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MEASUREMENT OF SUSTAINABILITY IN THE BANKING SECTOR: A LITERATURE REVIEW SINCE THE LAUNCH OF THE SDGS

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1 INTRODUCTION

The banking sector is an important player as a source of financial resources and activities in favor of sustainability. The Sustainable Development Goals (SDGs) and the Paris Agreement reaffirmed this importance in 2015, by highlighting the intermediary role of banks in providing financial resources aimed at achieving the SDGs. In this scenario, the banking sector can influence the direction and pace of the development of a society (JEUCKEN; BOUMA, 1999; BEHESHTINIA; OMIDA, 2017). This makes it possible to contribute to sustainable development, both through its internal practices and the transformation of its business model, as well as through the influence on the sustainability transition of its customers (WORKING GROUP FINANCE, 2016). The sector's concern can be demonstrated through the creation of initiatives and adherence to international sustainable development agreements, such as the United Nations Environment and Sustainable Development Finance Initiative, the Equator Principles, the Principles for Sustainable Development and Responsible Investment, and Sustainable Stock Exchanges.

In this context, measuring corporate sustainability helps to understand the strengths and points that need to be improved in the institution. According to Searcy (2012, p.240), a corporate sustainability performance measurement system can be understood as "a system of indicators that provides a corporation with the information needed to help in the short and long-term management, controlling, planning, and performance of the economic, environmental, and social activities undertaken by the corporation". Despite the importance of the banking sector for sustainable development, studies in measuring its contribution to sustainability have received little attention compared to other sectors of the economy (LINS; WAJNBERG, 2007; BANHALMI-ZAKAR, 2016; RAUT; NAOUFEL; KHARAT, 2017; KARIMI; HOJATI; FORREST, 2020; TANJUNG, 2020).

Aras et al. (2017) carried out a case study in Turkish banks and stated that economic, environmental, and social indicators are insufficient to measure practices. After conducting an empirical study, Aras, Tezcan and Furtuna (2018) indicated that most of the sustainability reports are not comparable because they do not use the same criteria and measurement models. Raut, Naoufel and Kharat (2017) also pointed out the need for an efficient and effective model for assessing the degree of sustainability performance of banks, as this can affect the productivity, profit and performance. Karimi, Hojati and Forrest (2020) claimed that few studies present an overall model for assessing the management of sustainability in this sector.

Therefore, the objective of the present study is to identify the elements for measuring sustainability in the banking sector. To do so, a systematic literature review (SLR) was carried out followed by content analysis. The RSL contains articles from 2015, the year the SDGs were launched, which highlighted the importance of the banking sector in achieving sustainable development. By so doing, this study has both academic and managerial contributions. Regarding the academic terms, it maps the current literature, identifies a set of elements for measuring sustainability in the banking sector and contributes to open new avenues to research. Regarding the managerial contribution, the results can be used by banks to assess and measure the sustainability performance of their institution, by stakeholders to require a sustainable posture, and by policymakers to guide the actions of companies and society.

The paper is structured as follows. Section 2 presents the method used to achieve the proposed objective. The results are presented in section 3 and the conclusions in section 4.

2 METHOD

To achieve the research objective, a systematic literature review (SLR) and content analysis were carried out. The SLR identifies studies on a given subject and raises its main contributions with rigor, reliability, impartiality, and transparency, enabling the replication of the work (DENYER; TRANFIELD, 2009). Thus, it allows an objective comparison and a critical analysis of previous studies to reduce the existing biases (DURACH; KEMBRO; WIELAND, 2017). Figure 1 presents a summary of the SLR processes were carried out following Tranfield, Denyer and Smart (2003) and the Prisma Statement Flow Diagram (MOHER et al., 2009).

Figure 1 - Research steps

SLR Stages	Aim	Steps
2.1 Planning the review	Define the review aim and research question	Scope review
2.2 Conducting the review	Identify, select and evaluate studies and extract and synthesize data	Definition of strings → Figure 2
		Database search → Scopus and Web of Science
		Selection of articles / Inclusion and exclusion criteria → Figure 3
		Content analysis → Reading, analysis and coding
2.3 Generation and dissemination of results	Report results	Overview of the literature on measuring sustainability in the banking sector → Section 3
		Concept analysis, scope and measurement → Section 3

Source: Authors.

In the stage planning the review, a scoping review was carried out on the measurement of sustainability in the banking sector to identify the need for a systematic literature review as well as its aim and research questions. As a result, it was found that the measurement of sustainability in the banking sector is still incipient with no established standard. Thus, the following question was established to guide this exploratory review was: “What elements of sustainability are measured in the banking sector?”.

In conducting the review, a fundamental part of an SLR is the protocol, which guides and provides consistency throughout the review to reduce possible biases (BADGER et al., 2000). The protocol used in this study is shown in Figures 2 and 3.

Figure 2 - SLR protocol

Question	What elements of sustainability are measured in the banking sector?
Construct	Measurement of sustainability in the banking sector
Key words	Measurements; Performance; Performance assessment; Analysis; Indicators; Bank performance; Sustainability performance; Corporate sustainability performance; Sustainability; Sustainable development; Corporate social responsibility; Sustainable banking; Ethical banking; Green banking; Bank; Banking industry; Banking sector; Banking institutions
String	(measur* OR performance OR assessment OR metric* OR evaluat* OR apprais*) AND (sustain* OR environm* OR social OR responsib* OR green OR ethic* OR "ESG" OR "environmental social and corporate governance") AND bank*)

Source: Authors.

The search using the strings shown in Figure 2 was carried out in the last quarter of 2020 on the Scopus and Web of Science data platforms. Such platforms were chosen because they are comprehensive, contain a wide range of studies, and are updated frequently. It was selected studied written in English, published in peer-reviewed journals, from any area of knowledge, and published between 2015 and 2021. 2015 was chosen as the start year because of the launch of the Sustainable Development Goals (SDGs), which highlighted the relevance of the role of the financial system as a whole and the banking sector in particular in achieving sustainable development. These objectives are at the core of the 2030 Agenda for Sustainable Development, which was signed by 197 of the United Nations Member States.

