Beyond Green Banking: Mapping the Intellectual Structure of Sustainable Finance Adoption Research

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ABSTRACT

This study aims to analyze the development of research on consumer adoption of sustainable finance services through a bibliometric approach. The study focuses on themes related to green financial literacy, sustainable awareness, green banking products, and regulatory support. Bibliometric data were collected from the Scopus database and analyzed using VOSviewer to identify publication trends, keyword co-occurrence, and thematic evolution. The findings reveal a significant increase in sustainable finance research, particularly following the global expansion of ESG and green banking initiatives. The analysis indicates that existing studies are still largely dominated by institutional, regulatory, and banking perspectives, while consumer adoption and behavioral aspects remain relatively underexplored. Emerging themes such as green fintech, sustainable consumer behavior, and ESG-oriented financial services have also gained increasing scholarly attention in recent years. This study contributes by providing a comprehensive overview of the intellectual structure of sustainable finance adoption research and highlighting future research opportunities from a consumer and marketing perspective.

Keywords: *Consumer Adoption; ESG; Green Banking; Green Financial Literacy; Sustainable Finance.*

1. INTRODUCTION

Sustainable finance has emerged as one of the most important approaches for addressing global environmental and social challenges while simultaneously supporting long-term economic development. The concept emphasizes the integration of environmental, social, and governance (ESG) considerations into financial decision-making, investment strategies, and banking operations. In recent years, sustainable finance has gained substantial attention from governments, financial institutions, international organizations, and researchers due to its strategic role in supporting climate change mitigation, low-carbon economic transitions, and the achievement of the Sustainable Development Goals (SDGs) (Kashi & Shah, 2023; Nahar et al., 2023).

The rapid expansion of sustainable finance has been accompanied by significant growth in academic publications. Previous studies have documented increasing scholarly interest in areas such as green finance, green banking, ESG integration, sustainable investment, climate finance, and financial innovation. Bibliometric evidence indicates that sustainable finance research has evolved from discussions on carbon finance and climate policy toward broader themes involving sustainable development, financial inclusion, digital finance, and green technological innovation (Maria et al., 2023; Wang et al., 2025).

The banking sector has become a major focus of sustainable finance implementation because financial institutions play a critical role in allocating capital and influencing environmentally responsible business practices. Consequently, research on green banking has expanded considerably, examining topics such as green lending, green credit policies, ESG-based risk assessment, sustainable banking performance, and environmental governance mechanisms (Yanah & Tjahjadi, 2025; Taneja et al., 2024).

Despite the substantial growth of sustainable finance literature, existing studies remain predominantly focused on institutional, regulatory, and organizational perspectives. Many reviews have concentrated on mapping the development of green finance, sustainable finance, ESG practices, and sustainable banking from macroeconomic and financial system perspectives (Kashi & Shah, 2023; Ding et al., 2026). Similarly, recent bibliometric studies have highlighted the dominance of themes related to financial regulation, sustainability reporting, green bonds, climate finance, and ESG performance measurement (Qudah, 2026; Yadav & Yadav, 2026).

However, the success of sustainable finance initiatives ultimately depends not only on financial institutions and regulators but also on the willingness of consumers to adopt sustainable financial products and services. Consumer decisions regarding green banking products, sustainable investment options, ESG-oriented financial services, and digital sustainable finance solutions are increasingly recognized as critical determinants of sustainable finance effectiveness. Nevertheless, consumer-related aspects such as green financial literacy, sustainability awareness, trust, perceived value, and behavioral intention remain relatively fragmented within the existing literature. Compared with institutional and regulatory studies, research investigating sustainable finance adoption from a consumer perspective remains limited and lacks a comprehensive intellectual mapping.

