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Article

Evolution and Challenges of Sustainability Reporting in the Banking Sector: A Systematic Literature Review

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Abstract: The objective of this study is to present an overview of sustainability reporting in the financial industry between 2016 and 2024, carrying out a systematic review of the literature on the topic in the banking sector. The theoretical framework addresses the integration of sustainability from the perspectives of stakeholders, agency and legitimacy theories, highlighting the interrelationship between financial practices and social responsibility. The research used quantitative and qualitative methods, focusing on a systematic review of the literature, analyzing databases such as Scopus and Web of Science in 116 articles. The results showed an annual publication growth rate of 29.68%, with an emphasis on environmental and social sustainability practices. The dissemination of knowledge about sustainability in the banking sector remains low. The central themes included sustainability disclosure, circular economy and FinTechs. Limitations in regulations and the lack of adequate regulations in developing countries, especially in Latin America and Africa, make it difficult to effectively implement these practices, highlighting the need for greater supervision and awareness. This study highlights that the sustainability disclosure in the banking context is a topic that still lacks sufficient exploration.

Keywords: disclosure; banking industry; banking sector; reporting; sustainability



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1. Introduction

In today's world, it has become irreversible to address sustainability in the financial industry; the concept of sustainable development transforms with the awareness that we cannot compromise future generations (Rogers 2004; Garbie 2015).

The role of sustainability in the competitiveness and economic success of companies has been strongly questioned and debated (Lankoski 2009; Maletič et al. 2015; Palmer et al. 1995). To this day, the topic of sustainability has primarily been addressed in the execution of manufacturing and supply chain activities.

The decline of resources, deteriorating environmental standards (Fatima and Elbanna 2023), and social injustice have raised concerns for a more sustainable society and economy (Gu and Wang 2022). Corporate sustainability has become a strategic priority for many companies worldwide, forming a burgeoning sustainability awareness. Stakeholders are pressing companies on environmental issues to comply with environmental regulations and to incorporate sustainable development into their organizational culture to build sustainable knowledge for communities while leveraging the social process of knowledge mobilization (Chuang and Huang 2018). The level of empathy and attachment to the

sustainability agenda by company leadership and employees positively influences the agreement to act more sustainably (Font et al. 2016).

In line with the authors (Tseng 2013; Yadav et al. 2016), companies and organizations are increasingly concerned about the environmental demand from consumers for ecologically adequate products or services. As a result, companies have introduced a variety of innovative green and social initiatives and practices, such as the design of green products and services at all levels. Currently, the focus is particularly on green technologies, social technology, and green management (Katsikeas et al. 2016).

The companies have been increasingly pressured to seriously consider their sustainable business practices, both in manufacturing and services (Mani 2022; Dubey et al. 2022). The authors Quarshie et al. (2016) stated that there is synergy between sustainability and corporate social responsibility (CSR). However, in this context, the services industry has received much less attention than the manufacturing industry, particularly the banking sector, which plays an important role in a nation's economy and significantly contributes to sustainable development.

A sustainability strategy should positively impact cost efficiency by reducing deposit rates, improving management of intellectual capital, and increasing capabilities to retain talent and attract customer loyalty (Branco and Rodrigues 2006). Sustainability initiatives can enhance reputation, reduce financing costs, and provide greater access to investment (Bassen et al. 2011).

Literally, a large part of bank funding comes from the public through deposit placements, rather than from shareholder contributions. In fact, banks are public trust institutions, as they are responsible for the effective management of risks to ensure the return of financial resources entrusted by clients. There are many suggested strategies for the service sectors to implement sustainability principles. Waste management (Trung and Kumar 2005), water (Chen 2024), energy consumption management (Schleich 2009), and powerful intellectual capital (Marzouqi et al. 2020) are methods applied in the service sectors to address sustainability issues. Within this framework, the banking industry does not hold a position of neutrality, knowing that it is part of this service sector.

The results show an annual growth of 29.68% in publications, highlighting sustainable environmental and social practices, although the dissemination of knowledge in the field is still limited. The main themes address sustainability disclosure practices, the relationship with the Circular Economy (CE), and the role of FinTechs. The predominant theories explain the interaction between disclosure practices and sustainability.

Therefore, strategies capable of promoting the creation of sustainable value (Dembek et al. 2018) and cost leadership (Khan et al. 2019) are widely recommended for the service sectors to transition to sustainability. Crowther and Lauesen (2016) emphasized that various research methods in sustainability are needed to provide a deeper discussion because the sustainability report is one of the multidisciplinary topics in accounting.

To fill this gap, this paper describes a systematic literature review conducted to address the following targeted research questions (RQs) (Benvenuto et al. 2023).

RQ1: What are the aspects of sustainability disclosed by the financial sector (social, environmental, economic, or governance aspects)?

RQ2: What methodological approach and research method are followed in sustainability reporting?

RQ3: Which theories are most suitable for sustainability disclosure?

RQ4: What is the geographical incidence level of research on sustainability reporting?

RQ5: What are the trends in sustainability in the financial sector?

This research aims to provide an overview of research on sustainability reporting in the financial industry in the years 2016–2024. By answering these questions, this research provides a detailed and comprehensive assessment of sustainability reporting in the banking sector. The study systematically highlights fundamental themes and innovative trends such as the CE, the adoption of fintech, and green banks, as well as significant contributions from scholars and relevant publications in this field. Furthermore, this evidence

interconnects with other areas of research concerning sustainability; that is, to achieve Sustainable Development Goals (SDG), these findings provide significant assistance in advancing banking in accelerating the SDGs and enriching the understanding of their implications while improving the preparation of sustainability reports.

In addition to its theoretical implications, this research offers crucial practical recommendations for scholars and professionals in the field of study. The results obtained elucidate the complexities associated with sustainability reporting practices in the banking sector, helping professionals identify investment opportunities and staff training in adopting new practices for sustainability reporting. This understanding enables them to make strategic choices that align with new trends, thereby enhancing their activities. By examining the academic literature through bibliometric and scientometric methods, this research aims to identify and address existing knowledge gaps regarding sustainability report preparation in the banking industry.

To do so, the paper is organized as follows. Section 2 provides an overview of the state of the art in the area and presents the methodological aspects. Section 3 makes an analogy and presents the results; Section 4 discusses the results achieved, and Section 5 concludes.

2. Literature Review

2.1. Sustainability

The first step toward understanding the complex theme of sustainable development was taken by the [United Nations \(2024\)](#), through the report “Who Cares Wins”, which integrated the main components of this struggle under the umbrella of a term that would quickly enter collective language—ESG (Environmental, Social, Governance). At that time, investors were encouraged to overcome the “complexity and diversity of the issue,” to embrace new ideas, and to implement them in their long-term business strategies. In the post-Paris Agreement period (2015), especially during the COVID-19 pandemic, the need to accelerate the transition to a sustainable economy emerged prominently and urgently on the public agenda ([Yuen et al. 2022](#)).

To achieve climate goals, public authorities must focus not only on GDP but also on developing intellectual capital specialized in ESG issues, developing green financing strategies, fostering innovation, and allocating funds to reduce the risks associated with sustainable economic development, continually seeking the positive impact of green financing on economic development and growth. Sustainability is concerned with looking to the future and meeting the needs of current and future generations. In a broad sense, it refers to how society will integrate economic, social, and environmental concerns over time ([Amin et al. 2023](#); [Buallay 2019, 2020](#)).