Figure 3 - Inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Access	Have access to work, be written in English	Not having access to work, not being written in English
Document Type	Articles from peer-reviewed journals	Congress or conference articles, books, business newspapers, current magazines, reports and websites
Focus	Measuring sustainability in the banking sector	Measuring sustainability in an economic sector other than banking
Analysis Unit	Measuring elements of sustainability in the banking context	Measurement of sustainability in relation to other types of financial institutions
Clarity	Clearly deals with elements of measuring sustainability within the banking sector	Does not present models for measuring sustainability in the banking sector
Journal quality	Scientific journal with peer review	Scientific journal without peer review

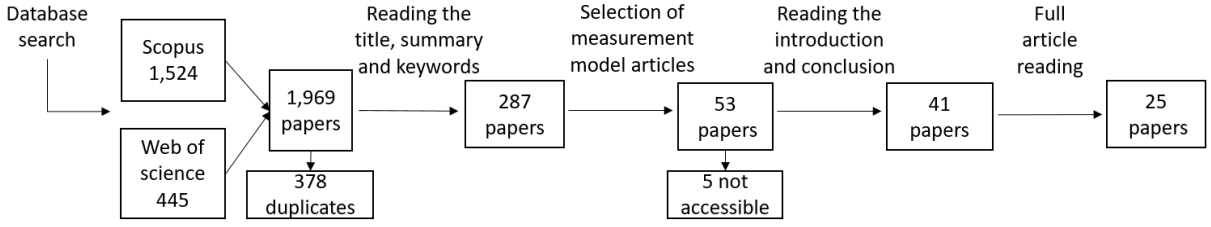
Source: Authors.

A total of 1,969 articles were obtained, of which 378 were duplicated. Inclusion and exclusion criteria are presented in Figure 3. After reading the title, abstract, and keywords, 1,304 studies were excluded because they did not present aspects of measuring sustainability in the banking sector. The remaining 287 articles are related to measurement in the sector, however, most of them dealt exclusively with the relationship between sustainability and financial performance, which was not the focus of this study. As a result, 53 articles were selected, among which, five were not available for download.

After reading the introduction and conclusion, seven articles were excluded. One of the papers was excluded as it dealt with the cash payment system: including Dutch central bank, the Royal Dutch Mint, a commercial bank, a cash logistic service provider, two cash-in-transit companies, two printing works, an ATM manufacturer and municipal waste incinerator. Three papers analyzed performance only in the economic sphere. Others focused on the performance of specific religious principles, or the relationship between sustainability and financial performance, or companies in other economic sectors. Finally, with the complete reading of the article, sixteen studies were withdrawn, because they did not present a model or elements for measuring sustainability, or only focused on the relationship between sustainability and financial performance. Finally, twenty-five articles were aligned with the objective of the present work. Figure 4 represents this process.

The content analysis was performed with the aid of the Qualitative Data Analysis (QDA) Miner software (QDA, 2017). The tool facilitated data management and the broad encoding of significant segments at the sentence level. This codification used mutually exhaustive and exclusive categories, following the recommendations of Krippendorff (2013). The grouping was carried out inductively based on the complementarity and similarity of the contents. Thus, management and process elements were codified. The process ones were divided into the environmental, social and economic spheres. Later, Microsoft Excel software was used to extract and synthesize data.

Figure 4 - Summary of the SRL results



Source: Authors.

The third stage, generation and dissemination of results, aimed to answer the research question and present the relevant points. For this, a descriptive analysis was carried out that

shows the evolution of the number of articles over the years, the main publication journals, the countries of affiliation of the authors, and the locations of the study sample. Through content analysis, the elements for measuring sustainability in this sector were identified.

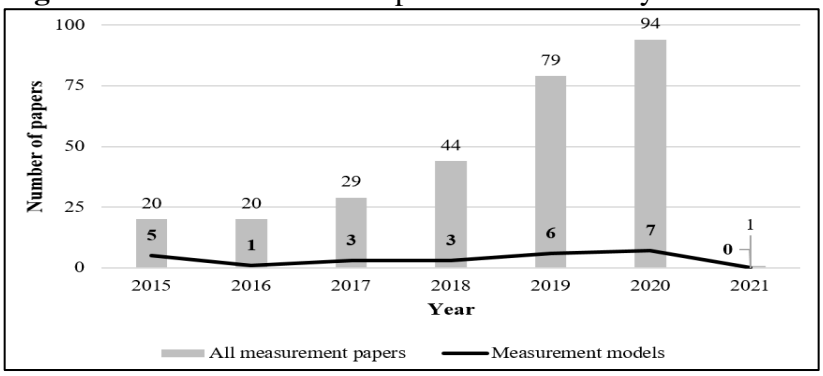
3 RESULTS AND DISCUSSIONS

This section presents the results in two stages. The first contains a descriptive analysis to portray the profile of the identified studies. The second covers a content analysis in which the elements for measuring the sustainability of the banking sector are identified and discussed.

3.1 Descriptive analysis

The SLR resulted in twenty-five articles dealing with elements of measuring sustainability in the banking sector. These are represented by letters and are described in the references with the respective letters and marked with an *. Figure 5 shows the evolution of the number of articles published over the years. The bars indicate a total of 287 articles related to measurement, including those that focused on the relationship between some aspect of sustainability and financial performance or those that measured economic sustainability exclusively. The line represents the 25 articles that contained models with elements for measuring sustainability in the banking sector.

Figure 5 - Number of articles published over the years



Source: Authors.

Concerning the measurement articles in general, there was an increase in the number of publications, which portrays the current relevance of the subject. The largest increase was between the years 2018 and 2019, with a growth of 79.54%. Papers about measurement models were scarce but they have also shown an increase over the years, peaking in 2018 and 2019 when the number of publications doubled from the previous years. These papers were published in a wide variety of outlets. The journals with the largest number of publications were Sustainability (4) and Journal of Cleaner Production (2), both focussed on sustainability issues. The other journals were either associated with sustainability or economics and management areas. Regarding the countries of the universities to which the authors belong, most of the papers were from the Asian (46%) or the European (43%) continents. Also, 59% of the authors' affiliation countries have developing economies and, with the exception of Ukraine which has economies in transition, the rest have developed economies (UNITED NATIONS, 2020).

