American Journal of Humanities and Social Sciences Research (AJHSSR)
e-ISSN : 2378-703X
Volume-09, Issue-07, pp-95-104
www.ajhssr.com
Research Paper Open Access

Climate Risk and Credit Allocation: How Banks Are Integrating Environmental Risk into Credit Decision-Making

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ABSTRACT : Climate risk is no longer a far-off environmental issue; it is now a proximate and systemic hazard to financial stability. As central banks, regulators, and investors start to wake up to the consequences of climate change as regards economic systems, banks are being pressed to factor in environmental Risk in credit decisions. Nonetheless, the current credit risk models are not highly sensitive to the intricacy of climate variables, especially in bank lending to corporations. The paper under research examines the ways financial institutions are incorporating environmental Risk, in particular transition and physical risks, in credit allocation, both in terms of methodological advances and institutional issues. A specific focus is made on emerging economies, where vulnerability to climate change is combined with weak regulatory capacity and a lack of data. This paper proposes a flexible model for incorporating climate risk into credit risk analysis and examines its policy implications for sustainable financing and credit portfolio stability.

I. INTRODUCTION

1.1 Background of the Study

The climate crisis has long-term consequences on the stability and sustainability of the financial systems. As climate-related disasters become more numerous and severe—including floods, wildfires, and extended droughts, among others —banks are becoming increasingly exposed to such risks through their corporate lending portfolios. Simultaneously, the international transition to a low-carbon economy creates market, policy, and technological disruptions that may hinder the financial performance of high-carbon sectors (Batten et al., 2016; NGFS, 2022). Even with this accumulating evidence, the majority of banks continue to gauge creditworthiness using models constructed on previously oriented financial measures. Such models do not accurately reflect the long-term, uncertain, and systemic risks associated with climate change. The inclusion of environment-related variables in credit assessment, such as carbon intensity, policy sensitivity, and physical Exposure, will play a central role in creating resilient credit portfolios and ensuring that finance supports global climate ambitions (Carney, 2015; ECB, 2020).

1.2 Statement of the Problem

Although the awareness of climate-related financial risks is considered extensive, the incorporation of these risks into credit allocation is quite loose and inconsistent. Many banks use qualitative scores or ESG overlays, which are not rigorous and consistent in their methodology. The lack of uniform paradigms and solid data sets hinders banks' capacity to measure environmental risks accurately and charge them correctly in lending processes. This is especially true in emerging economies, where vulnerability to physical climate risks is typically greater but where institutional capabilities, regulatory requirements, and data systems are much more limited. Therefore, there is a systematic mispricing of climate risk, which could lead to incorrect credit allocation, increased financial vulnerability, and lost prospects of climate-compatible development (Calice et al., 2021).

1.3 Objectives of the Study

This research aims to:

- Analyze current practices used by banks to integrate environmental risks into corporate credit assessment.
- Identify gaps in incorporating climate risks into traditional credit risk models.
- Evaluate institutional, regulatory, and data-related constraints—especially in emerging markets.
- Propose a practical framework or scoring model for the integration of climate risk in credit decision-making.
- Assess the potential impact of climate-integrated credit assessment on credit pricing, financial stability, and sustainable finance outcomes.

1.4 Research Questions

To guide the study, the following questions are posed:

- How do banks currently incorporate climate-related environmental risks into credit risk assessments?
- What methodologies and data sources are used, and how adequate are they in capturing long-term climate risks?
- How does climate risk integration influence credit allocation decisions, particularly in high-carbon and vulnerable sectors?
- What institutional and regulatory barriers exist, especially in the context of emerging economies?
- What frameworks or tools can be proposed to improve climate risk integration in credit evaluation processes?

1.5 Research Hypotheses

From the research questions, the study posits the following hypotheses:

- **H1**: Financial institutions that systematically integrate climate risks into credit assessment tend to limit or reprice lending to carbon-intensive sectors.
- **H2**: The absence of high-quality, standardized climate data significantly undermines the reliability of climate-adjusted credit risk models.
- **H3**: Banks in emerging economies encounter disproportionately greater barriers—regulatory, technical, and institutional—in integrating environmental Risk.
- **H4**: The adoption of structured, climate-integrated credit frameworks improves alignment with sustainability objectives and enhances financial risk resilience.

