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A PRISMA systematic review of greenwashing in the banking industry: A call for action

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ABSTRACT

This study analyses greenwashing practices in the banking industry using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) and bibliometric methods. This study aims to identify the key concerns associated with greenwashing in the banking sector and understand the extent to which these concerns have been addressed in academic research over the past decade. This analysis was conducted using the Web of Science and Scopus databases, resulting in 19 articles identified following the PRISMA protocol. The key findings indicate that the concept of greenwashing has gained significant attention, with an increasing number of studies published in recent years. The results of the PRISMA analysis revealed that banks have been accused of greenwashing by overemphasising sustainable policies and their commitment to environmental objectives without implementation. This study provides valuable insights into the nature of greenwashing in the banking industry and offers recommendations for future research.

1. Introduction

As the global community becomes increasingly aware of the impact of human activities on the environment, consumers are increasingly seeking products and services marketed as environmentally friendly. In response, many companies have begun to incorporate green marketing strategies into their advertising campaigns to promote sustainable and eco-friendly products. However, some companies engage in 'greenwashing,' which involves misleading consumers about the environmental benefits of their products and services. This deceptive marketing practice undermines the trust that consumers place in companies and can have serious environmental consequences (Delmas and Burbano, 2011; TerraChoice, 2009; Lyon and Montgomery, 2015; Walker and Wan, 2012).

A significant impact of greenwashing is that it can lead consumers to make uninformed purchasing decisions, believing that they are making environmentally responsible choices when they are not (Santos et al., 2023). This can result in increased environmental damage as consumers continue to purchase products with significant environmental impacts. When consumers discover that a company is engaged in greenwashing, they may feel deceived and lose faith in the company's environmental commitment (Jaiswal et al., 2021). Firms use a variety of strategies to engage in greenwashing, including vague or misleading claims, selective disclosure of information, and green labels or certifications (Siano, Vollero, Conte and Amabile, 2017; Lyon and Maxwell, 2011; Marquis, Toffel, and Zhou, 2016; Lin-Hi and Müller, 2013; Yu et al., 2020).

In recent years, the issue of greenwashing is also affecting the banking sector. Banks play an important role in the transition to a

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low-carbon economy, as they are responsible for financing many of the projects that contribute to greenhouse gas emissions (Aras et al., 2018; Gangi et al., 2019; Galletta et al., 2021; Soana, 2011). As a result, there has been growing interest in sustainable finance and environmental, social, and governance (ESG) investments (Zhang et al., 2022; Zheng et al., 2023; Galletta et al., 2022; Khan, 2022; Long et al., 2022). However, some banks engage in greenwashing by claiming to be environmentally responsible while continuing to fund fossil fuel projects and other environmentally damaging activities (Elliott and Löfgren, 2022; Graafland, and van de Ven, 2011; Herzog, 2019).

This study explores greenwashing in the banking industry and its impact on consumer trust through a systematic literature review. In doing so, it investigates the importance of transparency and accountability for banks to regain public trust and contribute to a green transition. By conducting this study, valuable insights will be gained to answer the research questions (RQs) commonly explored in literature reviews (Kumar et al., 2022; Mukherjee et al., 2023a):

RQ1. Which journals are the most influential in the field of banks' greenwashing?

RQ2. What are the major themes and topics for banks' greenwashing research?

RQ3. Which are the most influential articles for banks' greenwashing research?

RQ4. What are the future research directions for banks' greenwashing research?

We used the PRISMA analysis approach (de Freitas Netto et al., 2020; Alkhowaiter, 2020; Ahmad et al., 2020). It is a systematic approach to conduct literature reviews that promotes transparency and accuracy in the review process.

There are several motivations for banks' greenwashing. One of the main reasons is the pressure to meet ESG targets and demonstrate commitment to sustainable finance. By financing the economy, banks can steer their choices towards adopting more eco-sustainable models. Thus, banks must adopt control and verification procedures to ensure that the funds allocated to enterprises for actual eco-sustainable activities are utilised for their intended purposes, thereby reducing moral hazard attitudes.

The focus on environmental issues opens a new avenue for the social role that banks have always played in the economic system. In addition to the vision of social banks (Weber and Remer, 2011; Artis, 2017), ethical banks (Kitamura, 2022; San-Jose et al., 2011), and microfinance (Sengupta and Aubuchon, 2008; Zamore, 2018), banks must also be concerned with the effective realisation of an ecological transition aimed at reducing climate impacts that increasingly have negative effects on economic and social well-being (Benedikter and Benedikter, 2011; Aggarwal and Goodell, 2009). Thus, limiting financing to greenwashing companies embodies the goal of a renewed and modern social role of banks.

Active engagement in countering greenwashing offers benefits to banks. Banks seen as environmentally responsible may appeal more to investors and customers, potentially resulting in enhanced profits and market shares (Yip and Bocken, 2018). Nonetheless, if customers and investors uncover deceptive claims by their banks, disillusionment may set in, leading them to disengage from such institutions.

To fulfil their role, banks must prioritise sustainability, transparency, and ensure that their investments align with their environmental claims. Overall, examining bank greenwashing reveals common greenwashing tactics, patterns, and challenges across various industries. The prevalence of bank greenwashing highlights the need for stricter regulation and improved enforcement. Robust guidelines and oversight can help curb deceptive green marketing practices and hold organisations accountable for environmental claims. Examining the environmental impact of a bank's investments or lending practices is essential to determine whether the institution aligns its operations with its purported green commitments.

The remainder of this paper proceeds as follows: Section 2 defines and discusses the methodology to assess and present our research idea. Section 3 reports the main results regarding the effect of greenwashing in the banking industry, including the pressure to meet ESG targets, regulatory requirements, and customer demand. Section 4 presents the practical and theoretical implications. Finally, Section 5 concludes the study.