An archetype of sustainability, integrated with the “triple bottom line” (TBL) approach, was conceived. It incorporated three elements of sustainability: economic, social, and environmental impacts ([Elkington 1997](#); [Ullah et al. 2023](#)).

Many studies have highlighted the need to incorporate sustainability concepts into the life stages of business models and leadership, management and control, accounting, culture, and reporting for the successful implementation of sustainability. A considerable amount of literature has been published on value creation and financial incentives in CSR and ESG ([Fafaliou et al. 2022](#); [Lee et al. 2022](#)). Although the need to report on sustainability initiatives and CSR has become more understandable, concerns about the prevention of greenwashing for financial benefit and value creation are also receiving more attention.

The literature on sustainability in the financial industry is sparse in the general context, thus it is primarily focused on the analysis of the determinants of CSR, especially in specific countries. In recent years, the concept of sustainability has gained considerable importance in the business world and has become a conclusive aspect for measuring a company’s financial success ([Branco and Rodrigues 2008](#); [Amin et al. 2023](#)).

In line with the foundation of sustainability, current actions should not compromise the ability to improve life paradigms in the future. There is evidence that companies that prioritize material sustainability challenges in their plans and operations are more

successful than those that do not. Additionally, organizations that excel in sustainability reporting often gain support from stakeholders and have a favorable relationship with parties interested in sustainability issues (Ng and Rezaee 2015). Examining the insights of sustainability in the financial industry, banks have demonstrated exemplary performance regarding CSR and ensure compliance with stakeholders' sustainability requirements.

According to Nosratabadi et al. (2020), a growing trend of substantial investments in sustainable development provides a competitive advantage in banking institutions. Given the greater visibility of economic agents in society, banking institutions proactively engage in sustainable practices for value creation and to increase customer loyalty (Roy et al. 2020). Examining advancements in the global banking industry, it is imperative to adopt methods that incorporate the environment, society, and ethics to provide financial assistance to underprivileged individuals. Research on the banking sector suggests that reputational issues are a significant factor in explaining the motivation for disclosure, as CSR reporting is viewed as a marketing tool (Hoepner et al. 2023).

2.2. Banking Sector and Sustainability

In recent times, the SDG, which were adopted by all United Nations members in 2015, have been highly significant in shaping public policies and business strategies. In this perspective, the authors Cordova and Celone (2019), showed that there are three main divisions into which the SDGs can be categorized: environmental, social, and governance (ESG). In this sense, regarding the importance of how policymakers and strategists should select the priority indicators of the SDGs to assess their impact, these indicators should be action-oriented, concise, precise, and globally applicable.

Moreover, the integration of ESG issues into core business has become a critical driver of change in the global banking industry, impacting risk management and long-term sustainability. This transition represents a significant departure from traditional, purely profit-oriented models, leading banks to adopt modern strategies that entail complex challenges, including ESG issues (Hayretci and Aydemir 2021).

The acronym ESG represents a framework for the holistic integration of sustainability, ethical considerations, and corporate responsibility in decision-making processes to drive medium and long-term value creation and mitigate risks. ESG indicators are linked to the concept of highly sustainable economic development, which is based on the principles of the CE. This means a sustainable use of natural resources, considering the constraints on production. The CE promotes a substantial reduction in waste and long-term environmental and social responsibility (Geissdoerfer et al. 2017).

The debate surrounding sustainability has gained prominence and international attention, with the banking industry being a crucial pillar of the new economy, particularly through the channeling of financial resources into environmentally friendly economic activities. However, it remains unclear whether sustainability is profitable regarding its applicability for both the economy and banks. In line with stakeholder theories, ESG engagement is a source of competitive advantage where long-term core strategies encompass the interests of agents and the benefits of stakeholders, including employees, consumers, governments, and local communities (Gonzalez-Ruiz et al. 2024; Khlif et al. 2015). A monetary banking institution should be able to disseminate its environmental commitments, social responsibility initiatives, and governance quality policies to its clients and business partners.

In this context, with its volatility accelerated by the COVID-19 pandemic, green financing plays an essential role in restructuring the economy and in sustainable development, a fact also supported by some studies in the specialized literature Ziolo et al. (2021) that showed a positive relationship between green financing and sustainable economic development.

Flammer (2021) revealed that the use of bonds to finance projects that benefit the environment is gaining importance in sectors where environmental concerns carry financial weight. These bonds demonstrate a company's commitment to sustainability, attracting

investors who prioritize eco-friendly investments. According to authors [Revelli and Viviani \(2015\)](#), sustainable finance, including ESG investments, can improve the bank's performance by aligning business practices with investor values and stakeholder expectations.

Moreover, authors [Shahrour et al. \(2023\)](#) emphasize that the adoption of ESG practices can mitigate risks and promote stable and sustained growth. [Stroebel and Wurgler \(2021\)](#) elaborated on how climate financing, through green bonds, plays a vital role in the transition to a low-carbon economy by mobilizing private funds for large-scale sustainable projects.

This perspective highlights the nature and potential benefits of financing for economic evolution and environmental sustainability. Thus, the financial industry, specifically banking organizations, can be a promoter of sustainable economic growth by mobilizing financial resources and allocating them based on ESG factors ([J. Chen et al. 2022](#)). The impact of ESG in the banking sector is even greater in countries with underdeveloped financial markets, which predominantly rely on the banking sector to meet the funding needs of organizations or individuals.

3. Materials and Methods

The present research is based on a system of quantitative and qualitative methods used to establish and systematize the primary research positions of academics and identify existing gaps. A systematic literature review is a replicable, scientific, and clear process ([Tranfield et al. 2003](#)), which represents a process characterized by high and authenticity ([Dada 2018](#)), with a minimal probability of error and bias ([Wang and Chugh 2014](#)). Other researchers, such as [Paul and Criado \(2020\)](#) suggest that systematic literature reviews create value for readers when they integrate and synthesize existing knowledge to provide cutting-edge understanding; identify gaps and inconsistencies in existing knowledge; and signal pathways for future research to address remaining questions and advance knowledge in the domain of the review.

The analysis protocol comprises three phases. The first phase involved constructing the study sample. The databases Scopus and Web of Science were used because they are among the most inclusive online platforms for systematic literature research ([Scopus 2024](#); [Web of Science 2024](#)), containing over 24,000 indexed titles. They ensure the reliability of the collected data, as it is always available and reproducible through software ([Giannantonio 2010](#)). The search query included a precise selection and combination of keywords. This step is crucial for identifying appropriate articles ([Aria and Cuccurullo 2017](#)).

For the present research, the identification of sources and data collection were crucial components in the assembly phase of the review. The aim of the work is to provide an overview of research on sustainability disclosure in the financial industry over the last six years from 2016 to 2024 and to clarify the trends that arise within them, themes, and conceptual research frameworks (RQ1, RQ2, RQ3, RQ4, and RQ5).

