

# WHEN GOVERNANCE MEETS FINANCE: PATHWAYS TO CLIMATE RESILIENCE IN EMERGING ECONOMIES - A PANEL QUANTILE APPROACH

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## BACKGROUND AND LITERATURE

Climate change has shifted from being a distant threat to an immediate reality, manifesting in floods, droughts, wildfires, and rising sea levels that threaten human well-being and economic stability. While global awareness has increased, countries vary greatly in their ability to adapt to these shocks. This disparity results from differences in institutional quality, financial development, and governance systems. Some countries have the financial and institutional strength to manage risks, while others remain structurally vulnerable. This raises an urgent research question: what determines a nation's capacity to withstand and adapt to climate shocks, and how resilient are these countries? Finance is widely recognized as a double-edged sword in the climate resilience discussion.

On one side, financial markets mobilize capital for clean technologies, green bonds, and socially responsible investments, and can help reduce emissions when governance is strong (He, Liu, Zhong, Wang, & Xia, 2019; Richardson, Cowtan, Hawkins, & Stolpe, 2016). On the other side, in many developing nations, finance often worsens emissions and vulnerability by channeling funds into carbon-intensive

industries (Imamoglu, 2021). Similarly, the literature is divided on the role of financial institutions: some studies show banks and insurers worsen emissions by funding polluting sectors (Petrović & Lobanov, 2022; Saidi & Mbarek, 2017), while others emphasize their role in fostering low-carbon innovation and sustainability (Habiba & Xinbang, 2022; Tao, Sheng, & Wen, 2023).

This tension highlights the dual nature of finance. Financial institutions like banks and insurers, with long-term investment horizons and regulatory oversight, may align with sustainability goals. In contrast, financial markets, prone to speculation and short-termism, may divert capital from long-term adaptation unless guided by effective governance (Engle, Giglio, Kelly, Lee, & Stroebe, 2020; Hong, Li, & Xu, 2019). However, despite this growing body of literature, there is limited cross-country empirical evidence linking governance, financial development, and climate resilience. Most existing studies are country specific or focus on emissions rather than resilience and adaptation.

This study addresses this gap by examining how financial institutions and financial markets influence climate resilience across

low- and middle-income countries, moderated by governance quality. It utilizes the Notre Dame Global Adaptation Index (ND-GAIN) to measure resilience and combines it with global financial development indices and World Bank governance indicators, providing a more comprehensive view of the determinants of adaptation capacity.

#### **RESEARCH QUESTIONS:**

- How do financial institutions influence climate resilience in low- and middle-income countries?
- What is the role of financial markets in shaping resilience outcomes?
- To what extent does governance quality (regulatory quality, control of corruption, government effectiveness, and political stability) condition the relationship between finance and resilience?

#### **EMPIRICAL STRATEGY**

##### **Data and Variables:**

**Dependent Variable:** Climate resilience, measured by the ND-GAIN Index, which evaluates vulnerability to climate risks and readiness to adapt.

**Key Explanatory Variables:** Financial Institutions Index (FII), Financial Markets Index (FMI), Governance indicators (World Governance Indicators: Government Effectiveness, Regulatory Quality, Control of Corruption, Political Stability).

**Control Variables:** GDP per capita, inflation, trade openness, population density, renewable energy share, and gross fixed capital formation.

**Sample:** 30 low- and middle-income countries, including Angola, Bangladesh,

Benin, Bhutan, Bolivia, Burkina Faso, Burundi, Cambodia, Cameroon, Chad, Ghana, Guinea, Honduras, India, Jordan, Kenya, Lebanon, Mali, Morocco, Nepal, Nicaragua, Niger, Pakistan, Philippines, Rwanda, Senegal, Sierra Leone, Sri Lanka, Togo, Tunisia, Uganda, Vietnam, and Zambia.

##### **Econometric Methods:**

This study applies Panel Quantile Regression (Fixed-effects Quantile Regression – FQR) to explore heterogeneous effects of financial development across the conditional distribution of climate resilience. Unlike mean-based estimators, FQR captures how the role of finance differs between countries at low, median, and high levels of resilience (Koenker & Bassett, 1978). This approach is particularly suitable in cross-country settings characterized by significant heterogeneity and skewness in resilience outcomes.

To address potential cross-sectional dependence and endogeneity, robustness checks are implemented using bootstrapped standard errors and lagged instruments within the quantile regression framework (Canay, 2011). Interaction terms are included to assess the moderating role of governance on the finance–resilience nexus. All analyses are conducted in Stata, with robustness checks confirming stability of results across quantiles.

This rigorous methodology allows us to assess whether financial institutions and markets contribute differently to climate resilience at different points in the distribution, thereby offering richer insights than traditional mean-based models.

## Expected Outcomes

The Financial Institutions Index (FII) demonstrates a positive and statistically significant relationship with climate resilience, an effect that becomes stronger under high governance quality, particularly with strong regulatory oversight and effective control of corruption.

Financial institutions play a crucial role by providing long-term lending and project finance for climate-resilient infrastructure, renewable energy, and climate-smart agriculture, thereby acting as key vehicles for adaptation. In contrast, the Financial Markets Index (FMI) shows a weaker or even negative effect on resilience, especially in contexts of weak governance, where negative interactions with control of corruption and political stability indicate that market development can undermine resilience by channeling capital into speculative or short-term activities rather than long-term adaptation projects.

Governance thus emerges as a critical moderator: strong institutions amplify the positive impact of financial institutions, while weak governance exposes the fragility of financial markets, underscoring that finance cannot be divorced from institutional quality and that governance reforms are a precondition for finance-driven resilience. Moreover, financial institutions are found to enhance readiness (adaptive capacity) rather than directly reducing vulnerability, highlighting the importance of complementary policies that target vulnerability while financial institutions strengthen adaptive readiness.

## Policy Relevance

Governments should prioritize strengthening financial institutions such as

banks, ensuring they have both the capacity and incentives to provide long-term funding for climate-resilient projects, as direct lending and project finance are more effective for adaptation than speculative market mechanisms.

Market liberalization and development should only be pursued once governance meets minimum thresholds of effectiveness, regulatory quality, and political stability, since premature market development under weak governance can misallocate resources and increase volatility.

Regulators need to integrate climate resilience into financial regulations by embedding climate risk assessments into prudential norms and ensuring that banks and insurers channel finance toward sustainable, resilient projects rather than carbon-intensive sectors.

Finally, global and regional cooperation is critical, as international organizations and development banks should first support governance reforms and institutional capacity building before channeling large-scale market-based finance into emerging economies, recognizing the asymmetric roles of financial institutions and markets across different governance contexts.

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