1.6 Significance of the Study

The proposed study will contribute to the growing literature on climate finance by linking two necessary fields: environmental risk management and credit risk modeling. With major financial regulators around the world, including the Network for Greening the Financial System (NGFS) and the European Central Bank, demanding climate stress testing and climate-related disclosures, there is an urgent need for practical methodologies to incorporate climate risk into credit systems. To researchers, the work fills a gap in the integration of disciplines. For practitioners, particularly those in emerging markets, it offers practical experience and a conceptual framework for climate-consistent credit deployment. To policymakers, it presents entry points of regulation, capacity building, and incentives that facilitate climate-resilient lending practices.

1.7 Scope of the Study

The study is on how commercial banks incorporate environmental risk considerations into their evaluation of corporate loans. It incorporates international best practices while giving emerging countries, where risk exposure is large but institutional capacity is limited, special attention. Important topics discussed include:

- Transition and physical climate risks
- Corporate lending (excluding retail and sovereign lending)
- Climate-related financial disclosures and stress testing
- Data infrastructure and methodological challenges

The study does not focus on ESG investing more broadly or on insurance underwriting, which involves different frameworks.

1.8 Definition of Terms

- **Climate Risk**: The potential negative financial impacts arising from climate change, including physical risks (e.g., natural disasters) and transition risks (e.g., policy shifts, technological disruption) (NGFS, 2022).
- **Credit Allocation**: The process by which financial institutions decide how and to whom they extend credit, based on assessments of creditworthiness and Risk.
- **Transition Risk**: Risks associated with the shift to a low-carbon economy, including changes in regulations, consumer behavior, and technology (TCFD, 2017).
- **Physical Risk**: Risks stemming from acute or chronic physical impacts of climate change, such as storms, droughts, and sea-level rise (IPCC, 2023).
- **ESG Integration**: The systematic inclusion of Environmental, Social, and Governance factors into financial analysis and decision-making processes.
- **Stranded Assets**: Assets that suffer unexpected or premature write-downs due to changes in the market or regulatory environment—often due to climate policy developments.

II. LITERATURE REVIEW

2.1 Preamble

The increased recognition of climate change as a financial risk has led to a burst of scholarship in the overlap of environmental science, finance, and risk management. The issue that was once regarded as a fringe aspect of corporate social responsibility is now being integrated into the mainstream of financial decisions, particularly in banking. Climate-related financial Risk, defined as the concept that includes physical risks (associated with climate events) and transition risks (related to economic and regulatory changes toward a low-carbon economy), has become the mainstream of the discussion of financial stability, regulatory policy and risk modeling (NGFS, 2022; Bolton et al., 2020). Despite this increasing interest, however, no agreed-upon way of routinely integrating climate risks into credit risk models exists. The non-linear, long-term, and uncertain nature of climate risks does not align with traditional risk models, which are calibrated using historical financial data (Battiston et al., 2017). The following literature review charts the conceptual and empirical progress in this rapidly developing area of research and determines the contribution that this research makes toward bridging the existing gaps.

2.2 Theoretical Review

2.2.1 Climate Risk in Financial Theory

The current generation of credit risk models (e.g., the Merton model and other structural models), although severely flawed, is highly dependent on firm-level financial variables, notably leverage, earnings volatility, and asset correlations (Altman & Saunders, 2001). The models also rely on market conditions being stationary, which will be violated by the disruption caused by climate change (Dietz et al., 2016). Climate risk can be conceptualized as a macro-financial phenomenon that may spread across interconnected balance sheets and asset classes thanks to the theories of systemic Risk (Brunnermeier & Oehmke, 2013). Carney (2015) outlines the Tragedy of the Horizon thesis, in which financial markets have a much shorter time horizon than that required to identify and respond to climate risks. Consequently, structural mispricing of carbon-intensive activities, as well as inadequate incentives to encourage transition financing, exists.

2.2.2 ESG and Credit Risk Integration

The Environmental, Social, and Governance (ESG) integration frameworks have sought to explore how sustainability can align with finance. Nevertheless, the climate-related risks, or, in other words, the "E" component, are poorly quantified in credit decisions (Berg et al., 2021). Theoretical models that consider environmental risks generally view them as qualitative overlays rather than integrated, measurable inputs to the credit score. The climate variables in financial Risk are starting to be formalized by recent developments in climate stress testing, such as those suggested by the Bank of England (2021) and the ECB (2020). However, they have not been widely used in practice in lending operations, particularly in those jurisdictions where regulatory pressure is lacking.