On the other hand, concerning the sample, some authors specify the country of the sample, the main ones are Turkey and India, with three studies each, and Brazil, China and Pakistan, with two articles each, all of these have developing economies (UNITED NATIONS, 2020). In addition, about the studies that specify the sample country, 74% refer to countries with developing economies. Some authors cite the continents to which the sample belongs and two studies make a theoretical review using studies from different countries and do not detail them. As in the analysis of the authors' affiliation continents, the continents of the samples that stand out are Asia (42%) and Europe (36%). America, Africa, and Oceania correspond to 12%, 6%, and 3%, respectively. In addition, among the 25 studies, 4 are in Islamic banks, 1 in

cooperative banks and another in microcredit banks. The other studies name their samples as banks, the banking sector, public and private banks, or commercial banks.

3.2 Concept of sustainable banking

Regarding the concept of sustainable banking, few authors have a definition and there is still no consensus in the literature (DOSSA; KAEUFER, 2013; KUNHIBAVA; LING; RUSLAN, 2018). Some authors use different terms to refer to the same object, others still use the same definition for different subjects. It can be divided into two major blocks: the sustainable financial sector and sustainable banking sector, the second being part of the first, however, it is specific to banks.

According to Guan et al. (2019), the United Nations Environment Program first used the term sustainable finance. Aras, Tezcan and Furtuna (2018) present this term as financial institutions and markets that create sustainable value, in balance with society and the economy in long-term thinking. Korzeb and Samaniego-Medina (2019) also mention the creation of value, but for shareholders and respecting the environment and social development. Also, these authors emphasize banking activities for the use of this term, not financial services as a whole. Guan et al. (2019) define sustainable finance as a development model that does not harm the future by meeting the needs of the present. Thus, *sustainable finance applies to all financial institutions that consider environmental, social, and economic issues, in balance, in their products and, services in the short, medium, and long term practices.*

On the other hand, sustainable banking, according to Kumar and Prakash (2019), refers to the inclusion of environmental, ethical, and social issues in the banking business strategy. Rebai, Azaiez and Saidane (2016) also cite the consideration of such aspects pointed out by Kumar and Prakash (2019) and emphasize the involvement of all interested parties in which everyone benefits in the short, medium and long term horizons. In this context*, a sustainable bank is a bank that offers sustainable products and services and has management and process practices that consider economic, environmental and social aspects, in a balanced way, to provide benefits to all in the short, medium and long horizons deadline.*

3.3 Scope of sustainability measurement elements

The scope of the sustainability measurement elements concerns which elements are presented by the studies in their models. When analyzing this aspect, it is noted that there is no standardization and each author has a vision or classification for such elements. Also, the authors named the dimensions in which these elements are divided in different ways such as dimension (ARAS; TEZCAN; OZLEM, 2018; KARIMI; HOJATI; FORREST, 2020), areas of analysis (BIRINDELLI et al., 2015), aspects (CHEN; PAN, 2020), primary indicators (GUAN et al., 2019), stakeholders (REBAI; AZAIEZ; SAIDANE, 2016; KARKOWSKA, 2020), groups (KUMAR; PRAKASH, 2019), criteria (NEPOMUCENO; DARAIO; COSTA, 2020), efficiencies (NOURANI;MALIM;MIA,2020) or perspectives (RAUT; NAOUFEL; KHARAT, 2017). The type of content for each of these dimensions also differs as can be noted in Table 1. References appearing in Tables 1-6 are listed by their respective letters at the end.

Table 1- Dimensions identified in the studies

Study dimensions	**Authors**
Economic, environmental and social	E, O, R, W
Economic, environmental, social and governance	B, C, D
Scale and Resource,Profitability,Operating Capacity,Society and Environment Coordination	G
Financial Sustainability Disclosures, Energy Consumption and Saving Disclosures, Social Sustainability Disclosure and Product Responsibility Disclosures	L
Sustainability, Social factor, Staff factor, Customer factor, Environmental factor, Economic factor, Risk factor and Corporate governance factor	I
Shariah governance[1], Employee, Community, Customer and Environmental	Y
Cost, Environment Impact, Availability and Accessibility to the inputs	N
Operational Efficiency, Financial Sustainability Efficiency and Social Outreach Efficiency	P

Social and Economic	Q
Social	K
Environmental	X
Customers, Regulators, Shareholders, Society and Managers	J
Regulators, Civil Society, Customers, Employees, Managers and Shareholders	T
Charity, Environment, HR, Investment and R&D	A
Green Indicator, Capital Adequacy, Asset Quality, Management Quality Level, Profitability, Fluidity and Sensitivity to Market Risk	H
Financial Stability, Customer Relationship Management, Internal Business Process and Environment-Friendly Management System	S
Process (Investment, Research and Development and Human Resources) and Outcome-oriented (Shariah Supervisory Board[1], Social Activities and Sharing and Environment)	V
Disclosure, Organization and Management, Offer of Socially Responsible Instruments, International Agreements, Certifications and Indexes	F
Sustainable Products and Services, Environmental Management Dimension Indicators, Social Development Dimension Indicators, Internal Socio-ethical Conduct, Sustainability Code of Conduct, Reporting, ESG Indexing	M
Transparency, Ethical and Social Assessment of Investment Projects and Triple Benefit Perspective, Inclusive Government and Participatory, Humane and Sustainable Structure and Awareness-raising Efforts	U

Source: Authors. [1] Shariah Governance: system related to Islamic religious principles that manage the conformity of the activities of Islamic banks and financial institutions.

Some authors (PAULIK, 2015; NOFIANTI; OKFALISA, 2019; SHCHERBAK et al., 2019; ASGHAR et al., 2020) used the classic sustainability triple bottom line concept: economic, environmental and social. Others used this and added classification of the governance dimension (ARAS et al., 2017; ARAS; TEZCAN; FURTUNA, 2018). Or even just one or two dimensions of the traditional triple bottom line concept (PALOMO-ZURDO; FERNANDEZ-BARBERIS; GUTIERREZ-FERNANDEZ, 2015; TEIXEIRA, 2015; KAUR, 2019). The three dimensions also appeared in a modified way by some authors, focusing only on some aspects of the dimension (KORZEB; SAMANIEGO-MEDINA, 2019; KARIMI; HOJATI; FORREST, 2020; ZAFAR; SULAIMAN, 2020). There are also classifications based on stakeholders in the banking sector (REBAI; AZAIEZ; SAIDANE, 2016; KARKOWSKA, 2020) and based on the processes and results orientation (SHAHABUDDIN et al., 2018). Finally, some authors indicated dimensions of management and process (ALAMER et al., 2015; GUAN et al., 2019) and others only management (BIRINDELLI et al., 2015; PEREZ, 2017; KUMAR; PRAKASH, 2019).