This research uses quantitative and qualitative methods to analyze research on sustainability reporting in the banking sector from 2016 to 2024, identifying gaps and trends. To this end, a systematic literature review was carried out, which is a scientific and rigorous process with a low probability of error ([Benvenuto et al. 2023](#); [Zhang-Zhang et al. 2020](#)).

The aim is to incorporate and synthesize existing knowledge, identify inconsistencies and suggest avenues for future research. The methodology involves three phases, starting with the construction of the sample, using the Scopus and Web of Science databases, which guarantee the reliability of the data. The research seeks to clarify trends, themes and conceptual structures through specific questions.

The terminology used to search for data from Scopus and Web of Science was carefully selected. The search terminologies were (*sustainability*) AND ("disclosure") AND ("financial AND industry) OR (*banking AND sector)*, with the search equation being: (TITLE-ABS-KEY (*sustainability*) AND TITLE-ABS-KEY ("disclosure") AND TITLE-ABS-KEY ("financial AND industry) OR TITLE-ABS-KEY (*banking AND sector*)) AND PUBYEAR > 2016 AND (LIMIT-TO (OA, "all")) AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")).

The search in Scopus and Web of Science produced a high number of articles, totaling 763 (including duplicate documents), distributed as follows: Scopus 463 and Web of Science 301 respectively. This extent is particularly due to the multiplicity of disciplines that have dealt with the topic of sustainability and the variety of terms that literature has used over time to describe the subject.

In the second phase, through an initial selection based on the article titles, duplicate documents were eliminated, and irrelevant articles belonging to foreign disciplines were excluded (health, engineering, urban development, agriculture, among others, which do not align with the selected keywords). The second option involved reading all the abstracts of the articles approved for the study.

Only articles written in English were included, as this is the language used by the international scientific community and by many peer-reviewed academic journals. Book chapters, editorials, and conference proceedings articles were excluded.

Temporal limits were established, thus all articles published on this topic from 2016 to 2024 were included (standard years for the Scopus and Web of Science databases), resulting in a total of 763 documents. This process led to the exclusion of 647 documents. To ensure greater reliability and validity of the protocol followed, the same search was launched on Google Scholar (limited to articles published in journals included in the SCImago Journal Rank), and the results of the selected sample were verified. The systematic approach Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used to minimize biases and errors (Figure 1). The final sample comprised 116 relevant articles.

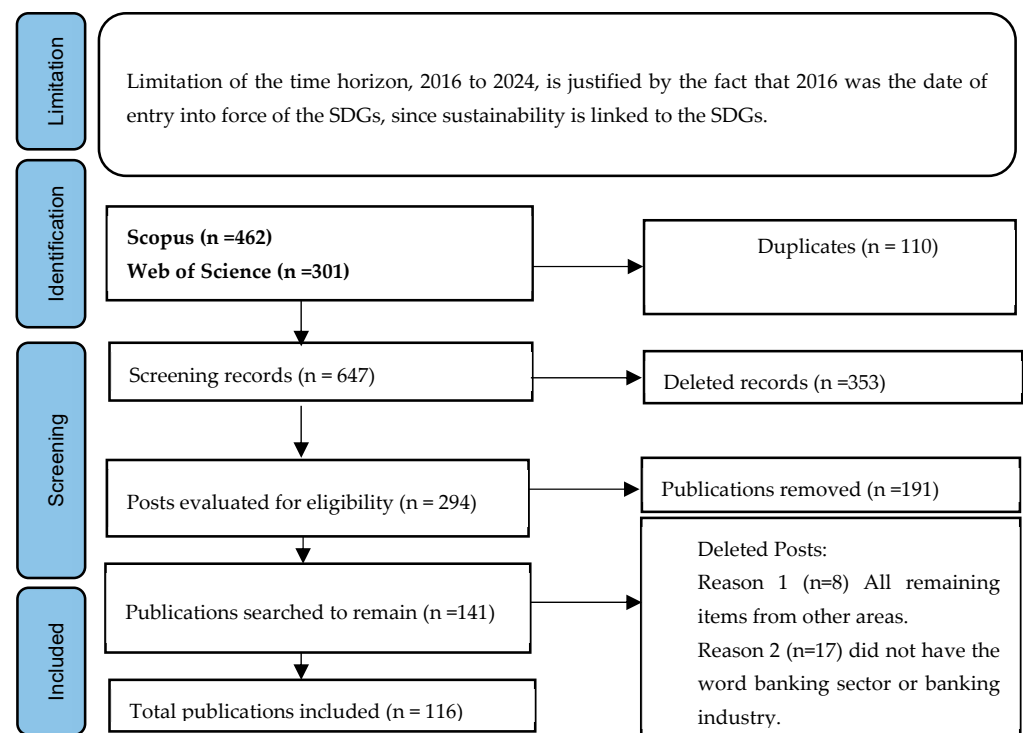


Figure 1. Prisma 2020 flowchart.

The third phase involved reading the full texts of the selected articles, as the summaries do not always contain elements such as theories that support the study, as observed in the review of the abstracts. Furthermore, 544 articles that dealt with sustainability in areas such as agriculture, engineering, and other fields of knowledge were removed, as they were not relevant to the research. The selected articles were classified into five different clusters, according to the research focus of the articles.

4. Presentation of Results

According to the authors [Aria and Cuccurullo \(2017\)](#) the R Bibliometrix software is a very powerful tool for data analysis. Quantitative analysis was performed on R Bibliometrix software, version 4.1.3, this software is a very prestigious tool that provides data analysis and graphs or data visualization.

4.1. Bibliometric Analysis of Data

The research presents a global overview of the quantitative analysis of research on sustainability in the banking sector, covering the period from 2016 to 2024. Based on 81 data sources and 116 articles, the annual growth rate of publications is 29.68 per cent. This rate, although positive, is considered unsatisfactory for a sector as crucial as financial intermediation in the global economy. In addition, 327 research authors were identified in the area, a number that is expected to increase in the coming years, since there is a growing trend among authors to focus on sustainability aspects in the banking sector. Only 12 authors demonstrated sole authorship in research on this topic, a figure considered low in relation to the wide range of global banking systems. In terms of international collaboration, the rate of co-authorship is 25 per cent, a rate that also needs to be increased. As for the use of keywords, the authors registered a total of 469 terms, which is seen as an understandable figure given the low number of researchers dedicated to this specific field of research (Figure 2).