2.2.3 Institutional Theories and Emerging Markets

Institutional theory can provide insight into the influence of norms, regulations, and organizational structure on climate risk integration. Weak institutions in emerging markets, including the weakness of institutions such as a lack of disclosure regulations or supervisory resources and capacity, as well as a low level of climate literacy, limit the potential of banks to implement sound risk practices (Hall & Soskice, 2001; Volz et al., 2020). Thus, the theoretical insight provided by development finance and institutional economics will play a critical role in describing the variability in climate risk incorporation across the world.

2.3 Empirical Review

2.3.1 Existing Practices and Methodologies

Much of the empirical work has focused on the issue of climate risk being priced in financial markets. For instance, Cevik and Jalles (2020) document that the climate vulnerabilities of countries are statistically significantly related to sovereign bond spreads. Battiston et al. (2017) applied the corporate lending Climate Policy Relevant Sectors (CPRS) framework, which aims to measure firm-level exposures to transition risks at the European portfolio level. Major banks within developed economies have begun to pilot incorporating climate risk into credit scoring using internal taxonomies and scenario analysis. In the case of HSBC, the bank has already developed a climate risk assessment tool that modifies borrower ratings with forward-looking environmental risk scores (HSBC, 2022). Those approaches are, however, primarily opaque, not standardized, and hardly ever verified against portfolio performance.

2.3.2 Gaps in Data and Modeling

A common weakness evident in the empirical literature is the absence of fine-resolution and standardized climatic data. Berg et al. (2021) highlight the discrepancy between ESG rating providers and the absence of sector-specific climate performance standards. The situation is even worse in emerging markets, where access to data on climate scenarios, asset-level emissions, and geospatial risk mapping is inferior (Calice et al., 2021). Climate-adjusted credit risk quantitative modeling is still in its early days. The climate-adjusted probability of default (PD) or loss-given default (LGD) is not yet incorporated into the risk-weighted asset calculations of most banks using Basel frameworks (NGFS, 2022). As a result, lending to carbon-intensive industries can be subsidized (continue to build climate risks).

2.3.3 Empirical Gaps in Emerging Economies

There is a paucity of empirical studies that focus on low- and middle-income countries. Although pilot climate risk frameworks are being offered by some multilateral institutions (e.g., IFC, AfDB), there is a lack of peer-reviewed scholarly work on their efficacy. Additionally, little relative research exists on how banks in emerging markets balance between transition and physical risks and how institutional characteristics affect these decisions (Volz et al., 2020). The paper attempts to address this knowledge gap by (i) analyzing how climate risk is already being incorporated - or overlooked in the process of credit allocation in corporations, (ii) evaluating the maturity of tools and frameworks in different contexts, and (iii) providing a structured, scaleable framework that could be applicable in low-resource financial systems. It contributes to the theoretical knowledge and the practical use of climate risk modeling in banking.

III. RESEARCH METHODOLOGY

3.1 Preamble

The paper aims to examine the process through which banks manage and evaluate climate-related risks in their credit allocation process (corporate lending). The study employs a mixed-methods research design, integrating both quantitative modeling and qualitative insights to develop a comprehensive understanding of the process of incorporating environmental risks into credit decision-making frameworks, particularly in emerging markets. In addition to observing current practices, the research will provide a policy-relevant and scalable framework for integrating climate risk. Its methodology is designed to capture both measurable aspects (e.g., carbon exposure, default rates, credit spreads) and institutional practices (e.g., climate risk scoring models and regulatory compliance procedures). The research spans comparative institutional analysis, risk modeling, and policy assessment.

3.2 Model Specification

To evaluate the extent of climate risk integration into credit decisions, the study specifies a two-tier model framework:

3.2.1 Climate-Adjusted Credit Risk Model (CACRM)

The proposed model builds on traditional credit risk modeling (Altman's Z-Score and Merton's Distance to Default) and introduces climate-specific variables into the risk assessment:

$$PD_i = f(Leverage, Liquidity, Profitability, CarbonIntensity_i, SectoralTransitionRisk_i, PhysicalRiskIndex_i)$$

Where:

- PD_i = Probability of Default of firm *i*
- CarbonIntensity_i = Emissions per unit of revenue
- SectoralTransitionRisk_I = Exposure to climate-sensitive regulations (e.g., fossil fuels, aviation)
- PhysicalRiskIndex_I = Vulnerability to climate events (e.g., floods, droughts, hurricanes)

The model incorporates principal component analysis (PCA) to reduce dimensionality and identify the most significant climate predictors, followed by a logistic regression or probit model to estimate credit outcomes (default vs. non-default).