Based on the analysis of such studies, the practices identified were grouped into four dimensions: management, social, environmental and economic. Management is related to strategy and has a holistic view of the entire company. It focuses on directing the company towards sustainability and on the necessary organizational alignment for this. Thus, it involves all sectors of the company, engaging its employees in active actions with this objective and using management and measurement systems. Also, this dimension encompasses partnerships with stakeholders in a joint search for sustainable development, the disclosure, the transparency of their actions, and adherence to external principles and standards.The other three dimensions include more sustainability specific activities. The social dimension is composed of unidirectional practices of equal development for the different stakeholders. The environmental dimension is formed by specific actions to preserve the environment. Moreover, the economic dimension, in turn, is concerned with economic stability and the creation of profit and value.

The results show that among these four dimensions, the ones that stand out the most are management and social, mainly in the years 2015 and 2019. Both dimensions are present in almost all studies, in 21 and 20 out of the 25 studies. The economic dimension also stands out, being mentioned in 17 studies. The environmental dimension is discussed in less than half of the studies (10).

These dimensions were broken down into sub-items named sub-dimensions. Table 2 shows the sub-dimensions covered by each study identified in the SLR. Most authors studied the sub-dimensions of employees (76% of authors), society (72%), customers (64%), profit (64%), and sustainable products (64%). Among these, only the last one belongs to the management dimension and profit to the economic, all others belong to the social dimension. On the other hand, sub-dimensions such as the leadership of top management (8%), water (16%) and land (16%) are seldom discussed in the literature, only a few authors mentioned these aspects.

Table 2 - Percentage of authors by sub-dimension

Dim.	Sub-dimension	Authors	%Authors
Management	Mission and vision of sustainability	B,C,D,E,U,Y	24%
	Sustainable products	A,B,C,D,F,G,H,I,L,M,O,Q,R,T,U,Y	64%
	Product-related practices	A,B,C,D,F,M,U,Y	32%
	Policies and guidelines	B,C,D,L,M,R,T,U,Y	36%
	Top management leadership	E,R	8%
	Employee awareness and engagement	B,C,D,F,O,T,U,Y	32%
	Sustainability management system and structure	B,C,D,E,F,K,M,O,S,T	40%
	Sustainability measurement and goals	B,C,D,E,F,J,M,O,R	36%
	Partnerships	B,C,D,F,U,Y	24%
	Disclosure and reporting	B,C,D,F,R,U,Y	28%
	Adherence to external standards	B,C,D,F,M,S,W	28%
Social	Employees	A,B,C,D,F,G,I,K,L,M,O,P,R,S,T,U,V,W,Y	76%
	Customers	B,C,D,F,G,I,J,L,M,O,R,S,T,U,W,Y	64%
	Society	A,B,C,D,F,G,I,J,K,L,M,O,R,T,U,V,W,Y	72%
	Suppliers	B,C,D,F,I,O,S,W,Y	36%
Economic	Investors and corporate governance	B,C,D,I,J,T	24%
	Investments	B,C,D,O,R,T,V	28%
	Profit	B,C,D,E,G,H,I,J,L,O,P,Q,S,T,V,W	64%
	Crisis management	G,H,I,J,O,S,T	28%
Environmental	Air	B,C,D,S,X,Y	24%
	Water	B,T,X,Y	16%
	Energy	B,C,D,N,O,S,T,V,X,Y	40%
	Materials	B,C,D,N,T,X	24%
	Lands	B,C,D,S	16%
	Biodiversity	B,C,D,S,V,Y	24%

Source: Authors.

The management dimension is detailed in sub-dimensions and practices identified in the SLR in Table 3 below. Seeking to achieve its sustainable objectives, banks must include sustainability concerns in their corporate mission and vision (ARAS; TEZCAN; FURTUNA, 2018; ASGHAR et al., 2020; ZAFAR; SULAIMAN, 2020), and their products must be aligned with these issues. Some sustainable products offered by banks are socially responsible investments (ALAMER et al., 2015; PALOMO-ZURDO; FERNANDEZ-BARBERIS; GUTIERREZ-FERNANDEZ, 2015), environmental funds (KUMAR; PRAKASH, 2019; KARIMI; HOJATI; FORREST, 2020), environmental financing (GUAN et al., 2019; CHEN; PAN, 2020), microcredit (REBAI; AZAIEZ; SAIDANE, 2016; ZAFAR; SULAIMAN, 2020), green mortgage and bonds (KUMAR; PRAKASH, 2019). Related to products, there are practices such as the use of socio-environmental criteria in the evaluation of financing (BIRINDELLI et al., 2015), exclusion of projects harmful to the environment or society (PEREZ,2017), and differentiation of the interest rate for green investments(ARAS et al.,2017).

To assist in the internal alignment of the entire institution, policies for sustainable development are established (REBAI; AZAIEZ; SAIDANE, 2016) such as: environmental management (PAULIK, 2015; KORZEB; SAMANIEGO-MEDINA, 2019), human resources

(ZAFAR; SULAIMAN, 2020) and human rights (ARAS; TEZCAN; FURTUNA, 2018). In addition, top management must lead and take actions that favor sustainable change (PAULIK, 2015; ASGHAR et al., 2020) and involve other employees through training (ZAFAR; SULAIMAN, 2020), awareness (ARAS et al., 2017), and incentives to adopt ecologically correct behaviors (PEREZ, 2017). Partnerships in favor of sustainable development are also beneficial, such as public-private partnerships (ARAS; TEZCAN; FURTUNA, 2018), with community organizations and industries (ZAFAR; SULAIMAN, 2020) or with other stakeholders (BIRINDELLI et al., 2015).

