (PCSEs) results obtained. The model has a significant Wald chi^2 value of 257.30, with an adjusted R-squared value of 16.93% for the sample. The coefficient of the Tier 1 Capital ratio (which represents capital adequacy) is positive and significant (Coef.: 0.0456061; *p*-value: 0.000), as expected. Thus, the higher the capital ratio (lower capital risk), the higher the SDGI1. This result implies that financial institutions that are healthier make a higher

contribution to the SDG than those at greater capital risk. This result gives support to Hypothesis 1, meaning that capital risk is related to the financial institutions' contributions to the SDGs. Furthermore, the management efficiency ratio is significant and positively correlated with the dependent variable (Coef.: 0.040357; *p*-value: 0.000). Thus, financial institutions with a larger cost structure compared to their income level tend to show higher contribution to the SDG. This result could be interpreted as meaning that managements that are less efficient in reducing their costs tend to incorporate the SDGs into their business operations; or in other words, that financial institutions with a complex business structure and hence, higher costs, tend to incorporate the SDGs into their business strategies, thus making a greater contribution to the SDGs. This result gives support to Hypothesis 3, meaning that management skills are related to the financial institutions' contributions to the SDGs. Finally, the positive and significant relationship between IntBearLiab and SDGI1 shows that financial institutions at greater market risk tend to make a higher contribution to the SDGs. When financial institutions have a higher IntBEarLiab, this means that they are paying higher interest rates in order to capture deposits and improve liquidity. These results suggest that institutions which are more exposed to market risk incorporate the SDGs into their business strategies to acquire even more deposits from clients, via a more sustainable business approach. This result gives support to Hypothesis 6, meaning that market risk is related to the financial institutions' contributions to the SDGs. Overall, these results suggest that the risk profiles of financial institutions making higher contributions to the SDGs are characterized by a solid capital position, a variety of business lines and extensive branch networks. These features are associated with higher costs and greater exposure to market risk, as the entities must pay higher interest rates to their customers in order to attract the deposits needed to finance their different lines of business. The results do not support Hypotheses 2, 4 and 5 as the variables related to assets quality (PLL), earnings and profitability (PR and ROA) and liquidity risk (loans and LR) show no significant relationship with the financial institutions' contribution to the SDGs. In summary, the results give support to Hypotheses 1, 3 and 6.

Table 4. Regression model on SDGI1 with PCSEs.

SDGI1	Coef.	Std. Err.	z	*p*-Value	[95% C.I.]	
Tier 1 Ratio	0.0456061	0.0067727	6.73	0.000 ***	0.0323318	0.0588804
PLL	−0.0073088	0.0322098	−0.23	0.820	−0.0704389	0.0558213
MER	0.0040357	0.0008275	4.88	0.000 ***	0.0024138	0.0056576
PR	0.0261489	0.0341474	0.77	0.444	−0.0407788	0.0930765
ROA	0.043796	0.1077245	0.41	0.684	−0.1673401	0.2549322
Loans	0.1067764	0.0563555	1.89	0.580	−0.0036784	0.2172312
LR	0.0328758	0.0288062	1.14	0.254	−0.0235834	0.0893349
IntBearLiab	−13.927	0.4218636	−3.30	0.001 ***	−2.219.537	−0.5658625

*** Significant at 1%. N: 56. Wald chi2: 257.30. Prob > chi2: 0.000. Adj. R-squared: 0.1693. Tier 1 Ratio: total equity to total risk-weighted assets. Provision for loan losses (PLL): natural logarithm of provisions for loan losses. Management efficiency ratio (MER): cost-to-income ratio. Profitability ratio (PR): operating income to total assets. Return on assets (ROA): operating profit to total assets. Loans: natural logarithm of total loans. Liquidity ratio (LR): natural logarithm of total liquid assets. Interest-bearing liabilities (IntBearLiab): other interest-bearing liabilities to total assets.