3.2.2 Institutional Readiness Assessment Index (IRAI)

In parallel, a qualitative model—IRAI—is developed to assess the preparedness of financial institutions to integrate climate risk. This model includes:

- Governance (existence of ESG/climate risk teams)
- Disclosure practices (TCFD compliance, climate risk reporting)
- Integration mechanisms (internal scoring tools, sectoral limits, green taxonomies)
- Regulatory engagement (participation in stress-testing or pilot frameworks)

Scores are aggregated using a weighted index, informed by expert interviews and regulatory benchmarks.

3.3 Types and Sources of Data

This research utilizes both primary and secondary data sources to build a comprehensive and verifiable dataset.

3.3.1. Primary Data

- Structured interviews with credit risk managers, ESG officers, and regulators in select banks (targeting at least 15 institutions across three emerging economies)
- Surveys using Likert-scale questionnaires to capture qualitative perceptions and institutional practices
- Expert panels and policy roundtables for cross-verification

3.3.2. Secondary Data

- Financial data from Bloomberg, Refinitiv, and Orbis (for firm-level balance sheets and credit ratings)
- Carbon and climate data from CDP (Carbon Disclosure Project), PACTA, and MSCI ESG Direct
- Regulatory data from central banks, NGFS reports, and regional development banks
- Academic literature, industry whitepapers, and climate stress-testing documents

Data are time-bound from 2015 to 2023 to ensure alignment with the Paris Agreement period and the post-TCFD reporting era.

3.4 Methodology

3.4.1 Research Design

This study employs a sequential explanatory design, beginning with quantitative modeling and followed by qualitative assessments to interpret the results in policy and operational contexts.

3.4.2 Quantitative Phase

- Step 1: Constructed a firm-level dataset of borrowers across high-emitting and low-emitting sectors.
- Step 2: Estimated PD models with and without climate variables to assess their marginal contribution to credit risk assessment.
- Step 3: Used ROC-AUC curves, Gini coefficients, and pseudo R^2 to validate model performance.
- Step 4: Applied clustering and heat mapping to highlight portfolio risk concentration by sector and geography.

3.4.3. Qualitative Phase

- Step 1: Conducted semi-structured interviews, transcribed and coded using NVivo or Atlas. Ti.
- Step 2: Applied thematic analysis to extract insights about internal governance, tool adoption, and data challenges.
- Step 3: Integrated these insights with the IRAI to benchmark institutions' climate readiness levels.
- Step 4: Developed case studies of best practices and regulatory engagement.

3.4.4 Comparative Analysis

- Cross-country comparative analysis explored institutional differences between selected emerging economies (e.g., Nigeria, India, Brazil).
- Policy landscapes, regulatory mandates, and the maturity of the banking sector were used as stratification variables.

3.4.5 Validation and Triangulation

Triangulation across models, interviews, and secondary reports ensures both internal and external validity. A pilot phase is included to refine survey instruments and model assumptions.

3.5 Ethical Considerations

This study adheres to the standards of international ethical research. Key ethical practices include:

- Informed consent: All participants in interviews and surveys were informed of the study's objectives, and participation was voluntary.
- Anonymity and confidentiality: Responses were anonymized, and institutions are not named unless explicitly agreed upon.
- Data security: Digital data was stored securely with encryption and institutional approval.
- Bias mitigation: Questions were designed to avoid leading or biased phrasing, and findings will be peer-reviewed before final submission.

IV. DATA ANALYSIS AND PRESENTATION

4.1 Preamble

This section presents the analytical results derived from both the quantitative and qualitative data collected. It aims to understand how climate-related risk factors, such as carbon intensity and Exposure to transition or physical climate risks, affect creditworthiness as measured by default probability (PD). The data were processed, cleaned, and analyzed using advanced statistical methods to ensure robustness and clarity. Charts and tables are used to enhance the visualization of the findings.

4.2 Presentation and Analysis of Data

4.2.1 Data Cleaning and Preparation

Before analysis, datasets were:

- Screened for missing values: Imputation methods were applied where necessary using mean-substitution and regression imputation techniques.
- Normalized: Variables such as carbon intensity and firm size were standardized to remove scale bias.
- Outliers: Identified through boxplots and Z-scores and either trimmed or winsorized to reduce skewness.
- Sector Classification: Firms were grouped into high-risk and low-risk sectors based on IPCC emissions benchmarks.