In this context, the presence of sustainability management structures (ASGHAR et al., 2020) is essential, as well as measurement systems (ARAS et al., 2017), goals (PAULIK et al., 2015), and rewards for compliance of the goals (NOFIANTI; OKFALISA, 2019). A sustainable bank is also be transparent by publishing reports on topics such as sustainability performance (BIRINDELLI et al., 2015), social and environmental impacts (PEREZ, 2017), corporate governance and economic value created (ARAS; TEZCAN; FURTUNA , 2018). Besides, there is adherence to several sustainable external standards, such as the Equator Principles, the Principles of Responsible Investment, and the United Nations Global Compact Principles (BIRINDELLI et al., 2015).

Table 3 - Elements of the management dimension

MISSION AND VISION OF SUSTAINABILITY	
Corporate sustainability mission (B,C,D,E,U,Y)	Corporate sustainability vision (B,C,D,Y)
SUSTAINABLE PRODUCTS	
Environmental financing (B,C,D,F,G,H,I,L,M,R,Y)	Financing for minority groups (students, women entrepreneurs, poor children, migrants) (B,C,D,F,L,Y)
Socially responsible investment (A,F,I,M,Q,U)	Microcredit (B,C,D,F,M,T,U,Y)
Financing entrepreneurs (B,C,D,I,L)	Investments / Environmental funds (I,M)
Financing for non-profit companies (F)	Strategic approach to the environment (I)
Socially responsible products (R)	Scientific analysis decision making (O)
Financing for agriculture (Y)	Responsible financing (I)
Green mortgage (M)	Green title (M)
PRODUCT-RELATED PRACTICES	
Investments in R&D in strategy and products (A,B,C,D,Y)	Non-investment in projects that are harmful to the environment, society or the economy (A,M,U)
Use of socio environmental criteria in financing (F,U)	Ethical and social assessment of projects or long-term commitment to customers and their communities (U)
Adoption of environmentally friendly technologies (M)	Low interest rates for green projects (B)
Evaluate the triple benefit (U)	
POLICIES AND GUIDELINES	
Environmental management policy (B,C,D,L,M,R,Y)	Corporate policy and strategy for sustainable development (B,C,D,T)
Human Resources Policies (B,C,D,M,Y)	Human rights policies (B,C,D,M)
Environmental guidelines (B,C,D,Y)	Employee welfare policies at work (Y)
Anti-corruption and ethics policy and procedure (M,R)	Social responsibility policy and sustainability reports(Y)
Sustainability at the heart of the business model (U)	
TOP MANAGEMENT LEADERSHIP	
Leadership and attitude towards sustainable change (E,R)	
EMPLOYEE AWARENESS AND ENGAGEMENT	
Awareness about energy consumption (B,C,D)	Employee volunteering (O,T)
Encouraging the involvement and adoption of environmentally friendly behaviors (U,Y)	Employee awareness training and programs (Y)
Training of employees in matters of CSR (F)	
SUSTAINABILITY MANAGEMENT SYSTEMS AND STRUCTURES	
Environmental sustainability management (K,M,O,S)	Environmental risk management in the loan policy (M)
Separate body for CSR activities (B,C,D,F)	Board of directors' meetings (T)
Sustainability management structure (E)	

SUSTAINABILITY MEASUREMENT AND GOALS	
Corporate recognition and award (B,C,D,F)	Corporate sustainability goal (B, C, D)
Monitoring CSR and sustainability activities (B,C,D)	Quantitative targets on environmental care initiatives(M)
Reward (E,O)	Goals for investment in the community (M)
Benefits and incentives (remuneration) (J)	Benefits and incentives (bonuses) (J)
CSR goals and strategy (R)	
PARTNERSHIPS	
Public-private partnership on sustainability issues (B,C,D)	Partnerships with community organizations, government agencies and industries for social causes(Y)
Stakeholder engagement (B,C,D,F,U)	
DISCLOSURE AND REPORTING	
CSR Disclosure (B,C,D,F,R)	Disclosure of sustainability performance (B,C,D,F)
Corporate governance report (B,C,D,U)	Disclosure of the economic value created (F,U)
Disclosure of the economic value distributed to the community and the environment (F)	Disclosure of all transactions related to the charity fund (Y)
Disclosure of social, environmental and / or cultural impacts (U)	Disclosure of information on remuneration policies (F)
Disclosure of information on conflicts of interest (F)	Disclosure of the source of the charity fund (Y)
Stakeholder Engagement Report (F)	Environmental report (F)
ADHERENCE TO EXTERNAL STANDARDS	
Compliance with environmental regulations (B,C,D,S)	Affiliation or adoption of the UN Global Compact Principles (F, M)
Inclusion in indexes or ethical classifications (F,W)	Compliance with GRI standards (F,M)
Adoption of UNEP FI (F,M)	Adoption of Equator Principles (F,M)
Adoption of the UN Universal Declaration of Human Rights (F)	Reputation Institute/Fortune Certification reputation ranking (F)
Adoption of Women's Empowerment Principles (F)	Member of the Dow Jones Sustainability Index (M)
Adoption of the PRI Principles (F)	Member / signatory of the Wolfsberg Group (F)
Adoption of Climate Principles (F)	Carbon Disclosure Project Support (F)
Partnership with UNI Global Union (F)	Collaboration with Unicef and / or WWF (F)
Ethical or quality certifications (F)	ISO 26000 (M)
BSE GREENEX indexing (M)	

Source: Authors.

The social dimension is subdivided according to the stakeholders of the banking sector and is detailed in Table 4 below. Employees are valued and encouraged to develop through internal professional training programs (KUMAR; PRAKASH, 2019; KARIMI; HOJATI; FORREST, 2020) or abroad (ARAS et al., 2017), with the offer of scholarships (ALAMER et al., 2015). There is no distinction of gender, age, an education level (ARAS; TEZCAN; FURTUNA, 2018) or physical capacity (REBAI; AZAIEZ; SAIDANE, 2016), and these work in a safe and healthy place (KARIMI; HOJATI; FORREST, 2020), following all measures for accident prevention (ARAS et al., 2017). In addition to common job openings, the bank also offers exclusive jobs for young people and part-time jobs or internship (ARAS; TEZCAN; FURTUNA, 2018) and uses several strategies to attract and retain talents, such as concern for the well-being and quality of life (ZAFAR; SULAIMAN, 2020), housing assistance (ARAS et al., 2017) or bonuses and rewards (REBAI; AZAIEZ; SAIDANE, 2016). Finally, all human rights are respected (PAULIK et al., 2015; NOFIANTI; OKFALISA, 2019) and child labor is prohibited (RAUT; NAOUFEL; KHARAT, 2017).