5. Robustness

A sensitivity test was applied to check the robustness of our findings, using an alternative SDG Index (SDGI2) to identify levels of contribution to the SDGs. This test, termed SDGI2, was obtained as follows: the values assigned in SDGI1 were redistributed such that the more accurately they measured the impact produced on the SDGs, the higher the value allocated. The rationale for this approach is our understanding that a premium

should be given when the financial institution publishes a quantitative target (SDGI1 allocates a value of 2, while SDGI2 assigns a value of 3) or measures the impact produced (SDGI1 allocates a value of 3 while SDGI2 assigns a value of 6). In the SDGI2, scores are assigned to each SDG according to the following criteria:

0: The financial institution does not mention the SDG.

1: The financial institution makes a statement about the SDG and its importance but does not include any specific aspirations or ambitions.

3: The institution makes a statement about the SDG and also includes both a qualitative ambition or aspiration and a quantitative KPI.

6: The institution meets the above criterion and in addition links the SDG KPI to the social, environmental and/or economic impact generated.

The composition of the index is as follows:

$$SDGI2i = \sum_{j=1}^{17} \left(\frac{\text{SDGj}}{17} \right) \beta * 100 \quad (3)$$

where $\sum_{j=1}^{17} \left(\frac{\text{SDG}}{17} j \right)$ indicates the total number of SDGs reported by a specific financial institution with $j = 1, \ldots, 17$; and β indicates the level of detail assumed in the published report. The value of this variable is assessed as 0, 1, 3 or 6 according to the entity's level of contribution to the SDGs, as explained above.

This robustness test did not modify the results obtained or the conclusions drawn (see Table 5).

Table 5. Robustness–regression model on SDGI2 with PCSEs.

SDGI2	Coef.	Std. Err.	z	*p*-Value	[95% C.I.]	
Tier 1 Ratio	0.0360782	0.0052494	6.87	0.000 ***	0.0463668	0.0360782
PLL	−0.0059957	0.0250389	−0.24	0.811	0.0430796	−0.0059957
MER	0.0030644	0.00061	5.02	0.000 ***	0.0042599	0.0030644
PR	0.0257322	0.0271194	0.95	0.343	0.0788852	0.0257322
ROA	0.0164821	0.0831029	0.20	0.843	0.1793608	0.0164821
Loans	0.0862872	0.041847	2.06	0.391	0.1683059	0.0862872
LR	0.0201385	0.0209797	0.96	0.337	0.061258	0.0201385
IntBearLiab	−1.044.096	0.3230822	−3.23	0.001 ***	−0.4108664	−1.044.096

*** Significant at 1%. N: 56. Wald chi2: 124.34. Prob > chi2: 0.000. Adj. R-squared: 0.1751. Tier 1 Ratio: total equity to total risk-weighted assets. Provision for loan losses (PLL): natural logarithm of provisions for loan losses. Management efficiency ratio (MER): cost-to-income ratio. Profitability ratio (PR): operating income to total assets. Return on assets (ROA): operating profit to total assets. Loans: natural logarithm of total loans. Liquidity ratio (LR): natural logarithm of total liquid assets. Interest-bearing liabilities (IntBearLiab): other interest-bearing liabilities to total assets.

6. Conclusions

For most financial institutions, risk management is closely related to business success. Many view the UN 2030 Agenda as an opportunity to contribute to society and play an active role in promoting sustainable development. For these entities, the existence or otherwise of an effective risk management system is a relevant factor in determining their success in this respect. Accordingly, the aim of the present study is to investigate the impact produced by financial institutions' risk profiles on their contribution to the SDGs.

Among the motivations for financial institutions to publish sustainability reports, they seek to claim legitimacy for their operations and to provide useful information to stakeholders. Accordingly, these entities usually incorporate social and environmental risk considerations into their risk management systems. These systems, in turn, influence the level of contributions made to the SDGs. In the present study, we examine the relationship

between these contributions, as disclosed in the sustainability report, and the corresponding risk profile.

