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From ESG to Bank Performance through Green Financing: A Systematic Literature Review and Future Research Agenda for Sustainable Banking Research

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ABSTRACT

Sustainable banking research increasingly examines how environmental, social, and governance practices shape bank outcomes, yet ESG and green financing are usually modeled as separate drivers of performance. This study systematically reviews how green financing functions as the operational pathway linking ESG orientation to bank performance. Following PRISMA, Scopus-indexed journal articles published from 2016 to 2026 were screened; 46 eligible studies were synthesized using descriptive mapping, thematic classification, theory mapping, and Watase Uake-assisted analysis. The evidence shows rapid publication growth after 2021 and a concentration in emerging markets. Five research streams dominate: ESG and bank performance, green financing and bank performance, sustainable banking practices, governance and ESG performance, and green financing as a pathway or mediator. Only a small share explicitly tests the mediating role of green financing. ESG is more likely to improve profitability, efficiency, risk, asset quality, and stability when sustainability commitments are translated into green credit, green loans, sustainability-linked lending, and environmentally responsible portfolio allocation.

Keywords: Bank Performance; Environmental, Social, and Governance; Green Credit; Green Financing; PRISMA; Sustainable Banking; Systematic Literature Review.

INTRODUCTION

Sustainable banking has become a critical research agenda because banks are increasingly expected to integrate financial performance with environmental responsibility, social accountability, and governance quality (Asghar et al., 2020; Menicucci & Paolucci, 2022a). Scholarly attention to environmental, social, and governance (ESG) practices reflects the transformation of banking from a purely profit-oriented sector into a strategic intermediary for sustainable development, climate transition, and responsible finance (Chang et al., 2021; Lian et al., 2022; Zhou et al., 2021). This topic is especially important as regulators, investors, and other stakeholders press financial institutions to align lending, investment, and risk-management activities with sustainability objectives (Andrieș & Sprincean, 2023; Ben Ali & Chouaibi, 2024; Tian et al., 2023).

Prior studies examine the ESG-bank performance relationship from diverse theoretical and empirical perspectives (Menicucci & Paolucci, 2022a; Smaoui et al., 2025a). ESG practices may improve profitability, cost efficiency, asset quality, liquidity stability, and reputational capital by strengthening stakeholder trust and governance, while green credit, green loans, and sustainable lending can operationalize environmental objectives within bank portfolios (Gao & Guo, 2022; Lian et al., 2022; Liu & Xie, 2024; Yin et al., 2021). Evidence remains context dependent across emerging and developed markets and across Islamic and conventional banking systems (Adu, 2022; Algeri et al., 2025; Yudaruddin et al., 2025). Studies published in AIBPM journals similarly report mixed ESG-performance relationships and emphasize the importance of sustainability disclosure and governance context (Alessandro et al., 2023; Manansala & Mallorca, 2025; Paramita & Prasetio, 2025).

Despite this growth, the literature remains fragmented because ESG, green financing, and bank performance are frequently modeled as separate direct relationships rather than as an integrated pathway (Lian et al., 2022; Liu & Xie, 2024; Wang et al., 2024). Reviews and empirical syntheses have generally mapped ESG performance, sustainable banking, green finance, or financial performance independently. They provide limited explanation of how green financing translates sustainability commitments into measurable bank outcomes. This gap is theoretically important because ESG initiatives may not enhance performance unless banks operationalize them through green credit allocation, sustainability-linked lending, environmental risk screening, and responsible financial intermediation (Gao & Guo, 2022; Lian et al., 2022; Yin et al., 2021). This systematic literature review addresses that gap by positioning green financing as the pathway between ESG and bank performance and by reframing sustainable banking research from a direct-effect perspective into a mechanism-based perspective. Its novelty lies in synthesizing the ESG-green financing-bank performance nexus, mapping dominant theories, contexts, variables, proxies, and methods, and developing a focused future research agenda (Andrieș & Sprincean, 2023; Paolone et al., 2024; Wang et al., 2024). The review follows PRISMA to make article identification, screening, eligibility assessment, and thematic synthesis transparent and reproducible (Page et al., 2021).
This review is guided by five research questions: How has research on ESG, green financing, and bank performance evolved in sustainable banking literature? What research contexts, theories, variables, and methodological approaches dominate this field? How have ESG, green financing, and bank performance been conceptualized and measured in prior studies? To what extent has green financing been positioned as a pathway or mediating mechanism between ESG and bank performance? What theoretical, contextual, methodological, and measurement gaps remain for future sustainable banking research?

The remainder of the article is organized into a literature review that clarifies the three focal constructs, a research-method section that documents the systematic review protocol, a results section that presents descriptive and thematic findings, a discussion of theoretical and practical implications, and a conclusion with limitations and future research directions

LITERATURE REVIEW

Environmental, Social, and Governance in Banking

A conceptual clarification is needed because ESG, green financing, and bank performance represent related but distinct constructs in sustainable banking research. ESG provides the strategic and accountability basis for sustainability integration in banking, while green financing reflects the allocation of financial resources to environmentally responsible activities. Bank performance, in turn, captures not only profitability but also efficiency, risk, stability, legitimacy, and long-term value creation. This distinction is important because prior studies frequently examine ESG–performance or green finance–performance relationships separately, leaving the mechanism that connects sustainability commitment with banking outcomes insufficiently explained (Scholtens & van't Klooster, 2019; Wu & Shen, 2013)

In the banking context, ESG refers to the integration of environmental, social, and governance considerations into lending decisions, risk management, disclosure, stakeholder engagement, and internal governance (Eccles et al., 2014; Weber, 2017). The environmental pillar concerns climate risk, green sector exposure, and environmental credit assessment; the social pillar relates to responsible lending, financial inclusion, consumer protection, and community responsibility; and the governance pillar covers board oversight, transparency, audit quality, compliance, and risk control. Freeman (1984) stakeholder theory explains why banks must respond to the expectations of multiple stakeholders, while agency theory emphasizes that governance mechanisms reduce managerial opportunism and strengthen accountability (Jensen & Meckling, 1976).