2. Design and method

A systematic review collates all relevant evidence that fits the pre-specified eligibility criteria to answer a research question. We adopted the PRISMA model, an approach derived from health-care studies where there is a need to provide clinical practice guidelines and inform clinical decision-making under a predefined methodological approach and an associated protocol (Moher et al., 2009, 2015; Cooper et al., 2018). The use of systematic reviews, particularly the PRISMA method, is motivated by the search for a systematic and rigorous research approach (Tranfield et al., 2003). This method can help researchers summarise existing literature based on a meticulous, explicit, and transparent stepwise iterative process (Liberati et al., 2009). A more systematic literature review can justify the final research question for a new study to fill the gap defined in the literature, even when the question concerns the replication or development of an existing study (Tranfield et al., 2003). The interest in the study of greenwashing within the banking industry also constitutes a first assessment of the relevance of this literature gap. In this regard, employing a methodological approach based on a systematic literature review can provide feedback on this gap's relevance.

The PRISMA model is widespread not only in evidence-based medical research, but also increasingly in other disciplines. Although its diffusion is management studies, the model has already been applied in systematic reviews of finance literature studies (Voorberg et al., 2015; de Freitas Netto et al., 2020; Alkhowaiter, 2020; Khan et al., 2022; Ahmad et al., 2020). Our PRISMA flow diagram is based on a four-step sequence.

1. *Identification:* In this phase, researchers identify the research question and seek relevant studies. The search process should be systematic and comprehensive, with clear inclusion and exclusion criteria.

2. *Screening:* In this phase, researchers screen the studies identified in the first phase based on their relevance to the research question and the inclusion and exclusion criteria. This phase typically involves screening the titles and abstracts of the studies, followed by a full-text review of studies that meet the inclusion criteria.
3. *Eligibility:* In this phase, researchers assess the eligibility of the studies that have passed the screening phase. This assessment includes evaluating the quality of the studies and their relevance to the research question.
4. *Inclusion:* In this phase, studies that meet the eligibility criteria are included in the systematic review. Data from these studies are extracted and analysed, and the findings are synthesised and reported.

The model ensures the replicability, transparency, and traceability of the applied review protocol. Coherent with the PRISMA checklist, we considered the relevant aspects summarised in the following table:

During the initial phase, we developed a plan to review relevant materials by establishing specific criteria for inclusion and exclusion. To gather the necessary resources, the search expression was constructed using defined keywords such as "green wash* OR greenwash* AND bank* OR financial institution*". Inclusion criteria were established, including requirements such as complete articles, online availability, written in English, and relevance to the study. The exclusion criteria were subsequently outlined, as indicated in Table 1, excluding books, conference reports, editorials, articles in languages other than English, and grey literature (government documents, non-academic industry reports, or materials outside the inclusion criteria).

In the second stage, the study proceeded with a systematic literature review following the PRISMA protocol. The search expressions derived from the selected keywords were used to collect materials from the chosen search databases. No specific date range was initially set to ensure the inclusion of all materials published until 20 February 2023. The search yielded 46 documents, which were subjected to the removal of duplicates, non-English articles, and non-academic documents. This process yielded a final sample size of 25. The abstracts of these articles were carefully examined to identify those that contained information relevant to the scope of the study.

Subsequently, 19 articles were selected to form the final sample. These articles were read in their entirety and their information was tabulated. The articles were then categorised based on their objectives or central themes. The literature screening and selection process adhered to the PRISMA model, as depicted in Fig. 1. The results obtained through the implementation of the PRISMA model are described in detail in Fig. 1.

Furthermore, to ensure the robustness of our results and to have a clear vision of what the literature proposed, in the *Eligibility* phase, we ran a co-word cluster bibliometric network analysis using VOSviewer software (version 1.6.13). This method has spread considerably in recent years in finance and management studies (Paltrinieri et al., 2019; Galletta et al., 2022; Goodell et al., 2023) and allows for research trend analysis by identifying relevant studies, as it ensures an unbiased sample of research articles (Lim and Kumar, 2023). Indeed, bibliometric analysis utilises quantitative and statistical measures, including big data analytics and machine learning (Kumar et al., 2022) and is more objective and comprehensive than other types of reviews (Donthu et al., 2021; Mukherjee et al., 2023b).

Co-word analysis is a method used in bibliometrics to explore the relationships between different terms or concepts based on their co-occurrence in the scientific literature. It involves the construction of a co-occurrence matrix that represents the frequency with which terms appear together in a set of papers. This matrix can be used to identify the most frequently co-occurring terms, clusters, or groups of related terms, and to visualise the relationships between them.

3. Results

3.1. General observation

Fig. 2 depicts the total number of publications between 2013 and 2023; all documents were published before February 2023. Despite the starting point of the research being 1999, no papers were found to be published between 1999 and 2012 regarding the topic

Table 1
The PRISMA Model for systematic literature reviews.

Study design	The study applies a literature review to summarise existing literature evidence based on a rigorous, explicit and transparent stepwise iterative process.
Review protocol	To minimise the likelihood of "*biased post hoc decisions in review methods*" (Liberati et al., *cit.* 2009), reviewers have previously set the search criteria and related keywords.
Eligibility criteria	We considered only articles published in peer-reviewed journals as eligible; we identified studies by searching the Web of Science electronic database applying the codes defined by the authors; we mapped and clustered bibliometric data.
Publication type included	Peer-reviewed articles from Web of Science electronic database
Publication time frame	1999 to 2023
Language	English
Search strategy	We selected the following codes to search in the source database: 1) TS = green wash* OR greenwash* AND bank* OR financial institution* Categories: Business; Management; Economics; Public Administration; Urban Studies We assessed full-text articles for the subsequent eligibility and inclusion decision. Main topics were identified through a cluster network analysis (Waltman et al., 2010).