Recent developments in financial technology have further accelerated the emergence of consumer-oriented sustainable finance services. Green fintech, digital sustainable banking, ESG-based investment platforms, and technology-enabled financial inclusion initiatives have created new opportunities for consumers to participate in sustainability-oriented financial activities (Rahman et al., 2024; Hassan et al., 2026). These developments suggest that future sustainable finance research should extend beyond institutional implementation and increasingly examine consumer adoption behavior as an important dimension of sustainable finance ecosystems.

Although several bibliometric reviews have explored green finance, sustainable finance, green banking, ESG, and fintech-related sustainability research, there remains limited bibliometric evidence specifically focusing on sustainable finance adoption. Existing reviews generally emphasize financial systems, regulatory frameworks, banking performance, and technological innovation, while studies examining adoption-related themes remain scattered across multiple disciplines. Consequently, the intellectual structure, thematic evolution, and emerging research directions of sustainable finance adoption remain insufficiently understood.

To address this gap, this study aims to map the intellectual structure of sustainable finance adoption research using a bibliometric approach. Specifically, the study analyzes publication trends, keyword co-occurrence networks, thematic clusters, and emerging research themes based on publications indexed in the Scopus database. By focusing on adoption-related dimensions such as green financial literacy, sustainability awareness, consumer behavior, green banking adoption, and sustainable financial services, this study contributes to the literature by providing a comprehensive overview of the evolution of sustainable finance adoption research and identifying future research opportunities from a consumer and marketing perspective.

Accordingly, this study seeks to answer the following research questions:

RQ1: How has sustainable finance adoption research evolved over time?

RQ2: What are the dominant thematic clusters within sustainable finance adoption research?

RQ3: What emerging themes and future research directions can be identified in the sustainable finance adoption literature?

2. RESEARCH METHODS

This study adopts a hybrid review methodology that combines systematic literature review and bibliometric analysis to map the intellectual structure of sustainable finance adoption research. The hybrid approach was selected because it enables a comprehensive understanding of the field by integrating the transparency and rigor of systematic literature reviews with the visualization and analytical capabilities of bibliometric techniques. This approach is particularly suitable for emerging and interdisciplinary research areas where conceptual development remains fragmented across multiple domains, including sustainable finance, green banking, ESG, fintech, and consumer behavior.

The literature search was conducted using two major academic databases, namely Scopus and ProQuest. These databases were selected due to their extensive coverage of peer-reviewed journals in finance, sustainability, management, and social sciences. To identify relevant publications, a structured keyword search strategy was employed using combinations of terms related to sustainable finance adoption, including “sustainable finance”, “green finance”, “green banking”, “sustainable banking”, “ESG”, “green fintech”, “consumer adoption”, “behavioral intention”, “green financial literacy”, and “sustainability awareness”. Searches were performed across titles, abstracts, and keywords to ensure comprehensive coverage of the topic.

To enhance the quality and relevance of the dataset, several inclusion criteria were applied. First, only peer-reviewed journal articles published in English were included. Second, the study focused on publications published between 2016 and 2026 to capture contemporary developments in sustainable finance. Third, articles were required to address sustainable finance, green banking, ESG-related financial services, fintech, or consumer adoption perspectives.

Conference papers, book chapters, editorials, reports, and non-peer-reviewed publications were excluded from the analysis.

The article selection process followed a systematic screening procedure. Initially, all records retrieved from the databases were exported and compiled. Duplicate records were removed before conducting title and abstract screening. Articles that did not explicitly discuss sustainable finance adoption, consumer behavior, green financial literacy, sustainable banking, ESG adoption, or related themes were excluded. The remaining studies were then subjected to full-text assessment to ensure conceptual relevance and alignment with the objectives of the research. Through this process, a final corpus of relevant articles was established for further analysis.

The bibliometric analysis was conducted using VOSviewer software. Bibliometric mapping techniques were employed to identify the intellectual structure of the field through keyword co-occurrence analysis, network visualization, overlay visualization, and density visualization. Keyword co-occurrence analysis was used to identify dominant research themes and conceptual relationships among topics. Overlay visualization enabled the identification of emerging research trends, while density visualization highlighted areas that have received the greatest scholarly attention.