Green Financing as the Operational Mechanism

Green financing refers to capital provision for environmentally sustainable projects, sectors, and instruments, including green credit, green loans, green bonds, green sukuk, sustainability-linked loans, and sustainable lending (Ng et al., 2021; Zhang et al., 2022). Unlike ESG disclosure, which communicates sustainability commitments, green financing demonstrates whether those commitments shape actual financing behavior. Lending and investment decisions are the core channels through which banks influence environmental transition. Banks that develop environmental risk assessment, green product innovation, and sustainable portfolio-management capabilities may therefore build strategic advantages in a changing financial landscape (Barney, 1991; Lian et al., 2022; Zhang et al., 2022).
‘

Multidimensional Bank Performance

Bank performance in sustainable banking research should be understood as a multidimensional outcome. Profitability indicators such as ROA, ROE, and net interest margin remain relevant, but they do not fully capture the long-term implications of sustainability practices (Buallay, 2019; Friede et al., 2015). ESG and green financing may also affect cost efficiency, asset quality, liquidity risk, credit risk, financial stability, and institutional resilience. However, the benefits may not be immediate because ESG implementation and green financing require monitoring systems, reporting capacity, verification processes, and specialized expertise, as shown in studies on ESG, green

credit, cost efficiency, and bank financial performance (Chang et al., 2021; Friede et al., 2015; Menicucci & Paolucci, 2023)

The ESG-Green Financing-Bank Performance Pathway

The ESG-green financing-bank performance linkage can be understood as a pathway-based relationship. ESG may improve performance directly through stronger governance, reputation, transparency, stakeholder trust, and risk management; green financing explains how ESG commitments are operationalized through credit allocation and investment decisions (Cantero-Saiz et al., 2024; Zhang et al., 2022). Evidence from AIBPM journals also shows that ESG scores and sustainability reporting do not generate uniform financial effects, reinforcing the need to examine operational mechanisms (Alessandro et al., 2023; Manansala & Mallorca, 2025; Paramita & Prasetio, 2025). Prior research highlights green financing as a mechanism in green banking activities (Ng et al., 2021; Zhang & Li, 2018), but relatively few studies integrate all three constructs into a mechanism-based framework

RESEARCH METHOD

This study adopts a systematic literature review approach to examine how ESG practices are associated with bank performance through green financing. The review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which structure the identification, screening, eligibility, and inclusion stages (Page et al., 2021). The protocol also applies systematic evidence-synthesis principles by documenting the search strategy, inclusion and exclusion criteria, data extraction, and synthesis procedures to reduce selection bias and improve reproducibility (Siddaway et al., 2019; Tranfield et al., 2003).

The literature search was conducted in Scopus in June 2026. Scopus was selected for its broad coverage of peer-reviewed banking, finance, business, and sustainability research. The search combined terms for ESG and sustainability disclosure, banking, green finance or green credit, and performance, profitability, efficiency, risk, or stability. Repeated keyword combinations included ESG and bank performance, ESG and green finance, green financing and bank performance, sustainable banking and performance, green credit and bank performance, ESG disclosure and bank performance, and green loan and bank performance. The search was limited to journal articles published from 2016 through 2026 in Scopus-indexed Q1-Q4 journals.

The identification stage yielded 299 records from the Scopus database. Prior to screening, the records were cleaned to remove studies that did not satisfy the predefined bibliographic criteria. Specifically, 17 duplicate records were removed, 28 records were excluded because they did not meet the publication-year or journal-quartile requirements, and one record was removed due to the absence of an abstract. As a result, 253 records remained for the screening stage. This preliminary filtering ensured that only studies aligned with the review scope and minimum quality requirements proceeded to further assessment.

During the screening stage, the titles, abstracts, and keywords of the 253 records were examined to evaluate their relevance to ESG, green financing, sustainable banking, and bank performance. The review then proceeded to the retrieval stage, where full-text versions of all screened records were sought. However, 143 reports could not be retrieved because full-text access was unavailable through institutional subscriptions, publisher databases, or open-access repositories at the time of the review. Consequently, 110 full-text articles were successfully retrieved and advanced to the eligibility assessment stage.

In the eligibility stage, each full-text article was evaluated against the substantive inclusion criteria. Studies were included if they focused on the banking sector, addressed ESG or sustainability-oriented banking practices, examined green financing mechanisms such as green credit, green loans, green banking, or sustainable lending, and investigated bank performance outcomes including profitability, efficiency, risk, asset quality, or financial stability. Studies were excluded if they focused on non-banking sectors, discussed ESG without linking it to banking or performance outcomes, examined green finance solely at the macroeconomic level without banking-specific evidence, or lacked relevance to the ESG–green financing–bank performance relationship. Based on these criteria, 64 articles were excluded, resulting in a final sample of 46 studies included in the systematic literature review. The complete article selection process is illustrated in the PRISMA flow diagram presented in Figure 1.