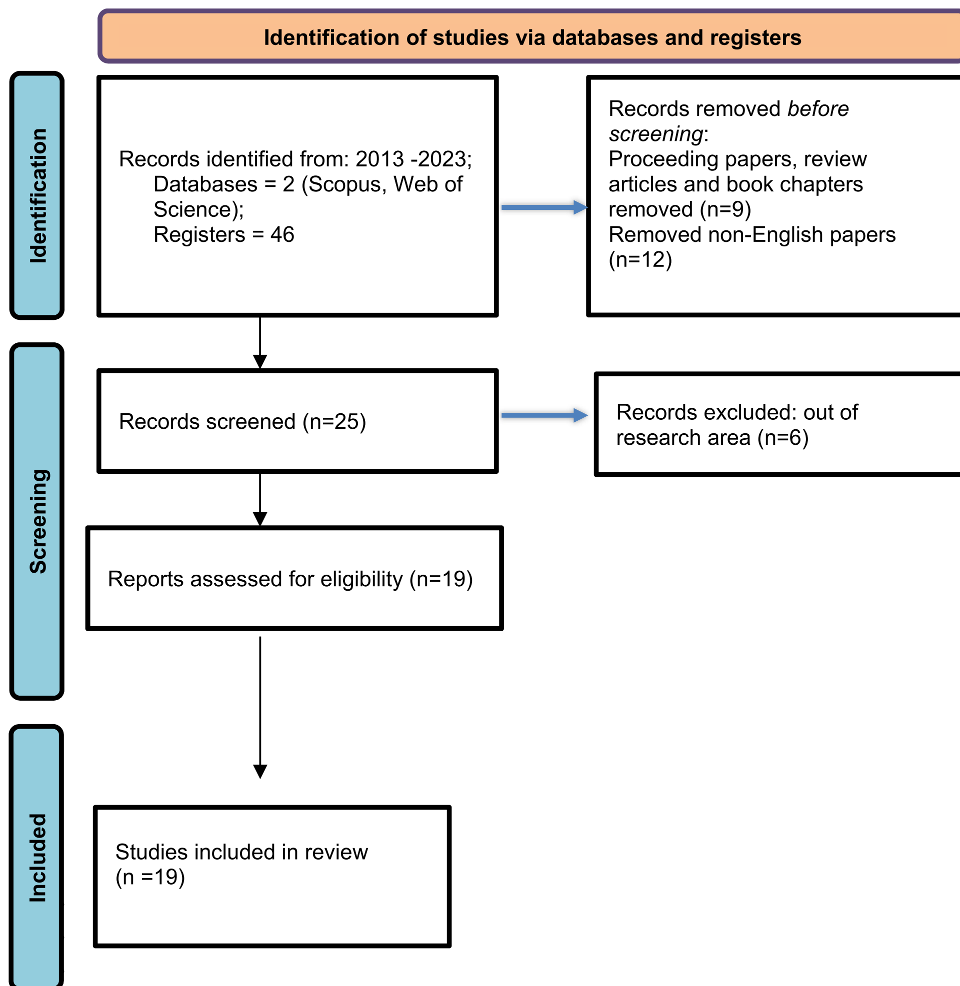

Fig. 1. PRISMA flow diagram for systematic literature reviews.

of greenwashing and banks. Greenwashing in banking has gained increasing attention. The number of papers published between 2020 and 2021 is the highest. This topic has recently gained attention for several reasons such as increased scrutiny of various industries, including the banking sector, to ensure that their practices align with sustainable development goals. As banks increasingly position themselves as promoters of sustainable finance, the rise of ESG investment criteria in investment decision-making and the regulatory scrutiny of government institutions have recognised the importance of combating greenwashing and ensuring the integrity of

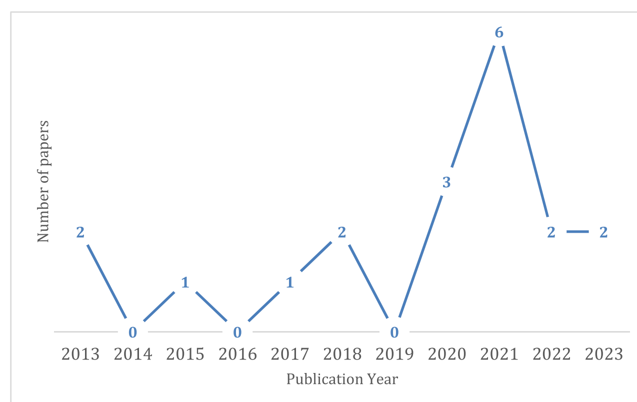

Fig. 2. Publication Trend.

sustainable finance.

To answer RQ1, we analysed the most influential journals. Table 2 lists the journals in which papers in the dataset were published. Approximately half of the journals had high international rankings of business and management journals. The Chartered Association of Business Schools (Academic Journal Guide, 2021) gives four journals a ranking of three on a scale from a minimum of one to a maximum of four stars (*). From the journal analysis, it emerged that scholars' approach to the topic of sustainable development is multidisciplinary and developed along two main lines. The first concerns highly specialised journals on the subject of Finance and Economics (Journal of Banking & Finance, International Review of Financial Analysis, Journal of International Financial Markets Institutions & Money, Journal of Sustainable Finance & Investment, Energy Economics), while the second concerns journals that delved into management profiles (Journal of Business Ethics, Business Strategy & the Environment, Environment and Planning A-Economy and Space, Geoforum, Meditari Accountancy Research, Technological Forecasting, and Social Change).

3.1.1. Co-word cluster analysis

The aim of conducting keyword co-occurrence network analysis was to identify terms that have been commonly used in different papers. Therefore, this section aims to answer RQ2 by recognising the most analysed topics in the literature on bank greenwashing. This analysis can help researchers gain insights into topics that have garnered significant attention from scholars. A visual map was generated using VOSviewer's text-mining algorithm, in which the distance between terms reflects their level of association or similarity (Laudano et al., 2018). When two or more terms are closely related, their distances from the map decrease. By examining the co-occurrence of keywords in articles, this study established the interconnectedness of these terms (Van Eck et al., 2010). Fig. 3 shows the keyword co-occurrence network map. The map illustrates multiple keywords connected to one another through lines, indicating their frequent appearance in the dataset papers. The presence of these frequently used terms suggests that more research has been conducted in these areas. The keyword co-occurrence network map (Fig. 3) displays two main clusters that can be distinguished by colours: red and green. Notwithstanding, these clusters are tightly linked and have overlapping themes, namely greenwashing and banks from a financial perspective (red) and greenwashing and banks from a managerial perspective (green). Overall, we observed that the most frequently occurring word in the red cluster (i.e. the one with the largest node) was greenwashing, followed by banks, green finance, economy, climate change, green bonds, and financialisation. These terms are interconnected through their relevance to sustainable finance, environmental impacts, and the broader economic implications of climate change. They represent different facets of the intersection between finance, the economy, and the environment, highlighting the growing recognition of environmental concerns within the financial sector and their potential influence on economic systems and decision-making processes.