The sample examined in this analysis is composed of all Spanish financial institutions that published a sustainability report and relevant financial information during the period 2016–2019. The results obtained show that the sustainability reports of institutions with less capital risk, lower levels of management efficiency and greater sensitivity to market risk are more likely to disclose higher levels of contributions towards the SDGs. Our analysis, based on a CAMELS-risk approach, shows that healthy banks, those with higher costs (usually large entities with an extensive branch network and complex areas of business) and those paying higher interest rates to acquire deposits from clients tend to make higher levels of contributions towards the 2030 Agenda, especially SDG 4 and SDG 8. The contribution to the latter, "Decent work and economic growth", is intuitively apparent, as financial institutions play a significant role in the financial inclusion process within the economy and in providing finance to the public and private sectors in investment projects that create jobs and economic growth, especially in the case of SMEs in regional areas. This result, moreover, is in line with the conclusions of PwC [52], where SDG 8 was identified as being prioritised by financial institutions worldwide. The contribution made by financial institutions to SDG 4, "Quality education", is channelled by helping governments improve the education system, via loans for students to access high-quality education and by providing companies with funds for training programmes. This result, too, is in line with PwC [52], although in our analysis, SDG 4 was the second ranking SDG in terms of contributions by the financial sector, while in PwC [52], it was in third place. Another relevant finding from our study is that SDG contribution disclosure by financial institutions in Spain increased consistently year by year during the study period, concerning almost all SDGs. Although the financial sector's involvement with the 2030 Agenda began slowly, new trends in favour of responsible banking seem to be gaining momentum. An important feature of the present study is that it is, to our knowledge, the first to consider the association between the risk profile of financial institutions and their contribution to the SDGs.

Our findings are novel in that we provide fresh insights into the reporting strategies adopted by the financial services sector, a vital component of the economy. We show that solid financial institutions with a strong capital structure, subject to significant costs (which usually reflect the existence of a large network and complex business activity) and paying higher interest rates to acquire deposits contribute most to the 2030 Agenda. From this, we conclude that these solid financial institutions are well positioned to contribute to society in favour of sustainable development. These findings have important implications for shareholders, investors and analysts, because sustainability reporting is used by financial institutions as a means of expressing their adherence and commitment to the 2030 Agenda and to high-quality corporate reporting. Stakeholders should also be aware that financial institutions may use sustainability reporting in order to enhance their reputation and as an opportunity to do more business. However, according to legitimacy theory, these practices may instead threaten the entity's credibility and create the perception that it is embracing the SDGs merely to divert attention from its level of risk, by creating a sustainable development profile and thereby attracting more customers. Finally, regulators should supervise the risk profile of financial institutions that make smaller contributions to the SDGs, as this could indicate risks to the institution's sustainability and to the stability of the financial sector and the economy as a whole. In short, regulators should consider the incorporation of the SDGs into financial institutions' activities and the resulting impact on society, the environment and the economy by applying the CAMELS rating system to assess institutional strength. For scholars, our paper contributes to the theoretical and practical implications of how financial institutions disclose their involvement with the 2030 Agenda. We develop an innovative index to measure the propensity of financial institutions to contribute to achievement of the SDGs. Finally, our paper indicates an interesting area for further study in relation to business practices and the disclosure of

contributions to the SDGs. From a managerial standpoint, the SDGs may be considered a benchmark enabling policymakers to determine whether the entity's social, economic and environmental activities add value to society, thereby strengthening its reputation and relationships with stakeholders.

The main limitation of this study is that the results cannot readily be extrapolated to other areas, as the data considered are those of financial institutions based in Spain and subject to the Spanish regulatory environment. Nevertheless, the risk management system employed by these institutions is in line with international regulations, with the standards of the Bank for International Settlements (BIS) and with a risk-based regulatory approach. Future research on sustainability reporting in the financial services sector worldwide should be undertaken to better understand the real contribution made by the financial services sector to sustainable development (via each of the SDGs) and the impact generated in society, the environment and the economy, and to show how this impact varies among countries and over time.

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