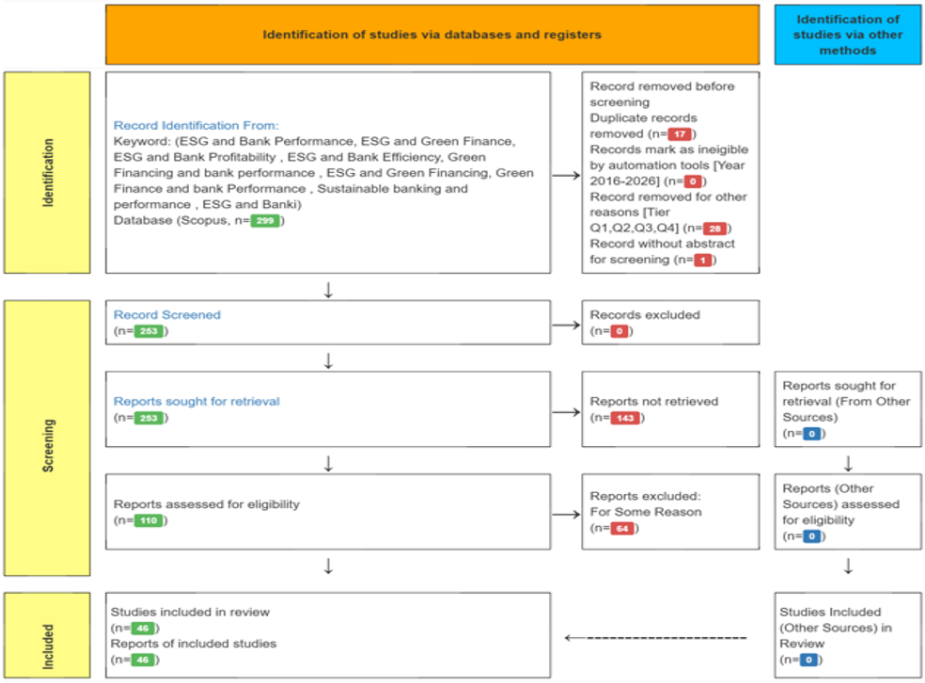


Figure 1. PRISMA Flow Diagram of Article Search and Selection

After the inclusion stage, data were extracted from the 46 selected studies using a structured extraction framework. The extracted information included authors, publication year, journal outlet, journal quartile, country or regional context, research design, data source, analytical method, theoretical foundation, key variables, research focus, principal findings, limitations, and future research recommendations. This systematic extraction process enabled a comprehensive comparison of how previous studies conceptualized and examined ESG, green financing, and bank performance across different contexts and methodological approaches.

The synthesis process was conducted in two complementary stages. First, descriptive analysis was employed to map publication trends, geographical distribution, journal classifications, dominant theoretical perspectives, methodological approaches, data sources, and analytical techniques. Second, thematic synthesis was applied to identify the major research streams within the literature, including the relationship between ESG and bank performance, the impact of green financing on bank performance, sustainable banking practices, governance and ESG outcomes, and the role of green financing as a pathway or mediating mechanism linking ESG to performance.

Thematic analysis was supported by the Watase Uake System, which assisted article categorization, thematic clustering, pathway identification, theory mapping, contextual classification, methodological analysis, and future-agenda development. Because the included studies were heterogeneous in settings, theoretical perspectives, proxies, and analytical techniques, meta-analysis was not appropriate. The review therefore used qualitative and descriptive synthesis to explain how green financing has been positioned in the ESG-bank performance relationship.

RESULTS

Following the PRISMA-based selection process, this review synthesizes 46 Scopus-indexed studies on ESG, green financing, and bank performance in sustainable banking research. The results are organized to correspond directly with the research questions formulated in the Introduction. First, the section reports the bibliometric and descriptive patterns of the reviewed literature, including publication trends, journal outlets, and citation influence. Second, it maps the contextual distribution of studies across emerging markets, developed markets, and cross-country banking systems. Third, it synthesizes the thematic, theoretical, and methodological architecture of the field. Finally, it evaluates whether green financing has been positioned merely as an independent sustainability practice or as a pathway linking ESG integration to bank performance.

Publication Trends, Journal Outlets, and Citation Influence

Figure 2 indicates that research on ESG, green financing, and sustainable bank performance has expanded rapidly in recent years. The publication trend increased from only one article in 2020 to a much stronger concentration in 2024 and 2025, with 2025 emerging as the most productive year. This pattern reflects the growing academic and regulatory attention to sustainable finance, climate-related banking risk, ESG disclosure, and green credit policies. The increase after 2021 is particularly meaningful because this period coincides with intensified global debates on climate transition finance, ESG accountability, and sustainable development in financial institutions.

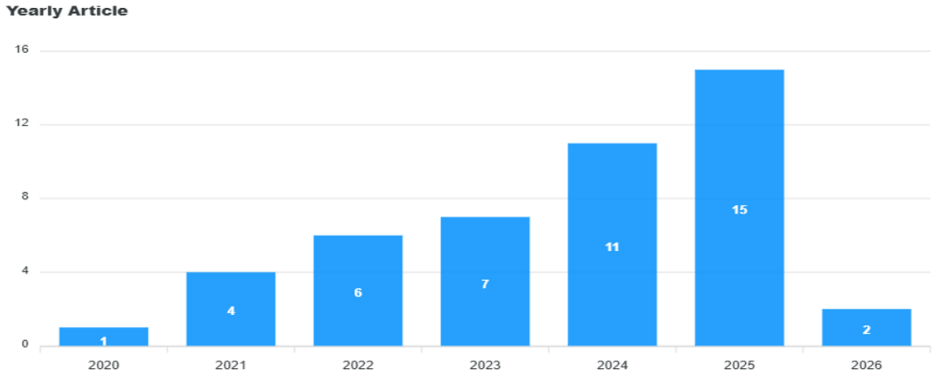


Figure 2. Annual Publication Trend

Citation patterns show that several studies have become foundational references in the field. El Khoury et al. (2021), Zhou et al., (2021), Menicucci and Paolucci (2022), Chen (2022), Yin et al. (2021), and Lian et al. (2022) appear among the most influential works. Their citation influence indicates that the field has been shaped by two main streams. The first stream examines ESG and bank performance, especially profitability, cost efficiency, risk, and financial stability. The second stream examines green credit, green banking, or green finance and their implications for bank-level or borrower-level outcomes. These two streams provide the empirical foundation for the present review but also demonstrate the need for a more integrative synthesis.

The journal distribution confirms that sustainable banking research has gained visibility in reputable outlets. A substantial proportion of the reviewed articles appears in Q1 and Q2 journals, with Q1 publications showing higher average citation impact than Q2 publications. Journals such as Sustainability, Journal of Cleaner Production, Corporate Governance: The International Journal of Business in Society, Energy Economics, and related finance and sustainability outlets play a significant role in disseminating this literature. The diversity of journal platforms suggests that the field is inherently interdisciplinary, spanning banking, finance, corporate governance, environmental economics, sustainability management, and development studies.