The green cluster comprises studies that evaluate greenwashing in banks from a managerial perspective. The most frequently occurring keywords in the green cluster were sustainability, corporate social responsibility, environmental disclosure, growth, green innovation, reputation, and management. These keywords are related because they highlight the various dimensions of how banks engage in sustainability, environmental responsibility, and social impact. They demonstrate the increasing importance of integrating environmental and social factors into banks' core business practices, as they recognise the potential benefits of aligning their operations with sustainability objectives, fostering innovation, enhancing reputation, and effectively managing environmental risks and opportunities.

3.2. Different facets of greenwashing

To answer RQ3 and RQ4, in this section we review the most influential articles on bank greenwashing and identify future research directions. Accordingly, based on the previous cluster (Fig. 3), we categorised the main drivers as follows: Finance (Red Cluster) and

Table 2
Sources

Source Title	Abs Ranking	Abs Field
Journal of Banking & Finance	3	FINANCE
Environmental Policy and Governance	/	
International Review of Financial Analysis	3	FINANCE
Journal of International Financial Markets Institutions & Money	3	FINANCE
Journal of Risk and Financial Management	/	
Renewable Energy	/	
Journal of Business Ethics	3	ETHICS-CSR MANAGEMENT
Local Environment	/	
Meditari Accountancy Research	1	ACCOUNTING
Accounting Auditing & Accountability Journal		
Sustainability	/	
Business Strategy and the Environment	3	SOCIAL SCIENCE
Energies	/	
Environment and Planning A-Economy and Space	3	REGIONAL STUDIES, PLANNING AND ENVIRONMENT
Energy Economics	3	ECONOMICS
Journal of Sustainable Finance & Investment	1	FINANCE
Transnational Environmental Law	/	
Geoforum	2	SOCIAL SCIENCE
Technological Forecasting and Social Change	3	INNOVATION

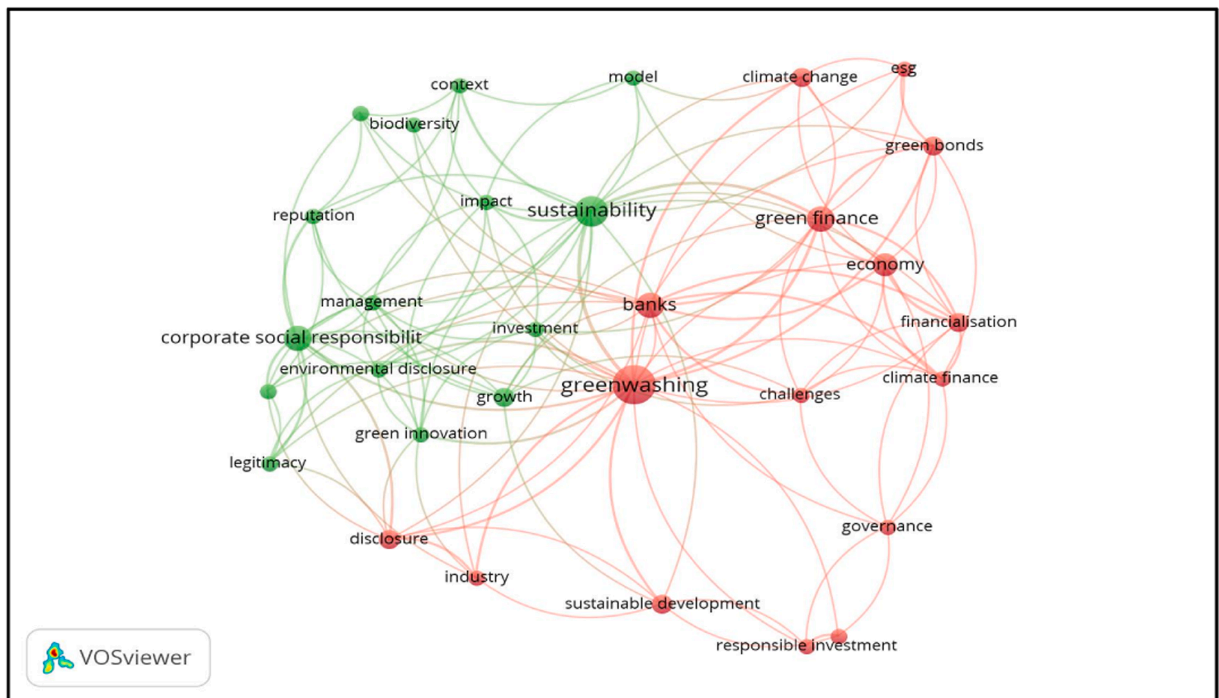

Fig. 3. Co-words cluster.

Management (Green cluster).

3.2.1. Finance cluster

3.2.1.1. Environmental transparency and greenwashing. The main areas of research shared by the manuscripts are sustainable finance and banking practices, including the impact of environmental regulations on green finance, ethical considerations in banking, and potential directions for sustainable finance.

In their comprehensive analysis of the financial sector's ethical concerns after the 2008 subprime mortgage crisis, Paulet et al. (2015) provided insights into the strategic moves and structural changes implemented by the banking industry to address the crisis. The authors discussed the ethical dilemmas faced by the banking industry during and after the financial crisis, and the ethical principles that should be integral to the banking industry. Ethical banks' responses differed from those of their mainstream competitors in several critical respects. Ethical banks are a fundamentally distinct type of financial organisation, although both are managed by the same authorities and operate in the same market. Ethical banks' primary activity is the provision of local loans, as opposed to activities in secondary stock markets. This banking approach has enabled them to weather the recent financial crisis without making significant operational modifications.