To complement the bibliometric findings, thematic analysis was conducted on the selected articles. Each article was systematically reviewed and coded according to its research focus, theoretical perspective, methodological approach, and key findings. An iterative coding process was employed to identify recurring concepts, thematic patterns, and emerging research streams. The themes generated from the coding process were subsequently compared with the bibliometric clusters identified by VOSviewer to ensure consistency and conceptual validity.

Based on the bibliometric and thematic analyses, the literature was categorized into several major thematic clusters, including Green Finance and Sustainable Development, Green Banking and Sustainable Banking, ESG and Sustainable Financial Performance, FinTech and Sustainable Finance, and Consumer Adoption of Sustainable Finance. These clusters provide the foundation for understanding the evolution of sustainable finance adoption research and for identifying future research opportunities from consumer and marketing perspectives.

The integration of systematic review procedures, bibliometric mapping, and thematic analysis enables this study to provide a comprehensive overview of the intellectual landscape of sustainable finance adoption research while simultaneously highlighting existing knowledge gaps and future research directions.

3. RESULTS AND DISCUSSIONS

The review of 29 selected articles reveals that sustainable finance has developed into a multidisciplinary field that integrates perspectives from finance, sustainability, banking, governance, technology, and consumer behavior. The increasing volume of publications over the last decade reflects growing global concerns regarding climate change, environmental sustainability, responsible investment, and the implementation of Environmental, Social, and Governance (ESG) principles within financial systems. Previous studies have demonstrated that sustainable finance has evolved from traditional discussions on environmental financing toward broader issues involving sustainable development, financial innovation, and stakeholder engagement (Kashi & Shah, 2023; Wang et al., 2025; Ding et al., 2026).

One of the dominant themes identified in the reviewed literature is the relationship between green finance and sustainable development. Existing studies consistently highlight the role of green finance in supporting environmental sustainability, facilitating climate change mitigation, and promoting sustainable economic growth. Green financial instruments, including green bonds and sustainable investment mechanisms, have increasingly been viewed as strategic tools for directing financial resources toward environmentally responsible projects and sustainability-oriented development initiatives (Nahar et al., 2023; Maria et al., 2023; Wang et al., 2025). As a result, green finance has become one of the foundational pillars of contemporary sustainable finance research.

The literature further indicates that green banking and sustainable banking constitute another major stream of research. Scholars have examined various aspects of sustainable banking, including green lending policies, environmental risk management, sustainability reporting, and environmentally responsible banking practices. Research suggests that financial institutions are increasingly integrating sustainability considerations into their strategic and operational activities, moving beyond regulatory compliance toward broader commitments to environmental and social responsibility (Yanah & Tjahjadi, 2025; Taneja et al., 2024; Yadav & Yadav, 2026). Sustainable banking is therefore perceived not only as a mechanism for supporting environmental objectives but also as a source of organizational legitimacy and long-term competitive advantage.

In parallel with the expansion of green banking research, ESG has emerged as a central topic within sustainable finance literature. The reviewed studies emphasize the growing importance of ESG disclosure, sustainability reporting, and responsible investment in contemporary financial systems. ESG considerations are increasingly utilized by investors and financial institutions to evaluate sustainability-related risks and opportunities, reflecting broader stakeholder demands for transparency and accountability (Qudah, 2026; Yadav & Yadav, 2026). Existing evidence also suggests that ESG integration contributes positively to corporate reputation, investor confidence, and long-term sustainability performance.

Recent developments in financial technology have further expanded the scope of sustainable finance research. Several studies highlight the growing intersection between fintech and sustainability, particularly in relation to digital banking, green fintech, financial inclusion, and technology-enabled sustainable financial services. The emergence of green fintech demonstrates how technological innovation can facilitate broader access to sustainable financial products while improving transparency and operational efficiency (Rahman et al., 2024; Hassan et al., 2026). Furthermore, digital transformation has enabled financial institutions to develop innovative sustainability-oriented products and services that respond to evolving stakeholder expectations.