Table 1. Most-Cited Authors and Journals

Rank	Journal	Tier	Author	Year	Cites	Title
1	Journal of Sustainable Finance & Investment	Q1	El Khoury, R.; Nasrallah, N.; Alareeni, B.	2021	217	ESG and financial performance of banks in the MENAT region concavity-convexity patterns
2	Energy Economics	Q1	Zhou, Guangyou; Sun, Yongkun; Luo, Sumei; Liao, Jiayi	2021	197	Corporate social responsibility and bank financial performance in China The moderating role of green credit
3	Corporate Governance: The International Journal of Business in Society	Q3	Menicucci, Elisa; Paolucci, Guido	2022	162	ESG dimensions and bank performance an empirical investigation in Italy
4	Sustainability	Q1	Zhang, Xin; Wang, Zhihui; Zhong, Xiaobing; Yang, Shouzhi; Siddik, Abu Bakkar	2022	156	Do Green Banking Activities Improve the Banks Environmental Performance? The Mediating Effect of Green Financing
5	Energies	Q2	Chen, Jing; Siddik, Abu; Zheng, Guang-Wen; Masukujjaman, Mohammad; Bekhzod, Sodikov	2022	141	The Effect of Green Banking Practices on Banks Environmental Performance and Green Financing An Empirical Study
6	Journal of Cleaner Production	Q1	Yin, Wei; Zhu, Zheyi; Kirkulak-Uludag, Berna; Zhu, Yaping	2021	131	The determinants of green credit and its impact on the performance of Chinese banks
7	Journal of Cleaner Production	Q1	Lian, Yonghui; Gao, Jieying; Ye, Tao	2022	108	How does green credit affect the financial performance of commercial banks Evidence from China

Rank	Journal	Tier	Author	Year	Cites	Title
8	Journal of Knowledge Management	Q1	Paolone, Francesco; Pozzoli, Matteo; Chhabra, Meghna; Di Vaio, Assunta	2024	104	Cultural and gender diversity for ESG performance towards knowledge sharing empirical evidence from European banks
9	Asia-Pacific Journal of Business Administration	Q4	Hidayat-ur-Rehman, Imdadullah; Hossain, Md Nahin	2024	82	The impacts of Fintech adoption, green finance and competitiveness on banks sustainable performance digital transformation as moderator
10	Kybernetes	Q4	Hussain, Shahid; Rasheed, Abdul; Rehman, Saad ur	2023	72	Driving sustainable growth exploring the link between financial innovation, green finance and sustainability performance banking evidence

Source: Authors' analysis (2026).

However, the outlet distribution also indicates a potential limitation. Although the field is increasingly visible, it remains dispersed across journals with different theoretical traditions and methodological expectations. Studies published in finance journals tend to emphasize profitability, efficiency, risk, and market value, whereas sustainability-oriented journals more often highlight environmental performance, green banking activities, and sustainable development outcomes. This disciplinary dispersion contributes to the fragmented development of the ESG–green financing–bank performance pathway.

Market and Country Banking Contexts

Figure 3 demonstrates that sustainable banking research is strongly concentrated in emerging markets. Of the 46 reviewed studies, 34 focus on emerging market contexts, 11 examine developed market settings, and only one adopts a regional or cross-country banking system perspective. This distribution suggests that the ESG–green financing–bank performance literature is particularly salient in economies where financial systems are expected to support both economic growth and environmental transition. China, India, Bangladesh, Pakistan, GCC countries, MENA countries, Indonesia, and other emerging markets appear repeatedly in the reviewed articles (Asghar et al., 2020; Du et al., 2022; Jain & Sharma, 2023; Lian et al., 2022)



Figure 3. Market Classification of Reviewed Studies

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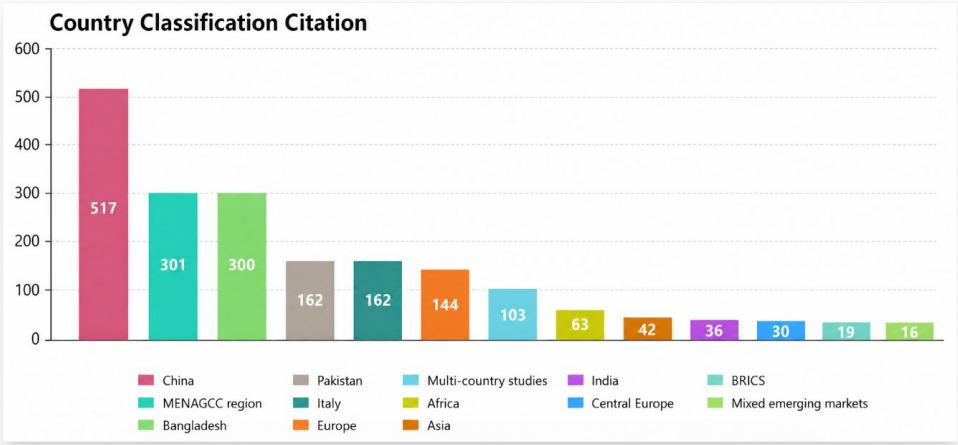


Figure 4. Country and Regional Citation Distribution

Figure 4 presents the country and regional classification of citation influence in the literature on ESG, green financing, and bank performance. The figure shows that citation influence is highly concentrated in a limited number of empirical contexts. China records the highest citation influence, with 517 citations, followed by the MENA/GCC region with 301 citations and Bangladesh with 300 citations. Pakistan and Italy each account for 162 citations, while Europe contributes 144 citations. Multi-country studies also show a notable contribution, with 103 citations. Other contexts, including Africa, Asia, India, Central Europe, BRICS, and mixed emerging markets, appear in the literature but with lower citation intensity. This pattern indicates that sustainable banking research has been shaped mainly by emerging-market economies, Islamic and dual-banking regions, and selected developed-market contexts.