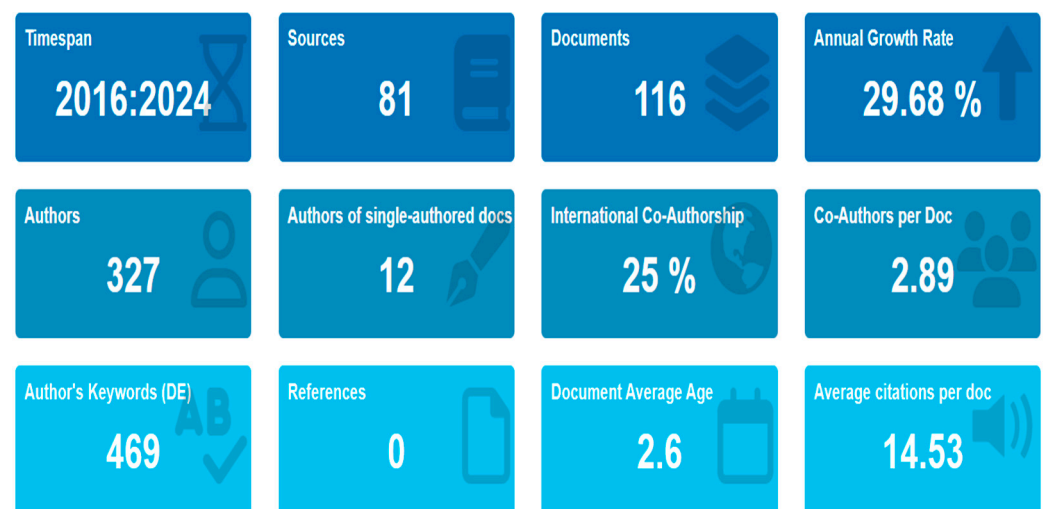


Figure 2. Overview of Research in R Bibliometrix.

The parallel of the words used is based on the correlation between the topics addressed when the case is research in this sector and highlights the perspectives of the keywords used by researchers to investigate this topic ([Buallay 2020](#); [Gutiérrez-Fernández et al. 2023](#)). Figure 3 shows that the words 'Banking', 'Bank', 'study' and 'sustainability', 'performance', 'financial sector', 'Disclosure' and 'Sustainable' are certainly correlated and are the words followed by researchers. This allows us to understand that when talking about the banking sector, the word 'sustainability' is on the table of conversations. This scenario shows us that the social, environmental and economic aspect is at the base of research when the topic is sustainability research in the banking sector (RQ1).

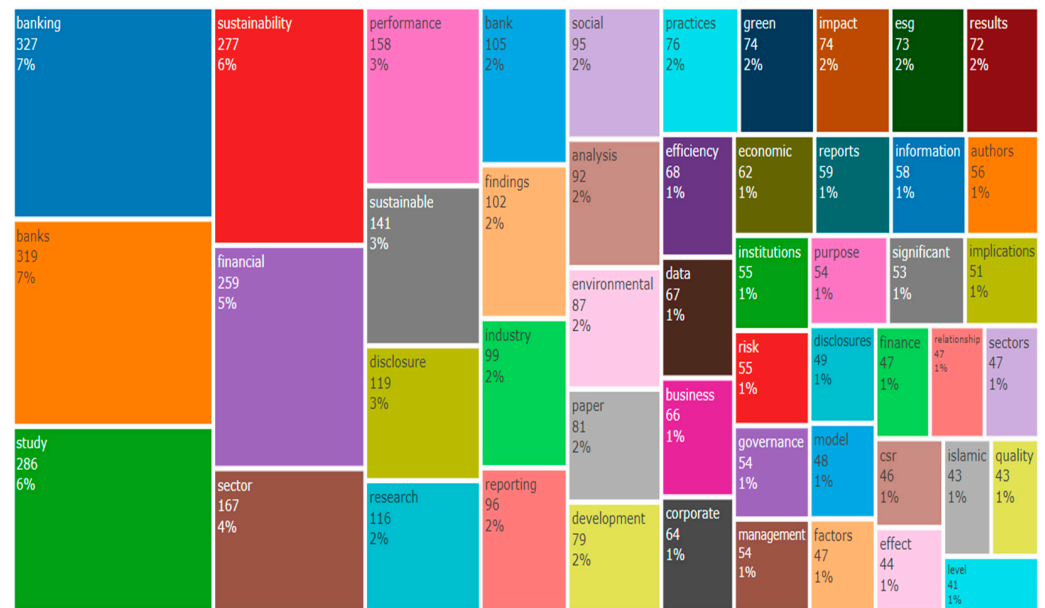


Figure 3. Tree map: combinations of keywords.

Furthermore, the Map illustrates the importance of sustainability in the banking sector, highlighting the need for a transition to a green economy that depends on sustainable financial services. This change requires appropriate policies and the adoption of sustainable practices by financial institutions and their clients (Mohamed Buallay et al. 2023). Under pressure from stakeholders, the financial sector has been transforming from a purely profit-driven focus to socially and environmentally responsible practices, resulting in new sustainable paradigms since the 1990s.

The new sustainable banking model aims to integrate environmental, social and economic issues into all areas of the sector, promoting sustainable development. In addition, the text highlights the interconnection between sustainability reports and the banking sector, emphasizing that environmental, social and economic issues are often addressed in these reports to meet stakeholder demands (Mazzucchelli et al. 2022).

4.2. Theoretical Perspectives

The systematic literature review, in the identification and analysis of the theoretical framework that supports the sustainability report, with an emphasis on the banking sector, shows us the theoretical applications that justify the actions of monetary financial institutions as well as stakeholders. Thus, the majority of the researchers in this study address the stakeholder theory (Gutiérrez-Ponce and Wibowo 2024; Menicucci and Paolucci 2023), while other studies refer to the agency theory (Fernando and Lawrence 2014; Gutiérrez-Ponce and Wibowo 2024), and others make little reference to institutional (Moufity et al. 2021; Nwobu et al. 2018) and legitimacy theories (Ferraro et al. 2024) when addressing sustainability in the banking sector, as illustrated in Table 1.

Of the existing theories that explain the concept of sustainability in depth, the dominant ones are the stakeholder, agency and legitimacy theories. In relation to the purpose of this study, legitimacy theory is used as a framework to evaluate voluntary disclosure practices. Legitimacy theory informs companies' behaviors in disclosing voluntary environmental and social information to stakeholders (Gonzalez-Ruiz et al. 2024). The sample illustrates the main theories that were followed in the different studies. Surprisingly, 100 per cent of the works present theoretical perspectives. The first largest group of studies (RQ2) was concentrated on stakeholder theory with 26.67%; other researchers refer to agency theory (11.11%), institutional theory (8.89%), and others (46.67%). Table 2 summarizes the results.

Table 1. Theories found in the research articles.

Identifier	Autores	Theory
1	(Dreyer et al. 2024)	Hot glow theory
2	(Gonzalez-Ruiz et al. 2024)	Legitimacy theory; Stakeholder theory
3	(Ferraro et al. 2024)	Agency theory
4	(Galeone et al. 2024)	Legitimacy theory
5	(Gutiérrez-Ponce and Wibowo 2024)	Stakeholder theory
6	(Hordofa 2024)	Unified acceptance theory
7	(Paolone et al. 2024)	Popular theories
8	(AL-Janabi et al. 2024)	Innovation diffusion theory
9	(Taskin et al. 2024)	Theory of reasoned action
10	(Zaman et al. 2023)	Theory of planned behavior
11	(Menicucci and Paolucci 2023)	Social cognitive theory
12	(Moche and Iyamu 2023)	Legitimacy theory
13	(Gutiérrez-Fernández et al. 2023)	Stakeholder theory
14	(Maheresmi et al. 2023)	Agency theory
15	(Knežević et al. 2023)	Contingency theory
16	(Cantero-Saiz et al. 2023)	Stakeholder theory
17	(Boros et al. 2023)	Stakeholders theory
18	(J. Chen et al. 2022)	Trade-off theory
19	(Hanić et al. 2021)	Value creation theory and resource-based view (RBV)
20	(Moufty et al. 2024)	Stakeholder theory
21	(Nwobu et al. 2018)	Corporate sustainability theory

Moufty et al. (2024) state that prioritizing stakeholder interests allows banks to adopt sustainable strategies, improving long-term value creation and benefiting social welfare. The relationship between ESG and sustainability has been widely studied (Galeone et al. 2024). Stakeholder theory argues that companies should cater for all stakeholders, and transparency in ESG provides advantages beyond shareholders. On the other hand, agency theory suggests that managers focus on maximizing profits while owners seek to reduce costs, leading to possible conflicts of interest that affect the disclosure of ESG practices (Buallay 2020; Mohamed Buallay et al. 2023).