Customers, in turn, must be satisfied (CHEN; PAN, 2020), have a complaint center (REBAI; AZAIEZ; SAIDANE, 2016), have easy access to the services offered (KARKOWSKA, 2020) and receive quality products (SHCHERBAK et al., 2019). The information about the products must be clear (ZAFAR; SULAIMAN, 2020) and the customer's security and privacy must be respected (SHCHERBAK et al., 2019).

Concerning society, banks can support charities (ALAMER et al., 2015), sponsor education (KAUR, 2019), culture and sport (KORZEB; SAMANIEGO-MEDINA, 2019), make

donations (CHEN; PAN, 2020), support community development (SHAHABUDDIN et al., 2018; SHCHERBAK et al., 2019), carry out social awareness programs (ARAS; TEZCAN; FURTUNA, 2018), environmental (ZAFAR; SULAIMAN, 2020) or further promote financial education (BIRINDELLI, et al., 2015; KUMAR; PRAKASH, 2019). Another important point is compliance with the code of conduct (PAULIK et al., 2015; ZAFAR; SULAIMAN, 2020) and mechanisms for reporting the violation of such code (BIRINDELLI, et al., 2015). Finally, there must be good relationships with suppliers (KARIMI; HOJATI; FORREST, 2020) and they must go through a process of evaluating the performance of sustainability in their operations (RAUT; NAOUFEL; KHARAT, 2017).

Table 4 - Elements of the social dimension

EMPLOYEES	
TRAINING	
Professional training programs (B,C,D,I,M,R)	HR Development (B,C,D,K,O,U,Y)
Investment in education and training (V,Y)	Professional training abroad (B)
Scholarships offered (A)	Awareness about learning (O)
DIVERSITY	
Employee education level (B,C,D,G)	Female representation (B,C,D,T)
Program to promote diversity and equality (F,R,S,Y)	Promotion of gender equity and diversity (I,K,M)
Employee seniority (B,C,D)	Employee age (B,C,D)
Disabled employees (T)	Equal pay between genders (B)
International employees on the board of directors (T)	
HEALTH AND SAFETY	
Healthy and safe workplace (B,C,D,I)	Measures to prevent accidents (B,C,D)
Disclosing accident statistics (B,C,D)	Worker's health (I,O,Y)
On-site medical facility (B,Y)	Employee safety (Y)
JOB CREATION	
Total employees (B,C,D,G,I,S,P,Y)	Turnover rate (B,C,D,R)
New hire rate (B,C,D)	Job creation for young people (B,L)
Part-time or internship work (B)	
ATTRACTION AND RETENTION	
Provision for retirement benefits (B,C,D,T,Y)	Compensation of the employee (B,C,D,I,T)
Reward and recognition for better performance (B,C,D,Y)	Help in case of difficulties (medical care, social assistance) (Y)
Well-being and quality of life (B,C,D,Y)	Employee satisfaction (A,F,R)
Bonuses and incentives (T,Y)	Provision for recreational benefits (B)
Provisions for maternity and paternity leave (B,C,D)	Provision of overtime with the appropriate benefits (B)
ESG variables within the remuneration policy (F)	Good relationship with the employee (Y)
Promoted employees (T)	Employee loan facilities (B)
Housing assistance (B)	
HUMAN RIGHTS	
Prohibition of child labor and human rights violations (B,C,D,S,Y)	Freedom of association for collective bargaining (B,C,D)
Workers' rights (A,W,Y)	Human rights (I,R,O,Y)
Justice in terms of wages and hours worked (V,Y)	Prohibition of the exploitation of women (Y)
CUSTOMERS	
SATISFACTION	
Complaints management (B,C,D,I,R,T,Y)	Measuring customer satisfaction (F,G,I,R,S,Y)
Service quality (J,O,W,Y)	Customer relationship management (I,S,Y)
Safe and contemporary technological infrastructure (B,C,D)	Accessibility (branches and ATMs) (J,T)
Accessibility (O,Y)	Customer retention rate (S,T)
Accessibility (disadvantaged people) (M)	Fair and lasting relationship with the customer (Y)
Response time to complaints (T)	Responsiveness (responsiveness) (S)
Accessibility (average wait time and internet connections) (T)	Accessibility (access points in sparsely populated or remote areas) (M)

Consumer health and safety (S)	
PRODUCT INFORMATION	
Different types of products and services (B,C,D,I,T)	Complete and accurate product information (B,C,D,Y)
Information related to new products (B,C,D)	Compliance with product policies /rules (B,L,Y)
Adequacy of the price (R)	Ability to maintain the product (S)
Reputation and market position (S)	Advertising (blog, newsletters or periodicals) (U)
PRIVACY	
Respect for consumer rights beyond legal requirements (Y)	Customer security and confidentiality (W,Y)
SOCIETY	
SOCIAL ACTIONS	
Support and development of local communities (B,C,D,I,K,L,O,U,V,W,Y)	Commitment to play a role in society beyond profit generation (Y)
Sponsoring education (B,C,D,K,L,R,Y)	Sponsorship of culture and sport (B,C,D,L,Y)
Poverty Alleviation Practices (B,J,K,L,Y)	Community health protection (B,I,K,M,Y)
Rural support and development (B,C,D,K,Y)	Donation (G,L,Y)
Philanthropic activities (R,T,Y)	Social awareness programs (B,C,D)
Support for the participation of people with disabilities in social and economic life (B,C,D)	Program to promote financial education / literacy (F,M)
Empowerment and community involvement (M,O)	Helping victims of natural disasters (B)
Sponsorship (M)	Support for the rights of the child (I)
Performance of the social security role without seeking profit (V)	Concern for improving the general well-being of society (Y)
Support for charities (A,B,I,L,M,V,Y)	Immediate contribution to the national product (T)
Education and public awareness campaigns (Y)	Environmental education and awareness (Y)
CODES OF CONDUCT CORRUPTION AND BRIBERY	
Anti-corruption, bribery and unethical measures (B,C,D,I)	Procedures for reporting violations of the code of ethics (F)
Codes of conduct / ethics (F,R,Y)	Commitment to compliance with contracts (Y)
SUPPLIERS	
RELATIONSHIP AND EVALUATION	
Relations with suppliers (B,C,D,I,W)	Supplier sustainability performance assessment (F,S,Y)
Survival of stakeholders (O)	

Source: Authors.