China's dominance is particularly relevant because Chinese studies frequently connect ESG-related banking practices with green credit, green innovation, environmental risk management, profitability, liquidity risk, market valuation, and operating performance. Green financing is treated as a financial intermediation mechanism rather than merely a sustainability label (Chen, 2025; Gao & Guo, 2022; Lian et al., 2022; Liu & Xie, 2024; Tian et al., 2023; Yin et al., 2021). The MENA/GCC cluster contributes evidence from Islamic and dual banking systems, where ESG practices, governance, FinTech adoption, and institutional characteristics shape sustainability outcomes (Alghafes et al., 2024; Ben Ali & Chouaibi, 2024; Rabbani et al., 2024; Srairi, 2025). Bangladesh-based studies emphasize green banking practices, financing sources, employee behavior, and environmental performance, often through survey-based structural equation modeling.
The geographical pattern supports this review's novelty: substantial evidence exists on ESG, green banking, green credit, and performance, but it remains dispersed across contexts and mechanisms. Developed-market research emphasizes ESG scores, cost efficiency, asset quality, systematic risk, and governance, while fewer studies explicitly test green financing as the pathway from ESG to profitability, efficiency, risk reduction, asset quality, or stability (Algeri et al., 2025; Cantero-Saiz et al., 2024; Horobet et al., 2025; Paolone et al., 2024). Comparative research across emerging and developed markets, Islamic and conventional banks, and different regulatory systems is therefore needed to determine whether the pathway is universal or conditioned by institutional quality, taxonomy maturity, market discipline, and disclosure standards.

Theoretical Perspectives

Figure 5 shows that the theoretical foundation of ESG, green financing, and bank performance research is dominated by Stakeholder Theory, which appears 22 times across the reviewed literature. This indicates that sustainable banking studies commonly view ESG and green financing as responses to the expectations of regulators, investors, customers, depositors, borrowers, communities, and environmental stakeholders

(Andrieș & Sprincean, 2023; Freeman, 1984; Horobet et al., 2025; Smaoui et al., 2025a; Y. A. Yudaruddin & Yudaruddin, 2025; Zhou et al., 2021). The next most frequent category is Other Single-use Theories with 12 occurrences, followed by Resource-Based View with 9, Agency Theory with 7, and Legitimacy Theory with 5. These findings suggest that the literature has moved beyond a single theoretical lens by incorporating internal capabilities, governance mechanisms, and legitimacy pressures to explain why banks adopt ESG practices and green financing strategies.

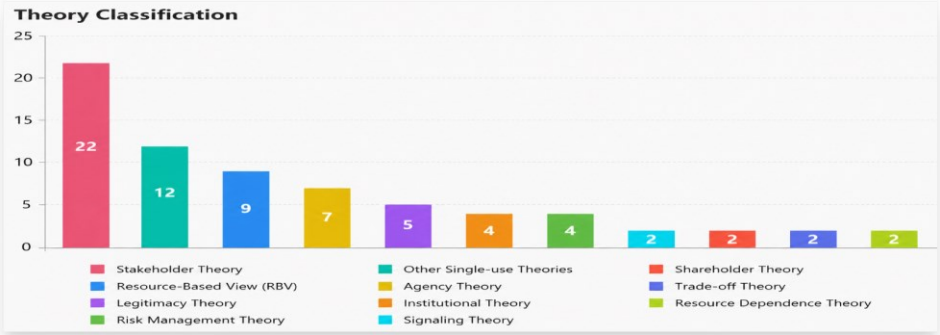


Figure 5. Theoretical Perspectives Used in Reviewed Studies

Other theories appear less frequently but remain conceptually important, including Institutional Theory and Risk Management Theory with 4 occurrences each, as well as Signaling Theory, Shareholder Theory, Trade-off Theory, and Resource Dependence Theory with 2 occurrences each. This pattern shows that the theoretical base of sustainable banking research is broad but still fragmented. Most studies use theory to explain direct relationships, such as ESG to bank performance or green financing to bank performance, rather than explaining how ESG is translated into bank outcomes through green financing. Therefore, this review proposes a more integrated framework in which Stakeholder Theory explains ESG responsiveness, RBV explains green financing capability, Legitimacy Theory explains social and regulatory acceptance, Risk Management Theory explains risk reduction, and Financial Intermediation Theory explains how banks convert ESG commitments into green financing and, ultimately, bank performance.

Thematic Classification

Figure 6 classifies the reviewed literature into five thematic streams and shows that research on ESG, green financing, and bank performance remains dominated by direct-effect studies. The largest stream is ESG to Bank Performance, accounting for 34.8% of the reviewed studies, indicating that ESG disclosure, ESG scores, ESG pillars, and ESG risk have become the main explanatory constructs in examining profitability, cost efficiency, asset quality, liquidity risk, systematic risk, and financial stability in banking (Alghafes et al., 2024; Cantero-Saiz et al., 2024; Ibrahim et al., 2021; Menicucci & Paolucci, 2022a; Mirza et al., 2024). The second-largest stream is Green Financing to Bank Performance at 26.1%, reflecting growing attention to green credit, green banking, green loans, and sustainable lending as mechanisms that may improve profitability, environmental performance, credit quality, and market value (Gao & Guo, 2022; Lian et al., 2022; Tian et al., 2023; Yin et al., 2021). Sustainable Banking Practices account for 21.7%, showing that prior studies also examine broader sustainability-oriented practices such as green banking activities, employee green behavior, digitalization, and sustainable innovation, while Governance and ESG Performance represents 13.0%, confirming the importance of board structure, ownership, diversity, compensation, and governance quality as antecedents of ESG performance. Most importantly, Green Financing as a Pathway/Mediator accounts for only 4.3% of the reviewed literature, indicating that very few studies explicitly explain how ESG practices are translated into bank performance through green financing. This thematic imbalance supports the

novelty of the present review by showing that ESG and green financing have mostly been examined as separate determinants of bank performance rather than as an integrated pathway.