An efficient alignment between the interests of managers and shareholders is crucial for good governance, especially in the banking sector, where these conflicts can differ due to specific regulations. Legitimacy theory stipulates that companies should consider the

rights of the public in addition to shareholders, and ESG practices can reinforce banks' legitimacy by showing that profitability and social responsibility can coexist (Mohamed Buallay et al. 2023). In addition, companies in sensitive sectors must demonstrate social responsibility in order to legitimize their actions. Figure 4 shows the authors from the most productive countries on the research topic, using two different colors to highlight collaboration between authors from different countries (RQ4). Orange represents 'Multi-Country Publications'—MCP; green represents 'Single Country Publication'—SCP (Aria and Cuccurullo 2017).

Table 2. Research Theories.

Theory	Citation Number	%
Stakeholder theory	12	26.67%
Agency theory	5	11.11%
Legitimacy theory	4	8.89%
Institutional theory	3	6.67%
Other *	21	46.67%
Total	45	100.00%

* Other theories used once or twice include warm glow theory, unified acceptance theory, popular theory, diffusion of innovation theory, theory of reasoned action, theory of planned behavior, social cognitive theory, contingency theory, trade-off theory, value creation theory and resource-based view (RBV), sustainability theory corporate sustainability theory, money cycle theory, technology adoption theory, neoclassical theory, activity theory, resource dependency theory, social role theory, critical mass theory, trade-off theory; integrated theories and sustainability and responsibility theory (SER).

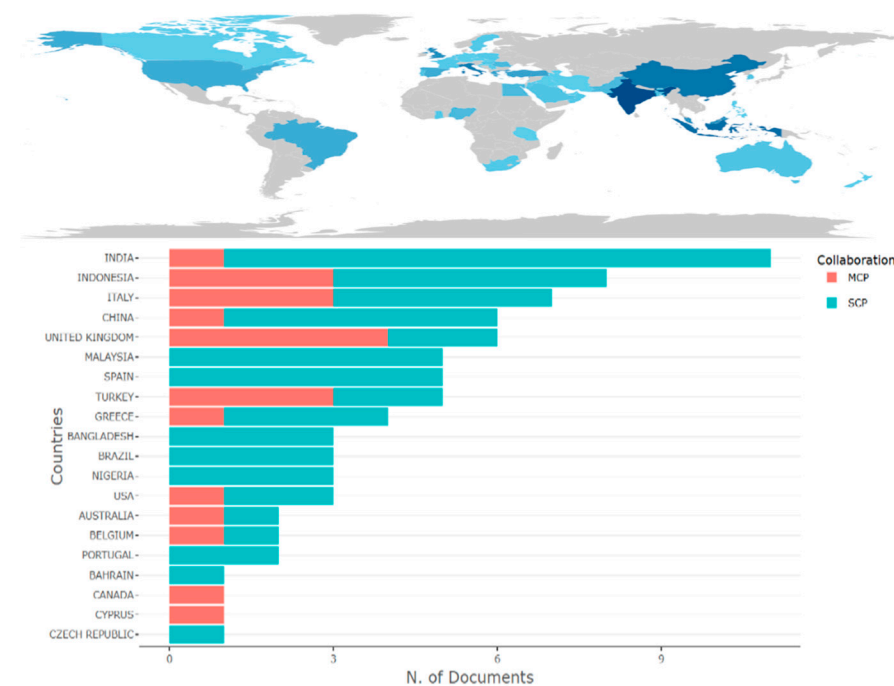


Figure 4. Article sources.

India leads scientific production on sustainability in the banking sector, with 30 articles out of a total sample of 116. This prioritization is due to growing concern about environmental and social issues, as well as a commitment to the SDG (Sharma and Kumar 2023), well as a greater number of population and people produces a greater number of researchers. In second place is Indonesia, whose output is associated with biodiversity and improved sustainability reporting in banking (Husnah and Fahlevi 2023). Italy is in third place, driven by an institutional and regulatory context that has increased banking companies' awareness of sustainability, especially following the requirement to disclose information related to this by legislators (Gutiérrez-Fernández et al. 2023; Paolone et al. 2024). This approach aims

to guarantee legitimacy, commitment to sustainability goals and strengthen interactivity between stakeholders.

Meanwhile, the most successful journals with the greatest scientific relevance that have published articles on the subject in question were also analyzed. Table 3 shows that several articles were published by Sustainability (Switzerland), accounting for 10 of the 116 articles. It is important to emphasize that environmental, social and economic practices in the banking sector are demonstrated both by journals that deal with sustainability for the banking sector and also journals that deal with other themes that focus on sustainability for the banking sector; in short, journals from other areas also reveal authors who are concerned with the theme under research, although these results are slim.

Table 3. Research articles.

Article	Quotes
Sustainability (switzerland)	13
Journal of risk and financial management	4
International journal of bank marketing	3
International journal of productivity and performance management	3
Sustainable development	3
Amfiteatru economic	2
Asian journal of accounting research	2
Banks and bank systems	2
Cogent business and management	2
Corporate social responsibility and environmental management	2
Environmental science and pollution research	2
International journal of applied economics, finance and accounting	2
International journal of professional business review	2
International journal of scientific and technology research	2
Journal of business and retail management research	2
Management of environmental quality: an international journal	2
Qualitative research in financial markets	2
Resources policy	2
Sustainability accounting, management and policy journal	2
Sustainable production and consumption	2
Acron journal of finance and risk perspectives	1
Arab gulf journal of scientific research	1
Australasian accounting, business and finance journal	1
Borsa istanbul review	1
Business strategy and development	1
Circular economy and sustainability	1
Climate policy	1
Cogent economics and finance	1
Economic research-ekonomska istrazivanja	1
Emerald emerging markets case studies	1
Environment, development and sustainability	1
European papers—a journal on law and integration	1

Table 3. Cont.

