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Physical Climate Risk and Bank Profitability: The Role of Regional and Institutional Heterogeneity

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Climate risk has become an increasingly important source of risk for banks, yet evidence on how physical climate risk affects bank profitability across different regional and institutional environments remains limited. Using an unbalanced panel of 1,372 banks across multiple countries over the period 2005–2022, this paper examines the relationship between physical climate risk and bank profitability, with particular emphasis on regional heterogeneity between Asia-Pacific and Middle East and Central Asia countries, as well as the moderating role of institutional quality.

The empirical analysis employs bank fixed effects models with year fixed effects and country-clustered standard errors to account for unobserved heterogeneity and common macro-financial shocks. The results indicate that physical climate risk exerts a negative and statistically significant effect on bank profitability, although the economic magnitude remains modest. Importantly, the findings reveal substantial regional heterogeneity. Both interaction and subsample analyses show that the adverse effect of climate risk is concentrated in Asia-Pacific economies, while no statistically significant effect is observed for banks operating in Middle East and Central Asia countries.

The paper further shows that institutional quality plays a significant moderating role. Specifically, the interaction between climate risk and rule of law is negative and statistically significant, suggesting that the transmission of climate risk to bank profitability is stronger in countries characterized by stronger institutional environments. One possible interpretation is that stronger institutional settings facilitate more effective recognition and transmission of climate-related risks within banking systems.

The study also investigates whether climate risk affects profitability through the credit risk channel. While loan loss reserves exert a strong negative effect on bank profitability, the analysis does not provide robust evidence that climate risk directly increases provisioning behavior. This suggests that climate risk may affect bank profitability through broader macro-financial or operational channels rather than through immediate deterioration in credit quality.

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Overall, the findings contribute to the growing literature on climate risk and bank performance by highlighting the importance of regional and institutional contexts in shaping the financial effects of climate risk. The results carry implications for regulators and policymakers seeking to strengthen banking sector resilience to climate-related shocks.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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