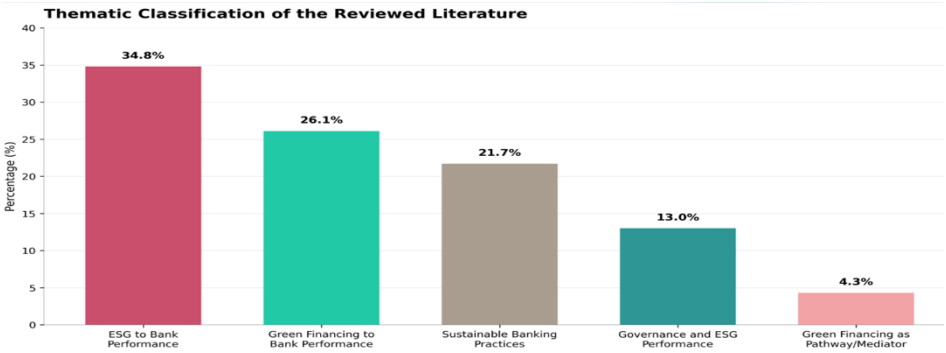


Figure 6. Thematic Classification of Reviewed Literature

Methodological and Data-Analysis Approaches

Table 2 presents the methodological classification of the reviewed studies and indicates that the literature on ESG, green financing, and bank performance is predominantly shaped by quantitative and econometric approaches. Panel regression analysis is the most frequently used analytical technique, appearing in 10 studies, followed by Structural Equation Modeling (SEM) with six studies and System GMM with five studies. When the alternative spelling “Structural Equation Modelling (SEM)” is combined with “Structural Equation Modeling (SEM),” SEM-based studies account for eight studies in total. Other techniques, including fixed-effects panel regression, panel fixed-effect estimation, stochastic frontier analysis, panel data regression with System GMM, ordinary least squares regression, two-way fixed effects models, FMOLS, and event study regression, are used less frequently. This distribution suggests that the field has developed mainly through statistical modelling, longitudinal bank-level analysis, and survey-based structural modelling, rather than through qualitative, mixed-methods, or causal experimental designs.

Table 2. Methodological and Data-Analysis Approaches

No.	Analytical Technique	Count	Representative Studies
1	Panel regression analysis	10	El Khoury et al. (2021); Zhou et al. (2021); Menicucci and Paolucci (2022); Liu and Xie (2024); Wang et al. (2024); Arshed et al. (2026); Alqudah et al. (2025); Qudah and Alqudah (2026)
2	Structural equation modeling (SEM)	8	Asghar et al. (2020); Chen et al. (2022); Zhang et al. (2022); Hussain et al. (2024); Jain and Sharma (2023); Hidayat-ur-Rehman and Hossain (2024); Srairi (2025); Islam et al. (2025)
3	System GMM	5	Alghafes et al. (2024); Horobet et al. (2025); Smaoui et al. (2025); Islam et al. (2025); Bentaleb (2026)
4	Fixed-effects panel regression	2	Lian et al. (2022); Andrieș and Sprincean (2023)
5	Difference-in-differences	1	Gao and Guo (2022)

No.	Analytical Technique	Count	Representative Studies
6	Event study and regression	1	Tian et al. (2023)
7	Two-way fixed effects	1	Chen (2025)
8	Fixed effects with Driscoll-Kraay standard errors	1	Hamdouni (2025)
9	Fixed-effects regression	1	Mirza et al. (2024)

Source: Authors' analysis (2026).

The dominance of panel regression is consistent with banking research, where longitudinal bank-level data are used to estimate the effects of ESG scores, disclosure, green credit, governance, and bank-specific controls on profitability, risk, efficiency, and stability (Alqudah et al., 2025; Arshed et al., 2026; El Khoury et al., 2023; Liu & Xie, 2024; Menicucci & Paolucci, 2022; Wang et al., 2024; Zhou et al., 2021). This dominance nevertheless exposes a limitation: most specifications estimate direct associations and do not explain the ESG-green financing-bank performance mechanism through mediation, dynamic, or causal models.

SEM-based studies and System GMM provide more specific methodological contributions to the field. SEM studies, particularly those conducted in Bangladesh, Pakistan, and India, are valuable because they examine behavioral, organizational, and perceptual mechanisms in green banking, including green banking activities, green financing, employee green behavior, FinTech adoption, and sustainable performance (Asghar et al., 2020; W. Chen et al., 2022; Hidayat-ur-Rehman & Hossain, 2024; Hussain et al., 2024; Islam et al., 2025; Jain & Sharma, 2023; M. Zhang et al., 2022). Nevertheless, many SEM studies rely on cross-sectional survey data, which limits causal interpretation and the ability to capture long-term performance effects. Meanwhile, System GMM is increasingly applied to address dynamic relationships, endogeneity, and reverse causality in ESG–bank performance research, particularly in studies of Islamic banks, European banks, OIC countries, and emerging-market banks (Alghafes et al., 2024; Bentaleb, 2026; Islam et al., 2025; Mirza et al., 2024; Smaoui et al., 2025). Despite this progress, the literature still shows limited use of longitudinal mediation models, quasi-experimental designs, difference-in-differences, instrumental variables, fsQCA, and mixed-methods approaches. Future studies should therefore adopt stronger methodological designs to test whether green financing acts as a mediating pathway through which ESG practices influence profitability, efficiency, risk reduction, asset quality, and financial stability.

Synthesis of Research Gaps Using the TCCM Framework

To consolidate the descriptive, theoretical, thematic, and methodological findings, this review organizes the remaining research gaps using the TCCM framework, which consists of theory, context, characteristics, and methodology. This framework is useful for clarifying not only what has been studied in the ESG–green financing–bank performance literature, but also what remains underdeveloped for future sustainable banking research.