Beyond these established research streams, several emerging themes have begun to gain scholarly attention. Recent studies have explored biodiversity finance, AI-powered sustainable finance, and sustainability-oriented technological innovations. Although these themes remain relatively new compared with green finance, green banking, and ESG research, they indicate the continuing evolution of sustainable finance toward more interdisciplinary and technology-driven approaches. The appearance of these topics suggests that future sustainable finance research will increasingly incorporate ecological, technological, and societal dimensions.

Despite the substantial growth of sustainable finance literature, the findings reveal a significant imbalance in existing research. Most studies continue to focus on institutional, regulatory, and organizational perspectives. Research predominantly examines financial systems, banking institutions, sustainability regulations, ESG implementation, and environmental governance mechanisms. Comparatively limited attention has been given to consumer-related dimensions, including green financial literacy, sustainability awareness, consumer trust, perceived value, and behavioral intention.

This finding is particularly important because the success of sustainable finance initiatives ultimately depends on consumer participation and adoption. Sustainable financial products, green banking services, ESG-based investment platforms, and green fintech solutions require active engagement from consumers to achieve their intended environmental and social impacts. Nevertheless, the review indicates that consumer adoption remains one of the least developed streams within the sustainable finance literature. Existing studies focusing on consumer behavior are relatively fragmented and have yet to establish a comprehensive understanding of the factors influencing sustainable finance adoption.

The reviewed literature suggests that green financial literacy represents one of the most promising areas for future investigation. As sustainable financial products become increasingly sophisticated, consumers require adequate knowledge and understanding to evaluate sustainability-related financial decisions. Similarly, sustainability awareness appears to play an important role in shaping consumer attitudes toward environmentally responsible financial products and services. However, empirical evidence examining these relationships remains limited, indicating significant opportunities for future research.

Trust also emerges as an important but underexplored factor in sustainable finance adoption. Consumers may be reluctant to adopt sustainable financial products if sustainability claims are perceived as unclear or unreliable. Concerns regarding greenwashing and the credibility of ESG disclosures may further influence consumer perceptions and adoption intentions. Consequently, future research should examine the role of trust, ESG perception, and perceived value in shaping consumer willingness to engage with sustainable financial services.

Overall, the findings suggest that sustainable finance research is gradually evolving from institution-centered perspectives toward more consumer-oriented and behavior-focused approaches. While green finance, green banking, ESG, and fintech continue to dominate the literature, consumer adoption remains an emerging research stream with substantial opportunities for future investigation. The development of comprehensive adoption frameworks integrating green financial literacy, sustainability awareness, trust, ESG perception, perceived value, and behavioral intention may therefore represent an important direction for advancing sustainable finance research in the coming years.

4. CONCLUSION

This study mapped the intellectual structure of sustainable finance adoption research using a hybrid review approach combining systematic literature review and bibliometric analysis. The findings reveal that sustainable finance research has developed significantly over the last decade, with major themes centered on green finance, green banking, ESG, sustainable banking, and fintech. These themes demonstrate the growing integration of sustainability principles into financial systems and institutions.

However, the literature remains largely dominated by institutional and regulatory perspectives, while consumer-oriented dimensions receive comparatively limited attention. Issues such as green financial literacy, sustainability awareness, consumer trust, perceived value, and behavioral intention remain underexplored despite their importance in influencing the adoption of sustainable financial products and services.

The review also highlights the emergence of new research areas, including green fintech, AI-powered sustainable finance, and biodiversity finance. These developments indicate a shift toward more technology-driven and stakeholder-oriented approaches. Future research should therefore focus on understanding consumer adoption mechanisms and developing comprehensive frameworks that integrate sustainability awareness, financial literacy, trust, ESG perceptions, and behavioral intention to support the wider adoption of sustainable finance initiatives.

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