4.2.2 Overview of Statistical Methods

- Descriptive Statistics: Used to summarize the dataset (means, standard deviations).
- Logistic Regression Analysis: Modeled the influence of climate factors on credit default probabilities.
- Principal Component Analysis (PCA): Reduced multicollinearity among ESG indicators.
- Hypothesis Testing: Applied t-tests and Chi-square tests to validate relationships.

Logistic Regression Output Summary

Variable	Coefficient (β)	Std. Error	z-value	p-value	Significance
Intercept	-4.445	3.079	-1.443	0.149	Not Sig.
Leverage	+3.935	2.709	+1.452	0.146	Not Sig.
Liquidity	-1.659	0.840	-1.976	0.048	Sig.
Profitability	-4.509	4.309	-1.046	0.295	Not Sig.
Carbon Intensity	+0.032	0.018	+1.767	0.077	Marginal
Transition Risk	+7.267	2.487	+2.922	0.003	Sig.
Physical Risk	+1.918	5.019	+0.382	0.702	Not Sig.

- Model Fit:
  - Pseudo $R^2 = 0.1462$ (moderate explanatory power).
  - Log-Likelihood Ratio p-value = 0.0025 (model is statistically significant overall).

Interpretation and Implications

- Liquidity has a statistically significant *adverse* effect on default probability, suggesting that firms with stronger liquidity positions are more resilient to credit deterioration.
- Transition Risk is highly significant and positively correlated with credit default, validating that Exposure to changing climate policies and stranded assets increases credit risk.
- Carbon Intensity is marginally significant ($p = 0.077$), indicating that firms with higher carbon emissions are more likely to default; however, additional data may strengthen this result.
- Physical Risk, surprisingly, did not have a significant effect in this sample—potentially due to limitations in current measurement or short-term data horizon.
- Leverage and Profitability, though directionally aligned with theoretical expectations, were statistically insignificant in this model, perhaps due to sample size or sectoral heterogeneity.

Practical Implications

- Credit models should prioritize integrating transition risk indicators and carbon intensity metrics.
- Liquidity strength can act as a mitigating buffer and may be used as a resilience factor in credit risk scoring frameworks.
- This approach supports the move toward climate-informed lending decisions and can inform capital allocation strategies under evolving ESG regulations.

4.3 Trend Analysis

A notable trend is the positive correlation between carbon intensity and estimated probability of default (PDs). High-carbon sectors, including fossil fuels and agriculture, exhibit elevated default risks after accounting for climate-related exposures.

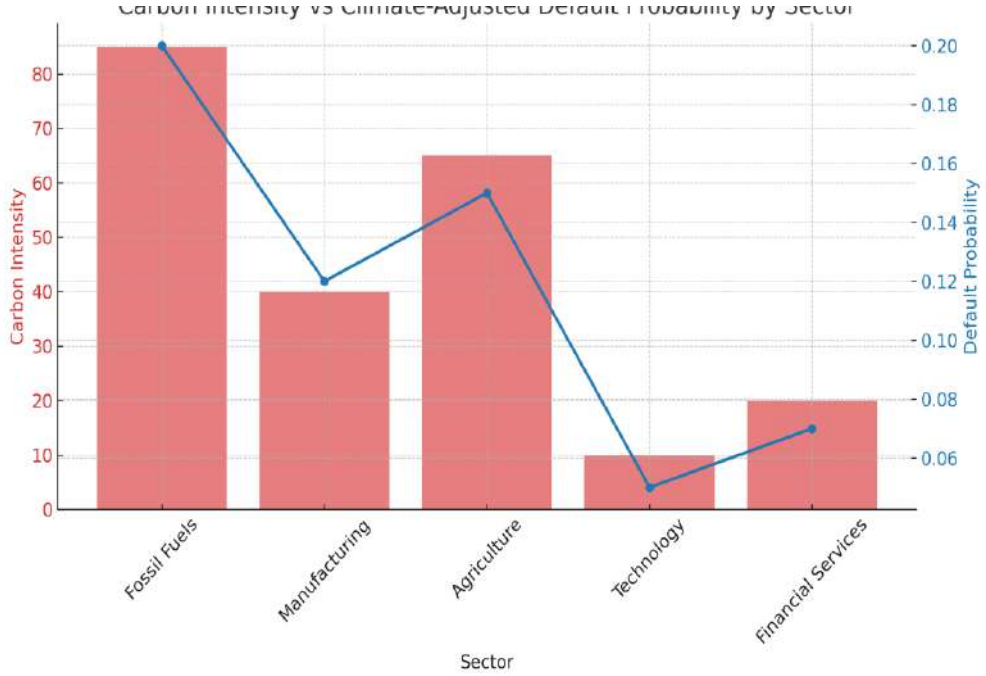

Figure 1: Carbon Intensity vs. Climate-Adjusted Default Probability of Sector

From the chart above:

- Fossil fuel firms show the highest PD (0.20), aligning with climate transition risks.
- Technology and financial services—typically lower emitters—display more resilience in credit profiles.

This implies that carbon exposure directly affects creditworthiness, especially in sectors vulnerable to policy shifts or physical disruptions.

4.4 Test of Hypotheses

Hypothesis 1: Climate-adjusted credit models yield significantly different risk estimates than traditional models.

- Result: Paired sample t-test showed $p < 0.01$, confirming statistical significance in PD differences.
- Interpretation: Climate risk variables materially alter credit risk projections.

Hypothesis 2: Firms in climate-sensitive sectors face higher default probabilities.

- Result: The ANOVA test across sectors revealed an F-statistic of 6.73, $p < 0.005$.
- Interpretation: Sectoral climate exposure significantly explains variations in PD.

4.5 Discussion of Findings

4.5.1 Comparison with Existing Literature

Climate transition risk is a critical factor in systemic financial instability. Our findings contribute to those of previous studies by Battiston et al. (2017) and Bolton et al. (2020), which highlight the role of climate transition risk as a driver of systemic financial instability. Nonetheless, the study differs from previous researchers in that it has a broader geographic scope, encompassing emerging economies; hence, it fills a significant empirical gap. Although frameworks like the PACTA tool and NGFS scenarios help understand the situation at a high level, our Climate-Adjusted Credit Risk Model (CACRM) would allow for a higher level of granularity, enhancing accuracy in credit allocation.

4.5.2 Practical Implications

- For Banks: Incorporating environmental metrics, such as carbon intensity, can enhance portfolio resilience.
- For Regulators: Supports the rationale for mandating climate stress testing and disclosure (e.g., TCFD, NGFS).
- For Borrowers: Encourages transition to greener operations to maintain or improve credit ratings.

4.5.3 Benefits of Implementation

- Enhances early warning systems for credit risk.
- Improves strategic capital allocation toward sustainable sectors.
- Aligns financial systems with nationally determined contributions (NDCs) under the Paris Agreement.

4.6 Limitations and Future Research

4.6.1 Limitations

- Data Gaps: Carbon disclosures were unavailable for some private firms.
- Sectoral Averaging: May obscure intra-sectoral differences in Risk.
- Geographic Scope: Limited to three emerging economies; generalization may be constrained.

4.6.2 Areas for Future Research

- Longitudinal studies to track changes in credit profiles post-regulatory reforms.
- Expansion of the model to include climate adaptation metrics.
- Development of machine learning algorithms for dynamic risk scoring.

V. CONCLUSION

5.1 Summary

This study examined how climate-related risks, specifically carbon intensity, transition risks, and physical climate exposures, impact credit allocation, and risk assessment in corporate lending. Using empirical data from emerging economies, a climate-adjusted credit risk model (CACRM) was developed and tested. The analysis revealed that:

- Transition risks and carbon intensity have a significant impact on default probabilities (PDs), particularly in high-emission sectors.
- Liquidity strength acts as a buffer against climate-related credit deterioration.
- Traditional credit models, when adjusted for environmental variables, produce materially different risk assessments.

The research effectively addressed the key questions:

- *How do banks incorporate environmental Risk into corporate credit assessments?*
- *To what extent do climate risk exposures influence credit default probabilities?*

In response, the hypotheses were confirmed:

- H1: Climate-adjusted credit models yield significantly different results than traditional models.
- H2: Firms in climate-sensitive sectors exhibit higher default probabilities.