Article	Quotes
European research on management and business economics	1
Finance: theory and practice	1
Heritage and sustainable development	1
Indian journal of finance	1
International journal of agricultural and statistical sciences environmental science and pollution research international	1
International journal of economics and business administration	1
International journal of emerging markets	1
International journal of finance and economics	1
International journal of financial studies	1
International journal of green economics	1
International journal of innovation science	1
International journal of innovation, creativity and change	1
International journal of innovative technology and exploring engineering	1
International journal of quality and reliability management	1
International journal of sustainable development and world ecology	1
International journal on informatics visualization	1
International review of financial analysis	1
Journal of accounting in emerging economies	1
Journal of advanced research in dynamical and control systems	1
Journal of cleaner production	1
Journal of co-operative organization and management	1
Journal of financial economic policy	1
Journal of financial reporting and accounting	1
Journal of islamic accounting and business research	1
Journal of islamic monetary economics and finance	1
Journal of knowledge management	1
Journal of security and sustainability issues	1
Journal of sustainability science and management	1
Journal of sustainable finance and investment	1
Man in india	1
Management (croatia)	1
Management and accounting review	1
Marine policy	1
Pakistan journal of criminology	1
Politics and policy	1
Prabandhan: indian journal of management	1
Qualitative research in accounting and management	1
Research in international business and finance	1
Review of financial economics	1

Table 3. *Cont.*

Article	Quotes
Review of quantitative finance and accounting	1
Review of regional studies	1
Social responsibility magazine	1
Science advances	1
Social responsibility journal	1
Sustainability and climate change	1
Transnational marketing journal	1
World review of entrepreneurship, management and sustainable development	1
Zbornik radova ekonomskog fakulteta u rijeci/proceedings of rijeka faculty of economics	1
Total items	116

Analyses of the content of the articles revealed that the studies focused on very specific themes (RQ5). The trends in research topics and their content are listed in Table 3. However, this categorization revealed that the majority of researchers are stuck to the dissemination of (environmental, social and economic) sustainability practices, in the context of green banking, CE and financial technology.

4.3. Sustainability Disclosure Practices

The growing academic discussion on sustainability disclosure has been driven, especially in Europe, by guidelines such as Regulation (EU) 2019/2088, which require sustainable practices in all sectors, with a special focus on finance.

Historically, during the 1960s and 1970s, companies were not aware of their environmental responsibility, except in industries directly linked to pollution and resource management (Crowther and Lauesen 2016). However, the 1990s saw a significant increase in environmental reporting, reflecting the realization that economic development impacts the environment, which was exacerbated by pressure from stakeholders (Fitfor55, COP26, Agenda 2030).

The implementation of sustainability is also supported by internal corporate governance mechanisms, such as board independence and the presence of CSR committees, which positively influence ESG disclosures (Galeone et al. 2024; Galli et al. 2023). By adopting disclosure practices, companies seek to fulfil the interests of stakeholders, which can affect their competitiveness and economic performance.

In the theory of CSR, Corporate Social Responsibility Communication and Reporting (CSRD) is developing to include environmental risk management by financial institutions, recognizing the importance of transparency with respect to stakeholders (Galli et al. 2023; Maletič et al. 2015). Social media has been a tool used by banks to build legitimacy and navigate public expectations, with an increase in the dissemination of information on sustainability, especially by large companies.

Studies such as Habib-Uz-Zaman Khan et al. (2009) revealed that banks in Bangladesh had a low level of CSR disclosure, with an emphasis on the importance of human resources in reporting. Research by Knežević et al. (2023) indicated that companies listed on the Belgrade Stock Exchange's Belex 15 index presented poor quality sustainable development reports, focusing more on form than content, resulting in limited publication of sustainability reports outside their traditional financial reports.

4.4. Circular Economy Disclosure Practices

The CE and CSR are increasingly intertwined, with the CE putting the principles of social responsibility into practice. Investing in innovative technologies to adopt the CE can

bring significant financial and environmental benefits. Recently, the concept of the CE has gained prominence in academic, governmental and non-governmental spheres, integrating with the SDG.

The increase in partnerships between ecological institutes and governments emphasizes the importance of the CE in innovation research and knowledge exchange (Mazzucchelli et al. 2022). In addition, circular businesses are seen as low risk, allowing banks to integrate the CE into their portfolios, reducing their risk profile (Ozili 2021).

The spread of sustainability through the CE in the banking sector offers several benefits, including greater diversification of loans and the promotion of responsible banking services (Ozili 2021). This results in increased lending to clients operating within the CE and the recycling sector, boosting profits and improving the public perception of banks. The adoption of the CE is interlinked with corporate governance practices, and gender diversity on the board has a positive impact on ESG performance, especially with the presence of three or more women (Geissdoerfer et al. 2017).

Researchers recognize the relevance of stakeholder engagement in corporate strategies aimed at spreading the CE (Mazzucchelli et al. 2022). This involvement is crucial to drive sustainable innovations in the banking sector. Key stakeholders must be included in the sustainable development of CE practices.

To promote sustainability in the medium and long term, environmental management must be aligned with a more holistic approach to corporate sustainability, incorporating assurance tools in the CE (Dembek et al. 2018). However, the adoption of practices linked to the CE does not necessarily ensure sustainable performance, since factors such as regulation, technology and corporate governance can influence results, positively or negatively.

4.5. Sustainability Disclosure Practices in the Area of Financial Technology

FinTech is recognized as a driver of financial inclusion and an important agent in promoting sustainability, contributing to the SDG and transforming consumer behavior in a digital landscape. Generations Y and Z, as digital natives, use technology for various daily activities, and even older generations benefit from this advance (Galeone et al. 2024). Digitalization has led to a ubiquitous consumer experience, integrating online and offline services. FinTech companies generate value by reducing costs and solving information asymmetric problems, while technologies such as blockchain and Artificial Intelligence (AI) optimize the use of resources and help reduce carbon emissions (Yadav et al. 2024). The Internet of Things (IoT) and cloud computing also play important roles in promoting sustainable financial practices and advancing green supply chains.

Despite their relevance, there is a gap in the intersection of FinTech and sustainability research, indicating that both could benefit from each other as drivers of change in the financial sector (Campanella et al. 2023; Dwivedi et al. 2021). FinTech encompasses a variety of financial services, standing out as a pillar for the dissemination of sustainability in the technological environment.

4.6. Sustainability Disclosure Practices from the Perspective of Green Banks

Sustainability is a growing theme among academics and stakeholders, leading to the development of business models that reflect this concern. Thus, this section discusses sustainability disclosure practices from the perspective of green banks, which are financial institutions that adopt sustainable and eco-responsible actions (Boros et al. 2023; Z. Chen et al. 2022) (Table 4). Green banks encourage green policies by considering environmental and social aspects in their operations, especially when granting loans to borrowers with sustainable practices. Although they do not directly affect environmental disasters, green banks play an important role by financing projects aligned with ecological concerns, indirectly contributing to sustainability (Mehta and Handriana 2024).

They implement practices such as granting low-interest loans for ecological projects, as well as adopting environmental standards in the services they offer. Most financial

institutions have similar practices, and studies show that sustainable banks have better social performance (Boros et al. 2023).

Table 4. Relevant research topics.

No.	Theme	Authors/Articles	Objective
1	Sustainability disclosure practices	(Crowther and Lauesen 2016; Galli et al. 2023; Maletič et al. 2015)	Analyze sustainability disclosure practices
2	Disclosure practice regarding the circular economy	(Geissdoerfer et al. 2017; Mazzucchelli et al. 2022)	Analyze the relationship between sustainability disclosure practices and the circular economy aspect
3	Sustainability disclosure practices in the financial technological aspect	(Campanella et al. 2023; Dwivedi et al. 2021; Galeone et al. 2024; Yadav et al. 2024; Zhang-Zhang et al. 2020)	Analyze the relationship between sustainability disclosure practices in financial technology
4	Sustainability disclosure practices from the perspective of green banks	(Boros et al. 2023; J. Chen et al. 2022; Mehta and Handriana 2024)	Analyze the relationship between sustainability disclosure practices in the aspect of green banks

Transparency in the disclosure of sustainability information is vital, and many banks have adopted effective systems for reporting these practices. Despite advances in disclosure, comparability of information is still challenging due to the lack of uniform guidelines. In short, green banks are key to promoting sustainability through their financing and disclosure practices.