Banks are not only impacted by climate change but are also required to implement ethical procedures and mitigate it. Caby et al. (2020) examined the variables affecting banks' voluntary disclosure of their climate change initiatives and the effectiveness of that disclosure by analysing a sample of 117 banks from both developed and developing nations. The results showed that country- and bank-level features are strong indicators of a bank's commitment to voluntary carbon disclosure programs and environmental scores. Particularly, when banks operate in developed and environmentally concerned countries, are profitable, have low risk levels, and are subject to multiple listing requirements, they tend to position themselves as responsible institutions. Nevertheless, when considering the application of complete carbon disclosure, the scenario becomes less robust because the country- and bank-level features provide only partial answers. Overall, the authors argued that a divergence exists between modelling responsible behaviour and implementing it. In this context, the greenwashing phenomenon has spread because banks' commitment to voluntary carbon disclosure is largely motivated by stakeholder and legitimacy arguments. To provide a more objective external evaluation of bank participation, new criteria focusing on climate change or climate risk as well as sustainable financing or social effects in general must be implemented. Thus, specific environmental indicators can be included in sustainability reporting. Khan et al. (2021) provided an in-depth analysis of banks' sustainability reporting. The authors distinguished between 'green washing' or superficial sustainability initiatives and 'authentic efforts' to achieve the development goals in bank report disclosures. This study used qualitative and quantitative analyses to examine the quality of sustainability reporting for 315 bank-year observations from 2002 to 2014 in Bangladesh. Data on the quality of sustainability reporting were collected from banks' annual reports. The authors categorised the quality of sustainability reporting according to the relevance and reliability of the information. They assessed the quality of these reports using several criteria such as the

comprehensiveness of reporting, stakeholder engagement, disclosure of targets and performance, and use of external verification. Bangladeshi banks have recently begun emphasising stakeholder preferences and distributing funding to address contextual issues, such as climate change and education. Recently, business groups, regulators, and legislators in developing nations have aggressively promoted sustainable development through programs such as financial inclusion, green banking, corporate social responsibility, and corporate philanthropy. The findings of this study show that the introduction of sustainability reporting quality in Bangladeshi banks was symbolic. These concerns are more symptomatic of managers prioritising their personal interests than a lack of actual responsibility within the organisation. Overall, the authors showed that in emerging economies, there is potential for sustainability performance to become more comprehensive and eventually significant enough to be recognised and acknowledged.

Following this stream of literature, Ozili (2023) explored the potential benefits of a sustainable loan loss provisioning system for financial institutions. The author argued that the traditional approach to loan loss provisioning that focuses on profitability and risk management does not consider the environmental or social impacts of lending activities. By contrast, a sustainable loan loss provisioning system allocates provisions in accordance with the borrower's environmental and social performance. This study revealed that it is critical to adopt a sustainable loan loss provision system due to its numerous benefits. First, this aligns with the global sustainability movement and guarantees that bank credit policies are consistent with sustainability objectives. Second, it addresses greenwashing in banks by fostering openness and accountability. Third, it encourages competition between the banking industry and other institutions to emphasise sustainability. Furthermore, it improves banks' sustainability rankings and reputations while ensuring that they do not contribute to carbon emissions, thus favourably influencing the environment overall.

Different perspectives on what constitutes green or eco-friendly behaviour across banks and regulatory bodies may lead to subjectivity in appraising a company's actions. Nonetheless, adopting a legislative framework with definitions for words such as 'green' and 'eco-friendly' might serve as a strategy to address this issue.

3.2.1.2. Green finance and greenwashing. The potential of the green bond market to promote sustainable investment has also been examined. Deschryver and De Mariz (2020) argued that green bonds have the potential to channel capital towards environmentally responsible projects and can help reduce the risk of greenwashing by requiring a specific reference framework. The authors also noted the challenges to the growth of the green bond market which involve issuers, investors, and intermediaries. These major challenges are linked to several factors, including a costly process, lack of standardised criteria for what constitutes a 'green' investment, reputational risk, and need for greater transparency. Therefore, disclosure and transparency are two key factors in the issuance and reporting of green bonds, and there is a need for an established set of industry standards to guide best practices. Similarly, Liu and Lai (2021) provided a comprehensive overview of the history, legal framework, and market trends of green sukuk in Malaysia, as well as their links to the global green bond market. The authors analysed the emergence and diffusion of green sukuk, a renewable energy financial instrument that complies with Shariah principles, and explored the institutional and regulatory factors that shape its adoption. In the literature on green finance, most authors examined the issues of implementing green bonds in the context of ecological debt solutions.

Regarding the link between companies' environmental performance and bank funding access, Wellalage and Kumar (2021) analysed data from the World Bank Enterprise Surveys (2018–2019) of 3915 unlisted firms in seven developing countries. Using the environmental impact reduction index, the authors' results suggest that involvement in environmental initiatives could be a strategy to improve a firm's loan access. In particular, the findings indicate that firms with better environmental performance will not only be able to access more bank financing but will also be able to do so at lower costs. The size of the loans that firms obtain is positively affected by their environmental performance. Furthermore, even with above-average environmental performance, businesses in contentious industries have difficulty obtaining financing. As 'greenwashing' undermines credibility and misleads green customers, this implies that trying to control stakeholders in these industries is unlikely to be effective.

Policymakers can use this information to argue for tighter environmental regulations, highlighting the benefits not only for the environment, but also for the financial health of firms. Similarly, Jones et al. (2020) argued that green bonds are a crucial solution to the issue associated with financing environmental degradation. This study explored the practical and political concerns surrounding green bonds and provided sufficient evidence to support the argument that green bonds are not a complete solution to ecological debt because there are several practical and political challenges associated with them. Some practical challenges include the lack of clear standards and guidelines for issuing green bonds and the lack of transparency in the verification process of green projects. These issues raise doubts regarding the effectiveness of green bonds in covering ecological deficits. Political challenges mostly concern bond issuers' political commitments to environmental projects that support ecological debt reduction initiatives. This study highlighted the misalignment of interest between bond issuers and ecological goals.

Regulation is another important factor when dealing with the application of environmental policies. Xu et al. (2022) analysed the impact of environmental regulations on the development of green finance with evidence from polluting firms in China. The authors acknowledged that the implementation of environmental regulations promotes sustainable development, but also carries a financial burden on polluting firms. Polluting firms increase their green investments to comply with environmental regulations. Since evidence proves that firms with high levels of environmental regulation compliance are more likely to obtain green finance from the financial market, the importance of environmental regulation compliance must be considered a key factor in accessing green finance.