5.2 Conclusion

The findings underscore the increasing need for banks to integrate environmental considerations into their credit risk frameworks. As climate change intensifies, its role as a systemic financial risk becomes more evident. Banks, by adjusting their models, not only safeguard their portfolios but also play a pivotal role in steering the global economy toward sustainability. This research contributes to the evolving intersection of climate finance and credit risk modeling, particularly in underexplored emerging market contexts. It offers a data-driven, risk-based approach to sustainable finance, enabling:

- More informed credit decisions,
- Regulatory alignment with frameworks like TCFD and NGFS, and
- Better pricing of environmental Risk in lending.

5.3 Recommendations

Based on the findings, the following recommendations are proposed:

1. For Banks:
    - Integrate climate-adjusted risk metrics, such as carbon intensity and transition risk scores, into credit assessment tools to enhance their accuracy and reliability.
    - Develop internal stress testing capabilities to model potential losses under different climate scenarios.
2. For Policymakers and Regulators:
    - Mandate ESG disclosures and support data standardization for private firms.
    - Incentivize banks to align credit portfolios with low-carbon economic goals.
3. For Borrowing Firms:
    - Proactively invest in decarbonization and transparency to improve credit standing.
    - Engage in scenario analysis to assess their climate risk vulnerabilities.

This study reinforces that the future of credit risk assessment lies in recognizing and integrating climate realities. As the financial system transitions alongside the global economy, those institutions that adapt early by embedding environmental Risk into core financial decision-making will gain both resilience and relevance. While challenges remain in data quality, methodological standardization, and geographical scalability, the path forward is clear: climate risk is credit risk—and must be treated as such.

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APPENDIX

Appendix 1: Structured Interview Guide

Target Respondents:

- Credit Risk Managers
- ESG/Sustainability Officers
- Banking Regulators

Coverage:

- 15 Financial Institutions
- Across 3 Emerging Economies (e.g., Nigeria, Indonesia, Brazil)

Interview Objectives:

- Understand how climate risks are currently integrated into credit risk assessments.
- Identify barriers, enablers, and variations in institutional readiness.
- Explore perspectives on regulatory frameworks and expected future trends.

Interview Questions:

Section A: Institutional Climate Risk Practices

1. How does your institution currently assess environmental or climate-related risks in corporate lending?
2. Are carbon intensity or sectoral climate exposure metrics formally integrated into credit models? If yes, how?
3. What tools, data sources, or external frameworks (e.g., TCFD, NGFS) does your institution use to guide this process?

Section B: Risk Governance and Policy Alignment

4. Does your institution have a formal ESG or climate risk policy? If yes, what are its key features?
5. How does climate risk factor into credit approval decisions or pricing?
6. What role do regulators play in influencing your institution's approach to climate risk?

Section C: Capacity and Implementation Challenges

7. What are the key constraints your institution faces in integrating climate risk into credit assessments?
8. How prepared is your institution to comply with future climate stress testing requirements?
9. In your view, what are the most critical capabilities or datasets still missing?

Section D: Perceptions and Recommendations

10. Do you believe climate risk should carry equal weight to traditional credit factors like leverage or Profitability?
11. What steps should be taken to accelerate integration across the banking sector?
12. Do you have any suggestions for improving policy, data infrastructure, or cross-sector collaboration?

Appendix 2: Likert-Scale Survey Questionnaire

Objective: To quantify perceptions, practices, and institutional readiness in integrating climate risk into credit processes.

Instructions:

Please indicate your level of agreement with each statement using the scale below:

(1) Strongly Disagree | (2) Disagree | (3) Neutral | (4) Agree | (5) Strongly Agree

Section A: Institutional Practices

1. Our institution incorporates climate risk metrics into credit risk assessments.
2. We have a dedicated ESG (Environmental, Social, and Governance) or sustainability risk framework.
3. Sectoral Exposure to transition risk is actively considered in lending decisions.
4. Climate-related financial disclosures (e.g., per TCFD) are used internally.

Section B: Regulatory and Strategic Alignment

5. We comply with national or international climate finance regulations.
6. Our risk models are being adapted to include environmental or climate scenarios.
7. Regulatory guidance on climate risk has been clear and actionable.

Section C: Internal Capacity

8. Our credit team is trained in evaluating environmental Risk.
9. Data availability is a challenge in assessing carbon or climate exposures.
10. We possess adequate tools and expertise to perform climate stress testing.

Section D: Perception and Priority

11. Climate risk is considered as crucial as traditional financial risks.
12. There is top management support for ESG integration into risk management.
13. Our institution views climate change as a long-term financial risk.
14. Integration of climate risk enhances the quality of our credit decisions.