

Reimagining the Financial Ecosystem: A Conceptual Perspective on Green Banking and Sustainable Development

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Abstract

Purpose: The change in banking institutions in terms of climate change, ESG, and restructuring of the financial environment can be termed a paradigm shift in the context of financial intermediation. This study attempts to conceptualise green banking in terms of the transformation of financial governance in a unified three-dimensional prototype.

Methodology: This research will be conducted using an integrative literature synthesis method in which the concept of green banking will be integrated with the financial environment of the Reserve Bank of India, Securities and Exchange Board of India, UNEP Finance Initiative, and Network for Greening the Financial System.

Findings: This research will attempt to conceptualise green banking in terms of an integrative three-dimensional model, which is essential for enhancing the stability of financial institutions.

Conclusion: The research concluded that green banking is not just a transformation of banking institutions but a transformation of the field of financial governance. This transformation in terms of sustainability is essential for enhancing the stability of financial institutions.

Future Research Directions: Research has suggested that the proposed model of green banking can be utilised for creating a composite index of green banking, panel regression on the relationship between sustainability and profitability, and climate stress tests for testing the model.

Keywords: Green Banking, Sustainable Finance, Climate Risk, Financial Sustainability.

Introduction

Reforms targeting environmental, social, and governance (ESG) elements in the financial industry, as well as the consequences of climate risk and environmental harm, have caused a significant shift in the existing financial system. Financial institutions are now assessing not only the efficiency of the services they offer, but also their vulnerability to environmental concerns and the risks involved in the transition to a sustainable economy (Carney, 2015; Schoenmaker, 2017). A major change in the financial system is the incorporation of ESG variables into risk management and capital allocation choices (Friede et al., 2015; Clark et al., 2015). Discussions about green banking previously centred on how banks might increase efficiency by using less paper, using less energy, and lowering costs (Biswas, 2011; Nath et al., 2014). However, in recent times, green banking has been seen as a component of larger initiatives aimed at addressing climate risks, promoting sustainable capital allocation, and ensuring institutional accountability (Mir & Bhat, 2022; Sharma & Choubey, 2022). Organisations such as the NGFS (2021)

and UNEP FI (2018) have also been instrumental in integrating sustainability into systems for monitoring financial risks. Nevertheless, existing research lacks a full understanding of the relationship between green banking and the general stability of the financial system. This study focuses on this space by presenting a three-dimensional model that illustrates the function of green banking in the contemporary financial system.

Research Problem

The current body of research has not established a complete theoretical framework that connects the function of green banking to broader financial stability concerns.

Research Questions

1. How can the function of green banking in the contemporary financial system be viewed as a shift in the function of financial intermediary services?
2. How do institutions assist banks in becoming leaders in sustainability rather than simply complying with sustainability regulations?
3. How does managing environmental risks increase the resilience of the current financial system?

Methodology

This study used integrative literature synthesis as its methodology.

Literary Mapping, Stage 1

The authors mapped the literature on green banking, ESG, and sustainable finance, including studies by Ahuja (2015), Lalon (2015), Muchiri et al. (2025), as well as guidelines from UNEP FI (2018), NGFS (2021), the RBI sustainability guidelines, and SEBI disclosure requirements.

Thematic categorisation was the second stage

Thematic categorisation considers three thematic dimensions to be important:

- operations focused on internal sustainability
- green financial innovations based on the market
- Environmental and climate risk management

Step 3: Systems Integration

A conceptual model that captures the interactions between operational capacity, financial advancements, and supervisory governance has been created by integrating thematic dimensions.

Findings: Three-Dimensional Conceptual Model Internal Green Operations

Internal green operations constitute the first level of sustainable banking. This level includes digitalisation, green infrastructure adoption, sustainable procurement strategies, and environmentally friendly human resource strategies.

Illustrative Operational Indicators

- Alphanumeric operation fraction
- Document drop level
- Renewable energy usage in branches
- Employee sustainability training hours per annum
- Operative carbon concentration indicant

For example, if a bank reduces its paper usage by 60%, it can reduce its carbon footprint and the rate of manoeuvres at the same period.

Green Financial Innovation

This dimension deals with capital allocation to environmentally sustainable sectors. This changes banks from mere intermediaries to active sustainability enablers.

Illustrative Market Indicators

- Green credit collection range as a fraction of complete loans
- Green ties distributed
- Sustainability-linked loan share
- Renewable energy financing
- Carbon tracking retail product adoption rate

The allocation of 15%–20% of incremental credit growth to renewable energy and low-carbon infrastructure is a transition alignment indicator under NGFS (2021) supervisory scenarios. Such innovations also contribute to diversification and stability.

Environmental Risk Governance

The third dimension integrates climate risks into strategic and supervisory decision-making.

Illustrative Governance Indicators

- Climate stress testing frequency
- Climate Value-at-Risk (CVaR) estimation
- ESG-weighted credit appraisal integration score
- Sustainability oversight committee at board level
- Transition risk exposure mapping

Incorporating climate stress testing and scenario analysis will improve forward-looking risk management and macroprudential resilience.

Dynamic Interaction and Systemic Impact

The three dimensions have an interdependent relationship between each other. Internal sustainability creates institutional capacity. Financial innovations involve the allocation of financial capital to green industries. Environmental risk governance aids in mitigating transition and physical climate risks arising from financial innovations. This improves risk management, reputational capital, compliance, and stability. Sustainability integration is structurally embedded, as opposed to operationally peripheral.

Policy and Regulatory Implications

To ensure the effective implementation of the proposed regulation, it is necessary to establish measurable standards for the relevant regulations to reduce the risk of greenwashing and promote transparency.

Proposed Implementation Indicators

- Percentage of banks performing mandatory climate stress tests
- Sectoral targets set for the allocation of green credit
- Compliance rate for ESG disclosure
- Green taxonomy adherence index
- Adjustments to the capital buffer based on high carbon exposure

Relevant supervisors can include exposure to climate risk in capital adequacy tests and encourage sustainable finance through refinancing instruments or tax reliefs. The standardised definition of assets classified as green and disclosure practices also promote the credibility of regulations.

Conclusion

Therefore, green banking signifies a paradigm shift in the management of financial intermediation. Sustainability encompasses not only corporate social responsibility and efficiency but is also closely related to capital management, financial product development, and supervision. Financial institutions have become more resilient in managing systemic risks related to climate change through the integration of internal management, green financial development, and environmental risk management. Sustainability and financial stability are not only different but have also become two interdependent concepts, which can be substantiated through the proposed model.

Future Research Scope

Future empirical validation may include the following:

- Development of a Green Banking Integration Index
- Panel regression analysis examining green credit intensity and ROA/ROE
- Structural equation modeling of the three-dimensional framework
- Cross-country comparative ESG governance studies
- Climate stress-testing simulations at institutional level

This provides a refined and validated extension of the conceptual architecture proposed in the current study.

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