Using a sample of Chinese listed firms in the energy sector, Zhang (2023) shed light on the relationship between subsidy shocks and greenwashing communication strategies over the period 2011–2021. These findings provide important insights into the complex decision-making processes of firms in the energy sector as they navigate the changing landscape of subsidies and greenwashing. In particular, it has been found that firms whose subsidies were set to expire had a higher likelihood of engaging in greenwashing compared to those whose subsidies still had a longer lifespan. Only highly polluting businesses are driven to engage in greenwashing,

while cleaner production businesses are not. Furthermore, the author found evidence that the level of bankruptcy risk faced by a firm was a significant factor in this decision-making process. Regulators must continue to support firms in improving their sustainability performance, monitoring the implementation of rules, and combating permissive ESG practices to prevent the misallocation of financial resources. This is crucial because a business strategy can deceive and mislead users if utilised as a communication instrument.

Overall, the main studies analysed provide meaningful insights into the challenges associated with financing environmental projects. Moreover, scepticism stems from the fact that green bonds may be used to finance environmentally harmful activities or may not respect environmental sustainability standards. Overall, these studies highlight the growing importance of integrating sustainability into economic and financial systems to achieve long-term environmental and social outcomes.

3.2.2. Management cluster

3.2.2.1. Banks' CSR and greenwashing. In recent years, corporate social responsibility (CSR) has gained significant attention in both the business world and academia due to growing public awareness of companies' ethical and social responsibilities. In particular, the banking industry has faced criticism for its social and environmental impacts, prompting researchers to examine the motives and financial implications of CSR initiatives in this sector. Wu and Shen's (2013) study of CSR in the banking industry offers valuable insights into these issues. The authors drew attention to the increasing importance of CSR in the financial sector, highlighting the potential influence of such practices on stakeholders and broader society. Their study investigated the connection between financial performance (FP) and CSR in the banking industry, as well as what motivates banks to engage in CSR. Wu and Shen (2013) employed a comprehensive dataset of the Ethical Investment Research Service (EIRIS) and Bankscope databases, encompassing a sample of over 100 banks from 2003 to 2009. Their findings remained robust when considering the subprime crisis, various CSR dummy specifications, and additional CSR classes. Thus, CSR and FP are found to be favourably related. The authors contended that if banks participate in CSR initiatives for strategic reasons, governments must offer less assistance. Governments may assist banks in their charitable CSR endeavours by lending money to economically conscious businesses. Studies that only examined the connection between CSR and FP frequently disregarded this purpose.

Khalil, O'sullivan (2017) study of CSR and Internet social and environmental reporting by banks provides valuable contributions to the literature on greenwashing. Their study shed light on internet social and environmental reporting (ISER) in the Middle East by examining the ISER of Lebanese banks and their greenwashing practices. It also determined the extent, quality, and associations of ISER through various factors, including profitability, size, and religion, as well as their relationships with these factors. A mixed technique was used in the study. Bank employees surveyed their views on corporate social responsibility (CSR). A content analysis of bank websites was employed to investigate the scope, calibre, and connections between ISER and other bank features. The authors found that banks are ahead of other industries regarding idea knowledge, involvement, and reporting. Contrasting views have been expressed regarding the reasons banks participate in CSR. Most banks claim that CSR has a positive influence on the community and the bank in terms of brand image and distinction; consequently, it is viewed as a win-win scenario. A small number of institutions claim that this is voluntary without any underlying purpose. Regarding ISER's effect on bank profitability, respondents concurred that ISER had a favourable long-term influence. However, banks have not set up instruments to assess ISER, which may have a negligible effect on short-term profitability.

Finger et al. (2018) examined the effects of CSR and bank performance on social and environmental risk management. This was achieved by focusing on Equator Principles (EP), which is a collection of best practice standards to advise banks participating in project finance. The authors adopted a comparative approach and analysed data from 78 banks from 2003 to 2015. Of these, 52 were from developed countries and 26 were from developing countries. This study demonstrated that the characteristics of nations and banks that use EP vary dramatically between developed and developing countries. In investigating the short- and long-term implications of EP adoption in banks, the authors found that in the pre-EP era (before 2003), financial institutions from developed nations were big, hazardous, and poor performers compared to banks from the same countries that did not implement EP afterwards. This is consistent with greenwashing theory. We observed a short-term increase in fundraising activity and weaker evidence of enhanced profitability, both of which may be attributable to the short-term reputational benefits of EP adoption. Moreover, in developed countries, environmental challenges are widely recognised and addressed through established legislative frameworks, institutional capabilities, and national and corporate governance to protect both society and the natural environment. Given the extensive approach taken by banks to address environmental problems, the adoption of EP may be viewed merely as window-dressing or greenwashing measures. Developing nations, however, lag behind established markets in terms of environmental awareness and legislation. The authors argue that implementing EP is a strategic decision that necessitates substantial expenditures and alters the operations and performance of adopters. Similarly, Finger et al. (2018) highlighted the need for transparency and accuracy in reporting bank involvement in CSR practices.

In addition, Borel-Saladin and Turok (2013) discussed how a green economy is often touted as a way to promote sustainability and environmental protection. However, they cautioned that there is a danger of greenwashing, where companies or governments make exaggerated or false claims about their environmental credentials to mislead customers or investors. The authors argued that a true transformation towards a green economy requires systemic change and commitment to genuine sustainability goals rather than merely incremental improvements. To reject the green economy and green growth as a simple system, 'tweaks' and 'fiddling while Rome burns' is ludicrous. This emphasises the significance of national environmental policies as long-term, goal-oriented initiatives rather than merely cosmetic improvements. The World Bank has suggested integrating environmental considerations into central government functions, including budgets. This necessitates significant adjustments to the government's existing emphasis and operations.

3.2.2.2. Environmental disclosure and lending decision. Using a panel of 1086 publicly listed Chinese manufacturing organisations from 2012 to 2017, Xing et al. (2021) examined whether firms with greater external environmental transparency and internal green innovation obtain more bank loans because of green credit. They found that higher-quality environmental disclosures do not lead to additional loans for businesses and that the only factor that increases access to corporate financing is green innovation. The authors argued that the non-significant effect of environmental disclosure must be addressed in relation to the greenwashing phenomenon. While the quality of hard disclosures modestly increases the size of corporate loans, soft disclosures hinder loan funding. This gap is mostly due to the frequency of soft disclosures by companies engaging in corporate greenwashing, which is opposed by creditors.