Looking at the most recurrent words used in the articles allows us to conceptualize the aspects on which the academic debate has focused (Galeone et al. 2024). Figure 5 clearly shows that the words used and appearing most frequently, ‘sustainability’, ‘sustainability reporting’ and ‘banking sector’, are in the center, occurring 23 and 11 times in the articles that make up the sample, respectively. On the other hand, the words ‘banking sector’ and ‘bank’ ‘disclosure’, ‘fintech’, ‘digitalization’ appear in the selected documents 10, 8, 8, 5 and 2 times, respectively. This illustrates that when the literature addresses the discourse of sustainability reporting practices adopted by banks, disclosure, fintech, digitalization and ESG, i.e., the focus of researchers on sustainability reporting for the sector under study is tied to these themes (Galeone et al. 2024; Hanić et al. 2021).



Figure 5. Word cloud: a visual representation of the most commonly used words.

Figure 6 shows how the academic debate has been conducted by the authors on the topic under research, which has developed over the years. The first article was published

in 2016, and this first research is justified on the basis that the 17 SDGs emerged exactly during this period, although sustainability in the banking sector is not a pioneering topic in the field of research, but the interest of academics began to increase exponentially in 2017, and peaked in 2024 with greater scientific production over the years compared to previous years. This may be the result of the growing demands from stakeholders and institutions in general on sustainability issues formalized in the course of the agenda approved in 2015 (Gutiérrez-Fernández et al. 2023).

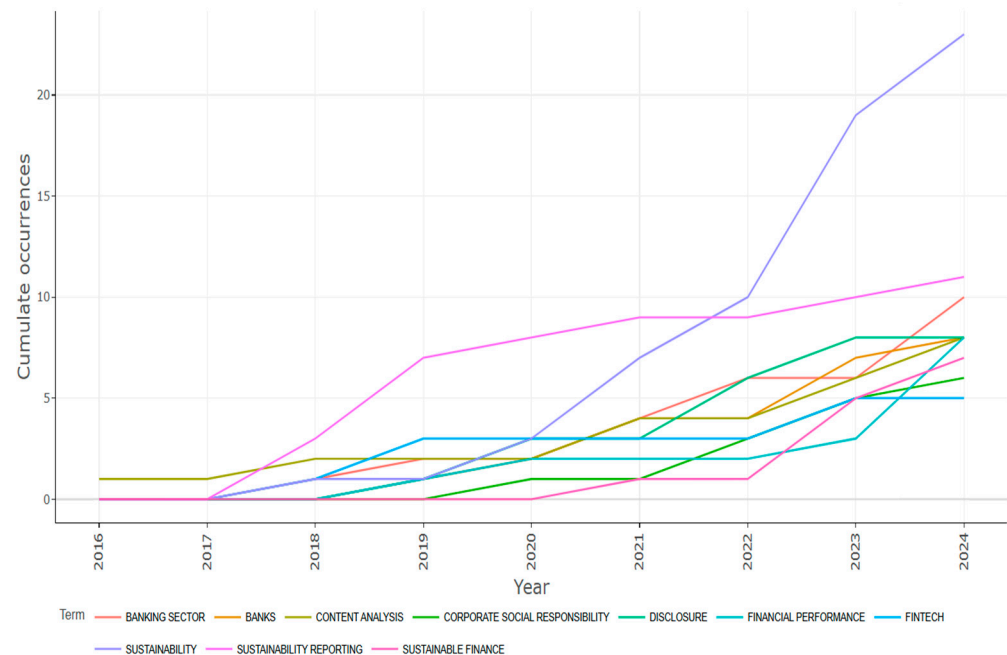


Figure 6. Evolution of research by themes.

5. Discussion

In recent years, several researchers in the field of accounting have focused their investigations on analyzing the contributions of companies to the 2030 Agenda (Bebbington and Unerman 2018; Unerman et al. 2018). This interest was sparked by the rapid growth of sustainability reporting tools, which have been utilized both mandatorily and voluntarily due to the implementation of Regulation (EU) 2019/2088 in the specific case of the European Union.

The literature on social accounting has mainly concentrated on the determinants of sustainability disclosure (Archel et al. 2009; Zarzycka and Krasodomska 2022), including the internal and external mechanisms of corporate governance (Hoepner et al. 2023; Patel et al. 2021). However, little attention has been paid to analyzing the determinants and obstacles that lead companies to introduce sustainability practices, especially when considering the banking sector. The need to analyze the practices of banking sector companies is directly related to their specificities and the contributions they can make to the sustainability of companies across all sectors.

In this context, in recent years, banking sector companies have been encouraged to engage and establish commitments and strategies to address the challenges of sustainability disclosure. Banks have expressed their commitment to stakeholders in their sustainability reports, which have gradually been adopted voluntarily by some and coercively by others. According to a recent report Benvenuto et al. (2023), banking sector companies worldwide are shifting towards more sustainable practices to cooperate with local, national, and global sustainability goals. This change appears to be driven primarily by opportunities for economic value creation and urgent legislation.

The analysis of the selected articles highlighted here underscores the essential role played by banking services companies in the ecological transition. The banking sector,

in particular, has a fundamental role in achieving the zero-carbon emissions target by 2050 through sustainable financing. Banks can offer financial products, such as green loans and sustainability bonuses that encourage investments in renewable energy projects, energy efficiency, and other sustainable initiatives; develop innovative financial products; encourage companies to disclose their carbon emissions and report on their progress toward sustainability goals, helping to create an accountability environment; finance research and development of emerging technologies that can help companies reduce their emissions, such as carbon capture technologies, renewable energy, and sustainable mobility solutions, and offer reduced rates or financial benefits for companies that adopt sustainable practices or can demonstrate significant reductions in their carbon emissions.

This research contributes to the sustainability debate through theoretical, managerial, and policy implications. The theoretical contribution of the research lies in identifying the key research themes investigated by scholars in accounting and management, presenting contrasting evidence and those needing further exploration specifically in the disclosure of sustainability practices adopted by the financial industry. The study identifies a significant finding regarding disclosure practices through the adoption of some tools and models such as financial technology, CE, and green banks. These are essential instruments for transforming the business models of banking sector companies. No research has addressed this mixture of models that contribute to the acceleration of the SDG fulfillment by the banking sector through disclosure in its reports.

What emerges from the systematization of the study is the high fragmentation of academic literature. There is a lack of studies investigating the connection between ESG, green banks, fintech, and CE, actions, performance, and disclosure using an organic approach to assess their coherence. Some studies have attempted to correlate sustainability practices with financial performance and financial technology, highlighting the existence of dissociation or greenwashing phenomena. This makes it clear that sustainability is still in an embryonic phase, as it is not fully integrated into business strategies aimed at value creation, which would be essential to transform their business models and achieve SDG.

