Climate Risks and Financial Stability in Sub-Saharan Africa

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Abstract:

Sub-Saharan Africa (SSA) is among the world's most climate-vulnerable regions, yet empirical evidence on how climate risks affect financial stability remains limited. This paper examines the relationship between banking-sector stability and climate risks in SSA, underscoring the roles of sovereign risk, inflation, and climate-related financial policies. Using panel data from 18 SSA countries for 2010–2020, the study employs Network for Greening the Financing System (NGS)-aligned indicators to capture transition risk (CO_2 emissions per capita), acute physical risk (ND-GAIN sensitivity), and chronic physical risk (ND-GAIN vulnerability). Banking-sector stability is measured using non-performing loan ratios and bank Z-scores.

The paper employs fixed-effects panel regressions with Driscoll–Kraay standard errors to account for heteroskedasticity, serial correlation, and cross-sectional dependence. Interaction terms are introduced to examine how sovereign risk, inflation, and climate-related financial policy frameworks influence climate risks' effects on financial stability.

The results indicate that climate risks do not have uniform effects on banking-sector stability across SSA countries. The average effects of physical and transition climate risks on credit risk are limited, whereas climate-related financial policies are strongly associated with improved bank solvency. Sovereign risk amplifies the transmission of transition-related climate exposure to bank credit and insolvency risks through strong sovereign–bank linkages, while robust climate-related financial policy frameworks mitigate these adverse effects on credit quality and solvency. Inflation further shapes the transmission of climate transition risk by dampening its positive effect on solvency, thus highlighting the role of monetary policy and state-dependent vulnerabilities.

These findings underscore the importance of integrating climate-related financial regulation into macroprudential and supervisory frameworks in SSA. By demonstrating the stabilizing role of climate-financial policies in fiscally constrained environments, the paper provides policy-relevant evidence for strengthening financial resilience and sustainable development.