From the theory perspective, the reviewed literature is dominated by Stakeholder Theory, Resource-Based View, Legitimacy Theory, Agency Theory, and Risk Management Theory. These theories have provided useful explanations for why banks adopt ESG practices, disclose sustainability information, manage environmental risk, and respond to stakeholder expectations. However, the theories are often applied separately and mainly used to explain direct relationships between ESG and bank performance or between green financing and bank outcomes. Future research should therefore develop a more integrated theoretical framework that combines Stakeholder Theory, Resource-Based View, Legitimacy Theory, Risk Management Theory, and Financial Intermediation Theory. Such integration would better explain how ESG commitments are converted into green financing activities and, subsequently, into profitability, efficiency, asset quality, risk reduction, and financial stability.

From the context perspective, the literature remains concentrated in emerging markets, particularly China, Bangladesh, Pakistan, India, MENA, GCC countries, and selected Asian economies. Developed-market evidence, cross-country studies, and comparative studies between Islamic and conventional banks remain relatively limited. This contextual imbalance suggests that the ESG–green financing–bank performance pathway may depend on institutional quality, regulatory pressure, sustainable finance taxonomies, banking-system structure, and ESG disclosure standards. Future studies should therefore compare emerging and developed markets, Islamic and conventional banks, and single-country and multi-country banking systems to determine whether green financing operates as a universal pathway or as a context-dependent mechanism.
From the characteristics perspective, prior studies use diverse measures for ESG, green financing, and bank performance. ESG is commonly represented by ESG scores, ESG disclosure, pillar-level indicators, ESG risk, governance characteristics, or sustainability practices. Green financing is measured through green credit, green loans, green banking activities, sustainable lending, green bonds, green sukuk, environmental lending, or green innovation. Bank performance is also multidimensional, including ROA, ROE, cost efficiency, DEA/SFA-based efficiency, liquidity risk, credit risk, asset quality, market value, and financial stability. This heterogeneity enriches the literature but limits comparability across studies. Future research should develop more transparent and standardized proxies, particularly for green financing as a mediating mechanism, such as green credit intensity, taxonomy-aligned green asset ratios, sustainability-linked loan exposure, green sukuk issuance, and environmental risk-weighted lending portfolios.
From the methodology perspective, the literature is still dominated by quantitative approaches, especially panel regression, SEM, fixed-effect models, and System GMM. Although these methods have advanced empirical understanding, many studies remain focused on direct-effect testing and have not sufficiently examined mediation, causal pathways, or conditional mechanisms. Future studies should adopt stronger research designs, including longitudinal mediation models, panel SEM, dynamic panel mediation, quasi-experimental designs, difference-in-differences, instrumental variables, fsQCA, machine learning, case studies, and mixed-method approaches. These methods would allow researchers to explain more rigorously how ESG is transformed into bank performance through green financing rather than merely testing whether ESG and green financing are associated with performance outcomes.

DISCUSSION

The synthesis developed in this review suggests that sustainable banking research has entered a more mature, yet still conceptually unsettled, stage. The growing volume of studies on ESG, green financing, and bank performance indicates that sustainability is no longer treated as a peripheral concern in banking research, but as a central issue in understanding how banks create financial, social, and environmental value. However,

what becomes particularly evident from the reviewed literature is that the field has not yet fully moved from identifying associations to explaining mechanisms. Many studies confirm that ESG is related to profitability, efficiency, asset quality, liquidity risk, or financial stability, while another group of studies shows that green credit, green banking, and green financing may improve financial and environmental outcomes (El Khoury et al., 2023; Lian et al., 2022; Menicucci & Paolucci, 2022; Yin et al., 2021). Yet, these two bodies of work often develop in parallel rather than in conversation with one another. This fragmentation is important because, in banking, sustainability commitments are unlikely to produce performance effects unless they are translated into lending, investment, risk-screening, and portfolio-allocation decisions.

In line with prior empirical studies, the reviewed literature supports the argument that ESG can enhance bank performance by improving stakeholder trust, strengthening governance, reducing information asymmetry, and reinforcing reputational capital (Andrieș & Sprincean, 2023; Chang et al., 2021; Mirza et al., 2024). Nevertheless, this review adds nuance to that argument by showing that ESG should not be interpreted merely as a disclosure-oriented or legitimacy-seeking practice. In the banking sector, ESG becomes strategically meaningful only when it affects the way banks allocate capital and manage risk. Notably, green financing represents this operational link. It is through green credit, green loans, sustainability-linked lending, and environmentally oriented financial intermediation that ESG moves from policy statements and reporting practices into actual banking activity (Gao & Guo, 2022; Lian et al., 2022; M. Zhang et al., 2022). Thus, the central contribution of this review is to argue that green financing should be treated not as an adjacent theme, but as a core explanatory pathway between ESG and bank performance.

The dominance of Stakeholder Theory in the reviewed studies is unsurprising, given that banks operate under strong pressure from regulators, depositors, investors, borrowers, communities, and international sustainability agendas (Freeman, 1984; Smaoui et al., 2025a; Zhou et al., 2021). Stakeholder Theory helps explain why banks respond to ESG expectations and why such responses may strengthen legitimacy, trust, and long-term resilience. However, relying on Stakeholder Theory alone risks producing an overly broad explanation. Interestingly, the findings suggest that stakeholder responsiveness must be combined with theories that better capture the specific role of banks as financial intermediaries. Resource-Based View explains why banks with stronger internal capabilities in environmental risk assessment, green product innovation, data infrastructure, and sustainability expertise may convert ESG into competitive advantage (Barney, 1991; Menicucci & Paolucci, 2022b; Paolone et al., 2024). Legitimacy Theory explains the regulatory and reputational motivations behind sustainability disclosure, while Risk Management Theory clarifies why ESG and green financing may reduce exposure to transition risk, credit risk, and liquidity instability (Ben Ali & Chouaibi, 2024; Islam et al., 2025; Liu & Xie, 2024). Theoretically, therefore, the evidence points toward the need for an integrated framework rather than the continued use of isolated theories. Emerging markets dominate the evidence base, particularly China, Bangladesh, India, Pakistan, GCC countries, MENA economies, and Indonesia (Alghafes et al., 2024; Jain & Sharma, 2023; Yin et al., 2021; Zhang et al., 2022). Banks in these markets are expected to support growth while responding to environmental regulation and sustainable-finance policies, making green financing policy driven and institutionally embedded. Chinese studies often connect green credit with environmental risk, operating performance, market value, liquidity, and innovation (Gao & Guo, 2022; Liu & Xie, 2024; Tan et al., 2023; Wang et al., 2024). Developed-market studies more often emphasize ESG scores, asset quality, cost efficiency, systematic risk, and governance (Algeri et al., 2025; Cantero-Saiz et al., 2024; Horobet et al., 2025). Institutional variation therefore helps explain inconsistent findings.