Parker and Sheedy-Reinhard (2022) studied the role of banks in the transition to a green economy with the aim of safeguarding the planet's flora and fauna from brown lending. They examined the due diligence policies of Australian banks regarding lending to the agribusiness sector, which is a major contributor to climate change and animal welfare issues. The authors argued that banks are responsible for considering the environmental and animal welfare impacts of their lending decisions. They contended that it is reasonable and desirable for regulatory and quasi-regulatory requirements for responsible banking to include ESG concerns related to animal agriculture. The findings showed that while all seven banks in the study had policies related to environmental and social responsibility, there were significant gaps and inconsistencies in these policies. In this context, the authors claimed that banks exploit animal welfare regulations to gain legitimacy and public support for the continued investment and development of the animal agriculture industry, rather than tackling the challenges of climate disruption, food and water instability, and animal suffering. This reflects the broader problem of 'greenwashing' and symbolic actions through self-regulation and ideals that perpetuate the status quo. Banks' self-regulatory attempts are insufficient; they must address the interrelated cycle in which animal agriculture contributes to and is affected by climate disruption.

Dörry and Schulz (2018) identified how Luxembourg, as a financial hub, can align its financial practices with environmental sustainability. The authors offered a brief background on Luxembourg's financial sector and explained its traditional focus on private banking, asset management, and cross-border investments. However, Luxembourg's commitment to environmental sustainability has been relatively weak, as evidenced by a 2016 report that identified it as the worst-performing country in terms of greenhouse-gas emission-reduction targets. In response to these challenges, Dörry and Schulz (2018) suggested several directions for sustainable finance in Luxembourg. First, they recommended implementation tactics that support initiatives to advance environmental sustainability in the banking sector. Second, they suggested assessing how current global climate financing efforts and methods might encourage the creation of new goods, services, and business models in local and regional economies consistent with sustainability and de-growth objectives. Finally, they evaluated the degree of innovation and the possibility of change for business models in microfinance and microinsurance in the local and regional economies of industrialised nations. Following this stream of literature, Iddagoda et al. (2021) examined the relationship between work and life balance and employee job performance using a sample of 170

Table 3
Future research questions. Greenwashing Mitigation Propositions.

Research streams	Future research questions	Sources
Standardization of Metrics	Would standardized sustainability metrics help investors validate banks' sustainability claims?	Khan et al. (2021); Finger et al. (2018)
Bank performance and risk	Do environmental reports impact the performance and reputation of banks? Could environmental non-compliant lending result in higher capital absorption for banks with possible credit crunch? Is there a relationship between greenwashing risk and bank size? What is the relationship between a country's environmental regulations and bank's performance? What implications for Global Systemically Important Banks (G-SIBs)?	Authors' elaboration
Bank business models	Is environmental compliance economically sustainable by current banking business models? What business model should banks adopt in the face of full environmental compliance? How to measure the costs of green compliance in banking?	Authors' elaboration
Environmental disclosure and lending decision	How can banks implement creditworthiness analysis processes considering firms' environmental compliance? What will be the cost of credit for SMEs without environmental scores?	Authors' elaboration
Independent verification and certification	Do verification processes need to be strengthened to ensure that companies are held accountable for their sustainability claims? How to verify the authenticity of environmental information and data? How can encouraging independent verification and certification of a bank's sustainability efforts enhance credibility and transparency?	Long et al. (2022); Khan et al. (2021); Buallay (2019)
Regulatory oversight	What safeguards should banks implement to limit greenwashing related to the financing of polluting firms? How can regulators prevent greenwashing practices and discourage banks from engaging in them?	Wellalage and Kumar (2021)
Stakeholder engagement	How taxonomy can be adapted on greenwashing phenomenon? Do stakeholders' reaction towards greenwashing impact on corporate reputation?	Torelli 2020; Elliott and Löfgren (2022); Naranova-Nassauer (2021); Gangi et al. (2019)
Collaboration and knowledge sharing	How can collaboration between banks and industry associations foster best practices, knowledge sharing, and innovation in sustainable banking?	Chueca Vergara and Ferruz Agudo (2021); Ozili (2023)

managerial workers. Based on a cross-sectional study in the banking industry, the results confirmed the connection between employee job performance and work-life balance predicated on employee engagement. The authors argued that a work-life balance is not enough if it does not consider the broader environmental context. However, owing to the organisation's abuse of eco-concepts in its branding, greenwashing might erode stakeholders' commitment to upholding natural values, including employees. Indeed, the authors claimed that greenwashing can also occur in the context of work-life balance, where companies may promote flexible work arrangements as being environmentally friendly without actually addressing broader environmental issues. Evidence shows that companies often use green work-life balance as a marketing tool without addressing environmental concerns. Recently, contemporary literature has delved into the relationship between financial technology (fintech) and sustainability. Notably, Chueca Vergara and Ferruz Agudo (2021) asserted that both fintech and sustainability are essential considerations for modern businesses aiming to stay competitive and pertinent in the global market. This research investigated the potential positive or negative impacts of fintech evolution on sustainability. Through a literature review and case study, the authors examined the specific examples of current technological platforms, analysing the collaborative aspects between fintech and sustainability across various domains. The findings of the study indicate that fintech can potentially positively impact sustainability. For instance, fintech solutions can provide access to financial services for low-income communities, thereby improving their economic sustainability. Additionally, the development of blockchain technology can increase transparency and reduce corruption, thereby promoting social sustainability. However, fintech also has the potential to negatively affect sustainability. For example, digital technology can generate electronic waste, thereby harming the environment. Therefore, it is important for fintech companies to adopt sustainable practices and strategies to remain competitive and socially responsible.

4. Discussion and implications

From the analysis of the existing literature, some key challenges can be addressed in future research (see Table 3).

First, the banking sector lacks definitions and rules for what is considered 'green' or 'sustainable'. Customers and stakeholders find it challenging to distinguish between real sustainable initiatives and 'greenwashed' practices due to this ambiguity, which leaves possibility for misinterpretation and manipulation (Finger et al., 2018; Khan et al., 2021). Banks may make claims or use terminology that are vague, general, or unverifiable, making it challenging for customers to assess the true environmental impact of a bank's activities. Such inconsistencies and misleading claims can contribute to greenwashing by creating false impressions of sustainability (Khan et al., 2021; Borel-Saladin and Turok, 2013).