The environmental dimension, detailed in Table 5, focuses on preserving the environment, reducing the negative impacts caused, and providing benefits to it. Thus, it focuses on measuring the emission of greenhouse gases (ARAS et al., 2017) and the consumption of resources such as water (TEIXEIRA, 2015), energy (SHAHABUDDIN et al., 2018; NEPOMUCENO; DARAIO; COSTA, 2020), and materials (TEIXEIRA, 2015; NEPOMUCENO; DARAIO; COSTA, 2020) and, at the same time, in reducing atmospheric (RAUT; NAOUFEL; KHARAT, 2017) and aquatic (ZAFAR; SULAIMAN, 2020) pollution, reducing water consumption (REBAI; AZAIEZ; SAIDANE, 2016) and energy (ARAS; TEZCAN; FURTUNA, 2018) and invest in renewable energy projects (ARAS et al., 2017). Also, sustainable bank conducts waste management (RAUT; NAOUFEL; KHARAT, 2017), invests in recycling processes (ARAS et al., 2017), has environmental protection programs (SHAHABUDDIN et al., 2018) and recycling tree planting (ZAFAR; SULAIMAN, 2020).

Table 5 - Elements of the environmental dimension

AIR	
Carbon dioxide emission (B,C,D,X)	Initiatives to reduce greenhouse gas emissions (B,C,D,S)
Efforts to reduce pollution (S,Y)	
WATER	
Green consumption (T,Y)	Water consumption (B,X)
Efforts to reduce pollution (Y)	
ENERGY	
Energy consumption (B,C,D,N,O,S,T,V,X,Y)	Initiatives to reduce energy consumption (B,C,D,T)

Energy use management (S)	Investment in renewable energy/energy projects(B,C,D)
MATERIALS	
Consumption of paper and administrative materials (B,C,D,N,X)	Green consumption (B,C,D,T)
Gas consumption (X)	Fuel consumption (X)
LANDS	
Waste Management (B,C,D,S)	Invest in recycling (B,C,D)
Green packaging (S)	
BIODIVERSITY	
Environmental protection programs (B,C,D,S,V,Y)	Tree planting program (B,C,D,Y)

Source: Authors.

Finally, the economic dimension is composed of four sub-dimensions and is presented in Table 6 below. The bank must follow its dividend policy (KARKOWSKA, 2020), carry out its corporate governance (REBAI; AZAIEZ; SAIDANE, 2016; KARIMI; HOJATI; FORREST, 2020) and fulfill its duties with shareholders, disclosing clear information on profits (ARAS et al., 2017). Some examples of investments identified in the literature are in social responsibility (ARAS et al., 2017), sustainability (NOFIANTI; OKFALISA, 2019), public well-being (PAULIK et al., 2015) and innovations (REBAI; AZAIEZ; SAIDANE, 2016; SHAHABUDDIN et al., 2018). Also, banks should also measure their profit and value data, such as financial growth (ARAS; TEZCAN; FURTUNA, 2018; KORZEB; SAMANIEGO-MEDINA, 2019), profitability (RAUT; NAOUFEL; KHARAT, 2017; KARKOWSKA, 2020), rate of non-performing loans (GUAN et al., 2019; CHEN; PAN, 2020), productivity (PALOMO-ZURDO; FERNANDEZ-BARBERIS; GUTIERREZ- FERNANDEZ, 2015) and market share (SHCHERBAK et al., 2019).

Table 6 - Elements of the economic dimension

INVESTORS AND CORPORATE GOVERNANCE	
Dividend policy (B,C,D,J)	Corporate governance (I,T)
Information on retained earnings (B)	Payments to capital providers (B)
INVESTMENTS	
Infrastructure investments (B,C,D)	Investment in sustainability (B,O)
Investments in innovations (T,V)	Investment in social responsibility (B)
Investments in public welfare (R)	Socially responsible investments (T)
PROFIT	
Profit (E,G,L,P,S,T,V)	Growth and financial performance(B,C,D,G,H,I,L,O,S,W)
Active (E,G,H,S,T)	Deposits (E,G,P,T)
Liquidity (E,H,S,T)	Capital structure (B,C,D)
Fund raising (B,C,D)	Operational cost (E,P,T)
Profitability (J,S,O)	Net worth (G,H,T)
Rate of non-performing loans (G,H,T)	Loan fee (H,P,T)
Interest margin (H,P,T)	Cost with staff (E,T)
Market share (T,W)	Capital ratio to total assets (H)
Passive (H)	Brand management (I)
Total equity (P)	Productivity (Q)
Solvency (Q)	Financial gap (Q)
CRISIS MANAGEMENT	
Credit risk (G,H,J,T)	Insolvency risk (J,T)
Crisis management (I)	Business risk management (I)
Sustainability risk management (I)	Liquidity risk (J)
Economic planning (O)	Market knowledge (S)
Anti-money laundering (T)	

Source: Authors.

In addition, it can be noted that there is a significant difference in the format of the presentation of the elements in each of the identified articles. While some cite vague elements like “leadership” or “relationships” (ASGHAR et al., 2020), others are more specific (PEREZ,

2017; SHAHABUDDIN et al., 2018). Some studies present similar elements separately, others analyze them together, such as "profit" and "profitability". In this sense, there are also studies with the element “socially responsible products” and others that specify what these products are. The same occurs when comparing studies that cite “green consumption” in general (REBAI; AZAIEZ; SAIDANE, 2016) and others that describe consumption related to water, energy, administrative materials, for example (TEIXEIRA, 2015; ARAS et al., 2017).