The review also adds nuance to debates on Islamic and conventional banking. Although Islamic and dual banking systems appear in several studies, they remain insufficiently integrated into the ESG–green financing–performance pathway. This is somewhat surprising because Islamic banking, with its ethical and social orientation, provides a potentially rich context for examining whether ESG principles are reinforced by religiously grounded governance and stakeholder accountability (Alam et al., 2021; Srairi, 2025; Yudaruddin et al., 2025). However, the evidence remains mixed. Some studies suggest that Islamic banks may possess a stronger normative foundation for ESG integration, while others indicate that ESG risk may still constrain financial performance. Such variation may reflect differences in Sharia governance, regulatory maturity, disclosure quality, bank size, and the availability of credible green financing instruments. Contrary to assumptions that Islamic banking automatically strengthens sustainability outcomes, the reviewed evidence suggests that ethical orientation alone is insufficient unless supported by operational capabilities, transparent reporting, and measurable green financing practices.

Methodologically, the field remains heavily shaped by quantitative designs, especially panel regression, SEM, and System GMM. This methodological profile is understandable because banking research typically relies on longitudinal financial data, ESG scores, and bank-level performance indicators (Liu & Xie, 2024; Menicucci & Paolucci, 2022b; Zhou et al., 2021). However, this dominance also creates a limitation. Panel regression is effective for estimating direct relationships, yet it often provides limited insight into the processes through which ESG is translated into green financing and, subsequently, into performance outcomes. SEM-based studies offer stronger insight into organizational and behavioral mechanisms, particularly in research on green banking practices, employee green behavior, and sustainable performance, but many rely on cross-sectional survey designs that restrict causal inference (Asghar et al., 2020; Hidayat-ur-Rehman & Hossain, 2024; D. Zhang et al., 2022). Therefore, future studies need to move beyond direct-effect testing by employing mediation models, dynamic panel approaches, longitudinal designs, mixed methods, and comparative cross-country analyses. Without such methodological development, the field may continue to identify relationships without adequately explaining their causal logic.

Another important issue concerns measurement heterogeneity. ESG is measured through scores, disclosure indices, ESG risk, pillar-specific indicators, governance characteristics, or broader sustainability practices. Green financing is captured through green credit, green banking activities, green loans, environmental lending, green innovation, or sustainability-linked finance. Bank performance, meanwhile, is operationalized through ROA, ROE, cost efficiency, DEA/SFA-based efficiency, liquidity risk, credit risk, asset quality, market value, and financial stability. This diversity enriches the field, but it also makes comparison difficult. A positive ESG effect in one study may reflect strong governance, whereas another may capture environmental disclosure or reduced ESG risk. Similarly, green financing may refer to actual loan allocation in some studies but perceived green banking practices in others. This helps explain why the literature produces both consistent and conflicting findings. It also indicates that future research should develop more standardized and transparent proxies, especially for green financing as a mediating mechanism.

The theoretical implication is that sustainable banking research should move toward an integrated ESG–green financing–performance framework. Such a framework would combine Stakeholder Theory, Legitimacy Theory, Resource-Based View, Financial Intermediation Theory, and Risk Management Theory. Stakeholder Theory explains external pressure and accountability; Legitimacy Theory explains disclosure and

conformity to social expectations; RBV explains internal sustainability capabilities; Financial Intermediation Theory explains the credit-allocation function of banks; and Risk Management Theory explains how green financing may reduce long-term exposure to environmental and transition risks. Taken together, these theories provide a more complete explanation than any single theory can offer. More importantly, this integrated view places sustainability within the core function of banking, namely the allocation of financial resources under conditions of risk, regulation, and stakeholder scrutiny.

The practical implications are equally significant. For bank managers, the findings suggest that ESG strategies should not stop at reporting, board-level governance, or reputational communication. Banks need to build credible green financing portfolios, develop environmental credit-risk tools, train lending officers in ESG-based screening, and integrate sustainability criteria into loan approval, monitoring, and portfolio evaluation. For regulators, the review points to the need for clearer green finance taxonomies, more comparable ESG disclosure standards, and supervisory incentives that encourage substantive green lending rather than symbolic sustainability claims. For investors, ESG ratings should be evaluated alongside actual green financing exposure, asset quality, risk-adjusted performance, and long-term resilience. For academic researchers, the most promising agenda lies in testing whether green financing mediates or conditions the ESG–performance relationship across different banking systems, regulatory environments, and institutional settings

CONCLUSION

In this section, the author presents brief conclusions from the results of research with implications and suggestions for advanced researchers or general readers. A conclusion may cover the main points of the paper, but do not replicate the abstract in the conclusion.

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LIMITATION

This review is limited to Scopus-indexed journal articles published from 2016 through 2026 and to studies explicitly situated in banking. The focused 46-study corpus improves conceptual coherence but may exclude relevant evidence from other databases, older foundational studies, books, policy reports, and gray literature. The review also does not apply a separate formal appraisal instrument such as CASP or JBI, and heterogeneity in research contexts, theories, proxies, and methods precludes meta-analysis. Future reviews should combine multiple databases, pre-register the protocol, undertake independent quality appraisal, and examine whether conclusions differ by study quality, region, and banking system

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