Second, greenwashing can thrive when banks lack transparency in disclosing their environmental performance, practices, and sustainability criteria. Without comprehensive and standardised reporting, it becomes difficult for customers and stakeholders to evaluate a bank's actual environmental impact and hold them accountable for their claims (Khan et al., 2021; Dörry and Schulz, 2018).

Third, bank investments and financing decisions can have indirect environmental impacts. Greenwashing can occur when banks focus on promoting specific green initiatives while neglecting to address broader activities, such as financing environmentally harmful industries or projects. This complexity makes it challenging for customers to assess the true sustainability of a bank's operations (Xu et al., 2022; Zhang, 2023; Ozili, 2023).

Fourth, regulatory frameworks and oversight mechanisms in the banking sector are not yet sufficiently robust to effectively monitor and prevent greenwashing practices. Consequently, insufficient regulation and enforcement may allow banks to make baseless claims or participate in deceptive tactics without incurring serious penalties (Wellalage and Kumar, 2021; Dörry and Schulz, 2018).

Finally, independent verification and certification can help ensure that a bank's sustainability claims are credible and transparent. However, the lack of defined verification systems and reputable third-party certifications can make it difficult for clients to distinguish true sustainable practices from greenwashing initiatives (Liu and Lai, 2021; Dörry and Schulz, 2018; Chueca Vergara and Ferruz Agudo, 2021).

Addressing these challenges requires a combination of efforts from various stakeholders including regulators, banks, customers, and advocacy groups. Implementing standardised definitions, reporting frameworks, and verification processes can enhance transparency and reduce the risk of greenwashing. Additionally, increasing customer awareness and educating customers on sustainable banking practices can empower them to make informed choices and hold banks accountable for environmental claims. Several measures can be adopted to foster sustainability and address the limitations of greenwashing in the banking sector. Buallay (2019) and Gunawan et al. (2022) suggested that banks should improve transparency by disclosing their environmental practices, criteria for sustainability, and methodologies used to assess and measure their environmental impact. This could include publishing comprehensive sustainability reports and making them easily accessible to the public. Transparent communication helps customers and stakeholders evaluate a bank's sustainability performance more accurately. Banks can invest in educational initiatives to promote environmental literacy, explain the impact of their operations, and align themselves with sustainability goals. Empowering customers to ask critical questions and make informed choices will help create demand for authentic sustainable banking services and pressure banks to be more accountable.

This study provides valuable theoretical insights into greenwashing in the banking industry and offers practical implications for addressing this issue. It calls for increased awareness, transparency, and accountability to address greenwashing and promote responsible environmental practices in the banking sector. This study achieves the following: *a)* It explores the motivations that drive banks to engage in greenwashing, such as the pressure to meet environmental and sustainability goals, regulatory requirements, and the desire to attract investors and customers. This theoretical exploration deepens our understanding of the underlying factors that influence greenwashing behaviour in the banking industry. Investors attracted to banks claiming to be sustainable may unknowingly invest in environmentally damaging activities. In addition, the wider society may suffer from the negative environmental impacts of

banks' lending activities, which can contribute to climate change, pollution, and other environmental problems (Bernardelli et al., 2022; Cojoianu et al., 2023; Chai et al., 2022; Chen et al., 2021; Network, 2020); *b)* It examines the negative consequences of greenwashing, both in terms of its environmental impact and its effect on consumer trust (Chen and Chang, 2013). While banks play a crucial role in promoting sustainability, they must ensure that their actions match their rhetoric. As investors and customers become increasingly conscious of sustainability issues, banks that fail to address greenwashing may face reputational and financial risks (Torelli et al., 2020); *c)* This study aims to raise awareness about greenwashing in the banking industry among consumers, investors, and policymakers regarding the deceptive marketing practices employed by some banks. This increased awareness can empower stakeholders to make more informed decisions and demand genuine sustainability efforts (Naranova-Nassauer, 2021).

5. Conclusions

This study reviewed the determinants and consequences of greenwashing in the banking sector. Through a systematic literature review, we obtained a narrow sample of eligible articles which considered the topic in terms of both the direct impact of banks on the environment and their indirect impact by financing polluting companies.

While the banking industry has made commendable strides towards integrating sustainability into its operations, there are instances in which banks engage in greenwashing. The profit-oriented nature of banks, their drive to enhance their reputation, and regulatory compliance pressures all contribute to greenwashing practices. Recognising and addressing this issue is crucial for ensuring genuine progress towards a more sustainable future. Bank greenwashing highlights the importance of scrutinising the underlying practices and policies of companies that claim to be sustainable. Examining the environmental impact of a bank's investments or lending practices is essential to determine whether the institution aligns its operations with its purported green commitments.

Our results highlight the need for stricter regulations and improved enforcement. Robust guidelines and oversight can help curb deceptive green marketing practices and hold organisations accountable for environmental initiatives. These findings highlight the need for regulatory reforms that can enhance banks' disclosure requirements and reporting standards, ensuring greater accuracy and reliability of their environmental claims. Policymakers and consumer protection agencies can use these findings to develop guidelines and regulations to protect consumers from misleading environmental marketing claims.

Overall, examining bank greenwashing reveals common tactics, patterns, and challenges across various industries. This underscores the importance of critical evaluation, transparency, and independent verification to avoid falling victim to misleading environmental claims.

In conclusion, this study's findings provide insights into the evolution of academic discussions. These insights have the potential to pave the way for future research in the fields of finance and management as well as from a transdisciplinary standpoint.

Author agreement statement

We the undersigned declare that this manuscript is original, has not been published before and is not currently being considered for publication elsewhere.

We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us.We understand that the Corresponding Author is the sole contact for the Editorial process. He is responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs.

CRediT authorship contribution statement

Galletta Simona: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Mazzù Sebastiano**: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Naciti Valeria**: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Paltrinieri Andrea**: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing.

Data Availability

No data was used for the research described in the article.

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