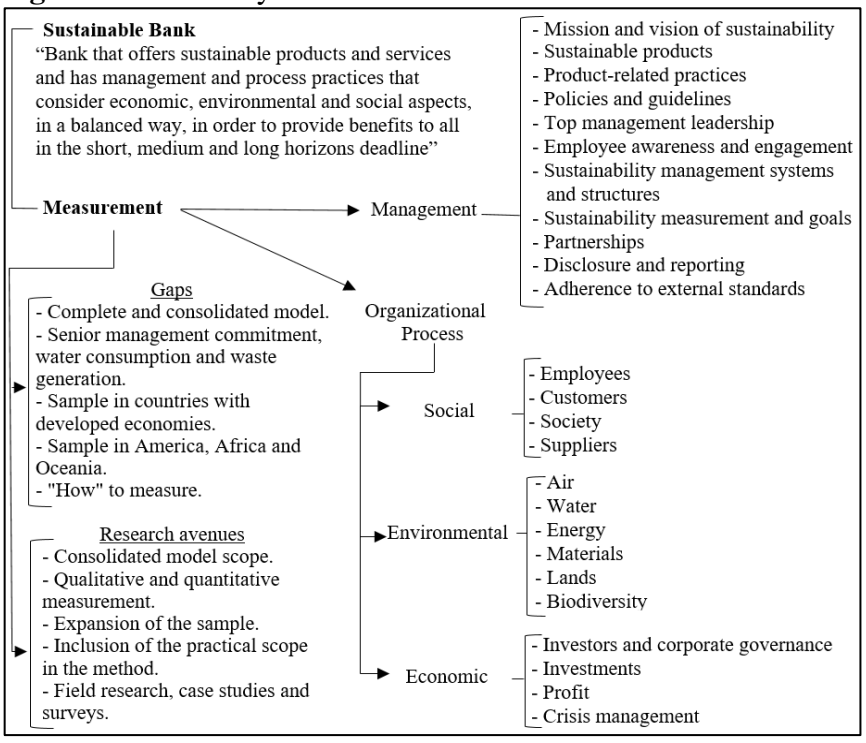
Certain authors show “what” to measure, such as “green financing” (ARAS; TEZCAN; FURTUNA, 2018), others already deal with a proportion rate, such as “green financing / total financing”, focusing on “how” to measure (CHEN; PAN, 2020). Besides, some studies have elements referring to religious principles specific to the place of study, especially when the sample concerns Islamic banks. Moreover, while some models measure only the bank, internally, others expand this assessment to the entire chain and all stakeholders.

Such facts are presented to reinforce the importance of the results when obtaining a complete mapping of the literature and standardization of the identified measurement scope.

3.4 Summary and research directions

Figure 6 summarizes the results of the study. It presents the proposed concept for sustainable banking and the main findings regarding the scope of measuring sustainability in the banking sector. The elements that make up this scope were divided into the management dimension and three dimensions concerning process: social, environmental, and economic. Such dimensions are divided into subdimensions and, in the case of the social dimension, also in themes. The figure also shows the main gaps and research avenues.

Figure 6 – Summary of the results



Source: Authors.

Based on the analysis of this set of results, some suggestions are made concerning future research related to the content, measurement, object, and method. Regarding the scope, a complete and consolidated model for measuring sustainability in the banking sector has not been identified. Some future interesting studies would focus on social aspects such as employees, society, and customers, or profit or products with sustainable characteristics. On the other hand, few studies discuss the commitment of top management to questions about sustainability or about some aspects of environmental processes related to water or waste

generation. Based on the broad mapping carried out in this study, one suggestion is the future development of a complete and consolidated model for measuring sustainability that can be used in the theoretical and practical spheres. For this, theoretical and empirical methods must be used. Primary and secondary data can be collected in sustainability reports, websites, interviews with the managers and included in an exploratory case study, or surveys might be conducted in different regulatory environments, in developing or emerging countries.

Regarding measurement, few studies address the question of "how" to measure and evaluate each element. While some studies do not even discuss such concern, others evaluate the existence or not of an element and very few present indicators for each one. Besides, few studies have an index that makes it possible to measure and compare the sustainable performance of banks with each other or about a certain standard. In this context, future research could focus on how to measure each element of the scope. This assessment can be both qualitative and quantitative. The index must be clear, transparent and understandable, so that it can be used by banks, by academic researchers, by policymakers, by customers and investors, by society, and all other stakeholders concerned with the search for sustainable development. Thus, the elaboration of this index must consider theoretical and practical methods, since the theoretical results obtained can be complemented, expanded or confirmed empirically.

Another point that presents some gaps is related to the object of study. Most of the study samples are concentrated in countries with developing economies, with emphasis on the Asian and European continents. Therefore, a suggestion is to expand the studies to countries with a developed economies and also to the few studied continents such as America, Africa, and Oceania. In addition, some banks that were little mentioned, such as microcredit banks or cooperative banks, can be further studied. Future research on measuring sustainability can also be extended to the entire financial sector.

4 CONCLUSION

The present study aimed to identify the elements of sustainability measured in the banking sector through a systematic review of the literature and content analysis. It is concluded that there is no consensus in the literature regarding the measurement scope for a banking institution. Some studies do not cover all three dimensions, others focus only on process practices, others quote the subject that should be measured in a more general and comprehensive way.

The systematic literature review resulted in twenty-five studies that deal with models for measuring sustainability in the banking sector. Through content analysis, the elements identified were grouped into four dimensions: management, social, environmental, and economic and the last three are related to organizational processes. Among these dimensions, twenty-five sub-dimensions were identified. Most studies mention aspects of measurement about bank employees, society, customers, profit, or even sustainable products. On the other hand, only a few surveys address issues such as senior management's commitment to sustainability, water consumption, and waste generation. Thus, this research has contributions in both academic and managerial terms. In academic terms, the study maps the current literature, presents a set of elements for measuring sustainability in the banking sector and opens new avenues to research. In managerial terms, the results can be used by banks to measure their sustainability performance, by stakeholders to charge for a sustainable posture, or even by policymakers to point in what issues companies and society could direct their actions.

The study has some limitations that can be pointed out, such as the analysis of articles in the English language that were published in two databases in a certain period, in a very theoretical way. On the other hand, as the subject is still incipient, some suggestions for future research were made. Other studies can expand, complement, and empirically confirm the results found. Also, how to measure each of these elements that make up the scope can also be explored, both qualitatively and quantitatively.

Finally, the banking sector is crucial to achieve sustainable development and has been moving towards it though its practices, products, and services, despite the challenges it faces.

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