In line with the authors of the research, assessing the obstacles that banking sector companies need to face in transforming their traditional business models into sustainable business models is particularly relevant for advancing scientific knowledge and addressing sustainability challenges. Sustainability reports, whether voluntary or mandatory, are not proportionally correlated with sustainability performance; thus, attention needs to be focused on practices that can support banking sector companies in facing sustainability challenges. So far, this aspect has been little investigated, especially concerning the banking sector. This review also offers a practical contribution by discussing the determinants and obstacles that banking sector companies face when introducing sustainability practices into their business processes beyond the lack of regulation. The managerial contribution of the research is represented by identifying potential opportunities for managers interested in introducing sustainability practices in their businesses. The lack of adoption of sustainability aspects in banking also has to do with the lack of knowledge of sustainability matters, whether from shareholders, managers, or stakeholders themselves. This raised aspect varies from reality to reality; in the specific context of developed economies, the demand is greater.

Notably, the review highlights the potential benefits associated with adopting a sustainable transformation of the banks' business model and the obstacles managers must overcome. Managers should improve the reliability and materiality of their reports by including more quantitative information and using assurance tools, such as GRI standards and certifications, which can enhance their organizations' accountability.

This research suggests that banking managers should adopt tools that can guarantee effective stakeholder participation and involvement in facilitating sustainability disclosure for the sector. This would increase their awareness of the responsible use of resources. Sustainability will only be achieved with the collaboration of all stakeholders. Banking sector companies should also improve their communication, transforming it from unidirectional

to bidirectional by adopting Fintech, and allowing consumers to actively participate in decision-making processes through stakeholder consultations using stakeholder mapping tools. The resulting insights could be useful not only in the context of the banking sector but also in fostering environmental, social, and economic reflections, and could inspire new research trajectories for academics in this field.

6. Conclusions

In recent years, several researchers in the field of accounting have focused their investigations on analyzing the contributions of companies to the 2030 Agenda (Bebbington and Unerman 2018; Unerman et al. 2018). This interest has been prompted by the rapid growth of sustainability reporting tools, which have begun to be used both mandatorily and voluntarily, due to the implementation of Regulation (EU) 2019/2088 in the specific case of the European Union.

The literature on social accounting has mainly concentrated on the determinants of sustainability disclosure (Archel et al. 2009; Zarzycka and Krasodomska 2022), including internal and external mechanisms of corporate governance (Hoepner et al. 2023; Patel et al. 2021), although little attention has been given to analyzing the determinants and obstacles that lead companies to introduce sustainability practices, especially when considering the banking sector. The need to analyze the practices of companies in the banking sector is directly related to their specificities and the contribution they can make to the sustainability of companies across all sectors.

In recent years, banking sector companies have been invited to engage and establish commitments and strategies to address sustainability disclosure challenges. Banks have expressed their commitment to stakeholders in their sustainability reports, which have been gradually adopted voluntarily by some and coercively by others. According to a recent report (Benvenuto et al. 2023), banking sector companies worldwide are shifting to more sustainable practices to cooperate with local, national, and global sustainability goals. This change appears to be driven mainly by opportunities for economic value creation and urgent legislation.

The analysis of the articles selected here highlights the essential role played by banking service companies in the ecological transition, which have a fundamental role in achieving the goal of net zero carbon emissions by 2050 through sustainable financing.

This research contributes to the sustainability debate through theoretical, managerial, and policy implications. The theoretical contribution of the research consists in identifying the main research themes investigated by scholars in accounting and management, presenting contrasting evidence and those that require greater exploration specifically in the disclosure of sustainability practices adopted by the financial industry.

The study identifies a significant finding regarding disclosure practices, through the adoption of certain tools and models such as financial technologies, CE, and green banks, which are essential for transforming the business models of banking sector companies. Of the selected articles, none addressed this mix of models that contribute to accelerating the achievement of the SDGs by the banking sector through disclosure in their reports.

What emerges from the systematization of the study is the high fragmentation of the academic literature. There is a lack of studies investigating the connection between ESG, green banks, fintech, and CE, actions, performance, and disclosure utilizing an organic approach to evaluate their coherence. Some studies have attempted to correlate sustainability practices with financial performance and financial technology, highlighting the existence of dissociation or greenwashing phenomena. This makes it clear that sustainability is still in an embryonic phase, as it is not fully integrated into business strategies aimed at value creation, which would be essential for transforming their business models and achieving SDG.

In line with the authors analyzed it is crucial to evaluate the obstacles faced by the banking sector companies to transform their traditional business models into sustainable business models in order to advance scientific knowledge and address sustainability

challenges. Sustainability reports are not proportionally correlated with sustainability performance, so attention needs to be focused on practices that can support banking sector companies in facing sustainability challenges. So far, this aspect has been little investigated, especially concerning the banking sector. This review also offers a practical contribution by discussing the determinants and obstacles that banking sector companies face when introducing sustainability practices into their business processes beyond regulatory lack.

The research provides a detailed assessment of the existing literature on sustainability reporting in the banking sector, identifying significant gaps that need to be explored in future investigations. Through a systematic review, the study contributes to enriching the academic dialogue on corporate responsibility and sustainable practices.

Notably, the review highlights the potential benefits associated with adopting a sustainable transformation of banks' business models and the obstacles that managers must overcome. Managers must improve the reliability and materiality of their reports by including more quantitative information and using assurance tools, such as GRI standards and certifications, which can enhance their organizations' accountability.

The present research suggests that banking managers should adopt tools that can ensure effective participation and engagement of stakeholders in facilitating sustainability disclosure for the sector. This would increase their awareness of the responsible use of resources. Sustainability will only be achieved with the collaboration of all stakeholders.

Banking sector companies should also improve legitimacy in their communication, transforming it from one-way to two-way by adopting fintech, and allowing consumers to actively participate in decision-making processes through stakeholder consultations using stakeholder mapping tools. The outcomes may be useful not only in the context of the banking sector but also in encouraging environmental, social, and economic reflections, and can inspire new research trajectories for scholars in this field.

The study emphasizes that stakeholder, agency, and legitimacy theories are predominant in the literature on sustainability in the banking sector. The stakeholder theory, in particular, is fundamental for understanding how banks should consider the expectations of multiple stakeholders to maintain legitimacy and update their practices.

The article highlights the need for additional research addressing the motivations behind the lack of sustainability practices in different geographical contexts, as well as considering the use of mixed methods to capture both qualitative and quantitative data. Future research could incorporate other languages in order to gather as much information as possible and gain more insights, since the present study was limited to articles published only in English. Additionally, it could expand the temporal horizon, given that the study focused on an 8-year period from 2016 to 2024.

Other paths of investigation may also be considered such as investigating the lack of specific regulation in African countries. What are the legal and regulatory obstacles that hinder the adoption of sustainable practices in the financial sector? How could these regulations be implemented to encourage sustainability reporting?

It would also be interesting to conduct a comparative study between Latin American and African countries that have already implemented Green Bonds and those that have not. What factors contributed to the success or lack of sustainability reporting in these countries?

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